

**Government Office for the South West**  
London to South West and South Wales Multi-  
Modal Study  
Commissioning Report  
November 2000



**Halcrow**

Burderop Park Swindon Wiltshire SN4 0QD  
Tel +44 (0)1793 812479 Fax +44 (0)1793 845970  
[www.halcrow.com](http://www.halcrow.com)

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# **Government Office for the South West**

## **London to South West and South Wales Multi-Modal Study**

### **Commissioning Report**

#### **Contents Amendment Record**

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# 1 Introduction

## 1.1 *Background*

1.1.1 The report 'A New Deal for Trunk Roads in England', published in July 1998, set out the Government's conclusions on its strategic review of trunk road policy. The report is one of a series of associated publications issued following the White Paper on the Future of Transport, which set out an integrated transport policy.

1.1.2 The report included a targeted programme of trunk road improvements, substantially reduced in size from previous programmes, but recognised that some serious problems will remain. It gave a commitment to work with regional planning conferences to commission transport corridor and area studies to address the most pressing outstanding problems. A programme of studies was announced, which included London to South West and South Wales. The long-term solutions that emerge from the studies will contribute to the Regional Transport Strategies and future updates of Regional Planning Guidance.

1.1.3 Halcrow was appointed by the Government Office for the South West (GOSW) in March 2000 to undertake the London to South West and South Wales Multi-Modal Study ('SWARMMS' – South West Area Multi-Modal Study). The overall aim of the study is to make recommendations for a long-term strategy to address passenger and freight transport needs within the M4/M5/A303/A30/A38 key transport corridors incorporating the parallel rail routes, including where appropriate a plan of prioritised, specific interventions to address existing and predicted strategic transport problems in this area, looking in particular at opportunities for reducing congestion by better management and modal shift, as well as options for taking forward focused improvements.

## 1.2 *Purpose of the Report*

1.2.1 This is the Commissioning Report for SWARMMS. Its purpose is to build upon our original proposals for undertaking the study and provide a more detailed description of our intended approach. This is achieved with the benefit of activity by the Consultant Team since appointment, enabling a review of available data and information. It also draws upon various discussions held with GOSW, the study Steering Group and external organisations.

### 1.3

#### ***Structure of the Report***

#### 1.3.1

Chapter 2 describes our Overall Approach to the study, with Chapters 3 and 4 detailing the Study Area and Study Objectives. The Planning Context and Existing Data Sources are described in Chapters 5 and 6, with the proposed Modelling Approach and New Travel Surveys described in Chapters 7 and 8. Participation and Consultation are covered in Chapter 9 with Chapter 10 describing our approach to Problem Identification. Chapter 11 details Strategy Development and Appraisal with Chapter 12 describing Strategy Recommendations. Chapter 13 provides a Schedule of Meetings, with Staffing described in Chapter 14.

#### 1.3.2

The Study Brief is included as Appendix A.

## 2 Overall Approach

### 2.1 *Introduction*

2.1.1 The overall approach to the study is based upon our appreciation of the issues involved. To use the terminology of the Guidance on the Methodology for Multi-Modal Studies (GOMMMS), we propose to develop an over-arching ‘Strategy’ before going on to develop a series of ‘Plans’ related to specific interventions (ref para 2.1.2 of GOMMMS Vol 1).

2.1.2 Hence, our approach is one which embraces both a ‘top down’ and ‘bottom up’ approach. The first half of the study period is mainly concerned with following a ‘top down’ approach to define an over-arching transport Strategy for the study area. During this period we will also be making progress on the ‘bottom up’ approach in relation to the individual Plans, with this work continuing in earnest later in the study.

2.1.3 Our overall Work Programme is shown in Figure 2.1.

### 2.2 *Top Down – Strategy*

2.2.1 It can be seen from Figure 2.1 that the first two months of the study were concerned with scoping the remainder of the work, resulting in this Commissioning Report. The ‘top down’ approach then follows the stages of Data Collection and Transport Surveys, Sub-Regional (Strategy) Participation, Strategy Transport Modelling, and Strategy Development and Appraisal.

2.2.2 The ‘top down’ work culminates in the preparation of an over-arching Strategy in February 2001.

2.2.3 These individual stages are discussed in more detail in subsequent chapters.

### 2.3 *Bottom Up – Plans*

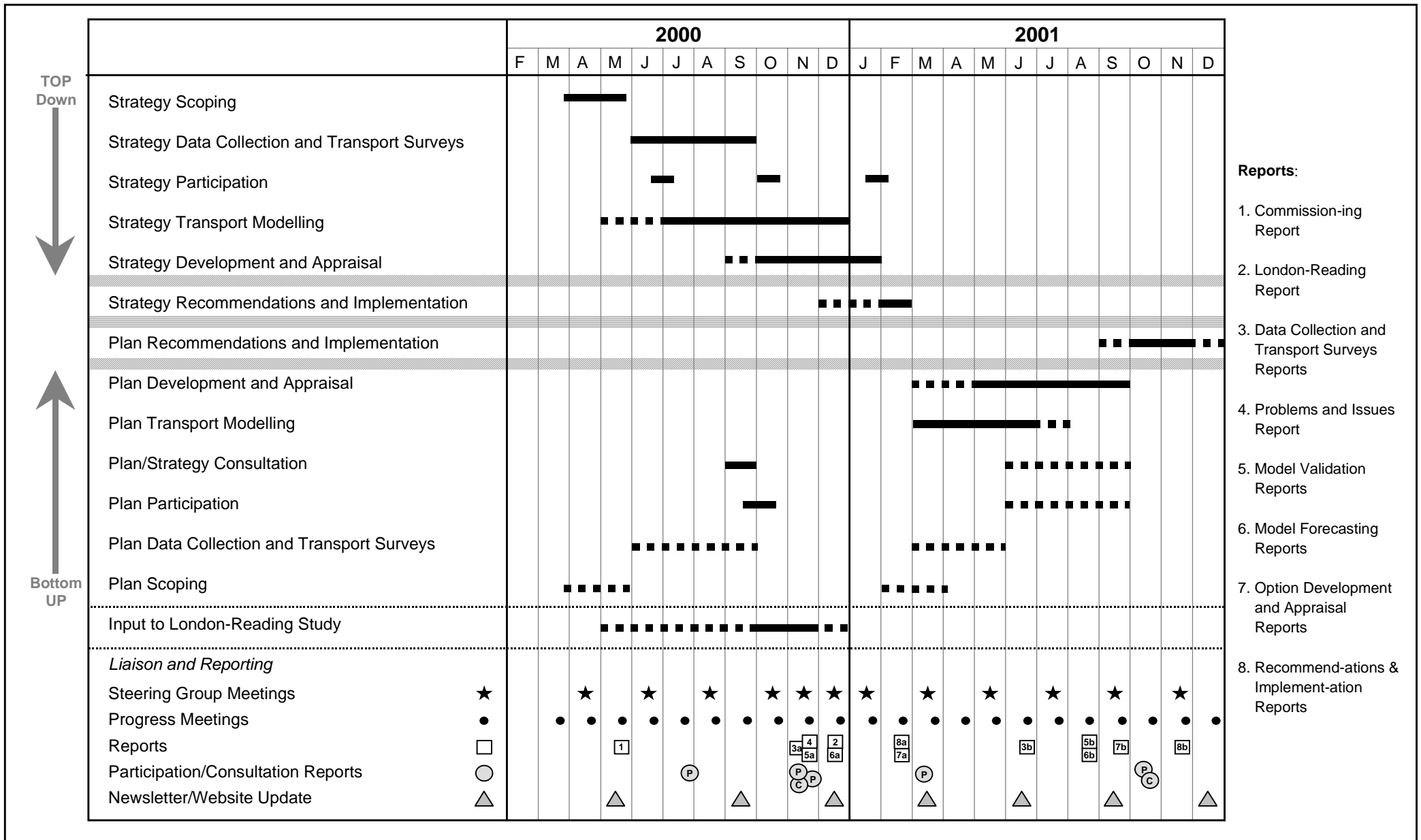
2.3.1 Work on the ‘bottom up’ production of Plans commences in 2000 with respect to Participation and Consultation. However, the selection of Plans to be examined in greater detail is dependent upon the content of the over-arching Strategy. Hence it is not until March 2001 that the main Plan tasks of Transport Modelling and Development and Appraisal can commence. Combined with further Participation and Consultation, the study is due for completion in December 2001.

2.4

***London to Reading Study***

2.4.1

An early requirement of the study is the need to prepare a Statement of the Problems and Issues within the section of the study area that falls between London and Reading. This statement, which will include details of any problems that have an indirect impact on the South West, will be used to inform the preparation of the terms of reference for the London to Reading multi-modal study.



### Work Programme

## 3 Study Area

### 3.1 *Introduction*

3.1.1 The study covers a large and diverse area. This diversity is evident from both a transport and economic perspective. The main attributes of the study area are discussed below.

### 3.2 *Extent of the Study Area*

3.2.1 The study area is shown in Figure 3.1. In setting this study area, it must be recognised that SWARMMS is essentially a transport study focussing on the main corridors within the region. It is for this reason that the extent of the study area at the eastern (London) end varies in detail depending upon which particular mode of transport is under consideration.

3.2.2 For road-based transport, the study area extends as far east as the M25, with the western extremity being the Severn Bridges, and the south-western area extending to Penzance. However, whilst this is the area to be considered for the SWARMMS over-arching Strategy, the more detailed Plans will only be considered as far east along the M4 corridor as Reading. The area between the M25 and Reading is to be covered in the London to Reading Multi-Modal Study, in close co-ordination with the London Orbital Multi-Modal Study.

3.2.3 A similar distinction exists for rail transport. The over-arching Strategy will consider links to London Paddington and London Waterloo, as well as to South Wales and Penzance. However, the Plans will once again go no further east than Reading and no further west than the Severn Tunnel.

3.2.4 Air links are somewhat different. In this instance, the study is primarily concerned with domestic UK flights to and from the South West. The main interest will be flights linking Newquay, Plymouth and Exeter with airports in the South East.

3.2.5 Links by sea are also of interest. In this case, the study includes intra-UK freight movements plus, to a lesser degree, links to other European ports.

3.2.6 In drawing these boundaries, it must be recognised that the SWARMMS area also impacts upon (and is impacted by) other areas within the UK, such as other parts

of the South East, the Midlands and South Wales. The study will need to be aware of these influences in its definition of both the Strategy and Plans.

### 3.3

#### *Main Transport Corridors*

#### 3.3.1

The main road corridors under examination are:

- the M4 from Junction 4B (M25) to Junction 20 (Almondsbury);
- the M5 from Junction 15 (Almondsbury) to Junction 31 (Exeter);
- the M3/A303/A30 from M3 Junction 2 (M25) to Penzance; and
- the A38 from Exeter to Bodmin via Plymouth.

