Chichester Area Strategy Development Plan
South Coast Corridor Multi-Modal Study
Prepared for
Government Office for the South East
August 2002

Halcrow Group Limited
In association with:

- Accent
- Chris Blandford Associates
- DTZ Pieda
- Baxter Eadie Ltd
- Sustainable Futures
- Camargue – PR media Consultants
- Transportation Research Group, University of Southampton

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South Coast Corridor Multi Modal Study
Chichester Area Strategy Development Plan

Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Signed

Contents

1 Introduction

1 Introduction

1.1 ***Background to the Strategy Development Plan***

1.1.1 The South Coast Corridor Multi Modal study (SoCoMMS) is being undertaken on behalf of the Government Office for the South East (GOSE). The study has developed a transport strategy for the South Coast between Southampton and Thanet. This in turn will be an important element of the Regional Transport Strategy being developed for the South East.

1.1.2 The development of the transport strategy has made use of a strategic transport model, which has been specifically developed for SoCoMMS. The model represents an average hour between 0700 and 1900 and includes highway and rail network definitions. Travel forecasts have been developed for 2016 and 2030 and a range of transport measures have been tested, either in isolation or in combination.

1.1.3 The transport strategy that has emerged includes a range of 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.

1.1.4 In order to provide further detail on the elements of the strategy, a series of Strategy Development Plans (SDPs) are being prepared. These include plans investigating measures within:

- South Hampshire;
- Chichester;
- Arundel;
- Worthing;
- Brighton and Hove;
- East of Lewes;
- Bexhill-Hastings; and
- Public transport.

1.1.5 The purpose of the Strategy Development Plans is to investigate the performance of multi-modal measures at the local level. The plans will provide a feedback to the strategy development process by confirming the inclusion of key measures. The plans will provide greater detail on the measures and their appraisal. Where appropriate, an AST will be developed.

1.2 ***Policy Context***

1.2.1 The foreword to the West Sussex Local Transport Plan sets the scene succinctly: "The A27 is an economic lifeline for the South of England, but in places it is also the source of much misery for drivers and for those people living close by". This view reflects the Regional Economic Strategy which is seeking improved access across the south coast and as a result, the County Council is pressing for improvements on the Chichester bypass in the Local Transport Plan.

1.2.2 The counter-balance to this approach is highlighted in the Regional Planning Guidance for the South East which raises the issue of urban areas needing to achieve improved accessibility with more sustainable patterns of activity. To meet traffic reduction objectives, the County Council is therefore also pursuing through the Local Transport Plan the options of increasing choice and parking based demand management in town centres, while emphasising a strategic approach to integration of planning and transport.

1.2.3 This balanced approach adopted by the Highway Authority has been developed for Chichester through the Urban Transport Plan which forms an integrated package of measures to address the transport issues in the plan area. A number of other studies have been undertaken by the County Council, such as Passenger Transport Background Reports, "Pedalling Ahead" Cycling Strategy for West Sussex and the Rural Transport Plan which have all been instrumental in the development of the Local Transport Plan.

1.4 ***The Chichester Strategy Development Plan***

1.4.1 This Strategy Development Plan covers the area around Chichester (see Figures 1 and 2).

1.4.2 The key issues considered as part of this Strategy Development Plan are:

- A27 Chichester bypass

- assess relationship between developments and highway performance;

- review junction improvements on A27 (form they should take);
- review potential for other modes; and
- review potential of soft measures

- Access from Manhood Peninsula
  - examine the implications of the strategy for north-south movements across the A27 (including pedestrians, cyclists and bus users)
  - review proposed solutions to traffic problems in the Peninsula

1.4.3 The strategy is proposing a series of improvements to the junctions along the Chichester bypass. This follows earlier work undertaken on behalf of the Highways Agency which examined the need for improvements at each of the junctions. The Strategy Development Plan examines the potential grade separation of the Fishbourne roundabout, Stockbridge Road junction, Bognor Road junction, and Portfield roundabout. The remaining junctions could be converted such that through north-south movements are not permitted.

1.4.4 For the Chichester Plan, there is a local morning peak SATURN highway model. The network and matrices have been obtained from Mott MacDonald for use in this work. The model has been validated to 1999 traffic counts and other additional traffic data have been collated. Initial discussions have been held with WSCC to clarify development assumptions in the Chichester area. Trip matrices have been prepared for 2016 with structure plan development sites and assignments have been undertaken using the model to assess the impact of the improvements on network performance.

1.4.5 The Strategy Development Plan is also being used to assess the potential for other modes to influence peak period travel demands. This focuses in particular on the north-south movements across the A27 bypass. The issue of access from the Manhood Peninsula is looked at in more detail and proposals reviewed.

1.4.6 The key outputs for the Chichester plan are:

- An AST for the Chichester elements
- An advice note on a medium term transport plan for Chichester

