

Strategy Development Report
South Coast Corridor Multi-Modal Study

Prepared for
Department for Transport
September 2002

Halcrow Group Limited

In association with:

Accent

Chris Blandford Associates

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Strategy Development Report

SoCoMMS

Contents Amendment Record

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1 Introduction

1.1 *What is SoCoMMS*

1.1.1 The South Coast Corridor Multi Modal Study is one of a number of studies being undertaken on behalf of the Government to review transport provision in this country. This study forms one of the second tranche of multi-modal studies proposed by the transport White Paper, 'A New Deal for Trunk Roads in England' (DETR, July 1998) and builds on the work already undertaken within the

- M27 Integrated Transport Study;
- A27, Worthing – Lancing Integrated Transport Study; and
- the Access to Hastings Multi-Modal Study.

1.2 *Study Area*

1.2.1 The SoCoMMS study is investigating the congestion, safety and environmental problems related to transport along the south coast between Southampton (Hampshire) and Thanet (Kent). As such, the south coast transport corridor is well defined between Southampton and Brighton being hemmed in to the north and south by the South Downs and the sea respectively. To the east of Brighton the transport corridor passes through the South Downs and crosses the Pevensey Levels to Hastings. To the east of Hastings the rail based transport system passes inland to Ashford and then on to Ramsgate and Margate via both Dover and Canterbury. Similarly, the road network in this area splits at Brenzett with the A259, A20 and A256 route following the coast through Folkestone and Dover while the A2070, A28 route passes through Ashford and Canterbury.

1.2.2 In addition, the study has defined an area of influence which reflects that

- the alternative travel routes for longer distance movements are via London for rail and via the M25 for road based trips;
- there are major land use influences (current and proposed), particularly to the west at Dibden Bay and to the north at Winchester, Gatwick, Bluewater and Tunbridge Wells;
- the main access route to areas such as Bournemouth and the Isle of Wight is through the study area; and

- there are other locations for which transport measures might influence travel on the south coast (for example rail improvements at Gatwick airport).

1.3

Overall Approach to Strategy Development

1.3.1

The Terms of Reference stress the importance both of assessing immediate and long-term transport problems within the corridor and addressing strategic issues by proposing an over-arching transport strategy for the area. To this end, the strategy development has to reflect both identifiable problems within the transport system and the strategic policy context.

1.3.2

The approach to strategy development has followed both a bottom-up problem-oriented process and a top-down policy-led method. The bottom-up approach has been heavily analytical, involving the wide range of data collection, modelling and consultation processes described here and in the supporting documents. This has addressed both existing and future problems concerning congestion, safety and the environment across the study region.

1.3.3

The top-down approach has been based on analysis of the wider policy environment, involving the economy, sustainability, development control, etc as well as transport. This is of particular importance for a study such as this, covering a large, diverse region with a variety of stakeholders and a number of major policy issues which extend well beyond the confines of the transport system.

1.3.4

These two approaches, bottom-up and top-down, have converged at a number of points of the strategy development phase. The initial generation of measures to test has reflected a need both to address the identified problems and meet the policy agenda for the region. The appraisal of measures, following the GOMMMS methodology, takes account of both direct impacts on problems and wider policy implications. The Strategy Development Plans also provide an opportunity to demonstrate the role of the strategy in addressing both problems and the wider policy agenda.

1.4

Purpose of This Report

1.4.1

The purpose of this report is to outline the methodology that has been adopted to derive the proposed strategy for SoCoMMS. The report provides background as to the current and future travel conditions if nothing is done. The strategy development process is summarised, including the development of options and

testing of combinations. The report then summarises the elements of the proposed strategy which has been subject to detailed appraisal using GOMMMS before it reaches its final form as the Preferred Strategy and accompanying recommendations. The appraisal is outlined in a separate report. In addition a number of issues are assessed in a series of Strategy Development Plans, which relate to local action areas.

2 Analysis of Problems and Issues

2.1 *Analysis of Problems*

2.1.1 SoCoMMS has identified a number of key challenges within the area based on information gathered from a wide range of sources. These include:

- Previous studies;
- Regional and local transport and development plans;
- Existing travel data;
- Participation workshops;
- Freight related interviews;
- Public consultation;
- Meetings of expert topic groups;
- Local authority responses;
- Responses from other organisations; and
- The SoCoMMS strategic model.

2.1.2 No single source of information or data collected for the study purports to show the whole picture. Taken together, however, they provide a good understanding of the strategic transport-related problems and issues within the study area.

2.2 *Demographic Issues*

2.2.1 Planning data has shown that the highest population and employment densities along the corridor are in the Brighton-Worthing and South East Hampshire areas where settlements are located between the sea and the South Downs. Many of the south coast towns have the highest proportions of elderly people in the south east. The areas with the higher proportions of elderly people include the Manhood Peninsula, Bognor Regis, Worthing, towns east of Brighton (e.g. Rottingdean, Peacehaven, Newhaven, Seaford), Eastbourne, Bexhill, New Romney and Birchington.

2.2.2 The corridor does have areas with high unemployment locations. These include areas within Southampton, Brighton, Hastings, Dover, Folkestone and Thanet. In addition, examination of social inclusion data shows that, generally, the coastal corridor has wards with higher levels of deprivation than the national average. In particular, areas such as Brighton, Thanet and Hastings have wards that are in the worst 10% in the country.

2.2.3 Thus, a key challenge for SoCoMMS is to provide transport improvements that can assist the areas which are designated for regeneration.

2.3 ***Overall Travel Demands***

2.3.1 Current travel demand data demonstrates that the car is the dominant mode of transport. For example, travel to work data shows that for the study area, typically around two-thirds of journeys to work are made by car. Walking is the second most important mode for the journey to work. The largest use of bus to travel to work is in Brighton, Hove and Southampton with over 10% of movements. Overall, cycling comprises less than 5% of journeys made to work. However there is a considerable range in cycle use from Gosport where 16% of journeys are made by bicycle to Hastings where only 1% are made. Typically there are three times as many foot journeys to work than bicycle journeys.

2.4 ***Highway Issues***

2.4.1 The key issue related to transport (and the South Coast is no different to other areas in this respect) is one of increased car dependency. This arises due to:

- Increased decentralisation of facilities (e.g. shops); and
- Car seen part of a quest for 'material' quality

2.4.2 As a result, there has been increased traffic growth resulting in congestion, pollution, and overcrowded streets in south coast cities and towns. This in turn makes buses, cycling and walking an unattractive alternative.

2.4.3 In rural areas, car dependency is often greater, although congestion, safety and environmental problems are generally lower. The demise of public transport has led to real problems of social exclusion, affecting a significant part of the population including the old, the young, women, the low waged and the mobility impaired.

2.4.4 The standard of the road network along the south coast is diverse with the following range of conditions:

- The high quality of the M27 linking Southampton and Portsmouth.
- The A27 (continuing from the M27) provides a mixed quality dual carriageway route between Portsmouth and Lewes, with discontinuities at Arundel, Lancing and Worthing.

- The A27 and A259 between Lewes and Brenzett provides a single carriageway route of varying quality.

2.4.5 The main alternative routes for longer distance traffic to the coastal trunk road include

- the M3, M25, M20 route between Southampton and Folkestone;
- the A259 between Emsworth and Pevensy which runs through the coastal towns such as Bognor Regis, Littlehampton, Worthing, Brighton and Eastbourne; and
- the A272 / A265 / A268 / A28 route between Winchester and Ashford which runs to the north of the South Downs through a number of towns such as Midhurst, Billingshurst, Haywards Heath and Tenterden.

2.4.6 Journey times for longer distance movements along the corridor are high, particularly in the eastern part of the corridor. This makes the use of the M25 in combination with the M2, M20, M23 / A23, A3 / A3 (M) and M3 an attractive alternative for longer distance movement along the coast. For example the journey time from Folkestone to Southampton via the M25 is 2 hours 33 minutes, and via the coastal route (i.e. A259, A27 and M27) is 3 hours 14 minutes. (Journey times are taken from the SoCoMMS model).

2.4.7 The highest flows in the corridor are found on sections of the M27 with AADT (Annual Average Daily Traffic Flow) values in excess of 100,000 vehicles per day between junctions 3 and 4, and between junctions 5 to 8. At the other end of the spectrum, flows on the rural sections of the A259 are less than 10,000 vehicles per day for sections in East Sussex and Kent. Typically traffic flows in August can be 15% higher than the AADT.

2.4.8 Travel demand data have been assembled to assess the range of movements being made. These data indicate that during a weekday there are at least 3 million journeys made between 0700 and 1900. Commuting trips by car comprise nearly 30% of 12-hour movements while car based business trips comprise 17% of daily journeys. Goods vehicle movements (including vans) comprise 17% of daily movements.

2.4.9

We have segmented traffic demands by trip purpose and orientation of movement. Table 2.1 provides a summary of this analysis by dividing trips down into their spatial and composition pattern. Within the highway matrices for the area, short distance trips are the largest group. Two thirds of trips within the corridor are made entirely within a single county area (e.g. car journeys within West Sussex). Twenty per cent of journeys are from the study area to the area of influence while relatively few are to London.

Movement	Car Commuting	Car Employers Business trips	Car- Other trips	Light Goods	Other Goods	Total
Core area – local movements within county	20%	10%	25%	7%	4%	67%
Core area – movements between adjacent counties	2%	1%	3%	1%	1%	6%
Core area – longer distance	0%	0%	0%	0%	0%	0%
Core area to area of influence	6%	4%	7%	2%	2%	20%
Core area to London	1%	1%	1%	0%	0%	3%
Core area to other	0%	1%	1%	0%	1%	4%
Totals	28%	17%	37%	10%	7%	100%

Table 2.1: Trip breakdown in the corridor by purpose and spatial distribution – journeys by car (source SoCoMMS model)

2.4.10

The average car journey is less than 25km and very little interaction occurs between towns more than 50km apart. As documented above, serious congestion occurs in peak periods on the approaches to towns and cities corridor-wide. Congestion can be correlated closely with a number of bottlenecks within the sub-regional highway network.

2.4.11

The highway travel demands demonstrate that, at present, there is little demand for end to end movement along the corridor. Those journeys which are made from end to end are typically using the motorway network. Many of the journeys using the network are shorter in distance between adjacent towns.

2.5

Public Transport

2.5.1

In general less than 12% of all motorised trips are by public transport, reflecting a steady decline over several decades, fuelled by an increasingly dispersed land-use pattern. Poor interchanges and a lack of integration are amongst the greatest problems affecting public transport.

Rail Demands

- 2.5.2 The rail network within the study area consists primarily of two types of route. These are the coastal line and its branches, linking Southampton through to Margate, and the radial routes connecting the south coast to London. The coastal route is characterised by its disjointed structure, both in terms of services and infrastructure. In infrastructure terms, Portsmouth, Bognor, Littlehampton, Brighton, Newhaven / Seaford and Eastbourne are all termini. Where these stations are served by through services, these have to enter and leave the stations from the same direction.
- 2.5.3 A journey from Southampton to Margate, via the south coast route would typically involve changing trains at Brighton, Hastings and Ashford and take around 5 hours to complete. The equivalent journey made by changing between London termini would take around 3 hr 30 minutes, some 1 hr 30 minutes faster than using the south coast route (source National Rail Timetable).
- 2.5.4 The radial services, which provide direct connections between London and Southampton, Portsmouth, Bognor / Littlehampton, Brighton, Eastbourne, Hastings, Ashford, Channel Tunnel, Dover, Ramsgate and Margate additionally complement parts of the south coast route.
- 2.5.5 There are 25 million annual rail trips originating in the study area. The trip purpose of rail journeys originating in the study area shows that commuting journeys to work comprise 45% of trips made. Business trips form 10% of rail journeys while 45% of journeys are for other purposes (e.g. visiting friends). Nearly 50% of journeys are made by passengers who have a car available for their trip.
- 2.5.6 Table 2.2 performs a similar analysis as undertaken for the highway matrices on rail trip characteristics. The table shows that trips to London from the corridor form 40% of the total rail trips. Of these London bound trips nearly half are related to commuting to work. This demonstrates the importance of the London commuter market to the train operators, as this is the largest individual segment (some 20% of all journeys). 'Other' journeys (such as leisure trips) to London are the second largest market segment. Local commuting journeys to work within the study area form 12% of trips.

Movement	Work	Business	School	Other	Total
Core areas – local movements within county	12%	3%	2%	11%	28%
Core area – movements between adjacent counties	4%	1%	1%	3%	9%
Core area – longer distance	0%	0%	0%	0%	0%
Core area to area of influence	8%	2%	1%	7%	18%
Core area to London	20%	4%	3%	14%	40%
Core area to other	1%	1%	0%	3%	3%
Total	45%	10%	6%	38%	100%

Table 2.2: Trip breakdown in the corridor by purpose and spatial distribution – journeys by rail (source SoCoMMS model)

Bus Demands

2.5.7 Bus timetable data have been assembled from local bus guides published by the operators and local authorities, and from the Great Britain Bus Timetable (version to June 2001). A number of operators provide services between the towns on the south coast. Inter-urban service providers include:

- Hampshire Bus;
- Provincial;
- Coastline;
- South Coast Buses; and
- East Kent.

2.5.8 In addition, there are a number of urban service providers including:

- Southampton City Transport;
- Brighton and Hove Bus Company;
- Eastbourne Buses.

2.5.9 The bus tends to play a significant role within larger conurbations (for example, carrying 20% of motorised trips in Brighton and Hove). However, across the wider corridor, bus accounts for less than 6% of motorised journeys, largely due to the difficulties in providing viable services outside of the urban areas.

2.5.10 The study sought to identify why people did not use other modes of transport. The consultation highlighted a number of issues:

- Lack of investment;
- Quality of service;
- Limited through services;
- Slow travel times;
- Buses affected by congestion;
- Reliability problems; and
- Perceived danger to personal safety.

2.5.11 Issues related to walking and cycling included:

- Perceived traffic danger;
- Poor quality footpaths;
- Lack of footways in rural areas;
- Lack of facilities for cyclists at workplaces and stations.

2.5.12 However, there were other key issues identified in the study. Transport integration was often highlighted as a major concern. This being issues related to:

- Poor integration between modes, particularly in terms of interchange;
- A lack of an integrated policy;
- Difficulties in finding out information for journeys using many modes and difficulties purchasing tickets for cross-mode journeys; as well as
- Integration of transport with land use, education and health policies.

2.5.13 Public Transport is not seen as an attractive nor an available alternative means of travel.

Walking

2.5.14 Walking plays a major role for short trips, particularly in the urban areas. 13% of journeys to work are made on foot, but this figure could potentially be much higher. It is also key to many public transport based trips for access to stations and bus stops.

Cycling:

2.5.15 Cycling accounts for 4% of journeys to work and as with walking, could account for more if facilities could be improved. There are a number of cycle routes being developed in the study area, but the network is disjointed and incomplete.