#### 3.3.2

The main rail routes under examination are:

- London Paddington to Penzance via Bristol and Westbury (both routes);  
and
- London Waterloo to Exeter.

#### 3.3.3

In operational terms, these routes include services run by First Great Western, Virgin Trains, South West Trains, Thames Trains and Wales & West Trains.

#### *Road Network*

#### 3.3.4

Transport problems vary considerably through the study area. The M4 around Bristol, Swindon and further eastwards is particularly susceptible to delays at peak commuting times, and this is likely to become worse in the future as development pressure continues along the corridor. The M5 around Bristol, Weston-super-Mare, Taunton and Exeter suffers in a similar fashion, but also experiences significant congestion in the summer months. The A30, A38 and A303 also experience seasonal congestion, with the latter also having particular safety concerns along specific sections. Such issues affect both passenger and freight transport.

#### *Rail Services*

#### 3.3.5

Rail services are very frequent along the Bristol-Paddington axis, although there is a less frequent service on the Bristol-Exeter-Penzance, Waterloo-Exeter, and Reading-Westbury-Taunton routes. This clearly offers a less attractive service to those who wish to travel by rail along those routes.

3.3.6 The rail network is also under pressure. Moreover, the opportunities for increasing rail borne passenger and freight traffic is limited by the capacity available, both in terms of the infrastructure delivering the pathways and by the availability of rolling stock to absorb the new traffic demands. There are also proposals for new intermodal interchange facilities in the Study Area, close to Exeter and Bodmin being two examples.

#### *Intelligent Transport Systems (ITS)*

3.3.7 ITS infrastructure in the study area includes the Highways Agency's National Motorway and Communication System (NMCS) providing functions for emergency telephones and speed/lane management via matrix signals (e.g. from Almondsbury, Wiltshire and Heston Police Control Offices in the study area). NMCS also provides links with the current VMS/EMS infrastructure. NMCS is being upgraded technically, to provide improved, high capacity communication and in its coverage.

3.3.8 In addition, the installation of inductive loops at 500m spacing is expanding throughout the motorway network, to provide traffic information and support the MIDAS system, which includes Automatic Incident Detection and other traffic management and control functions.

3.3.9 Important new ITS initiatives in the study area include the Road Traffic Advisor (RTA) trial corridor on the M4 where a new dedicated short range communications infrastructure between vehicles and roadside beacons is being established for two-way communications of traffic information. The HA's national Traffic Control Centres (TCC) initiative is expected to develop over the next 2-3 years to provide new traffic monitoring, traffic management and multi-modal traveller information functions on all major roads in the study area.

3.3.10 Other ITS initiatives from the private sector will also provide new ITS data and services. These include the Trafficmaster infrastructure and traffic information systems for the Highway network, and real time passenger information services for public transport.

#### *Long Distance Scheduled Coach Services*

3.3.11 National Express Limited (NEL) operates the largest national network of scheduled long distance coach services. Significant competition from other

scheduled coach operators is currently observed on only a limited number of major motorway corridors radiating from London, including along the M4/M5 to Weston-super-Mare and Taunton. In general, other scheduled operators concentrate on complementary rather than competitive routes. NEL has focused its operations on major long-distance routes. It does not have an organised system of feeder routes operated either by itself or on its behalf.

3.3.12

The NEL coach network is focused on Birmingham and London, with most trunk services operating on a 1-2 hourly frequency. This makes interchange relatively easy to arrange, although more careful scheduling is essential at lesser 'hubs' such as Bristol. In addition to interchange facilities in cities and towns, NEL has also established a small number of lesser 'hubs', known as Coachways, at locations that can be accessed by both trunk coach routes and feeder services. For example, at Junction 12 on the M4 (Calcot) a dedicated Coachway stop has been established, served by a variety of coaches and local bus services. If suitable sites were available NEL would give serious consideration to using similar facilities on or near other motorways and trunk roads. Of particular interest to this study is their interest in a site on the M5 near Weston-super-Mare.

#### *Ports and Airports*

3.3.13

The study area contains a number of regionally important ports and airports. Some ports are of national importance (such as Bristol and Southampton), and several have significant expansion plans (such as Weymouth and Falmouth). There is strong support in the study area for coastal shipping to play a larger role in the overall transport strategy.

3.3.14

In terms of airports, the south western part of the study area values its air links with elsewhere in the UK and international destinations. Indeed, the local business community is particularly vociferous in arguing its need. However, the relatively low density of population is not ideal in maintaining a high provision of service, either to the South East of England or into mainland Europe. Indeed, there is competition between modes for some travel demands, and competition between airports for both the existing air market and future expansion plans.

3.4

#### ***Proposed Improvements***

3.4.1

It is recognised that there is a range of transport schemes, which have been promoted previously for the corridors under examination. Moreover, a range of new initiatives is also under development.

3.4.2 For road schemes, the Roads Review placed the following schemes ‘on-hold’, although individual schemes are in a variety of different states of preparation:

- A30/A303 Marsh-Honiton and A35 Honiton Eastern Bypass;
- A38 Dobwalls Bypass;
- A38 Saltash - Stoketon Cross Improvement;
- A303 Ilminster Bypass Improvement;
- A303 Ilminster - Marsh Improvement;
- A303 Sparkford - Ilchester Improvement;
- A303 Wyllye - Stockton Wood Improvement; and
- A303 Cricklade Bottom – Mere Improvement.

3.4.3 In addition, there are a number of other road schemes being progressed and/or investigated further at this time. These include the A30 Bodmin to Indian Queens scheme and, on routes feeding the SWARMMS main corridor, the Blunsdon Study and associated schemes on the A419 and possible schemes on the A36/A46 around Bath.

3.4.4 In terms of rail schemes, both the Great Western Zone (from London Paddington to South Wales and the South West via Reading and Bristol), and London Paddington to Exeter via Newbury and Westbury) and the London Waterloo – Exeter line are relevant.

3.4.5 Railtrack’s ‘Great Western Renaissance’ strategy is contained within its Network Management Statement 2000. The Great Western Renaissance Route Vision:

“Is to provide a world class right time, high capacity route serving the rapidly growing markets along the M4 corridor, including Heathrow Airport and linking to Southwest England and South Wales. As well as developing the east-west routes, we seek to provide capacity for the predicted growth in the north-south flows that use key sections of the route.

Our strategy is to expand capacity and improve reliability at the key bottlenecks of Paddington and Reading. We also envisage providing flyovers at key junctions to improve capacity and reliability through a reduction in crossing movements.

We envisage raising linespeed between the Severn Tunnel and Cardiff to 125mph and at other locations. We aspire to a journey time of 1 hr 40 mins between Cardiff and Paddington.

We propose to develop the Swindon-Stroud-Gloucester-Severn Tunnel Junction route as a key freight artery and a diversionary route for London to South Wales passenger services. We propose to improve the capability of the route to accommodate 775m long and W10w gauge freight trains at higher speeds.

We would reduce the peripherality of the Southwest through shortened journey times and enhanced freight capability. The vision also includes improvements in security and the quality of environment at stations”.

#### 3.4.6

Schemes already committed on this route include:

- infrastructure:
  - new freight depots at South Marston near Swindon and Wentloog in South Wales and a Royal Mail depot at Bristol Parkway;
  - re-open platforms 13 and 15 at Bristol Temple Meads;
  - restore higher line-speed and flexibility in the Paddington approaches;
- stations:
  - CCTV and Customer Information Systems at all First Great Western stations; and
  - re-build Bristol Parkway.

#### 3.4.7

Other elements have also been proposed in order to improve the capability of the rail network. These include a new station layout at Reading with a two-tier station, grade separated junctions at Airport Junction, Didcot East and Wootton Bassett, and further station capacity improvements at Swindon, Paddington, Newport, Cardiff and Bristol.

#### 3.4.8

Alongside these Railtrack generated schemes are others proposed by Train Operating Companies in terms of Incremental Output Statements (IOS) and Customer Reasonable Requirements (CRR) which relate to journey time reductions, station enhancements or capacity and performance improvements.

#### 3.4.9

For the Waterloo-Exeter line, the Railtrack Network Management Statement (NMS) for 2000 states the following under the section detailing ‘Options for Development’:

“ We have completed an assessment of the infrastructure required to deliver improvements between Salisbury to Exeter. This has concluded that 27km of single track between Salisbury and Tisbury and between Axminster and Honiton

would need to be doubled to operate a reliable hourly service frequency. In addition, the provision of a passing loop at Feniton is necessary to further improve the frequency between Honiton and Exeter.”

3.4.10

Other options affecting the route from the Route Strategies are:

- Exeter Airport Intermodal Freight Terminal;
- Salisbury – Exeter, platform extensions;
- Clyst Hayes, new station between Honiton and Exeter; and
- Porton, new Station between Basingstoke and Salisbury.

3.4.11

The NMS does however recognise that the principal capacity constraints on the Wessex routes are the single line sections, particularly on the Salisbury-Exeter sections where significant improvements to train service frequency cannot be accommodated with the existing infrastructure. Capacity constraints also exist at Waterloo.

3.4.12

Devon County Council as leaders of SELCA (Salisbury to Exeter Lineside Consortium of Authorities) have worked with Railtrack Southern and South West Trains to produce a fully costed hourly timetable proposal.

3.5

### ***Economic Diversity***

3.5.1

Economically, the study area varies from the buoyant activity along the Thames Valley to parts of Cornwall which are as poor and depressed as anywhere in England. There are many reasons for these economic differences, and it is a key objective of all the planning agencies in the South West to improve conditions for the worst affected areas. Reducing social exclusion is very important to this study.

3.5.2

These differences are illustrated very clearly within the consultation leaflet “Regional Strategy for the South West” (October 1998). The western part of the region is categorised as “we need to tackle high unemployment, low wages, declining industries and remoteness”. In contrast, the eastern part requires an approach where “we need to avoid congestion, overheating of the economy and damage to sensitive environments”.

3.5.3

There will be further pressures in the years ahead. The study will be undertaken in areas of predicted high growth within the South East (London to Reading), the South West and South Wales. The South West region is growing faster than the national average for both population and household growth. Job growth rates

higher than the national average are also predicted in the region up to 2016. Pressures are particularly acute around Swindon.

#### 3.5.4

Berkshire is also experiencing growth with the Reading/ Newbury sections predicted to increase in both numbers of residents and employment. For example, in the western corridor of the Thames Valley consents exist for development, which would generate around 100,000 jobs. This area has been identified in SERPLAN documents as an Area of Economic Pressure. With most employment growth predicted to occur in existing employment centres within the Thames Corridor from London to Reading/Newbury, and within existing urban areas in the South West and South Wales, there will be continued pressure on transport corridors to service, connect and enable efficient patterns of development.