1.4.7 The delivery of the elements will be the responsibility of West Sussex County Council (WSCC) and the HA.

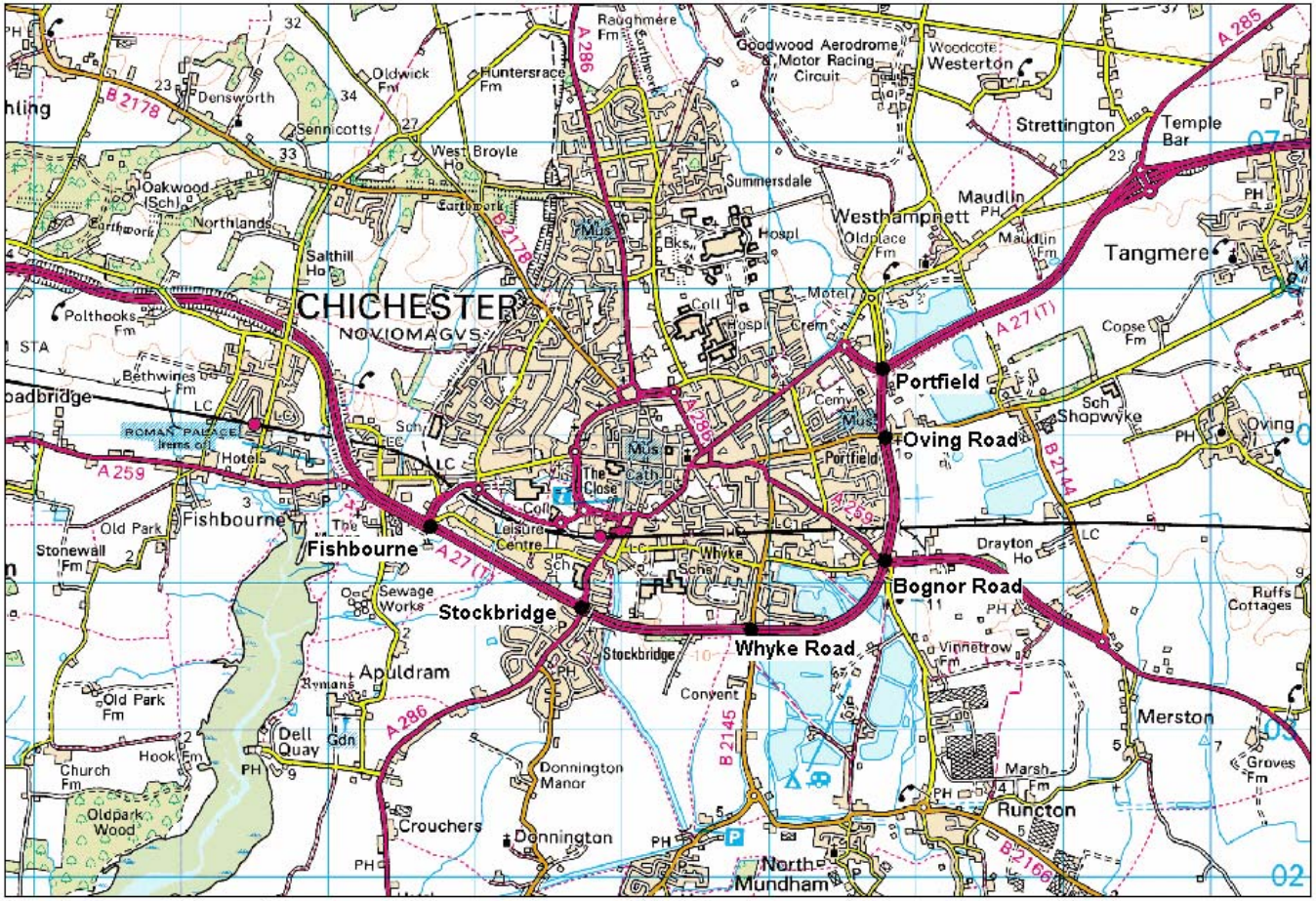

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Figure 1: Chichester Study Area

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Figure 2: Chichester and the Manhood Peninsula

2 Current Travel Conditions

2 Current Travel Conditions

2.1 ***Introduction***

2.1.1 This section of the report outlines the current travel conditions within the Chichester area. This analysis draws on data collected from a wide range of sources from the local authorities, transport operators and other survey information.

2.1.2 Extensive consultation was carried out at stages within the SoCoMMS study. This not only helped identify the problems and issues within the study area but has enabled the emerging strategy to be consulted on with stakeholders and the public within local areas. In Chichester, a strong consensus emerged on the need to reduce car dependency, improve public transport along with cycling and walking, increase the integration of travel modes as well as to progress more specific solutions including improvements at the A27 junctions, addressing north/south access problems caused by the Chichester bypass and improvement in bus/rail interchange. These views on potential solutions reflect the problems and issues identified within the SoCoMMS study and highlight the issues which this Strategy Development Plan will address.

2.1.3 The problems and issues which were identified in relation to Chichester are as follows:

- Large volumes of through traffic on the A27 and the east/west rail corridor tend to create a barrier to north/south movement between Chichester and the Manhood Peninsula to the south.

- Extensive peak period congestion occurs at the junctions on the A27 Chichester bypass, causing extensive delays, diversion onto unsuitable roads, resulting in a poor safety record on the A27 and adverse environmental impacts.

- Chichester is the County town and administrative centre of West Sussex. It is an ancient cathedral city and has developed as a sub-regional shopping centre as well as being a focus for tourism, business and education. Chichester's many attractions and functions encourage many conflicting pressures, in particular between access, environment and economic needs in the city centre.

- Alternatives to use of the car are not competitive given that rail travel times are relatively slow, bus/rail interchange is not integrated and the level of local bus provision is far from satisfactory.

- Demographic influences add to the pressures, given that a high proportion of the workforce commute by car to Chichester from the surrounding settlements and 25% of the City's population is over retirement age with their own specific travel demands. A total of 32% of households in the Chichester city area do not have access to a car, compared with the surrounding parishes in which only 15% of households have no access to a car.

- Seasonal demands add to the pressure on Chichester.

2.2 ***Travel to Work***

2.2.1 The majority of the existing problems are associated with times of peak demand on the transport network. As such, times are closely related to the start and finish of the working day. Analysis of the 1991 Census data undertaken in the development of West Sussex County Council's Urban Transport Plan for Chichester provides information on travel to work trips to, from and within the Chichester area.

2.2.2 Around 19,670 people work in Chichester with 12,850 people (65%) travelling in from areas outside the city. Of these, 83% travel to Chichester by car. Overall, 69% of people employed in Chichester travel to work by car (60% as car driver). Cycling and walking maintain a 21% share while bus and rail only account for 6% of work trips in the Chichester area. The vast majority of work trips starting and finishing within Chichester are very short with 84% being under 2 kilometres in length and are most suitable for more sustainable modes of transport. As car based trips account for 40% of all travel to work trips starting and finishing within Chichester, this would suggest that modal shift is feasible. Of 11,100 employed residents in Chichester, 550 work at home although it is expected that this share has risen over time. A total of 4,280 of these residents (41%) travel from Chichester to other destinations to work of which 79% travel by car.

2.3 ***Bus***

2.3.1 Bus services within the city are reasonably comprehensive and frequent. However, of travel to work trips starting and finishing in Chichester, only 1% are made by bus. Seventeen bus services are operated within the city area although seven of these services are limited to particular days. Three services run at 2 hourly intervals while the remaining services run more frequently. Services outside the city are less frequent than those inside the city, particularly in the evenings and weekends.

2.3.2 The West Sussex Strategy for Passenger Transport (2000) indicates that the County Council has sought to be innovative as well as pragmatic in facing its public transport problems. The County supports 30% of local bus services and the extent of the problem is indicated by the fact that only two routes outside urban areas in West Sussex operate without financial support from the County Council. It is particularly the settlements off principal roads which are poorly served and in response, the County Council is piloting a demand responsive bus system (DORIS) in the Midhurst to Haslemere area of Chichester District which has attracted the Government`s Rural Bus Challenge funding support. The County supports operators` initiatives in the area to reduce the cost of bus travel and recognises the need for reliable and affordable bus services in rural areas to improve social inclusion. Rural provision is boosted by a number of community transport services as a cost effective solution to providing links with mainstream public transport.

2.3.3 Further innovative initiatives include:

- on-street public transport information terminals in Chichester;
- public transport information posted on the Internet;
- in rural areas, the experimental Script initiative providing access to Traveline (a telephone timetable service);
- EU funded CENTURi2.1 project financed by the EU.

2.3.4 'A Strategy for Interchange' identifies the need for effective interchange between and within all modes by eg. through ticketing and ensuring that rural bus services and community buses connect with existing bus and rail services. The strategic programme within the Local Transport Plan identifies the need to integrate the bus and rail stations in Chichester and the need for a comprehensive review of the bus priority facilities in West Street and South Street by 2006/07.

