Executive Summary
South Coast Corridor Multi-Modal Study
Prepared for
Government Office for the South East
August 2002

Halcrow

In association with:

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Chris Blandford Associates
DTZ Pieda
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Executive Summary

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EXECUTIVE SUMMARY

Background to the Study

The South Coast Corridor Multi Modal Study (SoCoMMS) covers the region between Thanet in Kent and Southampton in the west. The region exhibits a wide range of economic and environmental characteristics, including a number of Priority Areas for Economic Regeneration (PAERs), the fast growing gateway town of Ashford, the major Southampton-Portsmouth conurbation and vibrant new city of Brighton and Hove. Much of the area is sandwiched between the South Downs and the English Channel and over 75% of the land within the study area is subject to an environmental designation of some sort. Figure 1 illustrates the study area.

SoCoMMS is one a number of studies undertaken on behalf of the Government so as 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 Transport: Better for Everyone' and has been commissioned by the Government Office for the South East (GOSE).

As stated within 'Guidance on the Methodology for Multi-Modal Studies' (GOMMMS), the multi-modal studies are:

> *' intended to be investigations of problems on or with all modes of transport. ... In practice, it is expected that the Studies will major on problems on the road, rail and bus systems, including access to ports and airports….*
>
> and are expected to identify solutions that include:
>
> *walking, cycling, air transport, shipping and pipelines, as well as roads, railways, buses and other forms of public transport. Solutions may also relate to non-transport policies, for example land-use, health and education.'*

The overall aims of the South Coast Corridor Multi Modal Study, as stated in the original study brief, are to:

- identify and investigate congestion, safety and environmental problems of transport along the south coast between Southampton (Hants.) and Thanet (Kent); and
- propose measures aimed at resolving these problems and improving access to and between regeneration areas and other areas of economic activity'.

The study brief also established a series of detailed objectives for the SoCoMMS study. These include the need to make recommendations for an over-arching strategy to guide the future development of the transport systems on the South Coast Corridor.