FS-2217-000 01 LONDON TO SOUTH WEST AND SOUTH WALES MULTI-MODAL STUDY

**Study Area**  
**(showing main transport routes)**

Halcrow Figure 3.1

## 4 Study Objectives

### 4.1 *Introduction*

4.1.1 It is proposed to evaluate both the over-arching Strategy and individual Plans against a range of national, regional and local objectives. These are described below.

### 4.2 *National Objectives*

4.2.1 The overall Government objectives that underpin the Integrated Transport White Paper ('A New Deal for Transport', DETR, 1998) are to:

- promote a strong economy and increase prosperity;
- provide better protection for the environment; and
- develop a more inclusive society.

4.2.2 Consequently, the White Paper explains that the Government's objectives for transport can be assessed against five key criteria, namely:

- **environment** – to protect the built and natural environment by reducing the direct and indirect impacts of transport facilities and their use on the environment of both users and non-users;
- **safety** – to improve safety by reducing the loss of life, injuries and damage to property resulting from transport accidents and crime;
- **economy** – to support sustainable economic activity and get good value for money by improving the economic efficiency of transport, and the efficiency of other economic activities that rely on transport;
- **accessibility** – to improve access to facilities for those without a car and to reduce severance by increasing the ability with which people in different locations, and with differing availability of transport can reach different types of facility; and
- **integration** – to ensure that all decisions are taken in the context of the Government's integrated transport policy, which means integration within and between different types of transport, integration with the environment, integration with land-use planning (at national, regional and local levels), and integration with policies for education, health and wealth creation, so that transport helps make a fairer, more inclusive society.

4.2.3 However, GOMMMS states that the five criteria (or objectives) discussed above are very broad and may not fully reflect the specific regional and sub-regional circumstances of the individual studies. For this reason, we propose to look beyond the national transport objectives to assess Strategies and Plans within SWARMMS. We would, however, retain the structure of the five key criteria, ensuring that any other objectives were nested within them.

### 4.3 ***Regional Objectives***

4.3.1 Regional objectives are also relevant to the study. They are particularly useful in respect of economic development and land-use planning aspirations and policies. Work by the Regional Planning Conferences and the Regional Development Agencies are important in this respect.

#### *Regional Planning Objectives for the South West*

4.3.2 Regional planning objectives in the South West are proposed in the draft Regional Planning Guidance published in August 1999, prepared by the South West Regional Planning Conference of planning authorities in the region. The “Vision” of the draft RPG is to:

Develop the Region, in a sustainable way, as a national and European region of quality and diversity, where the quality of life and environment for residents, the business community and visitors will be maintained and enhanced.

4.3.3 To achieve this Vision Key Objectives are set out

- (a) ensuring that the level, distribution, and nature of development does not further threaten the special character, diversity, and distinctiveness of the Region, and wherever possible benefits the environment
- (b) safeguarding and enhancing the quality and diversity of the natural, cultural and built environment across the Region, while giving the highest level of protection to designated areas and features of national and international importance

- (c) improving the economic competitiveness of the Region by drawing on its strengths and resources, and fostering the development of businesses and skills
- (d) promoting, supporting, enabling, and focusing economic development in ways and locations where it can best contribute to meeting local, regional, national and European objectives
- (e) addressing the wide variations in prosperity between different parts of the Region through regeneration, and so reducing social exclusion and economic disadvantage, particularly in areas of special need
- (f) meeting people's requirements for housing, jobs, and facilities, of good quality and in sufficient measure to provide for future needs
- (g) providing integrated, efficient and environmentally appropriate transport and communications systems to meet regional, national and international priorities
- (h) improving accessibility to jobs and services, and ensuring that patterns of future development maximise the scope for reducing the length and number of journeys, particularly by car, and encourage public transport provision
- (i) recognising and encouraging community identity and diversity
- (j) ensuring that development makes the most prudent use of resources created through past investment, including buildings and other infrastructure especially in urban areas, and contributes to new infrastructure provision in partnership with public investment
- (k) controlling and where possible minimising waste and pollution; also minimising the loss of green fields, biodiversity, primary minerals, water, and other irreplaceable natural and cultural resources
- (l) ensuring, at all levels of planning, integrated relationships between economic activity and housing, both in terms of scale and distribution

4.3.4

This will be primarily taken forward by a “spatial strategy” which will:-

- promote a sustainable development pattern;
- minimise the need to develop on greenfield sites and to travel;
- concentrate development on the 11 Principal Urban Areas (PUAs) identified in the RPG ; and
- set out a sequential approach to guide the process of selecting future development and investment locations.

*Regional Planning Objectives for the South East*

4.3.5

In March 2000 the Secretary of State published his proposed modifications to draft Regional Planning Guidance for the South East (RPG9). The focus of the strategy underpinning the guidance is on enabling urban renaissance, promoting regeneration and renewal, concentrating development in urban areas, promoting a prosperous and multi-purpose countryside and promoting wider choice in travel options, thereby reducing the reliance on the private car.

4.3.6

The proposed modifications set out the main principles that should govern the continuing development of the region as being:

- (a) urban areas should become the main focus for development through making them more attractive, accessible and better able to attract investment
- (b) greenfield development should normally take place only after other alternatives have been considered and should have regard to the full social, environmental and transport costs of location
- (c) the pattern of development should be less dispersed with more sustainable patterns of activity, allowing home, work, leisure and community services to be in closer proximity and minimising the amount of land required in all new developments
- (d) London’s World City role and the South East’s international connections should be enhanced as a basis for the enhancement of the Region’s attractiveness in Europe and the World

- (e) economic opportunities should be increased, by measures to improve the performance of poorer parts of the Region and by reducing or surmounting bottlenecks to sustainable growth
- (f) sufficient housing should be provided for all who need to live and work in the Region, to avoid social exclusion and pressure for housing in adjoining regions
- (g) the development of housing should be more sustainable, providing a better mix of sizes and types, having regard to the structure of households and people's ability to access homes and jobs
- (h) better use should be made of the Region's natural resources, its capacity to deliver essential water, energy, and minerals and its capability to handle its waste
- (i) there should be continued protection to the Region's biodiversity, internationally and nationally important nature conservation areas and enhancement of its landscape and built and historic heritage
- (j) the life of the countryside and rural areas should be sustained through rural diversification, respecting the character of different parts of the Region
- (k) access to jobs, services and leisure should be less dependent on longer distance movement and there should be increased ability to meet normal travel needs through safe walking, cycling and public transport with reduced reliance on the car
- (l) transport investment should support the spatial strategy, maintaining the existing network, enhancing access as part of more concentrated forms of development, overcoming bottlenecks and supporting higher capacity and less polluting modes of transport.

#### 4.3.7

The proposed modifications highlight the fact that the South East is a polycentric Region and outside London and the Thames Gateway the rest of the South East covers a diversity of local economies. The guidance highlights that different policy approaches will be required across the region to reflect local circumstances. One such area identified in the guidance is the Western Arc.

4.3.8 The Western Arc is an area to the west and south of London, ranging broadly from the M1 and Watford in the north, Reading in the west, and Gatwick to the south. Within this area economic development strategies are encouraged to build on its economic strengths to ensure that the economy continues to grow with the minimum additional pressure on limited labour or land resources.

#### *Regional Development Agencies*

4.3.9 The overall mission of the South West Regional Development Agency (SWRDA) is to improve the competitive position of the South West of England within the EU and internationally in order to increase sustainable prosperity for the region and all its people. To achieve this the SWRDA has identified three strategic objectives:

- Creating wealth – increasing prosperity through improving business competitiveness;
- Spreading the benefits – increasing prosperity through addressing social and economic imbalances; and
- Making the region work – increasing prosperity through improving regional coherence.

In addition, the SWRDA recognises that the environment, in its broadest sense, is the key Driver for a sustainable and successful South West economy of the future and is the essential thrust of the Regional Strategy (RS).

4.3.10 The RS recognises the importance of ensuring that there is a ‘communications infrastructure which supports business needs and provides for the future needs of the economy’. The RS also highlights the need to identify a set of strategic employment sites. Clearly access to those sites and the relationship of those sites to the strategic transport network is of considerable importance.

4.3.11 Transport issues are also recognised as having an important role in addressing social and economic imbalance in the region. Areas identified as in need of regeneration include Cornwall, now designated an Objective 1 area, and much of north and west Devon, now designated an Objective 2 area. There are also identified areas in need of regeneration elsewhere in the region, including within the major cities of the region, and more dispersed problems across rural areas.

#### 4.3.12

The Regional Economic Strategy (RES) of the South East England Development Agency (SEEDA) sets out the aims and objectives of the Agency for the region. Specifically on transport, SEEDA has four strategic priorities:

- To develop a sustainable transport network across the region;
- To enable the region to contribute fully to the national economy (including maximising the benefits of links with London);
- To sustain growth in areas of economic success; and
- To release the potential of the currently less economically successful areas.

#### 4.3.13

The RES includes a number of individual objectives, which are of particular relevance to SWARMMS. Among them is the need to make best use of current infrastructure assets, and remedying the rail bottleneck at Reading Station.

### 4.4

#### ***Local Objectives***

#### 4.4.1

A later stage in the study is to identify the transport-related problems in the study area (see Chapter 9), drawing upon various analyses of data and the findings from the participation and consultation activities. Once these are agreed, it is proposed to develop a set of more local, and focussed, objectives against which the Strategy and Plans can be judged. They will obviously relate closely to the aims of the study as identified in the Study Brief.



## 5

# The Planning Context

### 5.1

#### *Introduction*

#### 5.1.1

Although SWARMMS is essentially a transport study, it must be recognised that transport is itself only a means to an end. The 'end' is primarily dictated by socio-economic and land use considerations. This chapter seeks to explain the process by which the SWARMMS study area will experience a range of socio-economic and land use changes over time. From a technical viewpoint, it also describes how we propose to create a land use 'Reference Case', which will form the basis for all transport analyses to be undertaken.

#### 5.1.2

It is important to recognise that this work will only be undertaken in sufficient detail to inform SWARMMS. It is particularly important for the transport modelling work, much of which is to be undertaken at an aggregate level.

### 5.2

#### *Socio-economic and Land Use*

#### 5.2.1

The purpose of the socio-economic and land use work activities is to establish the pattern of future economic and demographic change within the study area and the inter-relationship between these changes and the land use planning system and physical development. This assessment will provide both an input to the assessment of the transport needs of the area and provide a basis for assessing the implications of alternative strategies developed through the study.