2.3.5 A Planning Framework for Chichester's Southern Gateway was adopted as supplementary planning guidance in 2001 including proposals for integrating the bus and rail stations which emerged from The Chichester Stations Study by Mott MacDonald. This study proposed relocating the bus station to the rail station north side forecourt, along with improved pedestrian and cycle links and facilities. Although the stations are in close proximity, there is currently no incentive to transfer between the two public transport modes. The walk link is not apparent and this has a detrimental effect on modal integration in Chichester. It has a particularly detrimental effect on accessibility from the Manhood Peninsula given the interchange penalty suffered.

2.4 ***Rail***

2.4.1 The Coastway rail line serves Chichester with a rail station located to the south of the city centre, serving a large catchment area including the Manhood Peninsula. Direct services operate from Chichester to London, Worthing, Brighton, Littlehampton, Portsmouth, Southampton and all intermediate stations. Rail services are not widely used for journeys to work although they are well used for journeys to and from schools and colleges. The Local Transport Plan has designated this station as a strategic interchange and a study was commissioned in 2000 to assess the feasibility of developing a rail/bus interchange as a quality interchange point with an integrated public transport information system. This proposal is progressing through a planning framework for the Southern Gateway area.

2.5 ***Cycling and Walking***

2.5.1 In terms of cycling, the proportion of journeys to work stands at 6% (considerably higher than the national average of 2%) and reflects the relative compactness of the urban area as well as the lack of significant gradients. Some segregated cycle routes have been provided although they do not continue into the city centre. The main routes provided for cyclists consist of the Centurion Way using a disused rail track to the north of Chichester and to the south, the Chichester canal path is a well used utility route while there is a proposed leisure route south to Selsey. `Pedalling Ahead`, the Cycling Strategy for West Sussex (2000) proposes few additional infrastructure improvements for the Chichester area, although the concept of Quiet Roads and Greenways is being developed in West Sussex which may benefit this area.

2.5.2 Walking also benefits from these local conditions. However, of work trips made by those living and working in the city, 40% still use their cars, indicating that a

significant shift to cycling and walking could be achieved. A problem is the lack of continuity in pedestrian routes, particularly those linking the rail station, bus station and the main shopping area. Progress has been made since the Pedestrian Strategy `Stepping Ahead` (1993) was adopted and particularly since the advent of TravelWise.

2.5.3 In terms of movement across the bypass, a safe cycle and walking route exists between Roman Way and Fishbourne Road (east) via a subway under the A27. There is also a ramped footbridge at Stockbridge roundabout and ramped access to the Chichester Canal towpath. Provision for pedestrians also exists at the Bognor Road roundabout. A cycle route runs along the northern side of the bypass between Stockbridge Road and Whyke Road.

2.6 ***Road***

2.6.1 Chichester has an effective network of roads serving the city. The A27 forms a southern bypass to the city with a number of primary routes, the A285, A286 and A259 linking with it. There is a network of 'B' and 'C' class roads connecting with the surrounding villages and parishes. The A27 runs east to west and for most of its length is dual carriageway. It carries long distance movements as well as a significant volume of local traffic. The Local Transport Plan recognises that there is now serious peak, weekend and holiday period congestion at the Stockbridge Road, Fishbourne Road, Whyke Road, Oving Road and Bognor Road junctions on the A27 Chichester bypass which are indicated on Figure 1. This causes delay on the A27 and causes particular problems for north/south movement at certain roundabout junctions causing delay and difficulties to intersecting traffic, including buses and cyclists. There is also concern at the number of injury accidents at various junctions.

2.6.2 Traffic in Chichester has grown between 1991 and 1999 by 19.8% (Travel in West Sussex 1999) which is higher than the West Sussex average. In 2000, the annual average daily flow on the A27 Chichester bypass was 37,500 vehicles at the Fishbourne roundabout while at the western extremity it was 39,900 vehicles. The average peak hour speed is 30kph giving an end to end travel time on the A27 bypass of 6 minutes.

2.6.3 Chichester now has the benefit of an inner ring road which surrounds the old city walls. Much of the extraneous traffic has been removed from the historic core which has enabled a number of environmental enhancement schemes aimed at

improving pedestrian safety to be introduced. These have been focused on reducing accessibility to the Market Cross area by motorised modes of travel except service buses.

2.6.4 A major scheme proposed in the Chichester area is the A286 Stockbridge bypass. The aim is to remove through traffic from the Stockbridge residential area although further benefits are identified should the A27/A286 junction be modified such that turning movements are not allowed. Further, given the heavy goods traffic generated from the glasshouse area near Selsey and from industrial areas close to Bognor Regis, this bypass would enable this traffic to be routed away from the Stockbridge Road residential area.

2.7 ***Sustainable Travel***

2.7.1 West Sussex County Council is progressing a School Travel Strategy through such initiatives as safer routes to school, school safety education and school travel plans. A quarter fare bus scheme has been piloted in some areas but resulted in bus capacity difficulties. The strategy involves targeting clusters of schools with a particular recommendation that schools in the Manhood Peninsula are targeted.

2.7.2 Land use policies require that development should be located to avoid increase in, and if possible, reduce the need to travel, particularly by private car. Policies also require that new development should normally be allowed only where it has access to public transport. The TravelWise initiative is being promoted throughout the District while staff travel plans are being developed for West Sussex County Council, Chichester District Council and other major employers to tackle the journey to and from work issues of their employees. A number of medium to large scale employers have indicated their readiness to join in shared transport facilities in the area. These include St. Richards Hospital Trust and Mercers, the Finance House.

3 Transport Model Development

3 Transport Model

3.1 ***Introduction***

3.1.1 The study undertaken by Mott MacDonald for the Highways Agency in 1999 covered the length of the A27 Chichester bypass from Fishbourne roundabout in the west to Portfield junction in the east. The recommendations emerging from the study in terms of specific junction improvements have been examined further in this Strategic Development Plan.

3.2 ***SATURN Model***

3.2.1 The existing morning peak SATURN highway model was obtained and validated. On the basis of information on future land use developments, trip matrices have been prepared for 2016 and assignments undertaken using the model to assess the impact of future land use and of various highway and transport interventions.

3.2.2 The model was used to assess the following impacts:

- Analyse the impact of land use developments by 2016 on the do-minimum network.
- Analyse the impact of the A27 junction improvements in 2016.
- Analyse the impact of green travel measures in 2016.
- Compare the relative impact of green travel measures and A27 junction improvements, for 2016 demand scenario.
- Assess the need for A27 junction improvements with green travel measures in place.

3.2.3 The following assignments were undertaken to enable these impacts to be assessed:

1. The impact of land use developments by 2016 on the do-minimum network.

(a) Assign 1999 trip matrices assuming no A27 junction improvements or green travel measures.

(b) Assign 2016 trip matrices assuming no A27 junction improvements or green travel measures.

2. The impact of the A27 junction improvements in 2016.

(a) Assign 2016 trip matrices with 2016 land use developments and no A27 junction improvements.

(b) Assign 2016 trip matrices with 2016 land use developments and inclusion of A27 junction improvements.

3. Impact of green travel measures.

(a) Assign 2016 trip matrices with 2016 land use developments, no A27 junction improvements but trip matrices reduced by specific percentages (5%, 10% and 15%) to reflect the reduction in vehicular trips being made as a result of green travel initiatives taking effect.