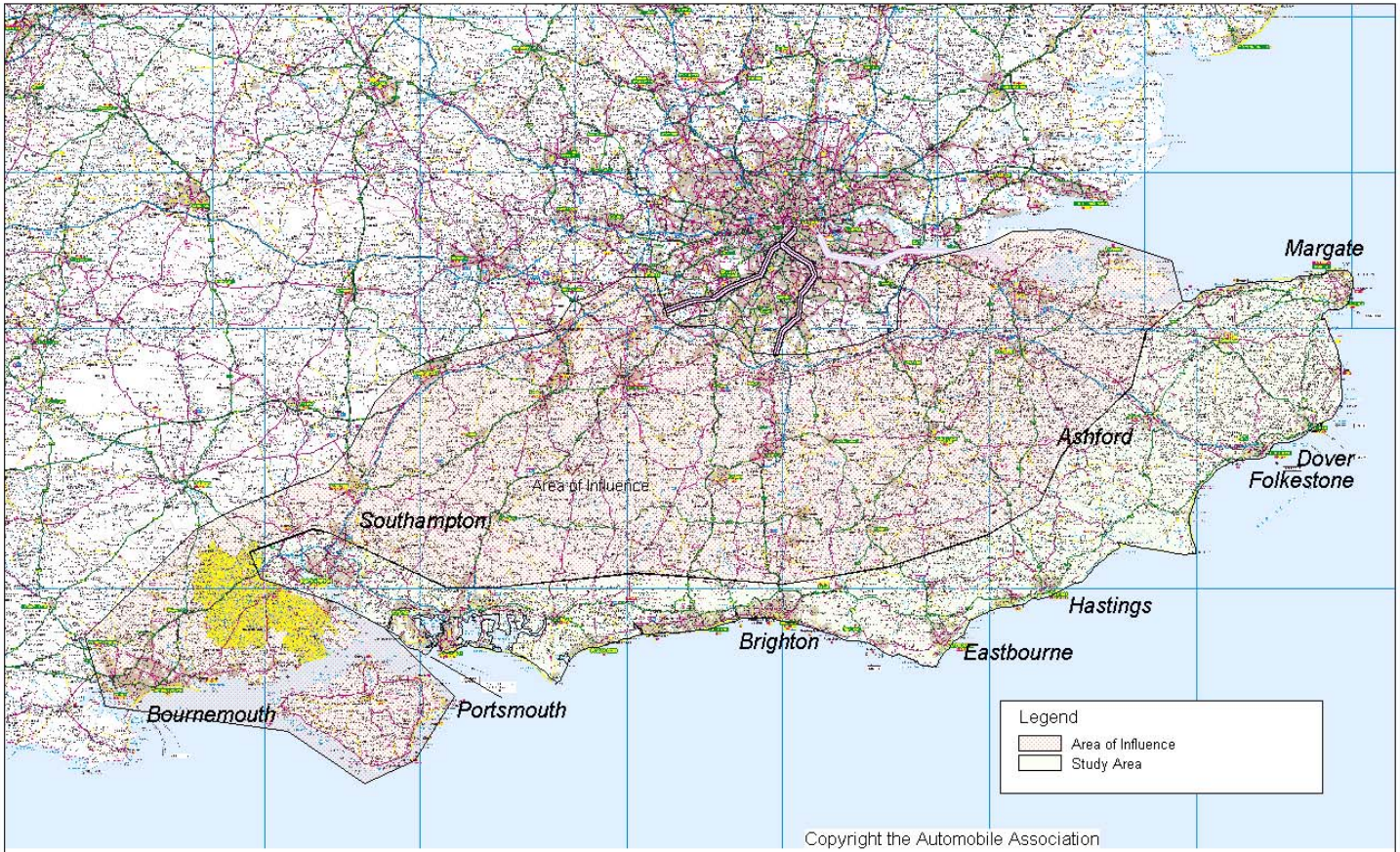


Figure 1 : Study Area

Study Approach

SoCoMMS has proceeded via both a *top-down* policy driven approach and a *bottom-up* problem methodology. The project has thus attempted both to reflect the wider policy environment, with its emphasis on sustainable economic growth and regeneration, and the need to develop specific measures to address current and future transport problems.

The SoCoMMS study process has included:

- identifying the strategic and local policy objectives within the study area;
- understanding the current transport conditions and the associated problems and issues;
- understanding how the problems and issues will change in the future;
- providing information and consulting with a range of interested parties as the study has processed;
- developing an appraisal framework and appraisal tools covering land use/transport modelling, environmental impact assessment, cost/benefit analysis and the geographical presentation of data and analysis results;
- identifying and developing solutions and strategies for the area;
- testing and appraising the options/ strategies;
- undertaking further consultation to gain reactions to and to develop consensus for the most promising solutions / preferred options; and
- identifying a preferred option, possible funding sources and an implementation programme.

A wide variety of potential measures have been explored in the course of the study, covering highway, rail, bus, LRT, local transport and demand management schemes. Several alternative strategic options have also been evaluated in arriving at the preferred, recommended strategy.

Current and Future Problems

The broad problem issues to have emerged from the analysis conducted within the study and which have been central to the development of the strategy are summarised below:

- **The Car:** 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.
- **Public Transport – 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.
- **Trains:** over 40% of rail trips are to London. In the east-west direction, the pattern of rail trips is similar to car, with most of the remaining journeys being relatively short between adjacent towns. The new South Central and South-West Trains franchises are proposing significant investment in stations and radial routes to London. South Central are also proposing modest investment on the Coastway line.

- **Buses:** 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 urban areas.
- **Walking:** walking plays a major role for short trips, but this figure could potentially be much higher. It is also key to many public transport based trips.
- **Cycling:** cycling accounts for 4% of journeys to work and as with walking, could account for more if facilities could be improved.
- **Freight:** 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.

Looking ahead and in the absence of any strategy, the number of vehicle km driven within the corridor will grow by around 30% by 2016 and 45% by 2030. This is despite a projected increase in rail use of 30% by 2016.

Analysis of the traffic situation has been supplemented by the three extensive rounds of public consultation. These have endorsed the observations and modelling 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.

The Policy Context

The general context for all multi-modal studies is the Government's five key objectives for transport, concerning the natural environment, safety, economic activity, accessibility and integration.

Analysis of the regional policy environment identifies a further set of more local issues and objectives, which must be reflected in a vision for the future. Principal amongst these are:

- The relationship between transport and land-use, reflected in policy goals to restrict development to suitable, mainly urban brownfield sites;
- Urban regeneration, reflected in the corridor's designated PAERs and the policy goal of promoting more equitable economic development across the region;
- Protection and enhancement of the region's bio-diversity, along with its landscape and heritage;

- Increased sustainability of rural communities;
- Reduced reliance on cars, pursued through policies to promote better integration between modes, improved public transport, traffic management, etc;
- Social inclusion, through the promotion of equitable programmes of development.

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'.*

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.