2.6 ***Ports and Airports***

2.6.1 Within the study area there are 7 ports with substantial capacity geared to handling overseas freight. These include Ramsgate, Dover, Folkestone, Newhaven, Shoreham, Portsmouth and Southampton. In addition, the Channel Tunnel also provides a key link with mainland Europe. In the last decade these ports have experienced a wide difference in their respective traffic growths. There was a steady growth in passengers crossing the Channel by sea through the 1990's until 1997. The opening of the Channel Tunnel, and the recent abolition of duty free status for goods has reduced the number of passenger movements by sea. The data shows that in 1999 Dover handled nearly 80% of international sea passenger movements from the south coast ports. By contrast, Folkestone port has now closed to cross-channel shipping and Ramsgate only operates freight services.

2.6.2 In freight terms, Southampton and Dover are clearly dominant over the other ports. In 1999 Southampton handled 53% of south coast freight while Dover handled 31%. The cross-channel movement of cars is now dominated by Dover and the Channel Tunnel, with Portsmouth also having a significant market share. As with the car market, Dover and the Channel Tunnel handle the largest number of HGVs.

2.6.3 With notable exceptions, such as Southampton Port, most freight movements are by road and are generally between the study area and other parts of the UK on a north-south axis. There are not currently, nor are there projected to be, major east-west movements of freight within the corridor.

2.6.4 Port operators regard the north-south routes as the key access routes for freight movements. These include the M20, M3, A34 and the rail routes to Dover, Southampton and the Channel Tunnel. The south coast corridor is important for local access for employees of the ports.

2.6.5 Within the study area there are airports at Southampton, Lydd, Shoreham and Manston. Southampton airport positions itself as the leading business airport for central southern England. Its passenger profile has a high business traveller focus.

In 2000 there were 855,000 passengers using the airport, of which 219,000 were on European flights. Shoreham and Lydd airports cater for light aircraft and helicopters. Manston airport (Kent International airport) is owned by the Wiggins Group on the site of a former RAF air base located close to Ramsgate. This airport is principally used for freight, with an anticipated demand of 6,000 tonnes per month in 2001.

2.6.6 Gatwick airport lies some 25 miles north of the study area and is London's second busiest airport providing a mix of domestic, international, charter, freight and business services. Whilst not being in the corridor itself, it provides a major transport and employment hub in close proximity to the south coast. The airport is served by rail directly from a number of south coast towns.

2.7 *Accessibility*

2.7.1 Concerns were also highlighted over accessibility within the study area, especially within the business community. This issue was considered to arise due to;

- Poor levels of public transport provision;
- Under-developed highway network;
- High levels of congestion; and
- Remoteness of parts of the study area

2.8 *Environment*

2.8.1 Throughout the consultation, there was a general concern about increasing car use and its impact on the environment. In terms of increased noise, air pollution, reduced air quality and visual intrusion.

2.8.2 In addition, it is noted that in environmental terms, the area has a number of unique features which are of national importance. The mapping of biodiversity, landscape, townscape and heritage constraints highlights the sensitive nature of the area. Within the study area and the area of influence are a number of areas of outstanding natural beauty (AONBs) including the South Downs, High Weald and New Forest. Several local authority districts within the study area have large areas within the AONBs. These AONBs reflect the distinctive landscapes and habitats of the area. There are a number of Heritage Coast areas such as around Beachy Head, which have been designated for their geology, vegetation and wildfowl importance. The townscape of many of the seaside urban areas reflect the towns' development during Regency and Victorian times as recreational centres.

2.8.3 A key challenge for the strategy will be to take account of environmental considerations.

2.9 ***Safety***

2.9.1 Road safety was also identified as a key issue throughout the study area, whether its in the city or town, urban or rural area. All local authorities have recognised this within their transport plans. A common feature identified was the issue of traffic speed and driver behaviour. In putting forward proposals within this study, consideration must be given to improving safety for all users.

2.10 ***Summary***

2.10.1 Analysis of the transport situation, in terms of problems and issues has been supplemented by the three extensive rounds of public consultation. These have endorsed the observations and data collection and added a number of additional themes that have influenced the development of the strategy:

- Balance: a willingness exists to make greater use of an improved public transport service, but at the same time, significant improvements to the highway network are required, particularly at bottlenecks;
- Managed solutions: a wide appreciation exists that easy solutions do not exist for current problems. A mix of public transport, private transport and demand management measures is recognised as the most likely way forward. Little support exists for the ‘all road’ or ‘rail only’ solutions;
- Better transport facilities: a wide support exists for a significant improvement in the quality of transport services and infrastructure, coupled with a realistic view of the need to promote schemes that have a reasonable chance of eventual delivery;
- Concerns for safety, the environment, accessibility and integration- these have been highlighted at each of the consultation workshops.

2.10.2 One key point to emerge from the analysis concerns the geography of the corridor. The settlement pattern reflects that of a relatively complex sub-region, rather than a conventional corridor, in that trips are centred around three sub-regional centres (Portsmouth-Southampton; Brighton; and the growing town of Ashford) with London serving as the dominant regional centre for the corridor as a whole. This can be contrasted with a conventional linear corridor serving a dominant regional or national centre (eg: London) from one or two major sub-regional centres via a larger number of lesser towns.

2.10.3 The demand for travel on the SoCoMMS corridor, clearly demonstrated by the data, reflects a hierarchy of movements:

- Heavy flows through the area of influence to and from London;
- Flows centred on sub-regional movements to and from the three principal centres;
- Other significant movements focussed upon smaller towns such as Chichester, Hove, Eastbourne, Hastings, Dover, etc.

2.10.4 There are relatively few long-distance movements along the corridor and although these will increase as Ashford grows and the Channel Tunnel attracts more traffic, with the existing settlement pattern, such movements will constitute a small minority of total multi-modal traffic.

2.10.5 The emphasis in developing our strategy has been to maintain the existing settlement pattern such that the volume and distribution of traffic movements are not altered.

3 The Policy Context for the Future

3.1 *The Policy Context*

3.1.1 A review has been undertaken of transport policy from the national to local levels. These provide the framework within which the SoCoMMS strategy has to be assembled. In 1998 the Government published a transport White Paper 'A New Deal for Transport: Better for Everyone'. This established the framework for an Integrated Transport Policy and set out five main criteria for transport including:

- environmental impact;
- safety;
- economy;
- accessibility; and
- integration.

3.1.2 These criteria have formed the key objectives for the multi modal studies to assess the impact of their proposals. Within each of the key objectives a series of sub-objectives have been identified. These objectives provide a useful benchmark with which to assess existing transport issues and problems.

3.1.3 Against the backdrop of these objectives, the Government has announced a 10-Year Transport Plan (to 2010). The vision is that "by 2010 the UK will have a transport system that provides:

- modern, high quality public transport, both locally and nationally. People will have more choice about how they travel, and more will use public transport;
- more light rail systems and attractive bus services that are fully accessible and integrated with other types of transport;
- high quality park and ride schemes so that people do not have to drive into congested town centres;
- easier access to jobs and services through improved transport links to regeneration areas and better land use planning;
- a modern train fleet, with reliable and more frequent services, and faster trains cutting inter-city journey times;
- a well-maintained road network with real-time driver information for strategic routes and reduced congestion;

- fully integrated public transport information, booking and ticketing systems, with a single ticket or card covering the whole journey;
- safer and more secure transport accessible to all; and
- a transport system that makes less impact on the environment.”

3.1.4

The 10 Year Plan for Transport, published in July 2000, set down eight Public Service Agreement targets. These are shown in Table 3.1. The outcomes of the multi-modal studies are a key contribution to meeting many of these targets.

Table 3.1
Department’s Public Sector Agreement (PSA) Targets

1. to reduce **road congestion** on the inter-urban network and in large urban areas in England below current levels by 2010 by promoting integrated transport solutions and investing in public transport and the road network
2. to increase **rail** use in Great Britain (measured in passenger kilometres) **from 2000 levels by 50% by 2010**, with investment in infrastructure and capacity, while at the same time securing improvements in punctuality and reliability
3. to increase **bus** use in England (measured by the number of passenger journeys) from 2000 levels by 10% by 2010, while at the same time securing improvements in punctuality and reliability
4. to double **light rail** use in England (measured by the number of passenger journeys) by 2010 from 2000 levels
5. to cut journey times on **London Underground** services by increasing capacity and reducing delays. Specific targets will be agreed with the Mayor after the Public Private Partnership has been established
6. to improve **air quality** by meeting our National Air Quality Strategy targets for carbon monoxide, lead, nitrogen dioxide, particles, sulphur dioxide, benzene and 1-3 butadiene
7. to reduce **greenhouse gas** emissions by 12.5% from 1990 levels, and move towards a 20% reduction in carbon dioxide emissions by 2010
8. to reduce the number of people killed or seriously injured in Great Britain in **road accidents by 40%** by 2010 and the number of children killed or seriously injured by 50%, compared with the average for 1994-98.

3.1.5 The Regional Planning Guidance for the South East (RPG9) covers the period up to 2016 and sets the framework for the longer term future. The primary purpose of this guidance is to provide a regional framework for the preparation of local authority development plans. Its other purpose is to provide the spatial framework for other strategies and programmes which include the preparation of local transport plans.

3.1.6 The main principles that should govern the continuing development of the region as stated in the guidance include those given below:

- Urban areas should become the main focus for development through making them more attractive, accessible, and better able to attract investment.
- Green development (namely, on previously undeveloped land) 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.
- There should be continued protection and enhancement of the region's biodiversity, internationally and nationally important nature conservation areas, and enhancement of its landscape, and built and historic heritage.
- Access to jobs, services, leisure and cultural facilities 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.
- 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.

3.1.7 A key feature of the strategy is the concentration of development in urban areas. Town centres should be the normal focus of retailing and services requiring accessibility by large numbers of people, transport investment should be directed to support an urban renaissance. RPG9 contains eight policy statements related to the regional transport strategy:

- Policies should be developed which minimise the distance which people need to travel whilst enhancing choice and ease of access to activities, taking into account the needs of all users including disabled people and others with reduced mobility.

- Local authorities should work in partnership with other groups to develop travel awareness strategies designed to encourage change in travel habits which complement and are consistent with the proposed land use strategy.
- Local authorities should, in consultation with adjoining authorities, adopt maximum parking standards for all new development proposals.
- Walking and cycling should be vigorously promoted especially for shorter distances, as the healthiest and most environmentally-friendly ways to travel.
- Public transport (bus, train and water-borne) should be improved to enable it to compete more effectively with the private car and to increase its share of total travel.
- A fully integrated freight distribution system should be promoted which makes the most efficient and effective use of road, rail, inland waterways and coastal shipping.
- The sustainable development of seaports and port facilities (including road and rail access to them) should be supported for international deep sea, short sea and coastal shipping.
- Any surface access measures necessary to cater for airport growth either within existing planned limits or for further expansion, should be sustainable. Any further development associated with such airport growth should also be sustainable in nature.
- A series of Priority Areas for Economic Regeneration (PAERs) are identified within RPG9. They are located in South Hampshire, Southampton, Portsmouth, the Sussex coastal towns (from Shoreham Harbour to Hastings) and the former coalfields and coastal towns of East Kent. Each PAER has its own distinctive set of problems and will need individually tailored strategies.

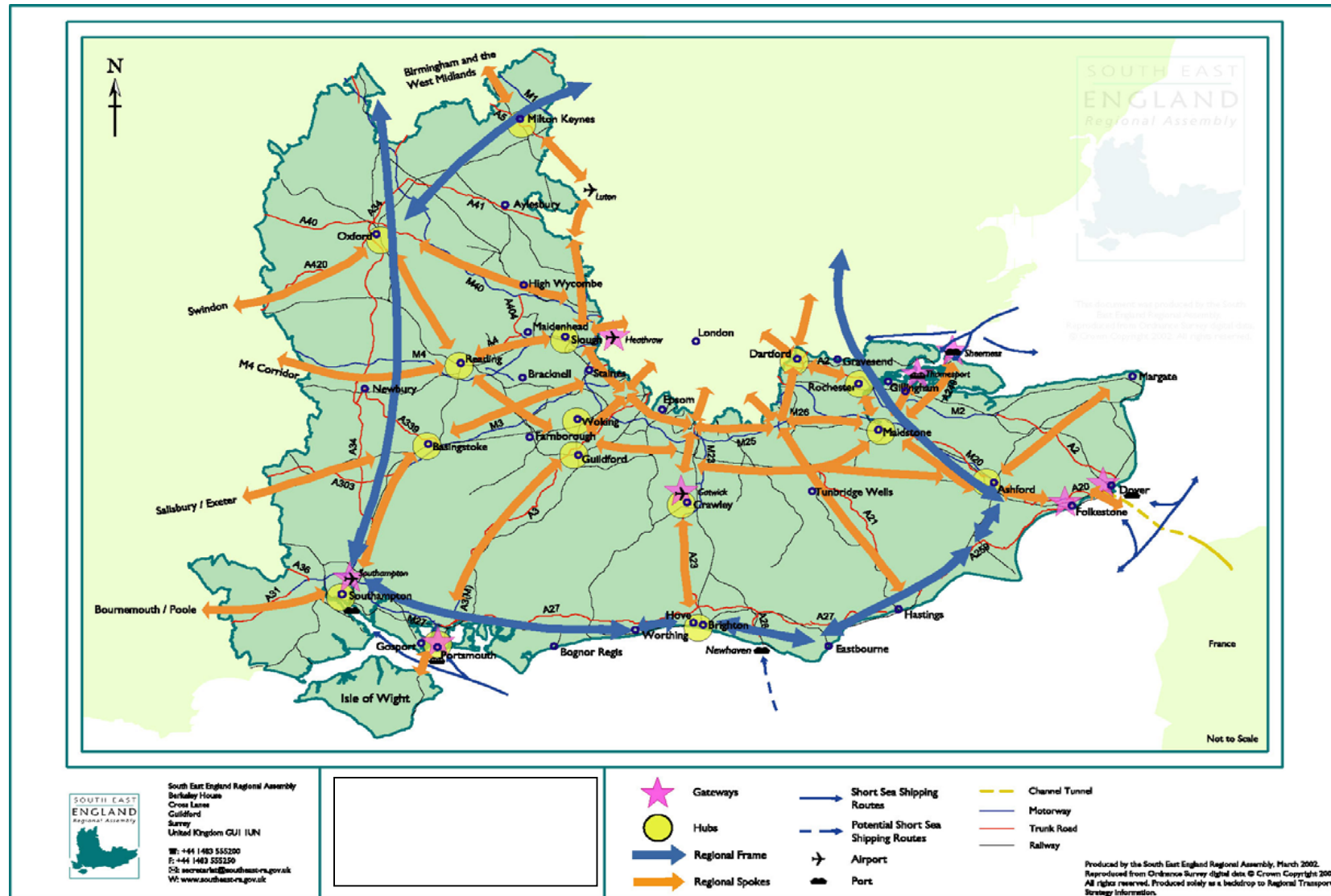
3.1.8

As with the broad, national policies, these regional priorities also imply a need for balanced development. This need is represented strongly within the recently published transport strategy of the South East England Regional Assembly (SEERA). SEERA has produced a vision statement which closely mirrors the work undertaken within SoCoMMS and is as relevant to the study corridor as to the South East as a whole:

'to create a high quality transport system to act as a catalyst for continued economic growth and provide an improved quality of life for all in a sustainable, socially inclusive manner: a regional transport network which by 2021 matches the best in north west Europe'.