#### 5.2.2

The specific objectives of the socio-economic and land use component of SWARMMS are therefore to:

- draw together economic, demographic, planning, and development data to provide a database for the project;
- prepare a 'Reference Case' projection to 2016 indicating the spatial distribution of population, employment (jobs and employed residents), and housing suitably disaggregated to District level;
- provide the basis for ensuring that the transport models used to test transport Strategies and Plans are compatible with expected patterns of socio-economic, demographic and land use change;
- provide the basis on which to predict how different transport strategies may influence the future pattern of land uses and development patterns; and thereby

- provide the basis for an appraisal of alternative transport strategies from an economic, planning and land use perspective, including an assessment of the degree to which future plans would need to be amended to accommodate different transport strategies proposed.

### 5.2.3

The socio-economic and land use study will draw together information on:

- the expected pattern of population growth in the study area and the spatial distribution of that growth;
- the expected future pattern of employment change and the spatial distribution of employment (including analysis by industrial and occupational structure, jobs and employed residents);
- development by broad land use type (residential and employment) for the study area, based on planned and likely development for the period up to 2016;
- the implications for travel to work patterns arising from the expected distribution of population and employment; and
- regional and local development objectives and policies including economic development and land use policies that will shape the pattern of growth and associated spatial development patterns.

### 5.2.4

Outputs will be quantitative providing information at local authority level. Specifically the Reference Case will provide a context and a basis for the appraisal of transport strategies.

## 5.3

### *Developing the Reference Case*

#### 5.3.1

The Reference Case is intended to reflect the best estimate of distribution of population, employment and land uses now and in future years (2000 to 2016) given current planning policies. 2016 has been selected to reflect Regional Planning Guidance (RPG) timeframes and thus provide a base of 'planned growth' in the South West and South East regions and, indeed, in adjoining regions (West Midlands, and South Wales).

#### 5.3.2

The Reference Case will provide information to District or Unitary Authority Level within the study area and at the sub-regional level within adjoining regions. This information will consist of population and employment forecasts, and forecasts of physical development including housing, and industrial and commercial land. The Reference Case will also forecast development of other land

use activities triggered by population growth (for example retail and community uses) using population threshold criteria.

### 5.3.3

In preparing the Reference Case, we will make full use of the datasets and research that underpins the draft Regional Planning Guidance. Draft RPG are designed to predict and direct the spatial distribution of demographic and economic growth. The proposed pattern of development identified by RPG is based on analysis of population trends and forecasts, broad settlement patterns, development trends, employment needs and planned interventions such as fostering the regeneration of identified opportunity areas. RPGs are already building on existing transport policies (for example growth within nominated transport corridors) for the period 1996 to 2016. In a plan led system where structure plans, unitary development plans and local plans support and acknowledge RPG policies, settlement patterns up to 2016 are being broadly identified. RPG background data will therefore form the basis of the analysis undertaken.

### 5.3.4

Three principal tasks are involved in preparing the Reference Case.

#### *Task 1 – Review of Existing Data*

### 5.3.5

Relevant documents and data will need to be reviewed at the outset. These include:

- **Documents:** RPGs, Draft RPGs, Inspectors' reports from the Examination in Public of Draft RPGs; the Regional Economic Strategies of the Regional Development Agencies; Structure Plans, and where relevant Local Plans/Unitary Development Plans; relevant Local Transport Plans and Policies.
- **Socio-Economic Data:** It will be necessary to bring together a wide range of data, including population projections, demographic data and employment forecasts, in order to determine general development patterns in the South West. Data will be sourced from TEMPRO, NOMIS and in-house sources.
- **Planning and Development Data:** Data will be brought together on major planning permissions (large scale retail, employment uses, and residential developments) in order to update current databases.

5.3.6 Much of the above information, particularly population and housing projections, has been sourced by Halcrow during the course of completing the Spatial Strategy Study for SWRPC and will form part of the review. DTZ Piedad Consulting has sourced much of the relevant economic data in the course of its work for the SWRDA on the Regional Strategy and subsequent work on SWRDA's spatial prioritisation. However, other relevant documentation on demographic and employment trends, market developments, and major regeneration areas will need to be gathered and reviewed.

5.3.7 The above review will be supplemented with discussions with key organisations and government authorities following agreement with GOSW.

*Task 2 - Synthesis of Information*

5.3.8 The above information will be synthesised and analysed with information being disaggregated to district or unitary authority level. We would envisage that the information will be brought together into a single unified database. Evaluation of trends and other data will occur and assumptions made in the analysis documented. Relevant economic development and land use policies will be documented, together with suggestions as to preferred assumptions on draft and likely future principles within policies.

*Task 3 - Formulation of Reference Case*

5.3.9 The Reference Case indicating likely demographic and employment change and associated development patterns will be prepared for the study area up to 2016, based on this review of population and housing forecasts, employment trends, economic data, and relevant planning and other documents. The Reference Case will set out population, housing and employment projections, including likely demographic characteristics, for each local authority area.

5.3.10 A discussion will also be provided on how the current debate on housing allocations, development of new settlements, the review of the Draft RPG document and issues within the Draft RPG could change the development patterns prepared to 2016. We will also comment on the degree of fit between the Draft RPG and the Regional Strategy, and the possibility of economic or other pressures leading to a divergence from the predicted pattern of growth in the study area.

### *5.3.11*

A comprehensive list of relevant government and organisational policies including economic development and land use policies used in formulating the Reference Case will be provided. These policies can later be used in the appraisal of Strategies and Plans against policy objectives.



## 6 Existing Data Sources

### 6.1 *Introduction*

6.1.1 Since appointment we have identified many different data sources of relevance to the study. However, we have yet to receive much of these data, are currently exploring the availability of other data with local authorities, and fully expect yet more data sources to emerge during the course of our work. The details presented in this chapter, therefore, only represent our current state of knowledge.

### 6.2 *Travel Data*

6.2.1 Existing travel data will form the cornerstone of the assessment within this study. It will be used in identifying existing problems, production of transport forecasting models and informing the development of transport strategies and plans. The data required can be broken into 6 categories:

- origin-destination information – required for the four main modes in the study (car/light vehicle, coach, rail and air transport). In addition, information regarding the origin and destination of heavy goods vehicles and rail freight will also be required for examination of freight issues;
- travel volume data – traffic counts, passenger counts, freight tonnages;
- network operation – journey times, delays;
- public transport service information;
- highway accident data; and
- future year transport forecasting information.

6.2.2 The following sections describe data sources that have been identified for each of these categories. It should be noted that it has been assumed that all existing data relevant to this study will be made available free or at a nominal charge. If this proves not to be the case, use of the data may need to be reviewed and if necessary the study approach modified due to the study's budgetary constraints.

### 6.3

#### ***Origin-Destination Information***

##### *Census Journey to Work data*

#### 6.3.1

Peter Davison Consultants hold the census database. They have developed software, which can provide matrices on request for any year between 1991 and 1997. Data can be obtained for an average day, Saturday, and for home to work or work to home.

#### 6.3.2

We have been in contact with Peter Davison Consultants and have requested a set of data based on a zoning system devised for the SWARMMS study. The zoning system has been converted into TREEVIEW format as used by their software. Data have been requested for an average weekday in a neutral month in 1997. The data are supplied in SATURN format, which can easily be converted for use in the SWARMMS strategic model. Matrix information will be provided for individual modes, including:

- Rail;
- London Underground;
- Bus;
- Car driver;
- Car passenger;
- Motor cycle;
- Pedal cycle; and
- Walk.

The matrix information is further segregated by car availability (households with no car, households with one car available, and households with two or more cars available).

##### *Car/Light Vehicles*

#### Index of Roadside Interview Surveys

#### 6.3.3

The primary sources of origin-destination information for cars and light vehicles are roadside interview surveys. We have obtained from DETR a copy of a database which contains details of most roadside interviews undertaken by Government organisations over the past 10 years. This includes for each site:

- contact organisation, address;
- location and date of survey, time of survey;
- whether the data are coded to postcodes, OS grid references, zones, trip purpose and vehicle type;
- whether the data are available as matrices or individual records;
- associated traffic count information; and
- checks undertaken on the datasets.

6.3.4 A total of 1996 sites have been identified as being of interest for SWARMMS. These include the LATS sites undertaken in 1990/91 (859 sites) and a wide variety of other study information collected within South and South West England. We also hold a plot of the survey locations based on the grid references given in the database.

6.3.5 We are aware that there are number of further sources of roadside interview data which are not included in the database and a list of these further sources is currently being compiled.

#### Existing Highway Models

6.3.6 In addition, there is a large number of existing highway models, which have been developed which contain origin-destination information. The Highways Agency has supplied a list of known highway models within the study area and it is recognised that these models are a large potential source of processed origin-destination information. The single model of greatest importance to this study is the NAOMI model as it provides the best origin-destination information for the eastern part of our study area.

6.3.7 NAOMI is the traffic model developed for the South East, initially to assess the impacts of improvements on the M25. It is the largest SATURN model in existence, which runs on a parallel processing machine. The model is a 1508 zone single mode elastic assignment model with a simulation area covering London and surrounding counties (Reading to Southend, Gatwick to Stevenage). There are three time periods; am peak from 07.00-10.00, interpeak between 10.00-16.00 and pm peak from 16.00-19.00. The model includes all 1991 LATS/SERTM data.

6.3.8 We have obtained trip matrices from the current 'base' version (version 4) of the model. These relate to a validation for 1997 and represent average hours within the

three time periods. A GIS file has also been supplied containing the zone boundaries with a correspondence list between zones and local authorities.

6.3.9 The model is developed by Brown and Root and is being used for the London Orbital Multi-Modal Study (ORBIT). A land use and public transport model is being developed in ORBIT to interface with NAOMI.

6.3.10 Other important origin – destination information for highway trips and other modes can be obtained from Census data.

#### *Coach*

6.3.11 The optimum sources of coach origin-destination information are considered to be ticketing data held by the coach operators. We are currently holding discussions with coach operators to determine whether such information might be made available to this study. Any data provided would need to be treated as confidential due to its commercially sensitive nature.

#### *Rail*

6.3.12 CAPRI data obtained from the rail industry ticketing database provides detailed and accurate information regarding station – station passenger movements. These data can be provided to this study from the 1997 database.

6.3.13 The data is supplied in the form of a matrix of movements, based on a user defined zone system (using wards) and can be produced for 8 purposes including car available/car not available. The data is provided as an annual matrix. We have made some enquiries about the availability of summer data but it appears unlikely that seasonal information could be made available.

#### *Air*

6.3.14 Halcrow holds existing BAA and CAA information regarding the origins and destination of passengers using airports in South East England and the modes of travel used to access the airports. Heathrow airport, in particular, serves significant numbers of passengers from within the study area. We are currently seeking permission to use this information in this study.