One important point to emerge from the analysis of both policies and problems is that the study area neither fulfils the role of a traditional linear corridor nor, it is argued, should it. Rather, the region comprises a set of inter-acting sub-regional centres, hubs and spokes. The SoCoMMS strategy aims to reinforce and develop the pattern of sustainable settlements within the existing hierarchy. The strategy also sets out to avoid introducing measures such as new infrastructure that could reinforce some settlements at the expense of others, generate more longer trips and fundamentally alter the geographic balance of the region.

Principles of Strategy Development

The development of the strategy reflects the findings of both the problem and policy-led analyses. The principles of the SoCoMMs strategy can thus be summarised as:

- 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 regneration;
- 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.

The strategy has thus been developed 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.

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 pattern within 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.

These strategic principles, under-pinned by the problem and policy analysis, form the basis for the recommended schemes and service options.

Elements of the SoCoMMS Strategy

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. This recognises that there are a large number of journeys, made within the study area, which are local in nature. 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. Significantly, in view of the importance of economic regeneration in general and the PAERS in particular, the transfer from car to other modes must be achieved without damage to the local and regional economies. 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.
- Development of 'home zones'.
- 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.

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

- encouragement of Quality Bus Partnerships or contracts;
- introduction of more frequent and extensive bus services, particularly in the evening and at weekends;
- increased number of bus priority measures;
- 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.

Fixed track local public transport measures have also been considered. Stage 1 of the South Hants Rapid Transit System (SHRTS) is included in the Base Case. Development of Stage 2, along the existing Fareham-St Denys rail line to Southampton is suggested, though the alternative of higher frequency heavy rail services on the same route could also be considered. More detailed analysis of the options is required over the next 20 years. A Light Rapid Transit System is recommended for Brighton. This should serve the four main corridors into the town. Both measures should be developed around 2020, by when traffic growth will justify them.

A key feature of the public consultation was the criticism that there is a lack of transport integration. The public had a poor perception of bus and rail transport due to difficulties with interchanges, obtaining information, and buying through tickets. This strategy component seeks to overcome these concerns and provide a more integrated system. 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.

The aim of this element is to increase the attractiveness of public transport and provide an alternative to the car for many journeys.

Strategic Public Transport Improvements- **Rail Strategy** – The rail strategy addresses a number of key issues, all of which are intended to increase accessibility and improve the public transport mode share:

- Lack of a long distance public transport mode along the corridor as an alternative to road;
- High rail travel between adjacent/major towns on the corridor;
- A need for targeted frequency improvements for local services to support regeneration initiatives (eg: Hastings);
- Poor quality of stations, their access facilities and interchanges across the corridor.

The strategy recognises the need for the rail network to fulfil several rules – local, regional and London orientated. Sufficient spare capacity exists within the network for all of these to be undertaken, which will be released by the recommended local infrastructure enhancements.

The inputs to the strategy involve a wide variety of, generally small, investment schemes aimed at overcoming local bottlenecks and facilitating increased capacity. These include new signalling, additional platforms and some extra track. The largest single scheme is the double tracking of the single track stretch on part of the line between Ashford and Hastings. Significant investment in a general programme of station upgrading is also proposed.

The outputs from the strategy centre around a new half hourly rail service between Ashford, Brighton and Southampton. This creates a new strategic link in the corridor, providing a public transport alternative to car which will prove highly attractive to longer distance travellers (including those between major towns on the corridor). In addition, the strategy provides:

- Six new stations to support developing areas;
- Upgrading of most stations in the corridor;
- Higher frequency local services at certain points, including Hastings, for which five trains per hour are proposed between Ore and Bexhill;

In the longer term, significant service enhancements are recommended in South Hants, including direct services between Brighton and Southampton Airports to coincide with the possible introduction of SHRTS stage 2.

Targeted Road based Improvements - The strategy recognises that more efficient use should be made of existing road capacity. This is achieved, in part, through a number of demand management and pricing measures (see below). Measures also include the implementation of enhanced intelligent transport systems (ITS) on the M27 which involve 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.

For the preferred strategy to be effective it must address the issues associated with car dependency. It is no longer possible or appropriate to satisfy all demand for road travel, however some improvements are essential to the continued economic and social well-being of the region. 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.

After considering all available options the development of the strategy concluded that these problems could only be addressed through localised highway improvements. These are aimed at the bottlenecks that cause congestion. The strategy includes a 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- such as at Chichester, Arundel, Worthing, East of Lewes;
- improvements between Bexhill and Hastings;
- improvements to the eastern approach to Dover;

In addition to the above, there may is a need to provide local capacity, safety and environmental improvements as and when needed.