- 3.1.9* This reflects the policy agenda of creating an economically vibrant geographical region, mixing an increased level of internal sustainability (jobs and industries) with improved links to major commercial centres in Southern England and mainland Europe.
- 3.1.10* SEERA also emphasise the importance of sub-regional development within the South-east and advances the notion of ‘hubs’ as one of the essential building blocks of a transport strategy. Hubs reinforce the importance of a hierarchy of settlements, each level fulfilling a particular set of needs in terms of employment, services, etc. Hubs also emphasise the local dimension in transport planning, in particular, the need to provide and support as wide a range of activities as possible within a local arena. This contributes to a reduction in the number and length of vehicular trips and promotes more sustainable communities. Figure 3.1 reproduces SEERAs view of regional hubs and gateways.
- 3.1.11* SEERA’s view of the role of hubs in the geographical development of the wider region accords entirely with the analysis of traffic patterns and trends undertaken within SoCoMMS. Three major hubs can be identified within the SoCoMMS region:
- Ashford, due to grow by around 20% over the next decade and occupying a key strategic location;
 - Brighton and Hove;
 - Southampton-Portsmouth, regarded as a continuous conurbation within the strategy (including Gosport and Havant).
- 3.1.12* A second tier of settlement can be identified which complements the larger hubs and whose position within the regional hierarchy should not be compromised. These include Dover, Margate, Folkestone, Hastings, Eastbourne, Lewes, Worthing, Bognor Regis and Chichester.
- 3.1.13* The top-down approach thus supports the bottom-up in proposing that the study area be treated as several sub-regions and not, in the traditional sense, as a linear corridor. This geographical perspective has heavily influenced the subsequent development of the strategy in terms of proposed transport infrastructure and services.

Figure 3.1 SEERA's Transport hubs and spokes (Source- Regional Transport Strategy)



3.2

The Future Situation- 2016 Do-minimum

3.2.1

A future year Reference Case has been developed for 2016. As far as possible, this has attempted to maintain consistency with the other multi-modal studies, which are proceeding simultaneously. In so doing, we have used the latest TEMPRO projections (a set of forecasts produced by the Department for Transport) as control totals at the County level for those counties in the study area within the South East Region. In order to determine distributions across the Counties, reference has been made to the relevant County Structure Plans, which set out housing allocations for each of the districts. We have also consulted the County authorities to obtain their views on the distribution of these figures between the respective districts in their area.

3.2.2

The future year planning data indicates that some 215,000 new houses would be required between 1998 and 2016 in the districts that cover the SoCoMMS study area. This relates to an 18% increase in the household stock within the area. This will significantly increase the demand for travel. The planning data forecast for the reference case indicates that there could be an additional 10% of jobs compared to 1998.

3.2.3

A key challenge facing the south coast is the ability of the transport network to cater for future development pressures.

3.2.4

By 2016 there are a number of transport initiatives that will have been completed. For the purposes of SoCoMMS, two levels of the do-minimum have been produced. These are as follows:

- **Do-minimum** = schemes which are fully committed, funded and completed statutory procedures
- **Do-minimum plus** = those schemes which are 'highly likely' to be in place by 2016.

3.2.5

Within the Do-minimum, the network for 2016 includes:

- **Trunk Roads Schemes**
- M2 widening to D4 standard between Cobham and junction 4
- A2- Bean – Cobham Widening Phase 1 (Bean-Tolgate) -D4 standard
- A2 – Bean – Cobham Widening Phase 2 (Tolgate- Cobham) – D4 standard

- A21 - Lamberhurst bypass (S of Maidstone) – D2 standard
- A27 - Polegate bypass- D2 standard
- A249 - Iwade – Queenborough Improvement (Kent) – D2 standard
- M25 - J12-J15 Widening (Surrey) –D5/D6 standard

- **Major Rail Improvements**
- Completion of CTRL to St Pancras – currently under construction (this will need to take into account changes to service patterns on the existing network)
- Virgin Cross- Country service improvements

- **Franchise Proposals- The following schemes could be taken as being committed in the GOVIA bid.**
- Enhancements to South London Metro;
- Arun Valley Line Investment
- Brighton Mainline Improvements (Windmill Bridge Junction and Gatwick Airport)
- Oxted to Uckfield Electrification
- Ashford to Hastings electrification
- South Coast Route improvements (Hove-Worthing)

- **Other rail franchise proposals include:**
- Portsmouth to Southampton service upgrade;
- Chandlers Ford station;

- **Schemes from Multi Modal Studies and Road Based Studies**
- A27 Worthing ITS output: three signal junctions (two roundabouts and Lyons Farm signals
- M27 junction schemes from M27 ITS

- **Local Transport Plans-** Through the Local Transport Plan process, a number of initiatives have been accepted for funding in the December 2000 statement. These include:
 - Crawley Fastway (guided bus scheme in the Gatwick Area)
 - East Kent Access – A256 upgrade to dual carriageway
 - South Hampshire Rapid Transit (Portsmouth- Fareham)
 - Portsmouth- Waterlooville-Horndean Bus Improvements
 - A280 Angmering Bypass

- **Other Congestion and Safety Improvements** Within the 10 Year Transport Plan there are also a number of smaller scale congestion and safety improvements. Those, which can be reflected in the model, are included below.
- M3 Junction 4 Junction Improvements
- M3 Junction 6 Junction Improvements
- M4 Junction 4-4B Junction Improvements
- M4 Junctions 8 and 9 Improvements
- A249 Stockbury- roundabout signals
- M25 Junction Improvements at Junction 5 and 6
- M23 Junction 9 and Junction 10 Signal Improvements

3.2.6

In addition, there are other schemes which have been assumed in the Do-minimum Plus networks. They are considered to be those that are committed to be in place by 2016 but have yet to have their funding status agreed or complete statutory procedures.

- **Trunk Road Schemes**
- A2/A282 – Dartford Improvement (M25) – D4 standard
- A23 - Coulsdon Inner Relief Road (S London)- D2 standard
- **Local Road Schemes**
- A36 Wylve Valley Relief Road
- **Multi-modal studies and Road Based Studies**
- A21 Tonbridge to Pembury Improvements
- A3 Hindhead Common Tunnel
- Service improvements Wadhurst to Tonbridge
- **Other Schemes**
- A228 Main Road to Ropers Lane (Phase 1)
- A228 Ropers Lane to Grain (Phase 2)
- Newhaven Port Access Road
- East Kent Access Phase 2
- A24 Horsham – Capel Improvement
- **Other potential measures identified in Transport Plans:**
- Waterloo- Exeter service improvements
- A259 Bognor Regis Relief Road.

- M20 junction 10a

3.2.7 The key statistics for the core area for these scenarios are broadly similar with the do-minimum plus having a greater impact on rail patronage.

- **Do-minimum Plus**
- Vehicle trip origins are forecast to grow by 28%
- Vehicle kilometres are forecast to increase by 30%
- Vehicle hour increases by 51%
- Rail passengers are forecast to grow by 31%
- The largest growth in rail passengers is in Kent

3.2.8 The most serious v/c problems (locations where flow exceeds capacity ratio in the peak is greater than 0.8) identified on the coastal trunk route (M27/A27/A259) are identified as:

- M27 Junction 2 to 12;
- A27 (M27 to Westbourne);
- A27 Chichester bypass;
- A27 Arundel;
- A27 Worthing- Lancing;
- A27 Shoreham –Portslade;
- A27 Hangleton- A27 Lewes;
- A27 Beddingham level crossing;
- A259 Bexhill-Hastings;
- A2 Dover- A256 junction
- A299 Birchington.

3.2.9 **The travel forecasts for the South Coast indicate that travel demands will grow and that there will be a worsening in congestion if nothing is done.**

3.2.10 For the purposes of the strategy development, it is the Do-minimum plus results which have been taken as the 2016 reference case against which comparisons have been made. The comparison is outlined in the Strategy Appraisal Report.

4 Strategy Development Process

4.1 *Principles of Strategy Development*

4.1.1 The development of the strategy reflects the findings of both the problem and policy-led analyses. The process has used the SoCoMMS transport model to review future transport problems within the corridor. From this basis, the study team have considered a range of alternative measures which could assist transport in the study area.

4.1.2 The principles of the SoCoMMS strategy development can thus be summarised as seeking:

- Compliance with the Government's broad transport objectives, as set out within the GOMMMS framework and which form the specific objectives of the SoCoMMS study;
- Reflection of the extensive analysis and modelling of current and future problems across the transport system;
- Compatibility with the regional policy agenda, led by the goal of sustainable economic regeneration;
- Close compatibility with SEERAs' vision for transport;
- A spatial perspective that seeks to reinforce the current settlement pattern, in terms of the need to avoid generating additional, longer trips on the network and support the development of sub-regional hubs;
- Recognition that infrastructure and service improvements must be accompanied by persuasive measures to manage demand and utilise enhanced public transport;
- A balanced approach to the development of each mode within an environmentally sustainable framework.

4.1.3 The development of the strategy has been in response to a set of broad, cross-sector regional aspirations, as well as to address specific transport problems. In short, the strategy aims to address and support issues beyond the boundary of the transport system alone. Chief amongst these issues is urban regeneration. The strategy aims to facilitate regeneration to reinforce sub-regional hubs (rather than provide solely for end-to-end movements) in order to both address specific problems and support the wider policy agenda.

4.1.4

These principles can be translated into a list of key needs upon which the detailed components of the strategy have been developed:

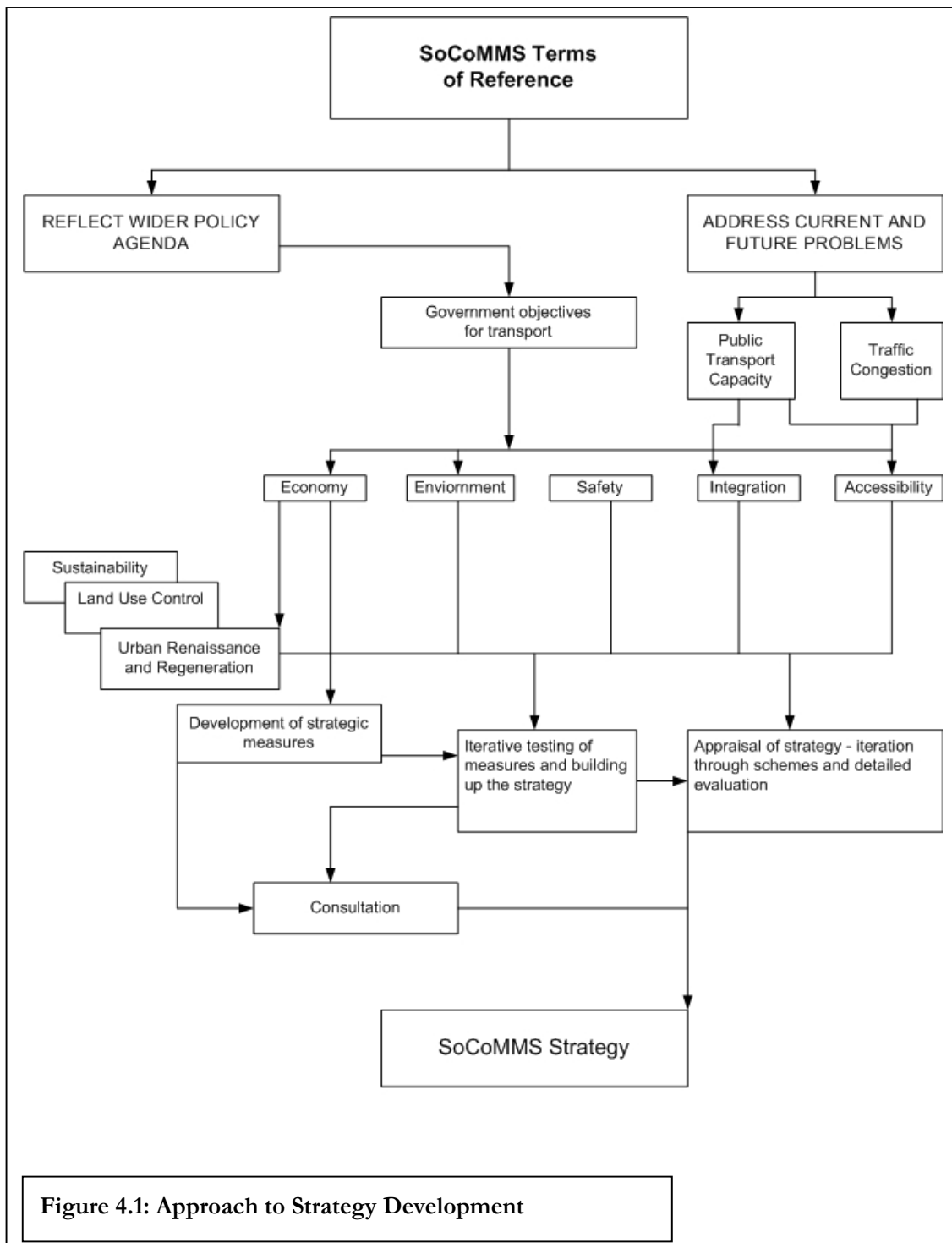
- Focus on highway bottlenecks and upon improving sub-regional accessibility; i.e. a local problem-centred approach to highway developments;
- For the minority of trips over a longer distance on the corridor, rail should be developed to become the ‘mode of first choice’, in order to limit traffic generation and exploit the current basic rail alignment;
- Rail service and infrastructure enhancements to additionally support shorter trip lengths on the corridor (e.g. through a mix of enhanced service levels and improved interchanges);
- Compatibility with radial rail enhancements on high density London routes (e.g.: Brighton Main Line, Arun Valley, etc);
- Avoidance of measures likely to alter settlement patterns within the corridor and further generate long distance vehicle trips;
- Support to schemes and developments likely to promote urban regeneration, including local highways, urban public transport (particularly bus), park and ride, etc;
- Incorporation of local measures into the strategy (bus, green travel plans, walking, cycling, etc) in recognition of the sub-regional issues and to support the emphasis on sustainable regeneration;
- Balance, between modes and between economic and environmental considerations.

4.1.5

These strategic principles, under-pinned by the problem and policy analysis, form the basis for the recommended schemes and service options which are described in detail in later chapters. In practice, these principles have influenced the detailed design of the strategy in three ways:

- In terms of the measures and options put forward to test, which were developed with the specific principles, problems and policy issues in mind;
- Through the incremental approach to building the strategy around a core set of components; and
- In terms of the content of the appraisal framework used to evaluate individual components and the strategy as a whole (though in practice, this is largely fixed by the GOMMMS criteria).