(b) Compare this with assignment 2(a).

4. Relative impact of green travel measures and A27 junction improvements in coping with 2016 land use developments.

(a) Compare assignments 2(b) and 3(a).

5. The need for A27 junction improvements with green travel measures in place.

(a) Assign 2016 trip matrices with 2016 land use developments, with A27 improvements and with trip matrices reduced by specific percentages to reflect the reduction in vehicular trips being made as a result of green travel initiatives taking effect.

(b) Compare this with assignment 3(a).

3.2.4 The conclusions drawn from these tests will enable recommendations to be made about the need for the improvements proposed for the Chichester bypass junctions, about the accessibility improvements potentially benefiting the Manhood Peninsula and about the likely effects of green travel measures.

4 Future Travel Conditions

4 Future Travel Conditions

4.1 ***Traffic Growth***

4.1.1 The scope for significant growth and land use change within the study area is limited by land availability. Nonetheless, traffic is expected to grow by around 34% between 1999 and 2016 if the land use developments in the West Sussex Structure Plan and Chichester District Local Plan (up to 2006) are delivered. Analysis of the traffic situation in the absence of specific interventions suggests that the study area road network will experience increased congestion and delay with speed in the town decreasing from 30kph to 22kph and the end to end journey time increasing from 6 minutes to 10 minutes. Additionally, large queues will occur at the junctions with the bypass from the Fishbourne Road roundabout to the Bognor Road roundabout. This will further accentuate existing problems of adverse air quality, noise impacts, accidents, encourage more rat-running, worsen accessibility to areas of economic activity, increase bus unreliability, and contribute to a deteriorating environment for cyclists and pedestrians.

4.2 ***Land Use Changes***

4.2.1 The Chichester District Local Plan assumes that 1800 new homes will be built between 2001 and 2006 and these allocations have been built into the model used to assess A27 Chichester bypass junction options. The West Sussex Structure Plan for the period up to 2016 is currently being reviewed. However, 10,000 new homes are planned between 1999 and 2016 along with substantial commercial development. It is therefore not possible to be specific in terms of the land use assumptions beyond 2006 but advice was sought from the County Council on likely areas of growth and numbers of new dwellings/employment land which were built into the modelling process.

5 Chichester Bypass

5 Chichester Bypass

5.1 ***A27 Chichester Bypass Improvements[1]- Overview***

5.1.1 The Chichester bypass is one of the key areas identified through the consultation process as having major problems in terms of both east/west movement on the bypass and north/south movement between the Manhood Peninsula and the city centre. The Strategy Development Plan has investigated the need for the improvements and their associated impacts. The junctions along the length of the bypass are discussed below. This builds on previous work undertaken for the Highways Agency.

Fishbourne Roundabout (A27/A259/Terminus Road)

5.1.2 A medium term solution could be to adapt the existing roundabout to an at-grade signal-controlled through-about maintaining all existing five arms. This involves providing a direct carriageway through the middle of a signalised roundabout for straight-ahead movements. All other turning movements would use the circulating carriageway. Capacity testing undertaken previously for the Highways Agency indicated that this scheme could not operate satisfactorily with current flows without enforcing queues of extreme length on the approaching A27 at peak hours. This option is therefore not considered appropriate on capacity and safety grounds.

5.1.3 The grade-separation of Fishbourne roundabout is suggested in the long-term. This would involve taking the main carriageway over an enlarged roundabout on a pair of single span bridges. Retaining walls are assumed on the embankment to minimise land-take. The enlarged roundabout would be able to accommodate main carriageway slip roads and a sixth arm for the Stockbridge bypass (if progressed by WSCC). In order to accommodate the on and off-slip roads there would be landtake on both sides of the A27 east and to the south of the A27 west. Construction work would extend across the line of the River Lavant to the east of the junction. The alignment of Fishbourne Road (west) would be affected, as would the access to Lawrence Farm.

[1] Information regarding the Chichester Bypass Improvements is taken from the Highways Agency's A27 Chichester Bypass Study Report, April 1999 (Doc Ref: 44021/HAS/WIN/001/B)

Stockbridge Roundabout (A27/A286)

5.1.4 A medium term solution was considered to be to adapt the roundabout to an at-grade through-about similar to the Fishbourne roundabout above. The geometry of the existing roundabout is not suited to signalisation, as the lengths available for stacking traffic on the circulatory carriageway are too short. Capacity testing for the Highways Agency indicated that this layout could not be made to operate satisfactorily, even at current flow levels.

5.1.5 Grade-separation similar to that proposed at the Fishbourne roundabout could be suggested in the long-term for this junction. This would incorporate slip roads from the A27 to an improved roundabout. A new structure over the Chichester canal as well as the River Lavant would be required. The land take implications for the slip roads would be significant for properties on three quadrants of the junction. Environmental impact would be significant for a full junction. The existing pedestrian/cyclist overbridge would be removed, to be replaced with at-grade facilities or another grade-separated solution. Local access to Queens Road would need to be retained from the westbound off-slip road. Access to an agricultural holding would be severely affected and an alternative required. The existing footpath/cycleway on the north side of the bypass would be affected and it could be chosen to abandon this facility as it is not provided on other sections of the bypass.

5.1.6 Section 5.2 discusses the implications of proximity of the Stockbridge junction to the Fishbourne junction and concludes that as both sets of slip roads cannot be accommodated, the Stockbridge junction should be restricted to a grade separated north-south movement. This would allow local access traffic to be maintained to Stockbridge, with the potential to allow for bus priority measures on the north-south corridor.

5.1.7 An alternative approach at this junction would be to keep an at-grade junction but only allow left-in, left-out arrangements. This would restrict north-south movements across the junction which would have implications for bus movements from the Manhood peninsula. These would need to be re-routed.

Whyke Road (A27/B2145)

5.1.6 At this junction the alternatives could be a full grade separated junction, a flyover, or a limited left-left out arrangement. Given the location of the junction, a left

in/left out junction arrangement is suggested. The existing roundabout would be removed and the overall A27 alignment unchanged. This layout appears to be achievable without directly affecting properties although land outside of the highway is involved. The existing at-grade footway/cycle crossing would need to be re-provided within the layout.

Bognor Road (A27/A259/Vinnetrow Road)

5.1.7 Realignment of Vinnetrow Road to join the A27 at a left in/left out junction west of the Bognor Road would assist operation of the junction and reduce accidents. Grade-separation is required if meaningful capacity enhancement is to be provided. This would have very significant implications in terms of land required. Preliminary consideration suggests that construction within water-filled gravel pits would be involved on both sides to the west of the junction. To the south-east land within the oil depot would be involved. A new and larger structure over the railway would be needed for the new main carriageway and two slip roads. Practical difficulties will arise in replacing the existing structure over a live railway by another on a similar alignment. Commercial properties in the north-west and north-east quadrants may also be affected. The recently constructed pedestrian/cyclist overbridge would be removed to be replaced with at-grade or new grade-separated facilities. Vinnetrow Road could be accommodated as a left in/left out junction on the westbound on-slip.