Highway improvements are of particular importance to rural communities. Public transport will continue to serve a relatively small portion of the market and the car will remain the most economically efficient means of providing mobility. Reducing congestion on the approaches to larger towns and improving trunk routes will also reduce the need to divert onto sensitive rural roads, bringing environmental benefits to these areas.

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 support 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;
- road and rail access to ports – the strategy includes A2 enhancements at Dover;
- transhipment of selected international freight between international and coastal shipping; and
- further use of coastal shipping for bulky goods (building materials, etc)

It should, however, be emphasised that most freight movements are on a north-south axis between the ports and London, the Midlands and the North. Some North-South routes are in the process of being improved (e.g. the Channel Tunnel Rail Link), others such as the A21 north of Hastings, whilst outside the scope of SoCoMMS need addressing.

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 existing mobility policies, such as the rail DDA (new disabled access act) or an agreed mobility impaired accessibility policy to be developed through consultation with local groups and organisations.

Ensuring Balance - Demand Management 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. Moreover, this balance should be planned and delivered as a region-wide initiative, to ensure both consistency and maximum effectiveness. 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 conurbation's of Southampton, Portsmouth and Brighton & Hove so as to encourage use of the new Park and Ride facilities.

The demand management measures are targeted on those trips for which alternative modes can be developed, ie. those with a destination in urban areas or at a major traffic generator. As noted earlier, other forms of demand management have been considered and rejected as inappropriate on a mix of traffic and economic (e.g regeneration) grounds.

It is this final component that will determine the overall success of the strategy itself. It is essential therefore that any funding commitment is directly linked to the production of a corridor wide implementation plan, directly linking the funding of any new infrastructure to the progressive implementation of these balancing measures, and that these measures are introduced consistently throughout the corridor and neighbouring areas as part of the Regional Transport Strategy.

Strategy Development Plans – Nine Strategy Development Plans (SDPs) have been developed in order to illustrate detailed aspects of the strategy and to refine a number of the key measures. These SDPs cover:

- Rail Elements;
- Bus elements;
- South Hampshire;
- Chichester;
- Arundel;

- Worthing;
- Brighton & Hove;
- East of Lewes; and
- Bexhill-Hastings.

The Long-term - Looking ahead to 2030 and beyond, the role of demand management measures is likely to grow, both as means of funding sustainable transport measures and encouraging a further mode transfer to rail, bus, walking and cycling. Figure 2 illustrates the principal elements of the Strategy**.**

Strategy Appraisal

The SoCoMMS strategy has been appraised in accordance with the Government's guidelines for the multi-modal studies. This has covered four key aspects:

- An Appraisal Summary Table (AST) which gives a summary appraisal against Central Government's five objectives for transport (safety, economy, accessibility, integration and the environment);
- An assessment of the degree to which the local and regional objectives identified would be achieved by the strategy.
- An assessment of the degree to which the problems identified would be ameliorated by the strategy, compared to the situation if there was no positive policy intervention.
- Supporting analyses of distribution and equity, affordability and financial sustainability and practicality and public acceptability. This also includes the issue of scheme "deliverability".

The appraisal summary table is shown in Figure 3.

Two of the principal appraisal issues have been the implications of the strategy for the environment and its wider and more local economic impacts.

Environment - With or without the preferred strategy, traffic activity is set to increase considerably over the next 15 and 30 years with a consequent worsening in the human environment and in road safety (albeit that technological improvements in car design will mitigate some of these effects, as in the case of local air pollution).

The preferred strategy does nonetheless offer two significant benefits over the Do-Nothing situation. Firstly, by reducing overall car usage growth, future environmental and road safety problems will be reduced. Secondly, the strategy concentrates the traffic growth in areas where it can best be accommodated (i.e. on the Motorways and Trunk Roads).