- 4.1.6 The measures and options initially put forward were devised to directly address the problem, and policy themes listed above (removing bottlenecks; enhancing urban accessibility; supporting the settlement pattern; etc). An important associated consideration has been the need to achieve balance between the needs of a variety of stakeholders. This recognises the fact that clear conflicts exist between some issues, for example, some types of economic development and environmental sustainability.
- 4.1.7 The incremental methodology by which the detailed strategy was constructed involved an iterative process of testing various permutations of strategic components against a simplified GOMMMS appraisal framework (economics, accessibility, environment, integration and safety). In short, a large number of tests were conducted involving successively more or less highways, railways, light rail, demand management, etc in order to identify the broad mix of measures which best addressed the problems and policy agenda. The process became increasingly scheme specific with successive iterations, culminating in the recommended strategy.
- 4.1.8 The appraisal process allowed a final iteration and refinement of the strategy, as detailed economic, environmental and accessibility issues were taken into account (as prescribed within GOMMMS). At this stage, some significant modifications were made to individual elements of the strategy (e.g.: rail infrastructure, the alignment of highway improvements, selection of corridors for bus priority) though the principal focus of the strategy proved to be robust. These are discussed later in the chapter.
- 4.1.9 Figure 4.1 summarises the approach to development of the strategy.
- 4.1.10 Concurrent with these activities, alternative strategies were reviewed and tested, for instance highway dominated; public transport dominated; area-wide road pricing; etc. This provided a detailed account of the comparative effects of pursuing a different approach to transport in the corridor from that recommended by the study.



5 Initial Option testing

5.1 *The Development, Testing and Sifting of Measures*

5.1.1 The development of the SoCoMMS strategy, following the process outlined in chapter 4, has involved a large variety of tests and permutations of tests, using the strategic model. The measures were proposed in response to the analysis of policies and problems and were subjected to a process of sifting, initial appraisal and comprehensive evaluation tests to deliver a strategy that best addresses both problems and policies.

5.1.2 An initial sifting was undertaken (reported in the Initial Options Testing Report). This drew on measures identified in previous studies as well as suggestions made during the second consultation phase in October 2001. Measures were initially tested in isolation, such as individual rail or highway schemes, policy measures such as trunk road tolls, urban tolls, or reduced fares. Sixty tests were undertaken, summarised below:

5.2 *Options Tested*

5.2.1 A series of options tests were undertaken at the initial stage of the strategy development. These have included a series of individual elements that were tested based on road, public transport, demand management or urban interventions. The testing also included a series of concept tests, which were undertaken to assess their impact on mode shares and highway problems. These tests have been undertaken against the 2016 do-minimum plus scenario. The aim was to examine the potential contribution that alternative approaches could make to the highway problems and modal transfer in the corridor.

5.2.2 The individual tests that have been undertaken are outlined in this chapter. The Strategic model was used to assess the contribution of each element in isolation. Each test has been given an identifier code. Other elements, which cannot be modelled directly, were also reviewed. The summary list of tests is given in the table below. Each test had a reference Id number to assist the monitoring of the runs.

Test Id	Description
	RAIL- Service Improvements
Test5	Rail stock & station quality improvements (core)
Test6	Access to stations (core)
Test7	Rail reduced leisure fares (core)
Test18	Rail Reduced fares (all segments)
Test8	Rail Travel time test
Test12	Tests 5 + 6 + 7 + 8
TestR1	Speed improvements
TestR2	Station rationalisation
TestR10	Southampton- Ashford hourly service
TestR11	Southampton- Ashford half-hourly service
TestR12	Southampton- Ashford three/hour service
TestR7	London focus
TestR17	Fast Train Southampton-Ashford
TestR18	Semi Fast Southampton-Ashford
TestR19	Semi-fast Southampton-Margate
	Infrastructure Improvements
TestR5	E Kent & S Hants Capacity & freq enhancements
TestR6	Test R5 + more enhancements
TestR3	New stations and chords
TestR4	Brighton Cross
TestR8	Lewes-Uckfield
TestR15	Lewes-Uckfield-Tunbridge Wells
TestR16	TGV Southampton-Ashford
	URBAN INITIATIVES
	Persuasive
TestD1	low urban intervention, major towns
TestD2	low urban intervention, major & minor towns
TestD3	highlevel intervention, major towns
TestD4	high level intervention, major & minor towns
	Coercive
TestD5	Town Centre Parking Restraint
Test11	Urban congestion charging
TestD6	PNR parking across study area
	Infrastructure Based
TestR13	South Coast metros in urban areas
TestR14	South Coast metros in urban areas with SHRTS

Test Id	Description
Test R20	Metros with park and ride
	STRATEGIC INTERVENTIONS
Test15	Entry charge to National Park
Test9	Toll motorways
Test10	Toll motorways & trunk
Test14	Toll all roads
Test13	Tests 9 + 11 + 12
	HIGHWAYS
	Individual Elements
Test H15	M27 Upgrade
TestH2	Arundel bypass south
TestH1	Arundel bypass north
TestH6	Worthing-Lancing existing alignment
TestH7	Worthing-Lancing tunnel
TestH8	Beddingham LC
TestH9	Wilmington bypass
TestH10	Polegate western bypass
TestH11	Bexhill-Hastings bypass
TestH12	Bexhill-Hastings link road
TestH3	Chichester bypass north
TestH4	Chichester bypass south
TestH5	Chichester bypass upgrade existing alignment
TestH13	Winchelsea-Rye bypass
TestH14	A2 Lyddon-Dover
Test H16	A256 Upgrade
	Packages of Highway Schemes
Test1	Remitted schemes & Worthing-Lancing improvement
Test2	Test 1 + Bexhill-Hastings bypass
Test3	Test 2 + new Chichester bypass
Test4	Upgrade existing A27 to A259 to D2
Test16	New motorway Havant- Ashford
Test17	New Tolled motorway Havant- Ashford

5.3

5.3.1

Rail Based Tests

The rail tests were based on a series of combinations of alternative service and infrastructure improvements. These have sought to test alternative ways of improving ‘coastway’ services through alternative timetable arrangements.

5.3.2

The service improvements that have been tested include:

- Rail stock & station quality improvements (core);
- Improve access to stations (core);
- Reduced fares – either for leisure or all segments (core);
- Journey time improvement- direct services (core);
- Upgrade existing infrastructure on existing network to achieve the optimal level of service;
- Station rationalisation;
- Southampton- Ashford services of different frequencies.

5.3.3

A series of initial concept tests were undertaken to assess the alternative contributions of improvements to service quality, fares and travel times. **The Quality test** (Test 5) assumed that there would be improvements in the rolling stock and to the station environments. This issue had been identified during the consultation as being a key deficiency of the rail system. The test was reflected by a reduction of the boarding and interchange penalty of 4 minutes at all stations within the core area. No other improvements were assumed outside of the core area and no other changes in the rail timetable was assumed.

5.3.4

The Access to Stations Test (Test 6) assumed a reduction of 25% in the journey time on zone connectors to rail stations in the core area. The issue of access and integration had been identified during the consultation as a major problem with using rail services. The reduction of travel times on the connectors was to reflect improvements in access such as better interchange, improved walking and cycling access and better bus service provision. This was assumed only in the core area.

5.3.5

Two tests were undertaken with regard to fares. One test was undertaken with regard to **leisure fares**. These are unregulated in agreements with the rail companies. A reduction of 30% in leisure fares within the core area was assumed (Test 7).

5.3.6

The concept test, which examined in-vehicle travel times by rail, was used to assess the degree of modal transfer that might be achieved with the ultimate in rail services. This **Rail travel time test** (Test 8) assumed that all services within the core area could operate at 100 km/h with limited interchange penalty. This speed is equivalent to that which fast trains can operate on the Brighton Main Line.

- 5.3.7 **A Rail ‘Utopia’ Concept** test was used (Test 12) to assess the combined effect of the fare, quality, access and in-vehicle time improvements (based on assumptions in tests 5, 6 7 and 8). The Rail Utopia test was used as a top end of the range example to assess the potential for modal transfer.
- 5.3.8 **A Speed Improvements Test** (Test R1) was used to provide a more realistic assessment of travel time improvements. This test assumed that services on the south coast could operate within the potential, which is being achieved elsewhere on the system. The Thameslink services north of St Pancras were used as a benchmark. The test re-timed all service, within an area between the coast and a boundary defined as Sittingbourne, Swanley, Tonbridge, Wivelsfield, Horsham, Haslemere and Basingstoke, to operate faster reflecting improvements in power supply. The service pattern was assumed to be that within the Do-minimum plus timetable.
- 5.3.9 A second test was undertaken to examine the impact on patronage if the provision of stations along the south coast was rationalised. There are 102 stations within the study area of which 25% have fewer than 100 boarders per day. The **station rationalisation test** (Test R2) assumed the speed improvements outlined above were enhanced by the closure of a number of stations (Dumpton Park, Martin Mill, Sturry, Wye, Ham Street, Doleham, Three Oaks, Collington, Normans Bay, Pevensey Bay, Berwick, Glynde, Bishopstone, Newhaven Harbour, Aldrington, Fishergate, Southwick, Ford, Bosham, Nutbourne, Warblington, Hamble, Sholing, Bitterne and Millbrook). The aim was to examine the impact on passenger demands of rationalising the number of station stops and reducing travel times.
- 5.3.10 A replacement bus service was assumed to serve these intermediate stations and provide connections to the main towns. The bus service was assumed to have a 30 minute headway and run from Ashford to Southampton calling at all the stations listed above. The service would follow the route of the rail line operating via Eastbourne, Brighton and Littlehampton.
- 5.3.11 A series of tests were undertaken to assess the impact of providing additional coastway services through the use of more longer distance train services along the corridor. A **Southampton to Ashford** service was tested at three headway levels, hourly, half-hourly and three per hour (Tests R10, R11 and R12). The services were assumed to call at Southampton, Fareham, Havant, Chichester, Worthing, Brighton, Lewes, Eastbourne, Hastings and Ashford.

5.3.12 A series of infrastructure improvements were also assumed in a range of tests. These included:

- Infrastructure enhancements to existing lines (track improvements, passing loop, signal enhancements);
- Willingdon Chord- a link at Hampden Park allowing trains to operate east to west without the need to serve Eastbourne;
- Brighton Cross- the provision of an east-west link at Brighton;
- Eastleigh Chord- allowing trains to operate from the Hedge End line to Southampton Airport Parkway;
- Lewes-Uckfield;
- Eridge Tunbridge Wells; and
- A high speed service along the coastal route.

5.3.13 **The Initial Infrastructure and Capacity Enhancement** (Test R5) assumed the upgrade of the coastway track such that additional capacity and frequency enhancements could be provided. In East Kent (Test R5) the basic assumption was made that the existing service frequencies for trains to Ramsgate, Margate, Dover and Canterbury were doubled. In addition, the current London-Faversham services was assumed to be extended from Faversham to Margate, Ramsgate Canterbury and Ashford (30 minute headway).

5.3.14 On the Coastway, Test R5 assumed the following services were enhanced;

- Brighton to Ashford (30 minute headway);
- Brighton to Hastings (30 minute headway);
- Brighton to Newhaven (15 minute headway);
- Brighton to Worthing (15 minute headway);
- New hourly service between Brighton to Bognor;
- New hourly service Littlehampton to Portsmouth (all stations).

5.3.15 In South Hampshire, the Southampton to Portsmouth services were assumed to be upgraded.

5.3.16 A **Second Level of Enhancements** were assumed in Test R6. This developed the timetable used for Test R5 and included:

- The Willingdon Chord;
- New stations at Stone Cross, St Leonards Marina, Glyne Gap.

5.3.17

The following service enhancements were assumed:

- The extension of London to Dover Priory services to Folkestone and Ashford;
- New service Ashford to Cooden Beach (which in combination with the Brighton-Ashford service was assumed to provide the Bexhill-Ore metro);
- Brighton to Ashford service diverted via Willingdon Chord and does not serve Eastbourne;
- Brighton to Hastings service diverted via Willingdon Chord and does not serve Eastbourne;
- Brighton to Worthing service enhanced to 3 /hour;
- Brighton to Bognor service enhanced to 2/hour;
- Littlehampton to Portsmouth (all stations) service enhanced to 2/hour;
- New service Brighton to Southampton (hourly); and
- New service Portsmouth to Reading.

5.3.18

The provision of the Willingdon and Eastleigh Chords was assumed in a **New Infrastructure Test** (Test R3). This assumed that the power supply improvements outlined above were also included. The test assumed that with the Willingdon Chord there was a new station provided at Stone Cross. A new dedicated service was provided between Stone Cross- Hampden Park and Eastbourne (8 trains per hour). In this test the Brighton to Ashford, Hastings and Eastbourne trains were diverted via the chord and did not serve Eastbourne (all calling at Stone Cross). The Eastbourne Thameslink service was also assumed to be diverted to Hastings.

5.3.19

With the Eastleigh Chord all services operating via Hamble were diverted through Hedge End. Local services (South West Trains) were assumed to call at all stations while the fast services were assumed to call at Southampton Airport Parkway. The South Hampshire Rapid Transit was assumed to be extended from Fareham to Southampton via the Hamble line.

5.3.20

The **Brighton Cross test** (Test R4) assumed the provision of a new east to west link near the Brighton depot. A new station (Brighton Cross) was assumed as an

interchange between the London line and the E-W route. Through east-west trains from London Road to Hove would not need to serve Brighton station. The test assumed that all London line services (Thameslink, South Central and Virgin Cross Country) called at Brighton Cross. The coastway services using the Brighton Cross were assumed in this test as:

- Newhaven to Worthing service (2 trains per hour)
- Portsmouth to Eastbourne (hourly)
- Littlehampton to Eastbourne (hourly)
- Eastbourne to Bognor Regis (hourly)

5.3.21

An alternative approach to providing increased coastway services was assumed in the **London Focus** test (Test R7). The theme of this test was to provide additional London bound trains that served a section of the coastway (L-shaped services). The test assumed that the power supply improvements outlined above for test R1 were also included. The test assumed:

- Willingdon Chord;
- Eastleigh Chord;
- New stations at Stone Cross and Shoreham Airport;
- Closure of stations at Doleham, Three Oaks, Collington, Normans Bay, Pevensey Bay, Aldrington, Fishergate, Shoreham, East Worthing, West Worthing and Goring;
- East Kent services upgraded to higher frequency;
- Rye- London service via Hastings and Wadhurst (every 30 minutes);
- Brighton to Hastings service every 30 minutes;
- Littlehampton to Brighton service every 30 minutes;
- Portsmouth-Chichester-Arundel-London service every hour;
- New service Southampton to London (via Eastleigh Chord) every hour;
- Additional services Eastbourne to Victoria, and Bognor to Victoria.

5.3.22

The reopening of the **Lewes to Uckfield** (Test R8) was also tested. This assumed the opening of the line with the provision of an intermediate station at Isfield. The test assumed that the Victoria to Uckfield services were extended to Lewes and Seaford.