Oving Road (A27/B2144)

5.1.8 The flows across the A27 at this junction are low and therefore grade-separation is not suggested as an option. At present, congestion at the existing signalised junction is not yet unacceptable and therefore no action is suggested for the time being. Alternatives for future improvements are:

- Create left in/left out junctions for both minor arms.
- Close one or both minor arms (if one, then the other to be left in/ left out).
- Closure of Oving Road junction could be considered on a trial basis.

Portfield Roundabout (A27/Portfield Way/former A27)

5.1.9 At present, the junction in general experiences less congestion than others on the bypass and therefore it is not a priority for action to enhance capacity. In the

longer term (post-2016) it would be appropriate to consider at-grade improvements or grade-separation.

5.1.10 At grade improvements would involve amendments to the existing roundabout junction to provide a direct route between A27 arms through the central island with traffic signal control of all moves (i.e. variation of the through-about concept, linking arms at 90° to each other). Some difficulty with this layout may be anticipated due to the restricted stacking length on the circulatory carriageway for right-turning traffic from the A27 east.

5.1.11 Grade separation improvements could involve either of the following:

- Partial grade-separation taking the eastbound A27 carriageway over the existing junction. The westbound A27 would remain at-grade and pass through the Portfield roundabout; westbound trunk road traffic would therefore continue to give way to traffic from local roads negotiating the roundabout.

- Full grade-separation to current design standards would involve an off-line route to the south and east of the current junction. The existing scrap metal works and aggregate depot would be affected. The proximity of the Oving Road junction means that for grade-separation it needs to be considered together with Portfield roundabout. Left in/ left out provision could be maintained at Oving Road with the northern arm feeding to and from the eastbound off-slip and the southern arm directly to the westbound carriageway.

5.1.12 Although grade-separation is seen as a very long term scheme for this junction, a partial grade-separation (eastbound) of the trunk road is not supported as an interim or alternative to an off-line scheme in the very long term.

5.2 ***Proximity of Junctions***

5.2.1 The grade-separation schemes discussed in the preceding paragraphs are very much preliminary considerations. However, a significant point to emerge is that the end of works for one grade-separation scheme would overlap with the commencement of those for the adjacent junction (e.g. Fishbourne and Stockbridge roundabouts; Bognor Road and Oving/Portfield Road).

5.2.2 Design standards (TD 22/92, DMRB Vol 6) require a minimum spacing of 450 metres between on and off-slips for adjacent junctions. Greater spacings are required where traffic weaving movements dictate. With the spacing of junctions on Chichester bypass being around 1km these conditions are not achievable with a 120km/hr design speed. Comprehensive improvement of the bypass would therefore imply that one or more of the following measures would need to be adopted:

- Reduction to 85km/hr urban road design standard and the associated application of a 50mph speed limit along the bypass
- Reduced provision for access between the A27 and local roads
- Provision of auxiliary lanes or link roads between adjacent junctions and the omission of some slip roads

5.3 ***Bypass Strategy***

5.3.1 Clearly a number of options are available if significant capacity enhancements are to be pursued. The 'best case' strategy for the trunk road resulting from the work undertaken by Mott MacDonald would be as follows:

- Fishbourne Road - full grade-separation
- Stockbridge Road - taken under/over bypass
- Whyke Road - closed
- Bognor Road - full grade-separation
- Oving Road - closed
- Portfield - off-line grade-separation in the very long term

5.3.2 A more 'relaxed' strategy would be as follows:

- Fishbourne Road - full grade-separation
- Stockbridge Road - left in/out for north and south arms and south arms of the A286
- Whyke Road - closed or left in/out junctions
- Bognor Road - full grade-separation
- Oving Road - closed or left in/out junctions

- Portfield - off-line grade- separation in the very long term.

5.4 ***Outputs from Model***

5.4.1 The overall impact of the A27 (best case scenario) junction improvements tested reduced end to end travel time in 2016 from 10 minutes to 5 minutes which is less than in the current situation. Despite the traffic growth, generally the Chichester bypass was found to operate efficiently without delays.

5.4.2 In terms of operation of the individual junctions, the model confirms that the capacities of Fishbourne and Stockbridge roundabouts would be sufficient to accommodate the traffic remaining after the A27 through trips were removed. The flyover for north/south traffic at the Stockbridge Road junction results in the traffic queues being moved to the Terminus Road junction.

5.4.3 The closure at Whyke Road was found to divert traffic towards the Bognor Road roundabout with long queues and possible delays on Vinnetrow Road. In reality, it is very unlikely that car drivers coming from Bognor Regis would use this road to access the Bognor Road roundabout. The use of the A259 to access Chichester is more realistic. No major increase in delays at the Bognor Road junction were found, even with the diversionary effects of closure of the side roads at Oving Road.

5.4.4 The effect of the Stockbridge bypass was assessed as being beneficial to the Terminus Road/Stockbridge Road junction where delays decrease as a result of rerouting of traffic via the proposed bypass. Some traffic also rerouted from Vinnetrow Road to the bypass, thus decreasing the delays at Vinnetrow Road but increasing delays on the bypass.

5.4.5 The effect of green travel plans on operation of the Chichester bypass junctions was assessed by reducing the trip matrix prior to assignment. The maximum reduction tested of 15% resulted in all junctions with the exception of Oving Road being congested in 2016, indicating that junction improvements are still necessary. Even with green travel plan assumptions in addition to the A27 junction improvements, delays would still remain at the Terminus Road/Stockbridge Road junction and on Vinnetrow Road, although these are not significant. However, inclusion of the proposed Stockbridge bypass results in delays at the Terminus Road/Stockbridge Road junction being reduced to insignificant levels. The outputs

of tests run assuming a reduction of 10% and 5% resulted in longer delays with a greater need for junction improvements.

5.5 ***Recommendations***

5.5.1 It is recommended that the junction improvements on the Chichester bypass tested for 2016 traffic conditions are progressed, along with the proposed Stockbridge bypass which redistributes travel demand away from the areas of congestion still remaining. It is also recommended that pedestrian and cycling measures should be incorporated in the scheme design.

5.5.2 The model indicated that the implementation of green travel initiatives would be unable to counteract the effects of travel demand by 2016. However, the local authorities within the study area should still progress such initiatives to achieve other objectives such as improved sustainability and environmental improvement.

5.5.3 This Strategy Development Plan has specifically examined the junction improvements that need to be undertaken on the Chichester bypass. However as part of the area wide strategy Chichester and the Manhood Peninsula area will also benefit from local and strategic initiatives that are proposed as part of the SoCoMMS strategy. These include:

- **Local Initiatives**
- New bus service to Arundel
- New bus service to Selsea
- Bus priority measures on the corridors between Selsey and Chichester, and Bognor Regis and Chichester
- Bus priority and improved passenger waiting facilities in Chichester
- Improved interchange facilities between bus and rail
- Continued support and provision of resources for local measures such as "Stepping Ahead" and "Pedalling Ahead"
- Continued support and provision of resources for "Safer Routes to Schools" and "Green Travel Plans"
- Continued support and provision of resources for travel awareness schemes

- **Rail Initiatives**
- Half-hourly regional express - Brighton (Ashford) to Southampton calling, inter alia, Worthing, Barnham, Chichester, Havant and Fareham
- Improvements to Chichester station

- **Demand Management Initiatives**
- increased long stay public parking charges (as part of the area wide strategy 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 (as part of the area wide strategy).