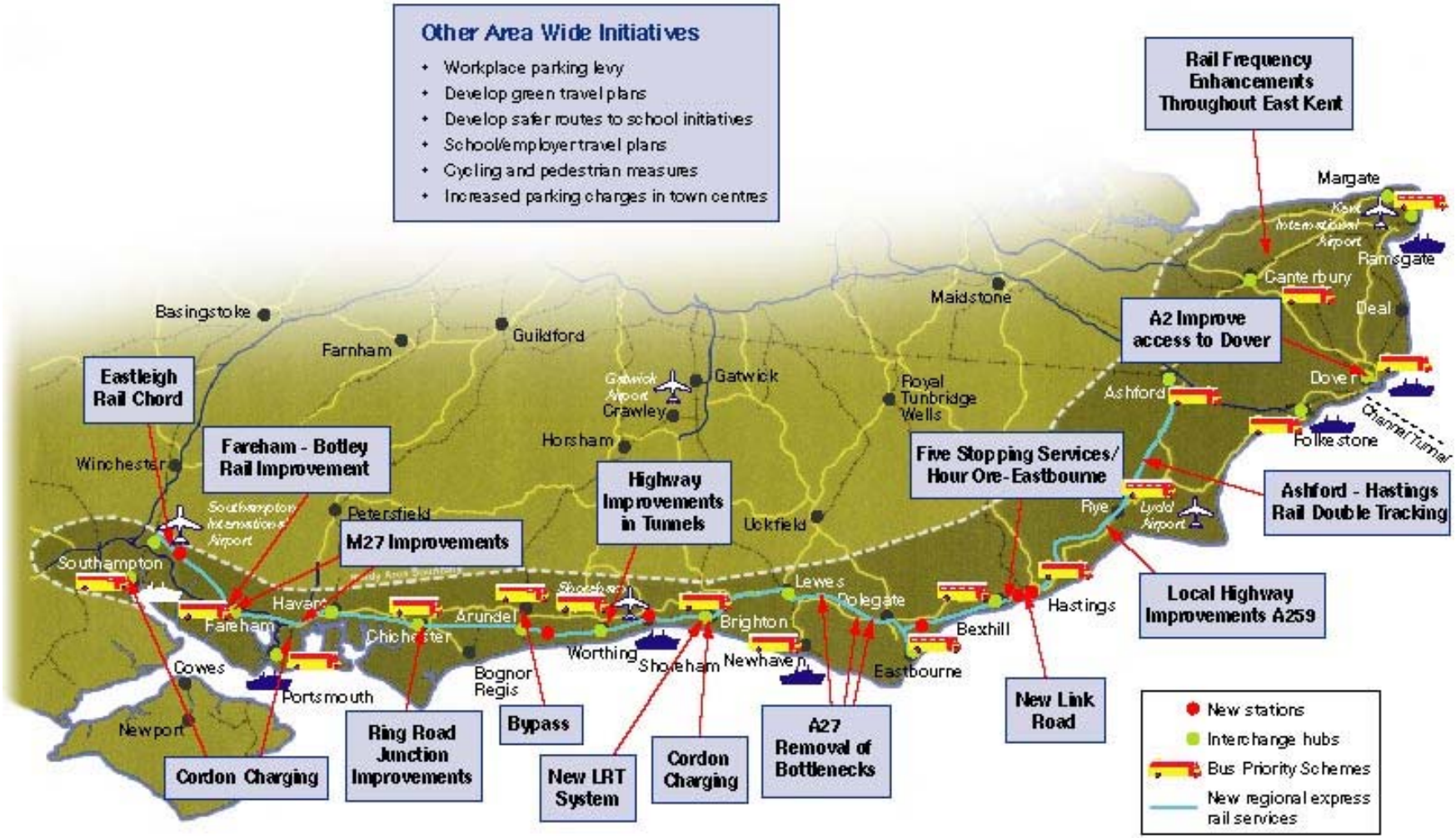


Figure 2 Summary of Principle Elements of Strategy

On the negative side the strategy requires the construction of new sections of railway, new stations, park and ride sites and new sections of road. These in themselves will impact on the physical environment. The highway schemes, in particular, will have a significant environmental impact; for example on parts of the region's landscape and biodiversity. Whilst recognising local and national concerns for conservation and environmental protection, the study has taken the view, supported by its analysis, that the recommended schemes form a key part of an effective and balanced strategy. The challenge will be to provide them in such a way as to minimise this. It is likely therefore that there will need to be a commitment to paying a construction cost premium, so as to minimise damage to the environment. The recommended tunnel at Worthing is an example of a case where such a premium must be paid.

Economy – The strategy has been evaluated in a traditional cost-benefits analysis and shown to be good value for money. The overall strategy has a Net Present Value (NPV) of £1.86Bn and a Benefit:Cost (B:C) ratio of 2.8:1.

Each major element of the strategy has been appraised independently (highway, rail, LRT, bus) and delivers a B:C ratio of greater than one.