- 5.3.23 A further test was undertaken assuming the **Eridge to Tunbridge Wells** was opened (Test R15). In this test the London to Tunbridge Wells service was assumed to be extended to Lewes.
- 5.3.24 A series of tests were undertaken to examine the modal transfers of operating fast limited stop services along the coast making use of the new chords (Eastleigh, Willingdon) and vastly improved infrastructure. A **TGV test** (R16) assumed a train operating at 180kph stopping at Southampton, Brighton and Ashford. This service was assumed to operate on an hourly basis and was used as a concept test to examine what potential for long distance movement there was in the corridor. The **fast train test** (Test R17) assumed a 150kph service operating each hour calling at Southampton, Havant, Brighton, Stone Cross and Ashford. The locations were chosen as the key interchange locations with London-bound services. A **semi-fast service** (Test R18) operating each hour at 116kph was tested calling at Southampton, Fareham, Havant, Chichester, Worthing, Brighton, Stone Cross, Hastings and Ashford. A **Southampton to Margate** service was also tested (Test R19). This extended the semi-fast service through to Margate calling additionally at Folkestone, Dover, Ramsgate and Margate.
- 5.4 ***Urban Intervention Tests***
- 5.4.1 The collation of travel data for the south coast region indicated a high proportion of short distance trips as well as a high proportion associated with urban areas. A series of tests were undertaken to assess the impact of a range of urban interventions. These were assumed to cover the range of impacts related to persuasive measures (based on the introduction of ‘soft measures’ such as Green Transport Plans, School Travel Plans and teleworking as well as local bus partnership schemes in urban areas.)
- 5.4.2 The Multi Modal Studies unit have commissioned research to investigate the potential impacts of ‘soft measures’. The report notes that evidence on these effects is limited and it is difficult, in most cases, to draw any firm conclusions. It brings together available evidence and, along with analyses of the scale and form of the current travel situation in the UK, estimates the likely nature and scale of effects that these factors could have over the next fifteen years in the context of the Multi-Modal Studies (MMSs).
- 5.4.3 The ‘soft measures’ report notes that there are some soft factors where, for the purposes of the Multi-Modal Studies it seems the net effects on travel demand will be negligible. These include:

- E-commerce - where the evidence points to growth in some respects and substitution in others with no evidence of a net reduction.
- Internet shopping – which could lead to fewer car journeys but these seem likely to be matched by increases in home delivery movements.
- Car clubs – which can reduce car traffic substantially but seem likely to be confined to a few inner city locations.
- Improved interchange – which, whilst benefiting public transport users generally, will have little effect on car use except perhaps for some longer distance rail journeys, the effects on which should be picked up in the MMS models.
- Land use policies – which in the short term will not change development patterns substantially and freedom to use cars will sustain mobility levels.
- Local sourcing – has reduced as markets open up and this is continuing local sourcing could also increase local traffic levels.
- Oil supplies and new automotive technology – seem unlikely to impact on individual consumer choice except where prompted by government action. New technology is also providing “lean consumption” products that can perform as well as traditional technologies for a widening range of markets.

5.4.4

The ‘soft measures’ report notes that there are some factors that are likely to have net effects but their significance for travel demand in the MMS context seems to be insignificant. These include:

- School travel plans – which can reduce car journeys to schools. However the small proportion of traffic for this purpose and its generally local nature mean the implications for MMSs will be minimal.
- Increased walking and cycling – has the potential to reduce car traffic by a small amount, however this would be almost all on local roads and therefore have no major infrastructure capacity implications.

5.4.5

In this regard, SoCoMMS is unlike many of the other multi modal studies in that sections of the ‘strategic corridor (A27, A259) pass through urban areas and thus the impact of school travel plans and walking and cycling is important for local journeys.

5.4.6

The measures which the ‘soft measures’ report notes that, in the context of the MMSs, could have material effects on travel demand include:

- Tele-working – which could reduce car commuting traffic by up to 6% by 2015 saving 6bn vehicle miles per annum.
- Videoconferencing – which could reduce business travel by up to 2½bn vehicle kilometres by 2015 – (about 5% of total business traffic mileage).
- Workplace Travel Plans – could reduce commuting and business travel by a further 1½% by 2015 saving 2bn vehicle kilometres a year.
- Public transport fares and ticketing – have reduced road traffic in London by 1% and could have small but significant effects on urban radial corridor traffic.
- Individualised marketing campaigns – have reduced car use by up to 10% where promoted vigorously. However these are costly and time consuming to implement and require a good public transport regime to be effective.
- Bus Quality Partnerships – if done well could reduce car travel in selected corridors by up to 10%. Overall traffic levels however are likely to be reduced by a figure closer to ½%.

5.4.7

A series of four concept tests were undertaken initially to assess the effect of these types of ‘soft measure’.

- **TestD1- Low level urban intervention, major towns**
- Reduce urban trips by 5% in main urban centres (Bournemouth, Southampton, Portsmouth, Brighton, Ashford)
- Impact assumed on commuting and ‘other trips’
- **TestD2- Low level urban intervention, major & minor towns**
- Reduce urban trips by 5% in main urban centres (Bournemouth, Southampton, Portsmouth, Brighton, Ashford)
- Reduce urban trips by 5% in minor urban areas (Chichester, Worthing, Eastbourne, Bexhill, Hastings, Canterbury, Ramsgate, Margate, Dover)
- Impact assumed on commuting and ‘other trips’
- **TestD3 -High level urban intervention, major towns**
- Reduce urban trips by 10% in main urban centres (Bournemouth, Southampton, Portsmouth, Brighton, Ashford)
- Impact assumed on commuting and ‘other trips’
- **TestD4 High level urban intervention, major & minor towns**

- Reduce urban trips by 10% in main urban centres (Bournemouth, Southampton, Portsmouth, Brighton, Ashford)
- Reduce urban trips by 10% in minor urban areas (Chichester, Worthing, Eastbourne, Bexhill, Hastings, Canterbury, Ramsgate, Margate, Dover)
- Impact assumed on commuting and ‘other trips

5.4.8 It is noted that in making forecasts in connection with the Ten Year Plan (TYP) the DTLR made some allowances for factors, which are expected to bear on travel demand, but that are not represented in the models used for analyzing this. Within the DTLR work, a Ready Reckoner was used to assess the impact on traffic based on changes in generalised cost. (This gave a 4% reduction in car traffic for a 5-minute increase in car-generalised cost and a 3.5% reduction in car (and light goods) traffic for a 5-minute reduction in public transport generalised cost).

5.4.9 The types of traffic reduction given in the ten year plan for different areas lay within the following ranges (where the higher end assumed congestion charges and/or workplace parking levies, better public transport and conditions for pedestrians and cyclists along with the effects of much improved rail services land use changes and sustainable distribution):

London	2½% - 25%
Conurbations	4% - 21%
Large urban areas	2½% - 18½%
Small urban areas	2½% - 10½%
All areas	2¼% - 12%

5.4.10 The second set of tests undertaken within the SoCoMMS strategic model were based on ‘coercive’ measures being applied. These were based on the introduction of tolls/charges. The following tests were undertaken:

- **TestD5- Town Centre Parking Restraint**
- Assumes increased parking charges in major and minor town centres. The test assumed a £5 per day increase in parking charges in main towns and a £2.50 per day increase in smaller towns. The charge was only

applied to one third of the car market as many drivers on commuter journeys have access to private car parks.

- **TestD6 - PNR parking across study area**
- Assumes the introduction of private non-residential parking charges in major and minor town centres. The test assumed a £6 per day increase in parking charges in main town centres and a £2 per day increase in smaller town centres. The charge is assumed to apply to all users of such parking spaces rather than a strict definition of 'workplace parking charges' based on a levy applied to spaces used by employees.
- **Test 11- Urban Congestion Charging-**
- This test assumed that a £2 toll was applied to all journeys entering Southampton, Portsmouth, Brighton and Ashford centres.

5.4.11

A further series of tests were based on **improved urban public transport systems** in the major towns. These were assumed as LRT systems in the initial tests but may be considered as improved bus corridors in strategy development tests.

5.4.12

The metros tested in R13 and R14 (where R14 assumed the South Hampshire system) were included as follows:

- **Hastings**
- A circular route from the town centre to Hollington and Ore
- A direct route from Hastings to Hollington
- **Eastbourne**
- A line from Pevensey to Eastbourne town centre
- A line from Polegate to Eastbourne
- **Brighton**
- A line from Newhaven to Brighton Station
- A line from Falmer to Brighton
- A line from Patcham to Brighton
- A line from Shoreham to Brighton
- A loop line serving Hove and Portslade
- **South Hampshire**
- A line from Portsmouth to Waterlooville
- A line from Portsmouth to Southampton
- A line from Fawley to Southampton

- A line from Nursling to Southampton

5.4.13

A further test was undertaken to include **Park-and-Ride** facilities with each of the metros (Test R20). A simple park-and-ride logit model was determined using the available parameters to identify the potential transfers to these services. The park-and-ride concept was assumed as follows:

- **Margate**
- A bus based system from Birchington
- **Ramsgate**
- A bus based system from Manston
- **Hastings**
- A metro/bus based system from Glyne Gap, Ore and Hollington
- **Eastbourne**
- A metro based system from Polegate and Pevensey
- **Brighton**
- A metro based system from Newhaven, Falmer, Patcham and Shoreham Airport
- **Worthing**
- A bus based system from the A27/A24
- **Portsmouth**
- A system from the M275 and Waterlooville
- **Southampton**
- A metro based system based on sites at Swanwick and Totton

5.5

Strategic Interventions Tests

5.5.1

A series of concept tests were undertaken to assess the impact of tolling measures on traffic flows and modal share. The following tests were undertaken:

- Tolls on all motorways (Test 9)(including M27, M2, M20, M23 and M25). The test assumed a toll of 6p per kilometre;
- Tolls on all motorways and trunk roads (Test 10) (assumed a rate of 6p per kilometre);
- Tolls on all links (Test 14) within the region with no differential tolls between different classes of route;
- Tolls at the entry points to the proposed South Downs National park (Test 15) (assumed a £2 entry charge);

- A combination of urban congestion charges as well as tolls on motorways (Test 13).

5.6

Highway Based Tests

5.6.1

The focus of the highway tests was to concentrate on those areas identified in the consultation as having the greatest congestion problems. A series of tests were undertaken to assess the performance of the individual measures. In addition, a series of concept tests were undertaken to assess the impact of combining various schemes. At the extreme end of the tests, an assignment was undertaken assuming that a new motorway was built along the south coast to examine the traffic impacts resulting from this.

5.6.2

The highway schemes that were tested are summarised as:

- Arundel bypass (tests examined north and southern routes);
- A new Chichester bypass ;
- Upgrade on the existing Chichester bypass alignment;
- Upgrade on A27 Worthing-Lancing existing alignment;
- A tunnel for the A27 at Worthing-Lancing;
- Beddingham Level Crossing improvement;
- Wilmington bypass;
- Polegate western bypass;
- Bexhill-Hastings bypass;
- Bexhill-Hastings link road;
- Winchelsea-Rye bypass;
- A2 Lyddon-Dover Upgrade; and
- M27 Upgrade.

5.6.3

Arundel was identified during the consultation phases as a location of major congestion and environmental issues. The town is also the location for one of the schemes remitted to the SoCoMMS study to examine. Alternative tests were undertaken assuming a new bypass to link the A27 dual carriageway sections either side of the town. Test H1 assumed a route to the north of the town with an intermediate junction with the A284. Test H2 assumed the previous alignment to the south of the town. In both cases a dual carriageway standard was assumed (D2).

- 5.6.4 The review of transport problems identified significant issues related to the **Chichester** bypass. There are peak period delays along the existing bypass and on routes crossing the A27 (e.g. from the Manhood Peninsula). Three alternative tests were undertaken. Test H3 assumed a northern alignment (D2 standard) with an intermediate grade separated junction with the A286. Test H4 assumed a new route (D2 standard) to the south of the existing bypass, with intermediate grade separated junctions with A259, A286, and B2166. The third test (H5) assumed an upgrade of the existing alignment with the existing junctions converted to grade separation.
- 5.6.5 The A27 through **Worthing and Lancing** was identified during the consultation as having significant congestion, safety and environmental problems. Two alternative tests were undertaken. The first (Test H6) was based on an upgrade along the existing alignment to D2 standard. The second test assumed a tunnel would be constructed under Worthing and Lancing. The tunnel was assumed to be built between Lancing and Durrington
- 5.6.6 **Beddingham Level Crossing** causes significant delays to A27 traffic in the peak periods. This test assumed the replacement of the existing level crossing with a flyover. (Test H8).
- 5.6.7 The **Wilmington bypass** (Test H9) is one of the schemes remitted to the SoCoMMS study for investigation. The test assumed the provision of a new single carriageway connection between the new A22 bypass at Polegate and A27 west of Selmeston.
- 5.6.8 An alternative approach was considered for **Polegate**. This was based on the provision of a new relief road to link the A22/A27 Polegate bypass junction with the A27 western bypass (Test H10). A single carriageway connection was assumed with the aim of providing relief to the existing traffic signal junction in Polegate.
- 5.6.9 Issues related to **Bexhill and Hastings** bypass were highlighted during the consultation. Two tests were undertaken for this area. The first assumed the provision of dual carriageway bypass to the north of Bexhill and Hastings assuming a notional alignment (Test H11). The second test (H12) assumed the building of a link road between the A269 in Bexhill and A21/Queensway. The route was assumed to be of single carriageway standard.

- 5.6.10 The problems of **Winchelsea and Rye** were highlighted during the consultation. There were concerns raised over the environmental impacts of traffic, particularly in relation to heavy lorries, in the two historic towns. Test H13 assumed the provision of a single carriageway bypass between Icklesham to East Guildford.
- 5.6.11 The **A2 Lyddon-Dover Improvement** has also been tested (Test H14). This assumed the upgrade of the remaining single carriageway sections of the A2 to dual carriageway standard D2.
- 5.6.12 The **upgrade of the M27** was also considered. This test assumed that an additional 20% of capacity could be achieved through a range of traffic control measures.
- 5.6.13 In addition to the individual schemes, a series of concept tests were undertaken. These were based on combinations of measures to examine the traffic impacts of increased capacity along the south coast.

- **Test1-Remitted schemes & Worthing-Lancing**
- Arundel southern bypass (D2)
- Worthing-Lancing on-line upgrade to D2
- Beddingham level crossing converted to flyover
- Wilmington-Polegate Improvement (SC)
- **Test2 – Remitted schemes and Bexhill-Hastings bypass**
- **Test3-as above with new Chichester bypass (D2) north of town**
- **Test4- Complete D2 link between Havant and Ashford (conversion of existing single carriageway to dual carriageway standard and provision of appropriate bypasses**
- Arundel southern bypass (D2)
- Worthing-Lancing on-line upgrade to D2
- Beddingham level crossing converted to flyover
- Hastings/Bexhill bypass (D2)
- Chichester bypass (D2)
- Upgrade Lewes-Polegate to D2
- Upgrade Hastings-Ashford to D2
- **Test16-New motorway Havant- Ashford**

- Assumes a new D2 motorway between Havant and Ashford
- **Test17-New Tolled motorway Havant- Ashford**
- Assumes Test16 but with a toll (6p/km)

5.7

Results

5.7.1

A range of outputs were generated by the SoCoMMS model. Full results are outlined in a separate technical note. At the end of this chapter, the following tables have been included:

- Vehicle trip origins by area (table 5.1);
- Vehicle hours by area (table 5.2);
- Vehicle kilometres by area (table 5.3);
- Vehicle kilometres by road class; (table 5,4)
- Vehicle Hour Summary by road class (table 5.5);
- Screenline flows across Core Area (table 5.6);
- Rail passenger trip origins (table 5.7);
- Rail passenger kilometres and mode shares (table 5.8)

5.7.2

These tables represent results for an average hour (between 0700 and 1900). For each of the above concept and element tests, the SoCoMMS strategic model has been used to provide an initial assessment at a strategic level. Given the volume of detailed information, a summary appraisal was undertaken to assist the Steering Group to gauge the effects of the alternative tests at a strategic level.