6.3.15 With regard to current usage of other airports in the South West and South Wales, it is understood that CAA data exists and information from the South West Region Airports Study (South West Air Services study) would be of use. Permission will be sought to make use of this information.

#### *Freight*

6.3.16 The DETR hold road freight information in a database for movements made by a sample of vehicles in excess of 3.5 tonnes GVW – the Continuing Survey of Road Goods Transport. 16,000-17,000 vehicles are sampled each year to record information on vehicle type, industry, axles, and gross vehicle weight. They also collect origins/destinations of movements at a county level which can be used to produce matrices of vehicle movements, tonnes lifted. Results are aggregated up to a full sample (although it appears that this may still underestimate movements). Using results over a number of years can obtain a better matrix of movements, given issues of sample sizes. The survey records movements to ports, and data can be provided in an excel spreadsheet.

6.3.17 The DETR also have RORO (Roll-On Roll-Off ferry) statistics, which gives total tonnes lifted on movements between GB and Ireland and between GB and Europe, though this does not include data for individual ports.

6.3.18 Rail freight information, is to be sought through the operators, the principal freight operator being EWS (English, Welsh and Scottish Railway).

#### 6.4 *Travel Volume Data*

6.4.1 The main sources of travel volume data which will be required for this study are traffic counts and public transport passenger counts.

6.4.2 Traffic count data for the two core trunk road corridors M3/A303/A30 and M4/M5/A38 is being sought through the Highways Agency. For other non-trunk road routes it will be necessary to approach the relevant local highway authorities

6.4.3 With regard to train passengers numbers, it is intended to rely on the CAPRI ticketing data to determine passenger volumes although some local authority data from passenger platform surveys may form a useful independent source of rail boarding /alighting information.

6.4.4 The DETR/CAA publishes annual statistics on total numbers of passengers using airports in Great Britain, which will provide an overall control on air passenger movements.

6.5 ***Network Operation***

6.5.1 A significant number of previous studies have examined the operation of the road network within the study area. Whilst some of the information may now be a little out-of-date it provides a starting point for analyses within this study. We are currently assembling a library of reports from previous studies and recent information such as LTPs, which describe existing network conditions.

6.5.2 There have been a number of recent rail studies that have examined the rail infrastructure and services within the Study area. The supply of relevant reports through Railtrack and First Great Western is currently being investigated. A key report is that undertaken for Great Western in 1998, although since that date the business of the Great Western Zone has altered and aspects of the report have been superseded by other more recent studies. Also relevant is the SELCA Study of 1997, which examined the potential for increasing the service between London Waterloo to Exeter via Basingstoke.

6.6 ***Public Transport Services***

6.6.1 It is intended to make use of existing coach, rail and air timetables, to establish the base public transport service information. These timetables will be used to examine, service frequencies, journey times, interchange with connecting services and periods of operation.

6.7 ***Highway Accident Data***

6.7.1 In order to assess road safety issues, it is proposed to obtain accident records for the past five years for the core road network within the study area. This is primarily the trunk road network but also includes a number of county roads. It is understood that this information is readily available, on request from the relevant authorities, although there is some variation in the format in which the data is held.

6.8 ***Future Year Transport Forecasting Information***

6.8.1 In addition to information about the existing situation within the study area, it is also important to establish what sources are available of future year forecast information. Many of the studies undertaken previously contain travel forecast information and some of this information will be used directly. Other sources are as follows.

### *TEMPRO*

6.8.2 The TEMPRO database developed by the DETR is used to provide forecasts of traffic and trip end growth given district land use assumptions for population, households and employment. The most recent version was produced in 1997.

6.8.3 A new planning data set is being produced. The new TEMPRO will provide trip growth across a range of modes.

### *Committed Highway Schemes and Other Highway Based Measures*

6.8.4 In order to develop a realistic future year Do Minimum scenario, it is necessary to understand how the highway network will change in the intervening years. It is therefore intended that details of all major committed highway proposals are obtained from the relevant authorities within the study area with estimates of their opening dates. It is intended that this information is obtained directly from the Highways Agency for trunk road proposals and from Local Transport Plans for County schemes. However, it is recognised that further enquiries may be required with local authorities to identify highway schemes, which are to be implemented beyond the 5-year timeframe for Local Transport Plans.

### *Rail Services*

6.8.5 We are currently investigating the range of forecast information contained within the rail industry. This includes details of infrastructure changes (referred to earlier) and the committed services changes being proposed by the Train Operating Companies.



# 7 Modelling Approach

## 7.1 *Introduction*

7.1.1 Since the start of the project, the main modelling work has centred on 6 activities:

- defining the forms of modelling to be undertaken in the Study;
- identifying existing transport models and data sources which might be used to develop the necessary models;
- assessing the most valuable forms of behavioural research which might be undertaken for this study;
- identifying new data collection which will be required to develop the required models;
- obtaining existing models and data; and
- development of the zoning system for the strategic model.

## 7.2 *Modelling Forms*

7.2.1 As set out in the proposal, it is our intention to use a two level transport modelling approach for this study. In the early stages of the study, a strategic multi-modal model covering the complete study area will be developed to assist with the definition of transport Strategies for the study corridors. In the later stages of the study, local transport models will be developed and used to examine the impact of specific transport measures.

7.2.2 At this stage, it is not possible to provide a description of the local transport models, which will be used, but it is anticipated that they will be largely based on existing local models but with some forecast information imported from the strategic model. The local transport models are discussed further in Section 7.7.

7.2.3 The work to date has focussed on the definition of the Strategic model. The key features determined to date are as follows:

- software to be used is EMME/2;
- main modes to be modelled – car/light vehicle, goods vehicles, long distance bus/coach and train;
- in addition air travel and coastal shipping will be examined;
- modelled time period – whole day (24 hrs – neutral month);

- seasonal peaks to be examined using factoring of neutral month trips by journey purpose;
- model to represent all trip movements on the major routes within the main study corridors including turning movements at major junctions; and
- mode choice relationships to be based on a combination of established relationships for the study region, established relationships for other UK regions, new relationships based on revealed preference information and new relationships derived from stated preference surveys.

### 7.3

#### *Existing Data/Model Sources*

#### 7.3.1

As described in Chapter 6, information regarding the availability of roadside interview traffic origin-destination data has been received and reviewed by the Consultant Team and a range of further data sources identified. In addition, the Highways Agency has supplied a list of known highway and multi-modal models within the study area, which has been reviewed, and additional models appended.

#### 7.3.2

In constructing the models four main sources of information are being sought:

- highway origin-destination information from roadside interviews or from existing models;
- rail origin-destination information from the CAPRI ticketing database;
- coach origin-destination information; and
- traffic and passenger count information for model calibration and validation.

#### 7.3.3

In addition, the following data will be required to inform the development of the strategic model:

- public transport timetable information;
- population and employment information for the study area at district level;
- details of all committed highway proposals within the study area which will influence traffic on the primary road network;
- details of all committed public transport proposals which will influence passenger movements within the study corridors;
- regional freight survey information;
- rail fare information;
- coach fare information; and

- information regarding the characteristics of travellers such as journey purposes, car availability, access and egress modes for public transport and company car users.

7.3.4 It is intended that much of this information will be gleaned from existing data sources. However, additional data collection will be required, and this summarised in Chapter 8.

7.3.5 Whilst there is a wide range of existing highway models throughout the study area, two strategic models are seen to be particularly useful for this study:

- South East Region NAOMI Highway Model; and
- A30/A303 Strategic Highway Model.

7.3.6 It is anticipated that data from these two models will form the starting point for the development of the highway elements of the Strategic model. Other models which may provide a useful set of information include:

- A30 Honiton-Exeter traffic model;
- Avon Model;
- Plymouth Model; and
- models developed for schemes on the A303.

7.3.7 For the rail and coach sub-models, it is recognised that the Great Western 2000 model, originally developed for a consortium of local authorities and Railtrack, would form an ideal starting point as it contains appropriate levels of detail in the rail and coach networks and matrices. Unfortunately the ownership of this model is complex due to the wide range of organisations which have contributed to its development. In addition, the original model has been updated and modified on a significant number of occasions since its original development for use on further studies for a variety of clients. The potential for using this model is being pursued.

7.3.8 It should be stressed that it has been assumed that data from existing models will be made available to this study free of charge or at a nominal cost. If it transpires that significant costs are to be incurred to make use of any elements of information, its use will need to be reviewed, in light of the budgetary constraints for the study.

### *Obtaining Existing Models*

7.3.9 Work is continuing to obtain the existing highway and public transport models, which are needed to develop the Strategic transport model for this study.

## 7.4 ***Behavioural Research***

7.4.1 We are of the view that new fieldwork relating to the behavioural forecasting should focus on the following areas:

- mode choice decisions associated with changes to public transport facilities and services, in particular new forms of services (coach hubs) and changes in the quality of rolling stock/vehicles and ancillary facilities;
- in examining mode choice, it is important to understand the hierarchy of decision making;
- the effectiveness and impact of ‘education’ campaigns needs to be assessed – although this may be best examined through pilots rather than attitudinal or stated preference studies; and
- the priority market sectors for research should be:
  - long distance London-related trips;
  - long distance non-London related trips;
  - short/medium distance inter-urban and rural-urban trips, commuting and business trips;
  - some examination of ‘intra-rural’ trips may also be desirable; and
  - holiday trips.

7.4.2 These conclusions have formed the starting point for the development of proposals for fieldwork.

## 7.5 ***Development of the Zoning System***

7.5.1 Definition of a full zoning system for the Strategic model is almost complete. It is based on district/unitary authority boundaries, with districts being disaggregated within the main study corridors. This level of detail is required to accurately load traffic to the primary road network and also to reflect differences in accessibility to coach and rail services, within districts. The disaggregation has been based on ward boundaries. Elsewhere, zones are either single districts or in outer areas, combinations of districts or counties. It is estimated that the model will contain approximately 500 zones in total. By basing the zoning system on district boundaries, it will be possible to relate zonal trip making to district data and

forecasts of population and employment to be prepared in defining the Reference Case described in Chapter 5.

7.6

### ***Validation***

7.6.1

For a strategic model covering an area as vast as SWARMMS, the level of validation will be less rigorous than for a local town centre model. However there will still need to be checks that ensure that the model provides reasonably robust travel costs/ flow information. The observed datasets outlined in Chapter 6 will provide a source of observed data. The actual level of validation permitted will be heavily dependent on the data that is available.

7.6.2

Key features for which the validation will concentrate on include:

- the overall mode share between the different modes;
- screenline comparisons at key locations (such as across the Devon/Cornwall border) between modelled and observed locations;
- traffic flow information at key locations along the main road corridors (M4/M5/A30/A38/A303); and
- travel time information between selected origin-destination pairs.