The wider economic benefits of the strategy have also been considered. Firstly, it should be noted that the high economic NPV is an indication of the magnitude of the benefits likely to arise from implementation of the strategy. Secondly, a comprehensive accessibility analysis indicates that these benefits are likely to be distributed in those areas where a policy exists to promote economic regeneration and urban renaissance.

Many SoCoMMS measures are targeted to facilitate wider economic benefits, particularly by improving the attractiveness of urban centres (many of which are PAERs) and reducing the costs of travelling to and within such areas. This accords with the local policy agenda whilst the accessibility analysis demonstrates that the benefits from the strategy tend to be focussed within those areas for which regeneration is an important aim.

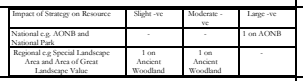
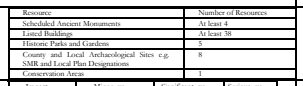
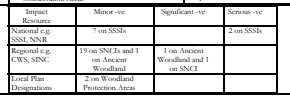
Delivering the Strategy

The SoCoMMS findings and recommendations will be passed over formally to the South East Regional Assembly (SEERA) on completion of this study. This will allow SEERA to further develop the South East Regional Transport Strategy, which is currently in a draft status. The recommendations and findings will also be presented to local authorities, other statutory agencies responsible for transport, and other interested groups.

The indicative costs of implementing the strategy in the SoCoMMS corridor is £1.1Bn This comprises:

- £594m of strategic highways investment (of which £275m is allocated to Worthing-Lancing improvement);
- £99m investment in local public transport and persuasive measures;
- £283m investment in LRT (does not include extension to Southampton);
- £26m investment in bus measures;
- £108.5m investment in rail.

Figure 3 - Appraisal Summary Table

Core Strategy			Problems	Present Value Cost To Government £510M
OBJECTIVE	**SUB- OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
ENVIRONMENT	**Noise**	In 15th year: 193 zones "losers", 322 zones "winners". The winners are largely associated with road infrastructure improvements and the losers are largely associated with increased rail services	Change in estimated population annoyed in 15th year with Strategy compared with present Do-minimum: +10028	Change in estimated population annoyed in 15th year with Strategy compared with future Do-minimum: +1226
	Local Air Quality	Overall, no zones with AQMA are worsened by the strategy (for both Nitrogen Dioxide and PM10). Two zones with AQMA are potentially improved by the strategy for Nitrogen Dioxide. However all AQMA are outside of the study area.	NO2: 445 zones "winners" NO2: 64 zones "losers" NO2: 35 zones no change PM10: 442 zones "winners" PM10: 67 zone no "losers" PM10: 35 zones "no change"	Emissions estimate NO2: -3,113,286 Emissions estimate PM10: - 33257
	Greenhouse Gases	A net reduction is predicted for the majority of zones		Reduction of 137,742 tonnes of CO2 for 2016 (-2%) against future do-minimum
	Landscape	Due to limited new road and rail infrastructure schemes the strategy will have a neutral-slight negative impact on the majority of the study area. However large negative impacts have been identified in certain parts of the study area including Arundel, Lewes, Selmeston and Hastings		Large Negative Impact
	Townscape	A neutral-slight negative impact on the majority of the study area with a number of areas experiencing a beneficial impact. However a slight negative impact has been identified in Hastings due to townscape benefits within parts of Bexhill and Hastings.	Multiplicity of features do not lend themselves well to a matrix.	Moderate Negative Impact
	Heritage of Historic Resources	There will be a neutral-slight negative impact on the majority of the study area. However a large negative impact has been identified on the historic environment in Arundel.		Large Negative Impact
	Biodiversity	There will be a neutral-slight negative impact on the majority of the study area. However, a serious adverse impact on biodiversity has been identified along the route of the proposed Hastings-Bexhill Link Road.		Large Negative Impact
	Water Environment	The balance of new schemes and upgrades suggests that on a regional scale the overall impact is generally low. However one scheme (the Worthing Tunnel), which passes through a regionally important groundwater resource with little scope for mitigation, has in itself a major impact and is sufficient (by accumulation of all local measures) to rate the impact of the core strategy as significant		Significant negative impact
	Physical Fitness	Measures to improve cycling and walking facilities are likely to bring about an increase in walking and cycling and therefore improve physical fitness. At a strategic level it is unclear what changes in the number of cyclists and pedestrians will occur.		Beneficial Impact
	Journey Ambience	Traveller care is significantly improved under the strategy by the improvements to rolling stock, facilities at stations, and public transport access to stations. New and improved roads will also reduce traveller stress as will reduced access times to stations.		Large Beneficial Impact
SAFETY	**Accidents**	Significant accident savings associated with reduced highway demand and new highway infrastructure.	Savings: Fatal 226 Serious 1638 Slight 13,525	PVB 298.3
	Security	The provision of CCTV, help points, and improved lighting at all stations across the study area will help to improve personal security for all passengers that use these interchanges		Large Beneficial Impact
ECONOMY	**Transport Economic Efficiency**			User Benefits: NPV £1409M Private Providers NPV£-129M Public Providers NPV£2192M Other Government NP£1637M
	Reliability	Improvements to the transport networks will enhance capacity and improve journey time reliability for road users. Proposals for improved rail infrastructure and rolling stock will improve reliability for rail users.		Moderate Beneficial Impact
	Wider Economic Impacts			Beneficial
ACCESSIBILITY	**Option Values**	New rail stations provide strong beneficial effects at the local level for each station as does the introduction of two Light Rail Transit systems. The combined effect will provide overall area wide opportunities within the study area.		Large Beneficial Impact
	Severance	Provides relief from existing severance for those in Arundel, Chichester, Wilmington, Worthing and Selmeston		Slight positive impact
	Access to the Transport System	Positive impacts are associated with the introduction of new stations and improving bus services		Large Beneficial Impact
INTEGRATION	**Transport Interchange**	The upgrading of existing interchanges, improved information and access for all travellers, introduction of new stations and Park and Ride measures contribute to providing an integrated transport system and a seamless journey.		Large Beneficial Impact
	Land-Use Policy	Performs well against national and regional guidance as well as LTP's and Structure Plans		Beneficial Impact
	Other Government Policies	Consistent with other Government policies relating to access to employment opportunity, reducing road accidents, promoting urban regeneration and promoting slow modes.		Beneficial Impact