5.7.3

Following on from the individual tests, measures were tested in combination. Initially these included combinations of highway measures or public transport measures:

- Packages of rail improvements (alternative combinations of service enhancement, infrastructure, travel time and quality improvements)
- Packages of Highway Schemes (e.g. the Remitted schemes on their own through to various combinations of schemes, the upgrade of the existing A27 and A259 to dual carriageway, and the provision of a new motorway from Havant to Ashford)

- 5.7.4 An initial ‘simplified’ appraisal was undertaken at this stage. These tests indicated the effect of improvements on mode share, their impact on travel flows across the highway and public transport networks, and on congestion problems. A preliminary assessment was also made of likely environmental and economic impacts.
- 5.7.5 The rail tests indicated that compared to quality, access and fare changes, travel time improvements were the most effective in obtaining increased rail usage and a modal transfer from private vehicles. However, it was noted that modal transfers were small with an 18% increase in rail use equating to a 1% reduction in car use. The tests on services and infrastructure provided a number of general lessons as to those areas where rail patronage could be enhanced.
- 5.7.6 The urban initiative tests highlighted the importance of local measures within the overall strategy. Given the nature of demands in the corridor, in that there is a high proportion of short distance traffic, measures to encourage sustainable modes in urban areas (where it is generally feasible to provide alternatives to car) should be pursued. General reductions in travel demand were found to have a marked impact on travel conditions. This was further borne out by the range of demand management tests that were undertaken. The tests assuming tolls on motorways and trunk roads in the region highlighted problems in relation to traffic diversions. The impact of tolls on the A27 would cause traffic to divert onto neighbouring routes of lower standard thus increasing congestion, safety and environmental problems on these routes. Tolls in relation to trip ends, or in the major centres, were found to be more effective in influencing travel demands.
- 5.7.7 The tests indicated the extent to which road schemes eased local and strategic traffic problems, and in particular, the diversionary impacts of schemes. The tests identified where traffic relief was obtained for each measure.
- 5.7.8 The main message from the initial tests were that single modal measures had little impact on overall mode share. Road and rail operations were found to be strongly complementary with rail serving movements to London and some local journeys to urban areas while road catered for a dispersed pattern of movements. Thus there was little interaction between modes.
- 5.8 ***Initial Appraisal***
- 5.8.1 For each of the above concept and element tests, the SoCoMMS strategic model has been used to provide an initial assessment at a strategic level. Given the

volume of detailed information, a summary appraisal has been undertaken to assist the Steering Group to gauge the effects of the alternative tests at a strategic level. It is recognised that the indicative summary table presents a simplified assessment and is based on the available material. It is also recognised that a more localised assessment is also required. The transport modelling allows some degree of local impact to be drawn out. In part this process is also undertaken at the Strategy Development Plan stage but also at the strategic level.

5.8.2 These data have been used as inputs into the ‘sifting’ process. The aim has been to assist the study team to identify those elements which should initially be taken forward in the combination tests. As the strategy evolves and is assessed using the full GOMMMS appraisal method, the impacts on the number of people affected and how different users are affected will be examined as has been outlined in separate notes. The economic assessment for the strategy will present an overall value for money for the strategy as well as identifying impacts for different users.

5.8.3 For the purposes of the sifting appraisal a small set of indicators have been used. For each indicator, a comparison has been undertaken against the results of the do-minimum plus. These are based on the 5 strategic GOMMMS objectives of environment, safety, economy, accessibility and integration. For each indicator a five point scale has been adopted.

- Strong negative impact;
- Slightly negative impact;
- Minor impact;
- Slightly positive impact;
- Strong positive impact.

5.8.4 Where the results are based on numeric information, the slight impacts (positive or negative impact) is based on a range of a 1 to 10% change. The strong impact is based on a greater than 10% change. It is noted that the minor impact does include very small changes in a positive /negative direction (within 1%). This approach has been adopted for accidents, patronage and mode share estimates.

5.8.5 In the case of the human environment indicator the flow plots have been examined to evaluate changes against the do-minimum plus. A judgement has been made about the relative levels of impact based on flow changes in sensitive areas. A more detailed assessment will be undertaken on the strategy.

5.9

Summary Table

5.9.1

The indicative results of the sifting appraisal are given in the accompanying Table 5.9. This has been coded to represent the different impacts. A five point scale has been used for the assessment. Where the table indicates +(local impact) this denotes that overall in strategic terms there is a slightly positive impact but that locally there are stronger positive impacts.

5.9.2

A short commentary on the results is given below.

- **Environment**
- Impact on the human environment- the highway tests where new alignments are developed are shown to have a slightly positive impact on the human environment. In these cases traffic is routed away from sensitive urban areas into less populated areas. Thus there is a net gain in residents benefiting from improvements. Where improvements are on-line these are considered to worsen the human environment as additional traffic is using these routes. In the case of tolling schemes there is considerable diversion onto non motorway or trunk roads having a negative effect on the human environment. The rail schemes are considered to have little impact on the human environment.
- Impact on the physical environment- where routes are identified as passing through a designated area these have been identified as a strong negative impact. These include routes that pass through an AONB (such as Hastings eastern bypass, Arundel north bypass, Chichester south bypass) In some cases there is a trade off between the alignment passing through/near an AONB and urban townscape gains (e.g. Winchelsea-Rye bypass, Bexhill-Hastings link road, Wilmington bypass, Arundel south bypass) (although this could be positive if the NP boundary is different). Of the rail schemes there would be moderate townscape impacts for Brighton Cross and moderate landscape impacts for Lewes-Uckfield.
- **Safety**
- Impact on accident levels- individually the local highway schemes provide a local reduction in accidents as traffic is re-routed onto roads of an appropriate design. In the case of the tolling tests, the transfer of traffic away from Motorway and primary routes onto other roads is estimated to increase accidents due to the higher rates on the

alternatives. This is in spite of an overall reduction in vehicle kilometres. The urban demand management tests reduce traffic levels in urban areas and in the case of the those schemes adopting elements such as safe routes to schools would provide appropriate safety schemes.

- **Economy**

- Impact on highway congestion – based on an examination of V/C plots there are local congestion reductions for each of the highway schemes. When these are combined, the levels of improvement are similar between Tests 2,3 and 4. The rail schemes generally do little on their own to improve highway congestion. The urban demand management measures provide some relief in those areas while the road tolls generally increase delays;
- Rail patronage and revenue- the highway schemes generally have little impact on overall rail demands. In the concept tests, improvements to rail in-vehicle speeds was found to have the greatest effect compared to improvements in fares, quality and access times. The travel time concept test showed that the East Kent, South Hampshire and Brighton-Worthing areas showed the greatest potential for increased rail use. Lewes-Uckfield and Lewes-Tunbridge Wells (on their own) have been found to have a modest impact on patronage in the core area.
- Highway revenue- the toll schemes and urban parking charges would produce new/increased revenues;
- Freight- based on an examination of V/C plots there are local congestion reductions for each of the highway schemes. When these are combined in the concept tests, freight movements should benefit by the improvements in travel times on the strategic corridors. The rail schemes generally do little on their own to improve highway congestion. The urban demand management measures provide some relief in those areas and would allow more reliable freight movements. In the case of road tolls generally, if freight companies consider that the benefits from more reliable travel times on the motorways offset the increased costs then there is a benefit. However, for freight companies/ local businesses on the diversion routes these would be affected by increased delays;
- Wider Economic Impacts- this is based on an assessment of the type/location of schemes in relation to the PAERS and their relative effect. This shows that the major road/rail elements will have a stronger impact across a wider area.

- **Accessibility**
- Highway journey times- based on average speeds across the area for existing users. This shows that local highway schemes on their own have a minor impact on overall accessibility. The exception being schemes at Worthing which seem to have a wider impact. When schemes are combined in the concept tests the upgrade to D2 in Concept Test 4 provides a significant travel time change compared to Concept Tests 1,2 and 3. Urban demand management provides local improvements in accessibility. The rail schemes have limited impact on highway accessibility;
- Public transport journey times- in this case some of the local highway schemes would provide benefits to local bus services. The rail schemes provide an opportunity for large improvements in public transport accessibility;
- Impact on those who transfer modes or whose journeys are suppressed- it is noted that in some cases, where people are priced out of their cars (such as in the toll tests), these people will suffer a disbenefit through not making a journey or making a slower journey by public transport;
- Access to the public transport system- is improved through many of the public transport schemes. The largest positive increases lie with the London focussed rail strategy and the urban metros. The urban intervention tests should also provide access improvements (e.g. safe routes to schools, cycle routes and walking strategies);
- Severance- in the local highway tests there will be some off-line schemes which improve severance in the urban areas by re-routing traffic. Where on-line improvements occur, or where schemes increase traffic flows in the corridor then will be a worsening of severance. For example, in many of the highway concept tests the combination of schemes increase the flows in the corridor thus increasing severance.

Integration

- Interchange- only the public transport schemes seek to improve interchange. The degree of improvement is dependent on the level of service provision;
- Promotion of public transport and reduce car dependency- only the public transport schemes seek to promote public transport interchange;
- Mode Share- the highway schemes have limited impact on mode shares. The public transport schemes provide a modest increase in mode share (e.g. from 6% by rail to 7%).

5.10

5.10.1

Implications for Appraisal

As a result of the local testing there were implications for the appraisal process which will be carried forward into later assessments. Those issues to be borne in mind for later consideration.

- Many of the local schemes have local impacts in terms of traffic flow changes, safety impacts and impacts on the human environment. Thus, in terms of later appraisals these elements will be more significant at the strategy development plan stage.
- Impacts on the physical environment should be considered in more detail at the strategy development plan stage where alternative alignments will be considered.
- The next stage of the process should draw elements together into packages of measures (or strategies) across the modes and range of policies. Given that road elements have little impact on public transport, and vice versa, it is considered essential that elements are combined. The next stage will include/exclude additional elements as appropriate.

6 Strategy Development- testing combination of measures as strategies

6.1 *Introduction*

6.1.1 The individual concept tests were then followed by tests on: combinations of measures across modes and policy measures. The initial sifting showed that measures for rail had little impact on highway demands and vice versa. Thus the strategy development would look to packages of measures across all modes. In order to assess the contribution of measures together, a series of combination and exclusion tests were undertaken. These tests are described in more detail in the following paragraphs.

6.1.2 A series of ‘exclusion’ tests were undertaken to assess the marginal contribution of measures. The range of tests are shown in figure 6.1. These involved the systematic removal of elements of the strategy (highway schemes, rail measures, pricing etc.) in order to assess their marginal impacts. This amounted to a crosschecking of the benefits of each element of the emerging strategy in order to confirm its role and value.

6.1.3 The SoCoMMS strategy seeks to be a balanced strategy across the needs of different modes and different criteria. The robustness of the strategy has been further tested through a series of sensitivity tests. These have included a series of ‘what if tests?’ Such as:

- What if we did nothing;
- What if the public transport schemes were not included;
- What if additional public transport measures were added;
- What if the package did not include road schemes;
- What if selected schemes were removed;
- What if a motorway were added;
- What if various levels of restraint were added.

6.2 *Starting Combination*

6.2.1 The initial tests were then followed by tests on combinations of measures across modes and policy measures. An initial starting combination was developed based

on those measures judged as 'good performers' from the initial tests. This included a range of rail improvements, road schemes, local initiatives (such as 'soft measures'), demand management and strategic interventions. As with the previous round of tests, the aim was to investigate the impacts on modal share and congestion.

6.2.2 A series of tests were undertaken to assess the inclusion of additional elements (such as increased demand management) or the removal of elements (e.g. if there were fewer road schemes). Each test was undertaken on an incremental basis and compared to the starting combination and the do-minimum.

6.2.3 The starting combination that was used for this phase of testing included the following elements:

- **Highway Improvements**
- Arundel bypass (D2 improvement)
- A27 Selmeston, Beddingham and Wilmington improvements (Single carriageway assumed)
- Chichester bypass improvements – alleviate junction congestion hotspots
- Improvement at Worthing- Lancing (assumed a tunnel improvement)
- Bexhill- Hastings Link Road (Single carriageway improvement between Bexhill and A21)
- A2 Lyddon- Dover improvement (upgrade single carriageway sections to D2)
- **Rail Measures**
- Quality improvements (assumed a reduction of 4 minutes in the boarding and interchange penalty)
- Improvements in access to stations (assumed a 25% reduction in access time on centroid connectors)
- Capacity and service enhancements- assumed the upgrade of the coastway track such that additional capacity and frequency enhancements could be provided. In East Kent (Test R5) the basic assumption was made that the existing service frequencies for trains to Ramsgate, Margate, Dover and Canterbury were doubled. In addition, the current London-Faversham services was assumed to be extended from Faversham to Margate, Ramsgate, Canterbury and Ashford (30 minute headway). On the coastway, Test R5 assumed the following services were enhanced;

- Brighton to Ashford (30 minute headway);
- Brighton to Hastings (30 minute headway);
- Brighton to Newhaven (15 minute headway);
- Brighton to Worthing (15 minute headway);
- New hourly service between Brighton to Bognor;
- New hourly service Littlehampton to Portsmouth (all stations)
- Hourly through service from Southampton to Ashford was included within these headway improvements. The services were assumed to call at Southampton, Fareham, Havant, Chichester, Worthing, Brighton, Lewes, Eastbourne, Hastings and Ashford.
- New Infrastructure included Willingdon Chord, Eastleigh Chord;
- New stations at Stone Cross, St Leonards Marina, Glyne Gap.
- **Urban interventions**
- LRT extension assumed between Fareham and Southampton
- LRT service within Brighton and Hove;
- Persuasive measures to influence journeys to work and school (to represent green travel plans, safer routes to school, home working) and assumed trip matrix reductions to major and minor urban areas of 7.5% commuting, 6% business and 2% other;
- **Demand management**
- Cordon congestion charging in Southampton, Portsmouth, Brighton and (£2 entry charge to centre).

6.3

6.3.1

The Tests

Figure 6.1 shows the flow chart for testing process that was adopted at this stage around the central combination. The tests then incrementally assessed the impact of :

- Additional road schemes (such as bypasses at Rye and Winchelsea);
- Fewer or no road schemes;
- Alternative road packages (e.g. a south coast motorway);
- Additional rail elements (e.g. Lewes- Tunbridge Wells);
- Alternative rail services (the L shaped strategy based on service enhancements to London);
- Fewer rail schemes;
- Alternative demand management measures (e.g. PNR charges);
- More demand management;
- No demand management;

- No persuasive measures.