7.7

### ***Local Transport Models***

7.7.1

It is intended that much of the local transport modelling will be carried out using existing transport models with some updating or revision if necessary. The specific models will depend on the composition of the transport Plans, which are proposed as a result of the recommended Strategy for the study area. It has been assumed that such models will be made available to the Study and that they will be supplied free of charge (or at a nominal charge). If we are required to pay significant fees to acquire the relevant models, we would need to review their importance and assess whether alternative forecasting techniques might be used since such costs would be beyond the existing budgets for this study.

7.7.2

Within the hierarchical model structure which is proposed, we intend to assess the effects of the overall recommended Strategy for the study area using the 'Strategic Multi-Modal Model'. We will then incorporate the strategic effects into the local model, before assessing the impacts of specific transport Plans.



## 8 New Travel Surveys

### 8.1 *The Need for New Surveys*

8.1.1 Whilst it is our intention to make maximum use of existing data sources for the development of the Strategic model, it will also be necessary to collect some additional data. Our initial appraisal indicates that a number of surveys will be required. These are detailed in subsequent sections of this chapter.

### 8.2 *Road Traffic Surveys*

8.2.1 We have undertaken the following road traffic surveys:

- four roadside interviews (RSIs) in June 2000 to plug gaps in existing data. These were on the A30/A38 screenline in west Devon and on the A358/A303 screenline in east Devon. The former provided key information between Exeter and the Plymouth/Cornish boundary, and the latter identified any changes associated with the completion of the Honiton-Exeter improvement.
- one site being repeated in August 2000 to determine the influence and composition of 'seasonal traffic'.

### 8.3 *Rail Surveys*

8.3.1 We have undertaken the following rail surveys:

- Neutral month and August platform surveys to determine passenger characteristics including car availability, journey purpose, access and egress modes; and
- Passenger counts in neutral month and August to determine seasonal variation in rail patronage.

### 8.4 *Coach Surveys*

8.4.1 We have undertaken the following coach surveys:

- Passenger surveys to obtain origin-destination information;
- Passenger surveys to determine characteristics as with rail passengers – car availability, journey purpose, access and egress modes; and
- Passenger counts to determine seasonal variation in coach usage.

8.5 *Air Surveys*

8.5.1 It may also be necessary to carry out some limited surveys of air passengers travelling from South West airport, although we have already requested results and information from the South West Air Services study.

8.6 *Stated Preference Behavioural Response Surveys*

8.6.1 As indicated in Chapter 6 we intend undertaking some new research to establish travellers' likely behavioural response to alternative policy measures. The key response we will be seeking is modal change. This will be sought through stated preference surveys. We will also ask respondents about their longer term responses such as change of location. We need to collect information for a number of traveller types in different market sectors. The minimum number of surveys required for each sector is some 75 persons.

8.6.2 Details of our proposed surveys are shown in Table 8.1.

**Table 8.1 : SP Surveys & Market Sectors**

	Long Distance		Short/medium		Total
	London	non-London	Inter-urban, rural-urban	intra-rural	
<b>Car</b>					
Commuting	75	75	75		300
Business				75	
Leisure - day trip	75	75	75		225
Leisure - 1+ night					
<b>Public Transport</b>					
Commuting	75	75	75		300
Business				75	
Leisure - day trip	75	75	75		225
Leisure - 1+ night					
<b>Total</b>	<b>300</b>	<b>300</b>	<b>300</b>	<b>150</b>	<b>1,050</b>

8.6.3 In total 1,050 stated preference interviews will be undertaken. In addition, there will be a 50 interview pilot series. All stated preference surveys will be based on a 30-minute computer assisted telephone interview (CATI).

8.7 *Attitudinal Surveys*

8.7.1 Surveys are proposed to quantify attitudes towards the alternative strategies that emerge from the consultation/participation processes. Issues, problems and the

alternative ways in which the problems could be solved will be presented to a sample of the general public in order to gauge 'acceptability' of the proposals.

- 8.7.2 A sample of 1,500 people would be drawn from the three main sub-regions – Cornwall/Devon, M5/M4 corridor and A303/M3 corridor. Respondents would be quota sampled to represent respondents by age and gender by location based on the Census. We propose that to be in scope for the survey, respondents would have made a trip along a corridor of interest in the preceding three months. Attitudes will be collected through 20 minute computer assisted telephone interviews (CATI). A pilot of 50 persons will be undertaken to test the survey design and questionnaire content.
- 8.7.3 Such quantified acceptability data has proven extremely useful in previous studies undertaken by the consultants in yielding a more representative public view.



## 9

# Participation and Consultation

### 9.1

#### *Introduction*

#### 9.1.1

It is a fundamental part of the SWARMMS methodology that the study should be fully inclusive. We are keen to involve a wide range of stakeholders throughout the study. However, the study area is extremely large and great care needs to be taken to devise a programme of participation and consultation that is suitable. Our proposed approach is described below.

### 9.2

#### *Stakeholder Participation Workshops*

#### 9.2.1

Any participation approach must be capable of addressing national, regional and local issues. To reflect this, we propose that participation (and consultation) events should be primarily area based. For participation, we propose a ‘family’ of three sub-regional workshops (e.g. Devon/Cornwall, A30/A303 and Exeter-Waterloo corridor, M5/M4 and rail Taunton-Bristol-Reading corridors) to address the issues and problems at a strategic (national and regional) level. They would then be consolidated to address the problem identification, option development and recommendation stages. Their timing is shown on Figure 2.1 under ‘Sub-Regional (Strategy) Participation’.

#### 9.2.2

The purpose of these workshops is to combine regional and local lay knowledge with regional and local expert and professional knowledge, to confirm, augment and to add to the data yielded by the other data collection and modelling activities described in earlier chapters. The workshops will provide two main pieces of information. Firstly, we will obtain a clear understanding of the problems in the study area, as experienced by those ‘on the ground’. Secondly, we will create opportunities to generate options for addressing these problems that may lead to innovative solutions that will not be yielded by our modelling and forecasting work, but which can be ‘tested’ in the strategic model. Finally, the last stage of the workshop programme will give an opportunity to get feedback on proposed options that will enable an assessment of the ownership and commitment to any proposed plans.

#### 9.2.3

In terms of the workshops themselves, there is clearly a need to determine the right ‘stakeholder mix’ for each workshop, and subsequently to design the effective operation of the workshops. However, in addition to the stakeholder groups, we must also ensure that there is sufficient representation from the general public.

This includes 'hard to reach' groups such as young people, disabled people, older people and those experiencing poverty.

9.2.4 We also propose a further 'family' of six more local workshops to address the Plan (regional and local) issues. The aims are similar to that described in Paragraph 9.2.2 albeit with a more local focus. These would meet twice, the problem identification stage being covered by existing source material held by local authorities in developing their Local Transport Plans. Their timing is shown in Figure 2.1 under 'Local (Plan) Participation'.

9.2.5 In total, we propose to hold 17 participation workshops; 5 will be Strategic in nature, and 12 will cover local Plan issues.

### 9.3 ***Public Consultation***

9.3.1 Many of the principles that apply to participation also apply to consultation. As with the Plan participation workshops, we propose to consult at the option development and recommendation stages. Consultation, in the form of newsletters/questionnaires and exhibitions, is proposed to focus on the more local aspects of the study. This will enable responses to be received in connection with particular local problems (and schemes) which generate significant amounts of local interest.

9.3.2 We would propose to run a touring exhibition, of some one day duration in up to 20 locations in the study area. This would also have newsletters and questionnaires available, together with Consultant Team members to answer questions.

### 9.4 ***Use of Web-site***

9.4.1 A website available to the general public, to contain information on the study with regular updates such as reports and newsletters, is required as part of the study brief. As part of the media launch for the study, specifically to build up public knowledge of the study and its aims, the first version of the website was published on 11<sup>th</sup> May 2000. The URL of the site is <[www.swarmms.org.uk](http://www.swarmms.org.uk)>.

#### *Current Functionality*

9.4.2 The current version of the website contains extensive information about the study as it is commencing, and has been designed to incorporate additional information and features as the study progresses. From the 'front-page' direct access is currently available to seven sections:

- Steering Group – lists the members of the Steering Group for the study, as well as the Terms of Reference;
- The Study – describes the main aims of the study, and how it will be carried out, as well as including a map of the study area;
- Events – will provide links to newsletters, press releases and notes from Steering Group meetings as the study progresses;
- Reports – will provide links to reports produced as part of the study;
- Have Your Say – it is recognised that the website will not necessarily attract an overall cross-section of the community, but the unparalleled opportunity for people to access information cannot be ignored. As such, this section provides the continuous opportunity for those who access the site to pass on their thoughts to the study team. Responses are invited that relate to the five government criteria for transport assessment, as well as on the study as a whole and on the website itself. Respondents are invited to give their location and approximate age, but do not need to leave a name;
- The Consultants – describes the consultant team, and provides links to the home websites of each consultancy; and
- Links – collates all the links provided elsewhere, including Steering Group and consultants. In addition, links are provided to other multi-modal studies currently underway.

#### *Future Functionality*

9.4.3 The principal changes that the website will undergo during the study will be the addition of information generated as part of the study (such as notes of steering group meetings, newsletters and reports).

9.4.4 In addition, it is intended that specific use be made of the website to allow people to respond to questionnaires that will form part of the newsletters. Each version of the questionnaire will be placed on the website as a structured form, allowing responses to be collated with ‘paper-based’ responses from the newsletter itself. It is anticipated, however, that analysis of e-responses will have to be carefully considered, as access to the internet is not universal.

#### 9.5 *Topic Meetings*

9.5.1 In addition to the above, it is proposed to hold a series of one-off ‘Topic Meetings’ to cover issues of modelling, planning, tourism, freight, environment and public transport. Major stakeholders and/or those with specialist knowledge will be

invited to the meeting, at which they will be asked to contribute knowledge and data to the study.

# 10 Problem identification

## 10.1 *Introduction*

10.1.1 The work described in earlier chapters will feed into the identification of transport-related problems.

## 10.2 *Agreeing the Problems*

10.2.1 Earlier chapters described how we will have reviewed existing documentation, spoken to a large number of different people to seek their views, undertaken new surveys and interrogated existing datasets. Against a set of agreed criteria, we will therefore be able to establish a comprehensive understanding of the problems as they currently exist.

## 10.3 *Confirming Study Objectives*

10.3.1 An important additional step at this stage of the study will be to confirm the objectives of the study, at both the Strategy and Plan level. As described in Chapter 4, they will all be nested within the Government's five main criteria. However, experience suggests that all parties would benefit from more specific objectives which are focussed towards the conditions and needs of the study area. It is these objectives, in combination with the five over-arching criteria and regional considerations, against which the different options will be assessed and compared. The identification of problems is a crucial step in this process.