6 Manhood Peninsula

6 Manhood Peninsula

6.1 ***Introduction***

6.1.1 The Manhood Peninsula is located south of Chichester and south of the A27 Chichester bypass. In 2001 a consultation study of the Manhood Peninsula parishes was carried out by Halcrow as part of the dialogue between West Sussex County Council and the residents to address the access issues. The conclusions from this work are being taken forward to inform this Strategy Development Plan. The two major perceived transportation problems in the Manhood Peninsula which emerged from this work are traffic congestion at the A27 and traffic levels within the peninsula itself.

6.1.2 In recent years the Manhood Peninsula has experienced a significant increase in physical development. The resultant increases in population and economic activity have created a demand for transportation that now exceeds the capacity of the transport infrastructure on the Peninsula. As a result of this and the steady growth of traffic on the A27 Chichester bypass, the general traffic situation in the Manhood Peninsula is regarded as being increasingly inadequate.

6.1.3 This section of the Chichester Strategy Development Plan identifies the existing problems and issues and assesses the appropriate measures which could address them.

6.2 ***Current Travel Issues***

6.2.1 The principal road access routes into the Peninsula are from the north via the B2145, the A286 and the A259. In all cases the routes are single carriageway roads. In each case the access routes intersect with the A27 in the form of roundabouts. In this respect the A27 and its roundabouts form a northern barrier through which vehicles must pass to gain access to, or egress from, the Manhood Peninsula. The extent to which this barrier is problematic, the likely future problems and the extent to which junction improvements on the Chichester bypass will overcome them has been assessed using the SATURN model.

6.2.2 Bus services between Chichester and the Manhood Peninsula are focused on the two main corridors of the B2145 and the A286. Services on these corridors offer a

daytime frequency of two hours or less on at least five days of the week. In addition, the B2201 offers a service with a day time frequency of less than two hours, five days a week. Services on certain days only operate on local roads to West Itchenor, Earnley and around Selsey.

6.2.3 In general, there are no specific provisions for cycles although the towpath along the Chichester Canal is well used by cycles accessing the centre of Chichester. Pedestrian facilities in village and town centres seem to be adequate although there are generally no footways alongside rural sections of road. A bridge for cycles and pedestrians crosses the A27 at its junction with the A286 but no other facilities to help in crossing the A27 are available except for a pedestrian footbridge at the Bognor Road roundabout.

6.3 ***Transportation Problems***

6.3.1 Although transportation provision in the Manhood Peninsula has remained relatively unchanged for some years, population and economic activity have increased substantially in the last 10 years. As a rough guide, population in the Peninsula has increased between 1981 and 1991 by over 9% and the increase between 1991 and 2001 is estimated at over 11%. This level of growth is almost double that for the rest of Chichester District.

6.3.2 More significantly, the number of car owning households in the peninsula increased by 28% between 1981 and 1991 and the number of cars increased by 35% over the same period (source: Chichester District Council and West Sussex County Council). This growth has resulted in significant growth in the demand for transport on the Peninsula. This is resulting in the capacity of the existing transportation infrastructure being exceeded at certain times of the day and in particular, long traffic queues forming during the peak hour on the northbound approaches to the roundabouts on the A27.

6.3.3 The mix of traffic within the peninsula has also changed in recent years. As a result of particularly the intensive greenhouse agriculture industry near Selsey, the number of large heavy goods vehicles using the roads has increased.

6.4 ***Consultation Results***

6.4.1 Of the issues raised during the consultation process with the Manhood parishes, the ranking of them in terms of number of responses revealed that the major issues raised most often related to road based private and commercial traffic. The specific concerns ranked most highly are:

- traffic congestion at the A27 Chichester bypass;
- traffic levels within the Manhood Peninsula;
- speeding;
- school generated traffic;
- road safety;
- heavy goods vehicles;
- seasonal traffic levels.

6.5 ***Current Proposals***

6.5.1 The County Council`s Rural Transport Plan (2000) identifies the improvement of travel choice as the priority in response to the key rural issues identified in the report as poor quality rural passenger transport, poor accessibility and the need for partnership working with the local community. In response to this, the Midhurst Demand Responsive Bus (DORIS) was developed as a pilot initiative and the County Council have been active in attracting Rural Bus Grant and Rural Bus Subsidy Grant. For residents living in deep rural areas, including the Manhood Peninsula, consideration is currently being given to the introduction of more flexible services using community transport, taxi-buses or demand responsive options.

6.5.2 Travel awareness initiatives have been undertaken to promote access by sustainable means to the countryside largely for leisure and recreation. The County Council has also been seeking to develop sustainable links from town centres to rural public rights of way, including the Centurion Way to the north of Chichester and Hunston-Chichester Canal Towpath to the south of the centre. Although a programme for the development of Quiet Roads and Greenways is being developed, no proposals have yet emerged specifically to link the Manhood Peninsula with Chichester.

6.5.3 The Chichester District Rural Transport Partnership has evolved with the primary objective of improving effective accessibility for residents of the District through the provision of passenger transport. It is progressing a scheme in the Manhood Peninsula whereby residents more than half a mile from half-hourly daytime bus services are linked by a shuttle bus service to the main bus services and local facilities. It is proposed to use existing vehicles' marginal time through this coordinated approach, to allow revenue support to be reduced to a minimum. The County Council are also seeking to reduce the need to travel in rural areas through

allowing selective growth only and considering the provision of more locally based service provision, such as for community based day care.

6.6 ***Transportation Solutions***

6.6.1 The consultation exercise revealed that there are two groups of solutions which were prominent:

- solutions related to the A27;
- solutions related to the prevention of further development.

A27 Junction Improvements

6.6.2 As indicated in section 5.4, the operation of the Chichester bypass will benefit from the proposed junction improvements in enabling end to end travel time to remain at current levels. In terms of movement across the bypass from the Manhood Peninsula, the model indicates that once the A27 through movements are removed, the capacities of the Fishbourne and Stockbridge roundabouts would be sufficient. However, without the proposed Stockbridge bypass, delays would simply be moved to the Terminus Road/Stockbridge Road junction.

6.6.3 Traffic currently accessing Chichester via Whyke Road and Oving Road will be diverted given their closure to through north/south traffic. It is likely that traffic will divert onto Bognor Road but the model indicates no increase in delay at the Bognor Road junction.