6.3.2

The test descriptions are identified below:

- **Fewer Roads tests**
- Combination 2- assumed that the Bexhill-Hastings Link Road was removed from the starting combination;
- Combination 3 assumed that the Bexhill-Hastings and Chichester improvements were removed;
- Combination 4 – assumed that the Worthing- Lancing improvement was then removed;
- Combination 5 assumed that the A2 Lyddon- Dover improvement was removed (this test represents the remitted schemes only for the highway measures);
- Combination 6 – removed the remitted schemes such that this test represents the starting combination with no highway improvements;
- **More Roads Tests**
- Combination 7- upgraded Lewes to Polegate to be D2;
- Combination 8 – added a bypass at Winchelsea and Rye;
- Combination 9 upgraded the A259 to a dual carriageway link between Ashford and Hastings;
- Combination 10 then added the upgrade of the A28 between Ashford to Canterbury as D2 (this test represents an upgrade of the existing route to D2 from Havant to Canterbury);
- **Alternative Roads**
- Combination 11- a new motorway between Havant and Ashford as a D2 standard;
- Combination 12- assumed that a toll (levied at 6p/km) was applied to the new motorway;
- Combination 13- a new motorway between Havant and Ashford as a D3 standard;
- Combination 14- assumes the motorway between Havant and Ashford with an upgrade of the M27 to 4 lanes;
- Combination 41- assumed an upgrade of the M27 to D4 and the A27 upgraded to D3 between Beddingham and Shoreham;
- **No persuasive measures**
- Combination 39- assumed the starting combination without the reductions in travel demand;
- **Fewer Rail Improvements**

- Combination 31 removed the semi fast services from Southampton to Ashford;
- Combination 34- then removed the new station and rail chord improvement at Willingdon and Eastleigh;
- Combination 35- then removed all the train capacity and frequency enhancements (this represents the do-minimum timetable);
- Combination 36- then removed the access and quality improvements (this represents a test with no rail enhancements);
- **Additional Rail Improvements**
- Combination 32 added the L shaped strategy. The theme of this test was to provide additional London bound trains that served a section of the coastway (L-shaped services). The test assumed that the power supply improvements outlined above for Test R1 were also included. The test assumed:
 - Willingdon Chord;
 - Eastleigh Chord;
 - New stations at Stone Cross and Shoreham Airport;
 - Closure of stations at Doleham, Three Oaks, Collington, Normans Bay, Pevensey Bay, Aldrington, Fishergate, Shoreham, East Worthing, West Worthing and Goring;
 - East Kent services upgraded to higher frequency;
 - Rye- London service via Hastings and Wadhurst (every 30 minutes);
 - Brighton to Hastings service every 30 minutes;
 - Littlehampton to Brighton service every 30 minutes;
 - Portsmouth-Chichester-Arundel-London service every hour;
 - New service Southampton to London (via Eastleigh Chord) every hour;
 - Additional services Eastbourne to Victoria, and Bognor to Victoria
- Combination 36- assumed speed enhancements to provide a more realistic assessment of travel time improvements. This test assumed that services on the south coast could operate within the potential, which is being achieved elsewhere on the system. The Thameslink services north of St Pancras were used as a benchmark. The test re-timed all services, within an area between the coast and a boundary defined as Sittingbourne, Swanley, Tonbridge, Wivelsfield, Horsham, Haslemere and Basingstoke, to operate faster reflecting improvements in power supply. The service pattern was assumed to be that within the Do-minimum plus timetable.

- Combination 38- added the reopening of the Lewes to Uckfield line with the provision of an intermediate station at Isfield. The test assumed that the Victoria to Uckfield services were extended to Lewes and Seaford. The test also assumed the Eridge to Tunbridge Wells section was re-opened. In this test the London to Tunbridge Wells service was assumed to be extended to Lewes.

- **Fewer Urban Transport Initiatives**
- Combination 37 removed the urban metros in Brighton and the SHRT extension to Southampton
- **Additional Urban PT Initiatives**
- Combination 21 added park and ride sites of the metros (Test R20). A simple park-and-ride logit model was determined using the available parameters to identify the potential transfers to these services. The park-and-ride concept was assumed as follows:
 - **Margate**
 - A bus based system from Birchington
 - **Ramsgate**
 - A bus based system from Manston
 - **Brighton**
 - A metro based system from Newhaven, Falmer, Patcham and Shoreham Airport
 - **Worthing**
 - A bus based system from the A27/A24
 - **Portsmouth**
 - A system from the M275 and Waterlooville
 - **Southampton**
 - A metro based system based on sites at Swanwick, and Totton

- Combination 22 added additional urban metros in
 - **Hastings**
 - A circular route from the town centre to Hollington and Ore
 - A direct route from Hastings to Hollington
 - **Eastbourne**
 - A line from Pevensey to Eastbourne town centre
 - A line from Polegate to Eastbourne

- Combination 23- added park and ride in Hastings and Eastbourne
 - **Hastings**
 - A metro/bus based system from Glyne Gap, Ore and Hollington
 - **Eastbourne**
 - A metro based system from Polegate and Pevensey

- **Less Demand Management**
- Combination 19 – assumed the starting strategy with no cordon charging (i.e this test represented the starting strategy with no demand management)
- **More Demand Management**
- Combination 15 - assumed the addition of private non-residential parking charges in major and minor town centres. The test assumed a £6 per day increase in parking charges in main town centres and a £2 per day increase in smaller town centres. The charge is assumed to apply to all users of such spaces rather than a strict definition of ‘workplace parking charges’ based on a levy applied to spaces used by employees.
- Combination 16- assumed the starting strategy with the addition of tolls on the M27 and the A27 Brighton bypass (6p/km)
- **Alternative demand management**
- Combination 18- assumed increased parking charges in major and minor town centres. The test assumed a £5 per day increase in parking charges in main towns and a £2.50 per day increase in smaller towns. The charge was only applied to one third of the car market as many drivers on commuter journeys have access to private car parks
- Combination 17 added PNR charges to the town centre restraint
- Combination 20- assumed a distance based charging system in the urban areas (6p/km)

- Additional combination tests were undertaken to assess the addition of the park and ride elements

6.4

Additional Combination tests

6.4.1

Following the initial round of combination tests, a further set of tests were undertaken. These assumed that the starting combination was amended slightly such that dualling was assumed between Lewes and Polegate (i.e. Combination 7).

6.4.2

The tests included:

- Combination 41 - Upgrade the M27 to D4 and the A27 between Beddingham and Shoreham to D3
- Combination 40- apply a toll of 2p/km on the M27 and the A27 between Beddingham and Shoreham
- Combination 43- add the rail speed enhancement, and replace the cordon charging with PNR charges, parking restraint on car parks and applied a fuel price escalator of 20% to fuel prices
- Combination 44- widened the M27 between junction 3 and 7, and between junction 11 and 12 with additional town centre parking charges, PNR charges and a toll on the M27
- Combination 45- as combination 44 but double the parking charge to assess sensitivities
- Combinations 46 and 47- as 45 but assumed rail speed enhancements and fares reductions
- Combination 49- used 46 as a base but was a sensitivity test using the London based spread parameter for mode choice applied to all users
- Combination 50- used 46 as a base but removed the highway schemes

6.5

Results

6.5.1

As with the concept tests, a series of summary tables for each test was set up. For each of the above concept and element tests, the SoCoMMS strategic model has been used to provide an initial assessment at a strategic level. Given the volume of detailed information, a summary appraisal has been undertaken to assist the Steering Group to gauge the effects of the alternative tests at a strategic level.

6.5.2

The combination tests demonstrated the scope for greater integration between road and public transport. Some form of pricing was identified as a key element in promoting this.

6.6

Land Use Tests

6.6.1

A series of sensitivity tests have also been undertaken. These considered the impact of alternative land use scenarios to examine the robustness of the strategy against alternative assumptions. The tests undertaken included:

- Local Economy- where there is an increase in local town's activity compared with the do-minimum, with a corresponding decrease in population in London and other areas
- Linear Corridor- where employment growth is increased substantially in coastal towns

- European Gateway- where there is a greater focus on movements to ports and stations with connections to Europe
- Stellar Development – greater development in London and reduction in coastal towns
- Urban Renaissance- growth in local population, households, employed residents and jobs with increased local GDP growth

6.6.2 The results of these tests indicate that strategic travel demand is little affected by the alternative land-use scenarios. This is in large part due to the highly constrained transport network, located as it is for much of the region between the Downs and the Sea. All scenarios tend to channel both private and public transport trips on the limited number of east-west links. Whilst some scenarios constrain economic growth, this simply delays by three or four years the point at which critical situations are reached. Neither the strategy nor individual elements of it have been found to be sensitive to these scenarios.

6.7
6.7.1

Summary

A range of option and combination tests were undertaken to assist the development of a strategy for the south coast. A range of alternative scenarios were developed and tested for appraisal which is outlined in a separate report. The process commenced with option tests to identify those which performed well in different appraisal criteria. These were then combined into a starting combination and re-tested using the SoCoMMS model to develop an evolving strategy. A range of alternative were tested around the starting combination to assess the impact of ‘no roads’ options, greater or lesser demand management. Or more or less public transport. The findings of the testing show:

- The use of ‘soft’ measures is desirable to reduce future travel demands. Measures to encourage walking and cycling, as well as measures to influence commuting and school journeys should be encouraged;
- Rail improvements should be introduced to provide an alternative ‘long distance travel mode’, as well as providing enhancements in the East Kent, Brighton and South Hampshire areas;
- Urban public transport improvements should be provided, based on appropriate modes (e.g. bus and light rail);
- Demand management will be needed to reduce travel demands and encourage modal transfer;

- Some highway schemes are required to alleviate congestion. The Strategy development Plans will need to seek schemes that minimise impacts on the physical environment as far as possible.

7 Elements of the Strategy

7.1 *Key Principles*

7.1.1 The key principles on which the SoCoMMS strategy has been developed are:

- Strong support for public transport as a priority
- Provide better transport and land use integration
- Provide efficient and sufficient road capacity
- Increased emphasis on efficient movement of freight
- An increased focus on reducing travel demand
- Need for commitment to funding and implementation

7.1.2 These have been derived from a review of transport policy and confirmed by consultation with key stakeholders. The strategy that has been developed attempts to provide a balance across modes. The strategy seeks to provide an integrated transport system for the future.

7.1.3 The key elements of the emerging strategy are based on the following policy interventions:

- local initiatives (public and private sector);
- local public transport improvements;
- strategic public transport improvements;
- targeted road improvements;
- freight initiatives;
- safety and mobility initiatives; and
- balance - demand management.

7.1.4 These seek to take account of the following requirements;

- Reducing the need to travel by car;
- Providing better integration for public transport;
- Promoting the use of public transport to/from main urban areas;
- Provide more opportunities to travel by rail;
- Provide enhancements to assist freight movement

- Provide new road/rail infrastructure;
- Local road safety and other measures;
- Improve access to ports and airports.

7.2

Measures identified in the Strategy

7.2.1

The Local Initiatives- A key element of the preferred strategy is to encourage use of sustainable travel modes, wherever possible. The aim of these elements is to reduce the demand for growth in car journeys, particularly in the peak period. Thus, the aim is to target journeys to work and schools that are made during the peak periods as these are times of greatest congestion. The strategy would seek to provide alternative means of travel to the car which would have a benefit in terms of the environment, fewer accidents and reduced peak congestion. To achieve this much greater emphasis will be placed on Local Authority, Community and Business led initiatives such as:

- Provision of increased facilities for local journeys to be made by bus, walking or cycling.
- Develop Green Travel Plans for workplaces.
- Develop Safer routes to school initiatives.
- More sustainable working practices such as increased use of teleworking, greater flexibility of working hours, increased use of teleconferencing facilities.
- Greater use of the internet, particularly for shopping journeys.
- Better planning controls, imposing restrictions on car parking and ensuring that new developments are accessible for sustainable modes; and
- Education programmes, highlighting potential alternatives to the car and implications of increased car use.

7.2.2

Locally based Public Transport Improvements- The strategy must provide greater choice for local movement. While the above will contribute to this there are a number of other measures that also need to be added. These include:

- encouragement of Quality Bus Partnerships;
- introduction of more frequent and extensive bus services, particularly in the evening and at weekends;

- improved interchange between walking, cycling, bus and rail, particularly at “hub” stations;
- provide cross-ticketing between different modes of transport;
- improved information systems and improved access to bus services;
- provision of improved walk/cycle routes to schools, stations and town centres (to be implemented on a whole route basis);
- introduction of edge of city Park and Ride systems with a corresponding review of central area parking provision; and
- introduction of new or extended public transport systems.

7.2.3 A key feature of the public consultation was the criticism of transport integration. This component seeks to overcome these issues. In particular, this element is attempting to cater for the ‘whole journey’ concept. A rail journey for example is one part of a series of trip chains involving a walk, cycle, bus or car journey to a station, followed by the rail journey, and then a further egress journey by another mode.

7.2.4 The aim of this element is to increase the attractiveness of public transport and provide a choice to the car for many journeys.

7.2.5 **Strategic Public Transport Improvements-** At the strategic level, choice will be increased through enhancement of the rail network and its services. The strategy seeks, not only to improve the rail journey but also to focus on access and egress at stations so as to provide for the ‘whole’ journey. This should include:

- frequency enhancements on the local east-west rail services, dividing the corridor into three overlapping sectors, focused around South Hampshire, Brighton & Hove and East Kent;
- introduction of fast through services linking Southampton to Ashford, to provide a corridor for strategic movement with intermediate stops at key hubs stations which allow interchange between local, through and London based rail services / local bus services / the cycle and, at non town centre stations, the private car;
- introduction of a number of new stations to facilitate interchange to serve new developments and to act as Parkway stations;
- provision of additional platforms at a limited number of stations to facilitate the running of mixed services;
- the introduction of new chords to allow more flexible train routeing;

- double tracking the railway line as appropriate and introducing passing loops at selected local locations; and
- all to be supported through station based access and quality improvements and rolling stock enhancements

7.2.6 This element seeks to provide additional choice for journeys, particularly those to/from the major urban areas and for longer distance movements along the corridor. This is reflected by increased services, better frequencies and new equipment.

7.2.7 **Targeted Road based Improvements-** The strategy recognises that more efficient use should be made of existing road capacity. This should include the implementation of enhanced intelligent transport systems (ITS) which includes better traffic management and control, access control at busy motorway junctions, speed management and variable speed limits, automatic incident detection and lane priorities as well as the collection and provision of real time information.

7.2.8 Improvements in technology are allowing the strategic road network to operate more efficiently. This has been demonstrated by flexible operating regimes to be pursued as network conditions change. Enhanced ITS systems will provide much more reliable and up to date 'real time' traffic data. The Traffic Control Centres Project is being developed by the Highways Agency to provide better control of strategic traffic. Data will be available to the public via broadcasters and the internet so that drivers can plan their routes and journeys.