# 11

## Strategy Development and Appraisal

### 11.1

#### *Introduction*

#### 11.1.1

Having completed the identification of transport-related problems, and with the benefits of the public participation, new surveys and the Strategy model, it will be possible to identify different strategy options. At this stage in the study, it will be important to establish the extent to which long distance travel movements are susceptible to change and the magnitude of impact, which such change would have on local transport conditions. Hence, such options could include:

- increased capacity on Paddington-Bristol mainline;
- reduced journey times on the A303 in respect of daily traffic and improved reliability during the summer holiday season;
- improved accessibility to rail stations on the Reading-Westbury-Taunton rail line;
- encouraging coach interchange on the Trunk Road network; and
- introducing new air services between the South West and London.

### 11.2

#### *Use of GOMMMS*

#### 11.2.1

As required by GOMMMS, the assessment of Strategy options will be undertaken in terms of an Appraisal Summary Table (supported by all the background assessments) and by examining the impact upon the study-specific objectives. We propose that these objectives would encompass the impact upon problems and distribution/equality, and hence there is no need for separate appraisals in these areas.

#### *Reference Case*

#### 11.2.2

As indicated in Chapter 5, the socio-economic and land use Reference Case plays an important role in defining any Strategy or Plan. In particular, the following tasks will need to be undertaken:

- conformity with the Reference Case - will the Strategy or Plan lead to a different pattern of development and economic activity?
- If so, is this divergence from the Reference Case compatible with established policies and land use plans?

- If the Strategy or Plan will contribute to the achievement of established policy objectives, how significant is this contribution and how certain is a positive outcome?
- If the Strategy or Plan appears to run counter to established policy objectives, or land use plans (for example putting pressure on existing allocations) how significant a departure from policy is this contribution and how certain is a positive outcome? How and to what extent would existing plans have to be altered?

#### *Economic Appraisal*

##### 11.2.3

One area where the current GOMMMS guidance will be superseded is in respect of Economic Appraisal. New economic assessment software is currently being developed by the DETR known as TUBA (Transport Users Benefit Appraisal). If available in time, we will use it in SWARMMS. It is understood, however, that TUBA may require a large volume of detailed forecast information, which may not be appropriate for the assessment of Strategies. If this proves to be the case, we would propose to carry out a simplified assessment based on the same principles. The key features would include:

- Examination of user benefits for all modes;
- Use of standard values of time and vehicle operating costs; and
- Recognition of decongestion benefits associated with modal transfers.

##### 11.2.4

It is anticipated that the assessment would be based on forecast traffic volume and public transport passenger movements for two years, 2000 and 2016. It is, however, recognised that some interpolation/extrapolation may be required.

##### 11.2.5

Costs of measures will be estimated based on a combination of our existing engineering experience and national cost rates. Costs will be phased, re-based and discounted in accordance with the cost benefit principles within TUBA.

## 12 Strategy Recommendations

### 12.1 *The Over-arching Strategy*

12.1.1 The results of the Strategy appraisal will suggest a way forward for the study. We would propose to provide a clear recommendation to the Steering Group in terms of the overall transport Strategy for the study area. However, it will ultimately be for the Steering Group to agree a Strategy, which, by definition, then provides a framework in which the remainder of the study is undertaken. In particular, it will assist in identifying Plan options within 2001.

### 12.2 *Development of Plans*

12.2.1 It is possible to envisage a number of different areas and issues for which a Plan is required. The Study Brief is helpful in this respect suggesting separate Plans around the principal urban areas of Bristol, Swindon, Weston-super-Mare, Taunton, Exeter and Plymouth. Also to be covered are those areas affected by road schemes currently 'on hold'.

12.2.2 There are clearly a number of other Plans which could be deemed worthy of more detailed investigation. Many of them may have been judged previously by their respective promoters and/or respective authority, but there will be merit in assessing them in terms of the GOMMMS methodology. These could include the role of coastal shipping in catering for inter-regional freight movement, the 'option value' of extending the M5 to Plymouth, the modal share of introducing enhanced air links from Exeter/Plymouth to London, and the regional impact of congestion and/or workplace charging.

12.2.3 It is envisaged that some 15 Plans could be identified for the second stage of the study, and our approach to preparing these Plans is given below. Inevitably these Plans will vary in complexity and scale, and in the degree of resources required to address them.

#### *February to July 2001: Surveys and Modelling*

12.2.4 Having agreed the overall Strategy, work can be focussed on the development of the Plan options and their appraisal.

### *Surveys*

- 12.2.5 It is intended that all the data collection and transport surveys would be carried out in June to September 2000. However, it is possible that some areas which merit consideration as a Plan are only identified at a relatively late state in the development and appraisal of the Strategy, thereby precluding surveys before November/December 2000. As such, it is prudent to make allowance for some limited survey work to be undertaken in Spring 2001.

### *Modelling*

- 12.2.6 It is recognised that the Strategy model, whilst providing very useful guidance on the effectiveness of particular strategies, will not be able to address issues of detail. Therefore, we consider it essential that more localised transport models are developed to assess Plans, to examine in more detail the impact of specific measures. Our approach to this work was described earlier.

### *May to September 2001 : Plan Development and Appraisal*

- 12.2.7 Each one of the Plans (we have assumed 15 in total) will have its local objectives defined, resulting from the overall transport Strategy for the study area. Consequently, each Plan will also have a number of different options identified, and it is these options which will be compared by both an Appraisal Summary Table and against local objectives.
- 12.2.8 One example could be around the Bristol area, with an objective to encourage as much 'local' traffic as possible to transfer from the private car to other modes. Options could therefore include investment in heavy and light rail (e.g. Westway), Park and Ride outside the M4/M5 corridor (e.g. avoiding Hambrook in favour of more dispersed sites), road pricing and/or workplace charging, new bus services and priority, access control on the M4/M5, and so on.
- 12.2.9 In essence, at this stage of the study, there will be some 15 different studies running in tandem. Whilst some of them will be interrelated, many will be undertaken in isolation from the others. This will enable experts in the different technical areas (whether it be by mode or topic area such as ITS or multi-modal freight interchange) to play a significant part in the overall study outcome.

*October to December 2001: Recommendations and Implementation*

- 12.2.10 Each of the 15 Plan areas would have its own recommendations emerging from the appraisal process. All fifteen would nest within the overall transport Strategy agreed in January 2001. In combination, therefore, we would be able to present comprehensive and consistent recommendations to the Steering Group in December 2001.
- 12.2.11 This would be accompanied by an implementation plan, which would describe the possible timing and phasing of the different measures. It would include costs and funding opportunities.



## 13 Schedule of Meetings

### 13.1

#### *Introduction*

#### 13.1.1

An outline Work Programme was given in Figure 2.1. A schedule of key meetings for the study is given below. They cover up to the end of January 2001. Subsequent dates will be agreed in due course.

### 13.2

#### *Dates of Meetings*

#### 13.2.1

##### Client Steering Groups

- 8<sup>th</sup> June 2000
- 8<sup>th</sup> August 2000
- 17<sup>th</sup> October 2000
- 16<sup>th</sup> November 2000
- 19<sup>th</sup> December 2000
- 18<sup>th</sup> January 2001

#### 13.2.2

##### GOSW/Halcrow Progress Meetings

- 1<sup>st</sup> June 2000
- 29<sup>th</sup> June 2000
- 3<sup>rd</sup> August 2000
- 31<sup>st</sup> August 2000
- 28<sup>th</sup> September 2000
- 1<sup>st</sup> November 2000
- 30<sup>th</sup> November 2000
- 4<sup>th</sup> January 2001

#### 13.2.3

##### Halcrow Internal Steering Group Meetings

- 5<sup>th</sup> July 2000 (core group)
- 19<sup>th</sup> July 2000
- 24<sup>th</sup> August 2000 (core group)
- 21<sup>st</sup> September 2000
- 26<sup>th</sup> October 2000 (core group)
- 15<sup>th</sup> December 2000 (core group)
- 11<sup>th</sup> January 2001



## 14 Staffing

### 14.1 *Consultant Team*

14.1.1 Halcrow is one of the very few consulting organisations which can provide from its own permanent staff the necessary expertise over the entire range of transportation, planning, transport operations, development planning and engineering design to achieve every stage of a project, from concept through to design, implementation and maintenance. Moreover, we carry these skills across all modes of travel, covering road, rail, air and sea.

14.1.2 Importantly, as well as having staff who are recognised experts within their modal disciplines, we also have a number of key senior staff who are very experienced in drawing together the various multi-disciplinary strands of complex multi-modal transport studies to produce clear and consistent future transport strategies and plans. This includes experience of GOMMMS and NATA.

14.1.3 We have a substantial amount of relevant experience to bring to bear for the study, both in terms of local studies within the region and national commissions and research. They cover all modes of transport, and both passenger and freight movements. Work has been undertaken for a variety of national, regional and local bodies, in both the UK and overseas.

14.1.4 Halcrow will have full responsibility for the study, undertake all Project Management and undertake most of the wide variety of technical work tasks required across all modes of transport. However, there is a variety of other disciplines which are also relevant to the study and we have decided to collaborate with a number of national experts in these areas. A description of the sub-consultants and their specific roles is given below.

### 14.2 *Sub-consultants*

#### *Accent Marketing and Research*

14.2.1 Accent is a full service research agency with offices in London and Bristol and the resources and equipment to undertake both qualitative and quantitative studies of significant size. In addition to its full time staff, Accent also has a network of consultants to call upon in the building of project teams, and a further nationwide

network of supervisors and interviewers who can provide the highest quality fieldwork for both qualitative and quantitative research.

14.2.2 Accent is the market leader in the use of stated preference research, a sophisticated form of conjoint or trade-off research. Accent staff has been instrumental in the introduction and development of the technique in the UK, and have conducted many hundreds of studies using these methods for high profile clients in transportation, environment, healthcare, financial services, telecommunications and utilities, among others.

14.2.3 Accent's specialist role will be to contribute to the Market Research activities, including advising on the applicability of existing mode choice parameter values and the design, conduct and analysis of supplementary revealed or stated preference surveys.

*Chris Blandford Associates*

14.2.4 Chris Blandford Associates is one of the leading environmental planning consultancies in the UK. It has a highly experienced and multi-disciplinary in-house team, which includes environmental and urban planners, environmental scientists, landscape architects, ecologists and heritage specialists.

14.2.5 CBA has long been at the forefront of both project and strategic scale environmental assessment, particularly in the transport sector. The mix of environmental and planning skills has also often been used in influential research and strategic planning appraisals and predictions for the public sector. CBA is recognised as being at the leading edge of the new generation of independent multi-disciplinary environmental planning consultancies. Recent awards include recognition for its work on the Environmental Guide for Inter Urban Roads ('The Good Roads Guide') and the influential Countryside Character of England project, now a vital part of national Regional Planning Guidance.