6.6.4 The need to retain the current crossing facilities for pedestrians and cyclists and improve the provision is a key requirement to improve access by sustainable means of travel from the Manhood Peninsula into Chichester. A core objective in the Chichester Cycle Network Review (1996) was to provide an alternative to the use by cyclists of the Whyke Road and Bognor Road roundabouts. With the proposed closure of the Whyke Road and Oving Road junctions, access across the Bypass will become more restricted for cyclists and pedestrians. To balance this outcome, it is crucial to ensure that safe facilities are provided at each of the upgraded junctions along the Chichester bypass.

Other Solutions Emerging from the Consultation Exercise

6.6.4 The solutions to transportation problems in the Manhood Peninsula which the consultees ranked most highly are as follows:

- Restrict further residential and industrial development;
- Resolution to the school traffic problem possibly using the USA school bus model;
- Improved level of enforcement of restriction on the movement of heavy goods vehicles;
- Improve safety and amenity for other road users through traffic calming and better footways;
- Address speeding through enforcement of speed restrictions;
- Installation of traffic signals at named junctions;
- Guarded support for park and ride;
- Provision of additional cycle routes but not through taking away road space; and
- Provision of a bypass at Stockbridge to divert the A286 from Dell Quay Road to the Fishbourne roundabout.

6.7 Outline Transportation Strategy

6.7.1 This section presents a guide to solutions to access problems which emerged from the consultation work in the Manhood Peninsula. It will provide a set of generic best practice guidelines which could be interpreted for use in other rural areas although the local circumstances will clearly need to be identified and the generic solutions tailored to meet the particular circumstances.

6.7.2 The objectives of a strategy for the Manhood Peninsula are as follows:

- To improve access to the Manhood Peninsula;
- To reduce the impact of traffic within the Manhood Peninsula by introducing area-wide measures;
- To reduce the impact of traffic within the Manhood Peninsula by introducing area-specific measures; and
- To ensure that further development within the Manhood Peninsula is sustainable in transportation terms.

Access to the Manhood Peninsula

6.7.3 Paragraph 6.6.2 above identifies the benefits to the Manhood Peninsula of a strategy of junction improvements on the A27. The model indicates that with the proposed junction configuration, the delays to north/south vehicular traffic will be significantly reduced in 2016 at the Fishbourne junction, Stockbridge Road, Bognor Road and Portfield junction. In addition, the provision of crossing facilities for cyclists and pedestrians would help improve access to Chichester for these more sustainable modes. Provision of a Stockbridge bypass to join the A27 at the Fishbourne junction would also benefit a significant part of the peninsula, particularly through diversion of the heavy goods vehicles from the glasshouse production areas to the A27. However, the restriction of traffic movements at Stockbridge Road, Whyke Road and Oving Road would be of a distinct disbenefit to traffic associated with the peninsula.

6.7.4 Residents without a car suffer severe disadvantage given the poor service offered by bus operators in this area. The commercial network is supplemented in West Sussex by a small number of community buses. A further disadvantage is the lack of taxi provision which the County Council wishes to address through encouraging more taxi companies to locate in rural areas, encouraging shared taxi use and linking taxis to the concessionary public transport schemes.

Traffic Within the Manhood Peninsula – Area Wide Measures

6.7.5 Area-wide measures to combat traffic within the Manhood Peninsula which proved acceptable to the consultees can be categorised into four solution types:

- Prevention or restriction of further traffic generating development;
- Measures to reduce school generated traffic;
- Restrictions on heavy goods vehicles; and
- Measures relating to speeding and its enforcement.

6.7.6 A complete moratorium on new development is of course difficult to achieve. In the Manhood Peninsula there is still land allocated in the Chichester District Local Plan and there will be certain developments in the future which will be considered desirable for the benefit of the local economy. It is suggested that development be restricted in the short term to that which is already committed and in the long term, development should be scheduled to match the existing transport provision

or be the subject of transport assessments such that contributions by developers to transportation projects can be identified.

6.7.7 The volume of traffic generated by the school run in the Manhood Peninsula is seen as a significant contributor to traffic congestion as is the case elsewhere. To address this problem, West Sussex County Council is implementing a Safe Routes to School programme which is focused on clusters of schools. However, this programme is concentrated within urban areas. Extension of this programme to rural areas would go some way to addressing this issue although there is evidence that a number of residents in the Manhood Peninsula do not send their children to their designated school, Manhood Community College, but take them to schools in Chichester. One solution to this could be to provide specific school buses into Chichester along the lines of the USA system. First Bus are piloting this idea and it is proposed that this be monitored for its appropriateness in this rural situation. In the meantime, it is suggested that efforts be focused on encouraging the use of sustainable modes of transport between home and school and that the County Council encourage schools to develop School Travel Plans.

6.7.8 The penetration of heavy goods vehicles into the area has now become significant. The complete prevention of such movements is clearly not possible if the industries which they serve are to remain healthy. However, certain restrictions could be introduced without too great an adverse effect such as:

- A ban on movements at certain times of day e.g. peak hours;
- Restrict HGV movement to a designated network;
- Size/weight restrictions;
- Practical and effective means of enforcement; and
- Enterprises should also be encouraged to develop green travel plans.

6.7.9 Speeding is a significant problem and it is proposed that the following measures are pursued to reduce the impact of speeding:

- Selective 20mph speed limits;
- Reduction of existing speed limits on certain sections of road; and
- Introduction of speed cameras on sections of road where speeding is prevalent.

Traffic Within the Manhood Peninsula-Area Specific Measures

6.7.10 A number of area specific measures were favoured by the consultation respondents and are presented as measures which would provide a checklist of possible ways of ameliorating local problems:

- Traffic signals at key junctions(eg. junction of A286 Stockbridge Road and B2201 St George's Drive);
- Traffic calming;
- Pedestrian footways; and
- Dedicated cycle lanes.

Sustainable Transport Planning

6.7.11 To ensure that the provision of transport infrastructure keeps up with the pace of land use development, it is beneficial to undertake a comprehensive transport planning review at the same time as the Local Plan is developed to enable the transport implications of the proposed development patterns to be identified.

6.7.12 It is unfortunate that so many developments are at a small scale such that the achievement of any significant development gain is precluded. This is one reason for the imbalance in development and transport infrastructure which has developed over time. It is important, therefore, that this is addressed through development of a district - wide transport plan and a system of developer contributions to an area - wide fund for the financing of infrastructure schemes. Draft PPG13 proposals would help in achieving this.

6.7.13 The strong emphasis on achieving increased sustainability and integration in transportation is embodied at the local level through green travel plans. They are designed to encourage the use of environmentally friendly modes of transport through encouraging the reduction in use of cars. Many planning authorities have responded to this concept and there would appear to be considerable opportunity for modal shift through green travel plans. West Sussex County Council are proposing to investigate car share/car clubs for rural villages which would be of benefit within the Manhood Peninsula.

7 Appraisal

7 Appraisal

7.1 ***Strategy Objectives***

7.1.1 The selection of measures for testing the impact of the overall strategy at the local level was undertaken with a view to their ability to satisfy a range of objectives which take account of national, regional and local policies and aspirations. The objectives against which the local measures are assessed are as follows:

Environment

- Reduce traffic related environmental impacts on residents of the study area; and
- Protect environmentally and ecologically sensitive sites and those with historic associations.