7.2.9 For the preferred strategy to be effective it must address the issues associated with car dependency. Continuing commitment to a predict and provide culture is therefore not an option. Nonetheless, there is currently severe traffic congestion at many locations along the A27 Trunk Road and this is predicted to worsen in the future. This will make it more difficult for business and freight operators to gain access to many of the south coast towns from the national road network.

7.2.10 After considering all available options during the development of the strategy it was concluded that these problems can only be addressed through localised highway improvements. These being solely aimed at the bottlenecks that cause congestion. The strategy should therefore include a limited number of measures to improve the current road network's overall efficiency. These include:

- improvements to the operation of the M27;
- removal of bottlenecks on the A27 between Havant and Polegate;
- improvements between Bexhill and Hastings;
- improvements to the eastern approach to Dover.

7.2.11 In addition to the above, there may be a need to provide small scale safety and environmental improvements as and when needed. These could be achieved through junction alterations, traffic management, signal control and improved signing.

7.2.12 **Promotion of Rail and Sea Based Freight Initiatives**-It is recognised that the majority of freight movements within the south coast corridor will continue to be made by road. Nonetheless the strategy should promote and facilitate, the transfer of freight movement from road to rail and sea. In particular the strategy should seek to encourage further use of rail and sea through encouraging:

- freight quality partnerships;
- rail access to ports;
- transshipment of selected international freight between international and coastal shipping; and
- further use of coastal shipping for bulky goods (building materials, etc)

7.2.13 **Promotion of Personal Safety, Road Safety and Accessibility for the Mobility Impaired**-In accordance with general government policy and good design practice all strategy measures should be designed to promote personal safety and aid movement for the mobility impaired. To ensure that this is achieved the overall strategy should be taken forward within the context of an agreed mobility impaired accessibility policy to be developed through consultation with local groups and organisations.

7.2.14 **Ensuring Balance**- Each of the above strategy elements will only be effective if a state of equilibrium is achieved between the demand for travel by car and other modes of transport. To ensure this, the strategy must have at its core measures that seek to control the overall level of future car usage, particularly in locations where there are, or will be, good alternative transport systems. All of the above measures should therefore be introduced within an overall policy regime that includes:

- significantly increased long stay public parking charges within each of the South Coast towns, using a fee hierarchy that reflects the town's status;
- increases to short stay public parking charges so as to encourage off-peak modal transfer to public transport and park and ride;
- a levy on all private workplace parking spaces in core urban areas, together with all parking spaces in "out of town" retail parks along the South Coast; and
- car based cordon charges for entry into the major conurbations of Southampton, Portsmouth and Brighton & Hove so as to encourage use of the new Park and Ride facilities.

8 Final Strategy- Modelling Assumptions

8.1 *Introduction*

8.1.1 The previous chapter outlined the range of measures included within the strategy. This chapter outlines the assumptions included within the model to represent these elements. In addition, a further series of ‘what if’ tests were undertaken to examine the implications of alternative strategies.

8.2 *The Final Strategy*

8.2.1 The strategy test included the following assumptions.

Persuasive Measures

8.2.2 The following reductions were assumed within the trip matrices:

- Commuting matrix reduced by 7.5%
- Business matrix reduced by 6.5%
- Other trips reduced by 2%

Road Elements

8.2.3 The road elements to be included in the final starting combination.

- Chichester – on line – grade separate A27 at junctions with A259 Cathedral Way, A286 Birdham Road, B2145 Wyke Road, A259 Bognor Road, B2144 Shopwyke Road,, A285 Westhampnett (A27 D2 flyovers)
- Upgrade A27/A29 junctions to grade separation (not modelled)
- Arundel – southern bypass D2 standard
- Worthing-Lancing- tunnel D2 standard – Cote – North Lancing
- A27 Lewes Bypass – upgrade junctions to grade separation
- Beddingham level crossing- D2 flyover
- Selmeston bypass- single carriageway bypass
- Wilmington bypass – single carriageway bypass
- Bexhill – Hastings Link Road – S2 standard (reduce capacity of existing A259 through Glyne Gap for bus priority)

- A2 Lyddon-Dover widening all the way into Dover (D2)

Rail Elements

- Quality – improvements (as concept Test- 5 minimum interchange penalty reduction, 18% fare reduction (as Passenger Demand Forecasting Handbook))
- Access to stations – reduce zone connector times by 25%
- New Chord- Eastleigh
- Service specification
- New stations at Shoreham Airport, Stone Cross, Littlehampton Parkway, Glyne Gap, Eastleigh MDA
- Train service enhancements:
- Build on existing structure with new
 - - Fast inter-urban services
 - - High frequency local services
- Enhancements - East Kent:
- Increase existing service from 1 to 2 trains per hour in each direction:
 - - Canterbury West to Ramsgate
 - - Dover to Ramsgate
- Increase existing service from 3 to 4 trains per hour in each direction:
 - - Ramsgate to Margate
- Increase existing service from 2 to 3 trains per hour in each direction
 - - Faversham to Dover
- Support Connex proposal for an increase from 2 to 4 trains between Dover & Ashford in Oct. 2003
- Signalling improvements
- Review case for a new station at Manston Airport, on the basis of local development plans (not yet agreed)
- Enhancements - East Coastway:
- Half-hourly regional express - Ashford – Brighton - Southampton – calling at Ore, Hastings, St.Leonards Warrior Square, Bexhill, Eastbourne and Lewes

- Additional stopping service between Ore and Eastbourne (going on to Gatwick and Victoria)
- Half-hourly local service - Ore/Brighton calling all stations via Eastbourne (in addition to existing Ashford-Brighton stopping service)
- Major infrastructure investment to deliver the service improvements:
 - - Signalling enhancements
 - - Appledore/Ore double tracking
 - - Ore reversing facility
 - - Provision of additional platform at Eastbourne

- Enhancements - West Coastway:
 - Half-hourly regional express - Brighton (Ashford) to Southampton calling, inter alia, Worthing, Barnham, Chichester, Havant and Fareham
 - Increase from 3 to 4 trains per hour between Brighton and West Worthing
 - Development of simplified and reliable timetable pattern with all Train Operating Companies
 - Signalling improvements

- Construction of Eastleigh Chord
- Fareham/Botley double tracking
- Services via Southampton Airport between Brighton and Southampton.

Urban Initiatives

- Core Metro: Soton-Portsmouth; Shoreham-Falmer; Brighton-Rottingdean; Brighton-Patcham
- Park & Ride
- Southampton (3 sites), Brighton (4 sites) & Portsmouth.

Demand Management- Restraint

- Cordon Based Congestion Charging in Southampton, Portsmouth & Brighton: £2 (2way trips)
- Parking Charges & PNR (apply to 80% of Commuters, 50% of Other & Business)

- Southampton, Portsmouth, Chichester, Brighton, Ashford & Canterbury: £5 for Commuters, £2 for Other & Business (2 way trips).
- Worthing, Eastbourne, Bexhill, Hastings, Ramsgate, Margate, Dover, Folkestone, Havant, Fareham & Winchester: £3 for Commuters, £1 for Other & Business (2 way trips).
- Reduction of 5% for the whole OGV matrix.

8.3

Results

8.3.1

As with the previous model runs, a series of tables were produced by the model showing the impact on travel speeds, traffic flows, mode shares and so on. Tables 8.1 to 8.7 inclusive provide the summary outputs for the strategy and the what if tests. The full appraisal of these tests is given in a separate ‘Strategy Appraisal Report’.

8.4

“What if” tests

8.4.1

In order to examine the role of elements within the strategy a series of ‘what if’ tests were undertaken to assess the sensitivity of elements within the strategy.

8.4.2

The first set of tests assumed the removal of the road schemes with the demand management charges increased

- Toll WHOLE network 4p/km – **What If 1a**
- Toll WHOLE network 6p/km – **What If 1b**
- Double parking charges – **What If 1c**
- NO ADDED CHARGE – **What If 1d**
- Toll M27, A27 & A259 4p/km – **What If 1e**
-

8.4.3

The second test examined a new Motorway from Havant to Ashford, with the widening of the M27 from M275 to Havant – **What If 2**

8.4.4

The third test assumed that there was no traffic restraint, the removal of interchange penalty, the use of London spread parameters, and additional rail improvements (speed enhancement & enhanced N-S rail as identified in the option testing)– **What If 3**

8.4.5

The fourth test added the M27 widening and A27 widening (M275 to Havant) – **What If 4**

- 8.4.6 The fifth test assumed a dual carriageway from Lewes to Polegate – **What If 5**
- 8.4.7 The sixth set of tests assumed additional restraint to the strategy
- Toll WHOLE network 4p/km – **What If 6a**
 - Toll WHOLE network 6p/km – **What If 6b**
 - Double parking charges – **What If 6c**
- 8.4.8 The seventh test assumed additional rail enhancements, the removal of interchange penalty, the use London spread parameters (speed enhancement, enhanced N-S rail) – **What If 7**
- 8.4.9 The Additional “What If” Tests included:
- NO ROADS & NO RESTRAINT – **What if 1f**
 - NO RAIL – **What if 9**
 - Dual all the way – **what if 10**
- 8.4.10 The summary results for these tests are given in tables 8.1 to 8.7 inclusive. Each of the ‘what if’ tests were subject to appraisal in terms of:
- Impact on traffic flows and mode shares;
 - Impact on the human environment- inputs from the traffic model were used in an emissions model to assess the level of particulates, hydrocarbons and greenhouse gases;
 - Impact on safety;
 - Impacts on accessibility
- 8.4.11 Detailed appraisal of the impacts on the physical environment are considered in the strategy development plans, where alternative alignments are considered.
- 8.5 ***Rejected strategies***
- 8.5.1 In addition to pursuing the incremental development of a preferred strategy, a number of alternative strategic options were tested.
- 8.5.2 Do-Nothing – This is not a credible option. Doing nothing will mean a continuing increase in car dependency, a consequent further decline in the viability of public transport and an accompanying worsening of traffic congestion, air

pollution, exposure to traffic noise and the further marginalisation of socially excluded groups.

8.5.3 Build a New Motorway – This is not the answer for the following reasons:

- It will not address congestion problems at existing bottlenecks as effectively because a new motorway would have more limited access and not serve local journeys.
- It will encourage growth in longer distance east- west car movement, thereby increasing car dependency and undermining the viability of rail improvements.
- It will attract longer distance through traffic, using the road as an alternative to the M25 to the north.
- Finally, it will be damaging to the physical environment of the area, passing through several areas of outstanding natural beauty, and perhaps through urban areas.

8.5.4 Tolling Motorways and Trunk Roads – This is not the answer either as it will encourage car users to use the non-motorway / trunk road network as an alternative. This will have the consequence of increasing:

- Congestion on the non-motorway / trunk road network.
- Overall number of road accidents, because more traffic will be using unsuitable roads.
- Air pollution and traffic noise within sensitive urban areas and in tranquil rural areas.

8.5.5 Area-wide road pricing - An option of tolling the full network reduces traffic levels by a small amount, but is limited by the lack of alternative modes for the majority of trips. Significant generalised time penalties are imposed on travellers as the charge rate increases, with implications for economic efficiency and wider regeneration benefits. It does not significantly affect the need for other schemes, though does reduce their benefits.

8.5.6 Improving Public Transport on its own- Whilst this approach can be successful in increasing the use of bus and rail services, it will have limited effect on the overall use of private vehicles within the corridor. Thus, on its own, it will not tackle many

of the congestion ‘hot spots’. Such measures need to be balanced with other approaches.

8.5.7 In most cases, the common reason for rejecting alternative strategies was that they failed to address the diversity or complexity of the corridor. A particular alternative may optimise the outcome for a particular stakeholder group (eg: a motorway would reduce travel costs for those wishing to make medium-distance trips) but this would be at the expense of other interests (local travellers, the environment, etc). Hence, the proposed strategy seeks to achieve balance between the large variety of interests and needs in the region.

8.6 ***Strategy Development Plans***

8.6.1 Having established an overall strategy for the South Coast, this has been examined in more detail through a series of Strategy Development Plans (SDPs). The purpose of these was to examine the implementation of strategy elements at the local level. The Strategy Development Plans provide an opportunity to assess issues in more detail at the local level. These include aspects such as a more detailed examination of ‘soft measures’ on influencing travel demands, the form of infrastructure improvements, the ability to provide public transport improvements, issues related to institutional arrangements and more detailed appraisal of elements. The SDPs have drawn heavily upon previous work undertaken within the study area; for example, at Hastings, Beddingham, Worthing, Arundel, Chichester, and in South Hampshire.

8.6.2 The SDPs have also allowed measures to be fine tuned, for example, by reducing the environmental impacts of some options. Each Strategy Development Plan seeks to provide advice and recommendations to be fed back to the finalising of the SoCoMMS Transport Strategy.

8.6.3 The SDP’s undertaken within SoCoMMS include:

- Rail elements;
- Bus elements;
- South Hampshire;
- Chichester;
- Arundel;
- Worthing;
- Brighton & Hove;
- East of Lewes; and

- Bexhill-Hastings.

8.6.4

In the process of carrying out the more detailed modelling and appraisal within the SDPs, the strategy was further refined. In particular, firmer conclusions were drawn on the alignment and design standard of highway schemes and the rail element of the strategy was amended to reflect value-for-money and deliverability criteria.

9 Summary

9.1 *Summary of Testing*

9.1.1 In summary, the development of the strategy has followed a methodology comprising both top-down (policy-led) and bottom-up (problem-led) approaches. A number of consistent themes emerged from these approaches, which subsequently guided and focussed the development and testing of specific schemes and services.

9.1.2 The strategy is heavily influenced by issues beyond the transport system alone, such as urban regeneration and the need to reinforce sub-regional hubs.

9.1.3 The study area is not viewed as a traditional linear corridor and the strategy avoids developing it as such. Instead, the strategy aims to support the current settlement pattern, facilitate urban regeneration and limit the generation of new and longer vehicular trips.

9.1.4 The strategy also reflects the many and various aspirations of a multi-stakeholder policy environment. This region of South-East England, possibly more than any, embodies the constraints and pressures that arise when major environmental, social, economic and mobility issues converge. The study argues that no simple, single solution exists to the transport problems that emerge from this situation, hence balance is an essential component of a successful strategy.

9.1.5 The undertaking of these tests highlighted those measures which contributed most to the strategy, as well as highlighting other issues that arise from the strategy (such as impacts arising from traffic re-assignment). For each test there was an examination of traffic flow changes, impacts on volume/capacity ratios, mode share and travel times. Examination of the test results allowed the study team to develop an 'emerging preferred strategy'. This has been presented to the public during a consultation phase, along with an explanation of some of the alternative approaches. The consultation feedback from the public and key stakeholders allowed the study team to review the strategy. In particular, the consultation identified additional issues that should be considered within the strategy.

9.1.6 Details of the strategy are outlined in chapters 7 and 8. The appraisal of the strategy is given in the Strategy Appraisal Report.