14.2.6 CBA's specialist role on this study will be to lead on the landscape, townscape, biodiversity and heritage aspects of the environmental assessment.

*COWI Consulting Engineers and Planners*

14.2.7 COWI is an internationally respected Danish consultancy with some 40 offices throughout the world. Of their 2,200 staff, some 1,500 are engineers, planners,

sociologists, economists and other technical specialists. They operate as a global consultancy firm with a broad spectrum of national and international experience. COWI has been engaged in all aspects of transportation engineering for more than 60 years. Like Halcrow, they specialise in such areas as transportation planning and economics, roads and bridges, railways and airports. Importantly, however, they strengthen the European dimension of the Consultant Team.

14.2.8 Their experience combines both EC research (they are in charge of the EC Phare Framework Contract within the field of transport and are part of the consortium responsible for the dissemination of the results of the EC's 4<sup>th</sup> Framework Programme for transport research) as well as proven experience in a range of multi-modal transport projects.

14.2.9 COWI's role will be to contribute to defining the overall strategy for the study drawing upon their European experience.

*DTZ Pieda Consulting*

14.2.10 DTZ Pieda Consulting brings together the services of the independent consultancy, Pieda and the consultancy services of international property advisers DTZ Debenham Thorpe. The merger created a major consultancy providing specialist economic, planning, development and management advice to public and private sector clients.

14.2.11 One of the main areas of expertise which DTZ Pieda Consulting will bring to the study is economic impact assessment capability for transport infrastructure covering a range of modes and facilities. For example the company prepared the socio-economic and development impact reports for the Channel Tunnel Rail Link and its intermediate stations (for Union Railways) and is presently advising on similar issues in relation to Thameslink 2000 and the West Coast Mainline. It has also advised on the economic aspects of railfreight facilities at Hams Hall and Bescot in the West Midlands and the proposed West London 'Freight Village'.

14.2.12 Area economic development is also a key skill, ranging from regional/sub regional economics down to individual town centres or employment areas. Of particular note is the fact that the company have recently advised the South West of England RDA on the development of a regional economic strategy, and assisted in informing the preparation of the Rural White Paper.

14.2.13 DTZ Piedad's role on the study will be to lead the planning inputs, with particular responsibility for economic impact and economic development.

*Sustainable Futures*

14.2.14 Sustainable Futures are experts in participation and consultation techniques. The company enjoys an established track record for innovative solutions designed to enable public sector clients consult, involve and reach a wide range of citizens and stakeholders. It has a reputation for providing a high quality facilitation, design and training service to Local Authorities.

14.2.15 Within the transport sector, the company has experience in leading both area-wide and local workshops held as part of the Local Transport Plan process, and in developing town transport strategies and School Travel plans. It also has a strong track record in economic, regeneration and Local Agenda 21 work.

14.2.16 Sustainable Futures specialist role will be to lead the participation exercises – to clarify perceptions of existing problems and identify solutions and gauge reaction to the appraisal findings.

*Transportation Research Group, University of Southampton*

14.2.17 The Transportation Research Group (TRG) is a multi-disciplinary Group within the Department of Civil and Environmental Engineering, University of Southampton. The principal sponsoring bodies for the research have been the European Commission, Department of the Environment, Transport and the Regions, the Transport Research Laboratory, the Engineering and Physical Sciences Research Council and Traffic Control Systems Unit in London. Much of the research has concentrated on the ITS aspects of traffic and transport. Results from many of the studies have been incorporated into Government Advice Notes and Technical Memoranda, as well as into computer programs.

14.2.18 TRG's experience on the Road Advisor Project and in developing a motorway access control methodology for the Highways Agency will be of obvious relevance to the study.

14.2.19 TRG's role on the study will be to advise on possible ITS applications through the Study Area and to bring additional knowledge in terms of European research and experience.

### 14.3

#### ***Key Staff***

#### 14.3.1

David Bayliss (Project Director) – is a Director of Halcrow and previously Director of Planning for London Transport. His experience includes planning and transport both in the UK and in mainland Europe, with involvement in both research and policy for planning in passenger and freight movements. His role will be to provide overall technical direction on the study.

#### 14.3.2

Martyn Brooks (Project Manager) – is the Regional Director of Halcrow responsible for its transportation work in the South West and South Wales. Martyn has considerable experience in directing and managing major transportation studies for the company. These include many which have involved developing multi-modal, sustainable transport policies and measures, such as the A380 Newton Abbot to Torquay Study (ongoing), the Torbay Western Corridor Study, the Plymouth Northern Corridor Study, the Bristol-Portishead Rail Study, the Cardiff Public Transport and Parking Study, and the South Bristol Transport Study.

#### 14.3.3

Gareth James – is an Associate of Halcrow, having recently joined the company from Oscar Faber where he was an Associate Director. He has extensive knowledge of transport scheme appraisals, with specialist knowledge of transport demand forecasting techniques. He is currently project manager on developing the Swindon Multi-Modal model. Other experience includes Project Manager on studies to upgrade the Cotswold and Malvern rail line, to identify the feasibility for opening new Parkway Stations in the M4/M5 corridor, and the second Tamar Crossing study. His role on the study will be to co-ordinate all modelling work.

#### 14.3.4

John Bent-Marshall – is a Director of Halcrow and very experienced in all issues of highway design and related areas. He is currently involved in the Managing Integration project to examine the redesign of different junction types. Importantly, he has also played a leading role in providing advice on DBFO and other transport funding mechanisms to the Highways Agency. His role on the study will be to lead all the highways design and funding issues.

#### 14.3.5

Roger Childs – is a Technical Director of Halcrow with a particular responsibility for public transport operations. He is an acknowledged expert on bus and coach issues in particular, and has worked for a wide variety of different clients. His experience is both in the UK and overseas, and he is currently preparing a range of innovative pilot studies for bus and coach travel on behalf of the Highways Agency. His role will be to co-ordinate all the bus and coach aspects of the study.

- 14.3.6 Andy Carlyle – is a Director of Halcrow and has extensive experience of the interface operations and commercial aspects of the railway. He has worked for a variety of clients within the rail industry and is very knowledgeable of its aspirations and constraints. His previous experience as Planning and Development Manager for South West Trains will be of particular relevance. His role on the study will be to co-ordinate all rail activities.
- 14.3.7 Christina McDonagh – is a Director of Sustainable Futures responsible for managing and directing large multi-stakeholder projects addressing issues which include transport, housing, regeneration and economic development. Her experience includes organising a range of workshops to assist local authorities in the development of sustainability strategies. Her role would be to organise and facilitate all the participatory elements of the study.
- 14.3.8 Gareth Walters - is a Senior Consultant with Halcrow and has worked on a number of road, rail, air and sea studies in the South West and South Wales. In addition to having a technical role in the Study Team, he would also assist Martyn Brooks in co-ordinating the work activities of staff and monitoring the consistency of approach.
- 14.3.9 Rob Sheldon – is the Managing Director of Accent. He is a recognised leading authority in transportation research and has undertaken numerous studies in the rail market in the UK and world-wide and is at the forefront of research into road pricing, having directed all of Accent’s research in this area. He is an internationally recognised expert in the field of stated preference. His role in the study will be to direct all the quantitative aspects of the market research.
- 14.3.10 Christopher Cobbold – is a Director of DTZ Pidea Consultancy. He is both an economist and a chartered surveyor, and has undertaken numerous economic impact studies for transport infrastructure, including the Channel Tunnel Rail Link, the modernisation of the West Coast Main Line, Thameslink 2000 and proposals for a major new container terminal at Southampton. He has worked extensively in the South West and, in particular, over the past year has acted as an economic advisor to the Strategy Directorate of the South West of England RDA, advising on the development of the Regional Economic Strategy. His role will be to lead all the planning and economic aspects of the study.
- 14.3.11 Fiona Brown – is an Associate of Halcrow and the company’s leading environmental planner. She is a member of the Transport Impact Working Group,

Institute of Environmental Assessment and has been engaged on numerous studies in the UK and overseas to produce environmental impact assessments. She is currently Project Manager to develop the strategic environmental assessment guidance for the multi-modal studies in relation to the 'hard' and planning-related impacts. She will have the role of co-ordinating all environmental work.

*14.3.12*

Chris Blandford – is a Director of Chris Blandford Associates and has directed the environmental assessment of a large number of transport schemes. He was responsible for the practice's work on the Good Roads Guide (now DMRB Vol 11) and represented the Landscape Institute's views to SACTRA in connection with appraisal methodology. He assisted in devising part of the methodology in NATA. His role in the study will be to lead all the 'soft' environmental issues.

*14.3.13*

Mike McDonald – is the Director of the Transportation Research Group at the University of Southampton. He has been responsible for a large number of research contracts within transportation and has been a member of several professional and governmental committees and advising bodies including the Research Councils and the Technology Foresight Programme. He has been significantly involved with the EC Transport Telematics programmes and has international recognition as an expert in Intelligent Transport Systems. He is currently leading a small expert panel to independently review Highways Agency Toolkit projects. His role in the study will be to co-ordinate all ITS activities and to input European experience.

*14.3.14*

Peter Christensen – is a Director of COWI and has experience of business economics and market research in the transportation sector in Eastern and Western Europe. He is an experienced Project Manager, being responsible for a number of major international projects in Europe. His role on the study will be to provide a non-UK dimension, drawing upon successful applications of multi-modal initiatives throughout Europe.

*14.3.15*

Nick Kaberry – is the Airport Planning Manager for Halcrow. He has recently contributed airport planning and air transport strategic planning expertise to DETR's Midlands Regional Air Services Study and the study of Business Aviation in the South East. He has been involved in a number of airport development planning projects in the UK regions and is familiar with the issues of catchments, intra-regional competition, access to London airports and regional economic importance that surround regional airport development. His most recent work of

this sort has been strategic and development planning for Exeter Airport. He will lead all the air aspects of the study.

*14.3.16*

Tony Burdall – is a Director of Halcrow and responsible for port operations in the UK and overseas. He has a wealth of experience in this area, having been responsible for a number of port expansion and development plans throughout the world. He has recently been responsible for port studies in Southampton and ‘search’ studies in relation to container potential in the South and South East of England. He will lead all the ports aspects of the study.

*14.3.17*

David Turner – is a Technical Director of Halcrow with extensive experience in transportation projects. He has been Project Manager on studies to examine bus priorities within London, the feasibility of a local crossing at Dartford, and transportation studies for Marlow, Ipswich and Norwich. He has recently advised local authorities and umbrella organisations on the achievement of traffic reduction through the promotion of alternative modes. His role will be to lead the work associated with the London to Reading study.