In addition, the strategy will require public support for additional operating and maintenance costs for the various highway, rail, bus and local transport proposals (for example, by 2018, half-way through the period covered by the strategy, additional operating costs, net of additional fare-box revenues, will amount to £61.7m p.a.).

Potential sources of funds have been identified and recommendations made on those areas where additional powers will be required to further implementation. In order to facilitate delivery of the strategy, particularly where inter-agency collaboration and coordination are required, it is suggested that a series of Joint Transport Panels be formed, comprising all of the key statutory stakeholders, to manage the implementation projects.

The fundability of the strategy is greatly enhanced by the projected revenue from the demand management measures (parking and congestion charging). In around 15 years (half way through the study period) the income from these measures will be in the region of £130m p.a. Whilst all schemes will require capital funding from existing public or private sources, significant potential exists to recover a large proportion of these costs from the demand management revenues.

Figure 4 illustrates the proposed timing of the various strategy components. It can be seen that a number of schemes are identified for short-term delivery (before 2007). These include the local transport and bus measures, along with selected highway schemes which address particular bottlenecks or which support related regeneration programmes.

Summary of Recommendations

An important aspect of the recommended strategy is that it represents a balanced set of inter-dependent measures. It is not designed to 'pick-and-mix' and removal of one set of proposals will jeopardise the wider benefits from the remainder. This reflects the incremental approach to the development of the strategy and the complexity of the issues faced across the corridor.

The leading recommendation is therefore that, so far as is possible, the strategy be implemented as a coherent package of measures as described here. Specific, scheme or service, recommendations are as follows.

Highways

In order to address a series of bottlenecks at various points within the corridor, predominantly along the M27/A27, a series of highway improvement measures are recommended. These are additionally designed to increase accessibility within the corridor and support regeneration and economic development. The recommendations are as follows:

- **A29/A27 junction:** minor improvements be considered at the Fontwell and Slindon Common roundabouts;
- **Chichester Bypass:** A series of improvements be implemented, including grade separation of a number of junctions, accompanied by local traffic management and bus priority measures within the vicinity;

- **Arundel Bypass:** a new bypass be constructed around Arundel;
- **Worthing-Lancing:** a scheme be implemented to by-pass the current stretch of the A27, comprising of a possible tunnel solution with accompanying traffic management and public transport measures;
- **Lewes-Beddingham**: Improvement to dual carriageway and grade separation of the level crossing.
- **East of Beddingham**: a mix of on and off-line improvements be implemented at Selmeston and Wilmington to provide increased highway capacity, safety improvements and relief to adjacent properties and nearby villages
- **Bexhill-Hastings:** a new link road be constructed to increase capacity and relieve congestion to the west of Hastings;
- **Lyddon-Dover**: capacity improvements be implemented on the final stretch of the A2;
- **M27:** a mix of improvement measures be implemented, including widening and junction enhancements;
- **Local safety measures:** a number of specific recommendations are made for measures to enhance road safety, including several sites between Hastings and Ashford.

Railways

A variety of rail improvements are proposed to enhance the general quality of service, improve the frequency of local services and, most significantly, provide a new express service along the corridor:

- **East Kent:** deliver infrastructure enhancements to allow increased frequency of local services between Margate, Ramsgate, Canterbury, Dover, Folkstone and Ashford;
- **East Coastway:** deliver a number of infrastructure enhancements to permit increased frequencies, including a high frequency service between Ore, Hastings and Eastbourne;
- **West Coastway:** deliver minor short-term infrastructure enhancements, followed by the construction of a chord at Eastleigh and associated capacity enhancements in the longer term;
- **Coastway Express:** introduce a new half-hourly express service between Ashford, Brighton and Southampton; double track the remaining section between Ashford and Hastings to permit this;
- **Station enhancements:** undertake a major programme of station renovation and enhancements across the corridor in order to transform the waiting and interchange facilities;

New stations: introduce six new stations on the corridor, linked to regeneration, development or parkway initiatives; In addition, suggestions are made that a complete re-casting of the Coastway timetable be undertaken in order to optimise the operations of the five TOCs concerned.

Scheme	Capital Cost (£m)	Timing -scheme opening 2003-2007	2008-2012	2013-2017	2018-2022	2023-2032
Highway						
Chichester Bypass - Junctions	**35.4**					
A29/A27 Junction	**4**					
Fontwell roundabout						
Slindon Common roundabout						
Arundel Bypass	**27**					
Bypass						
Worthing-Lancing Improvement	**275**					
Tunnel						
Lewes-Beddingham	**22.7**					
East of Beddingham	**42.2**					
Selmeston bypass						
Wilmington bypass						
Bexhill -Hastings	**24**					
Link Road						
Lyddon-Dover	**24.6**					
M27	**117**					
Designation A27 to M27 w of Havant						
Junction to 3 to 4 widening						
Junction 11-12 widening						
Junction 5 improvements						
Other junction improvements						
VMS Signs on M27						
Local Safety/Enhancements Measures	**22**					
RAIL SCHEMES	**108.5**					
Station enhancements						
New stations						
Kent lines investment & service upgrades						
Coastway East investment & upgrades						
Coastway West investment and upgrades						
Coastway Express Service						
Eastleigh Chord; S.Hants capacity upgrade						
Re-assessment of Willingdon chord						
Re-assessment of Lewes-Tonbridge Wells						
LIGHT RAPID TRANSIT	**283**					
S.Hants Stage 2: Fareham-Soton (not included in cost)						
Brighton LRT						
BUS SCHEMES	**26**					
Bus priority infrastructure and services						
PERSUASIVE AND GP MEASURES	**98.7**					
Marketing, pricing and management						
Green/employer/school/etc travel plans						
Pedestrian/cycle priority measures						
Parking : town centres						
Parking : Workplace, PNR and employee						
Town centre congestion charging						
Park and Ride						

Key

Partial opening

Complete opening

Light Rapid Transit

- An extension to the SHRTS LRT should be considered, serving Fareham and Southampton, to be implemented around 2020; alternatively heavy rail services should be enhanced on the same route.

- A new LRT system is recommended for Brighton, serving major arterial routes in the town, Hove and Shoreham, also to be implemented around 2020.

Bus and Local Transport

Bus and local transport measures are a key element of the strategy, both in increasing accessibility and promoting traffic reduction measures. These involve:

- A series of recommendations for bus priority and other measures are made for specific corridors and urban areas; furthermore, public funding for improved bus services be increased.

- A number of recommendations, based on best practice within the study area, are made for local transport improvements, including employee travel plans, school travel plans, walking and cycling.

Demand Management

The strategy recognises the need to restrain some vehicular trips in order to promote the sustainability objectives. These are as follows:

- Increased parking charges in town centres;

- Workplace parking charges for employees – in selected towns, with appropriate public transport enhancements;

- Urban congestion charging in Brighton and Southampton-Portsmouth – in the longer term, again, under-pinned by public transport improvements;

- Park and Ride – an increased number of sites at various locations throughout the corridor, in association with highway, bus and rail enhancements.