Safety

- Reduce the number and severity of road-related personal injury accidents across the study area; and
- Reduce the level of crime and the fear of crime associated with the use of non-car modes.

Economy

- Improve operational efficiency of the transport system;
- Improve operational efficiency of the road network
- Improve operational efficiency of the bus network without adverse impact on bus operation viability;
- Improve operational viability of the rail network without adverse impact on viability of rail operations; and
- Support study area economic growth.

Accessibility

- Improve accessibility to the rail system;
- Improve transport network accessibility for the mobility impaired; and
- Reduce severence caused by major transport links.

Interchange

- Improve integration between modes of transport;

- Encourage use of non-motorised modes as a means of improving physical fitness; and
- Improve integration between transport and land use.

7.1.2 The ability of the local measures to address the problems identified are assessed on the basis of three main criteria:

- The performance against this range of objectives;
- Operational, economic and environmental performance; and
- Ability to address the issues and concerns raised by stakeholders.

7.2 Strategy Impacts

7.2.1 The performance of the junction improvement strategy against each study objective is given in the appraisal summary table in Appendix 2. With respect to a number of the study objectives, the strategy brings about significant benefits relative to a do-minimum scenario of no intervention. There is also a clear economic case for the strategy, particularly in the case of delivering green travel targets (see Appendix 1). However, these model outputs must be tempered by the understanding that the achievement of a 15% reduction in the trips made by 2016 as a result of green travel measures is an extremely ambitious target and should be considered against the model output in terms of minimal achievement of travel improvements on the Chichester bypass through delivering green travel trip reductions alone.

7.2.2 In terms of the overall study objective of "addressing the problems of the A27 corridor" the extent of the impact of the junction improvement strategy is sufficient to mitigate fully the effects of traffic growth over the years up to 2016. Implementation of the Stockbridge bypass would further reduce the corridor problems.

7.3 Strategy Implementation

7.3.1 Implementation of the strategy will require co-operation and partnership between the range of organisations responsible for the transport system in the study area. While good examples of such partnership arrangements are already evident, particularly with regard to rural transport, the full benefits of the strategy will only be evident with the co-operation of the public transport operators, local businesses and educational establishments.

7.3.2 Feedback from the Communication Strategy suggests that the measures outlined will be generally be received positively by local stakeholders. However, it will be important that the process of local consultation continues, with a focus on why individual measures are being introduced, and how they fit into the implementation of the overall strategy. This process can be taken forward as part of the Local Transport Plan for Chichester through the recommendations for local transport measures being adopted and integrated with the Urban Transport Plan for Chichester and specific schemes identified being bid for, where appropriate through the Local Transport Plan. The proposals for junction improvements on the A27 Chichester bypass are recommended for consideration by the Highways Agency.

7.3.3 Monitoring of impacts will also be important to demonstrate that the stated objectives are being met, and that national and local taxpayers are therefore receiving value for money.

7.3.4 Potential sources of funding for delivery of the proposals are numerous and a selection of significant sources are as follows:

- Local Transport Plan
- Highways Agency (trunk roads)
- SRA
- Section 106 contributions
- Development land and SEEDA
- EU funding
- Commuted car parking fund
- Rail Passenger Partnership (revenue support to TOCs)
- Rural Bus Challenge
- Rural Bus Fund

APPENDIX 1

Economy: Economic Efficiency of the Transport System (TEE): Option 1: Best Case Scenario with No Stockbridge Bypas

Impact	TOTAL		Present Value:1998 prices discounted to 1998 values			
User benefits						
Personal travel			Private	Goods (road)	Bus	Rail
Travel time	222873		208318	14555	0	0
Vehicle operating costs	4072		4395	-323	0	0
User charges	0		0	0	0	0
Construction/Maintenance Delays	0		0	0	0	0
NET IMPACT	226945	(1)	212713	14232	0	0
Private Sector Provider Impacts			Private	Goods (road)	Bus	Rail
Revenue	0		0	0	0	0
Operating costs	0	(a)	0	0	0	0
Investment costs	0	(b)	0	0	0	0
Grant/subsidy	0		0	0	0	0
NET IMPACTS	0	(3)	0	0	0	0
Public Sector Provider Impacts			Private	Goods (road)	Bus	Rail
Revenue	0		0	0	0	0
Operating costs	0	(c)	0	0	0	0
Investment costs	-21062	(d)	-21062	0	0	0
NET IMPACTS	-21062	(4)	-21062	0	0	0
Other Government Impacts			Private	Goods (road)	Bus	Rail
Grant/subsidy payments	0	(e)	0	0	0	0
Indirect tax revenues	-5500		-5491	-9	0	0
NET IMPACTS	-5500	(5)	-5491	-9	0	0
TOTAL						
Net Present Value, NPV	200383	(6)=(1)+(3)+(4)+(5)				
Present Value of Costs, PVC	-21062	(7)=(a)+(b)+(c)+(d)				
Present Value of Cost to Government	-21062	(8)=(4) +(e)				
Benefit/Cost Ratio, BCR	10.514	(9)=((6)-(7))/-(7)				
Value/Cost to Govt Ratio, VCGR	9.51	(10)=(6)/-(8)				

Economy: Economic Efficiency of the Transport System (TEE): Option 2: Best Case Scenario with Stockbridge Bypass

Impact	TOTAL		Present Value:1998 prices discounted to 1998 values			
User benefits						
Personal travel			Private	Goods (road)	Bus	Rail
Travel time	290172		271247	18925	0	0
Vehicle operating costs	7766		8034	-268	0	0
User charges	0		0	0	0	0
Construction/Maintenance Delays	0		0	0	0	0
NET IMPACT	297938	(1)	279281	18657	0	0
Private Sector Provider Impacts			Private	Goods (road)	Bus	Rail
Revenue	0		0	0	0	0
Operating costs	0	(a)	0	0	0	0
Investment costs	0	(b)	0	0	0	0
Grant/subsidy	0		0	0	0	0
NET IMPACTS	0	(3)	0	0	0	0
Public Sector Provider Impacts			Private	Goods (road)	Bus	Rail
Revenue	0		0	0	0	0
Operating costs	0	(c)	0	0	0	0
Investment costs	-24584	(d)	-24584	0	0	0
NET IMPACTS	-24584	(4)	-24584	0	0	0
Other Government Impacts			Private	Goods (road)	Bus	Rail
Grant/subsidy payments	0	(e)	0	0	0	0
Indirect tax revenues	-8016		-8008	-8	0	0
NET IMPACTS	-8016	(5)	-8008	-8	0	0
TOTAL						
Net Present Value, NPV	265338	(6)=(1)+(3)+(4)+(5)				
Present Value of Costs, PVC	-24584	(7)=(a)+(b)+(c)+(d)				
Present Value of Cost to Government	-24584	(8)=(4) +(e)				
Benefit/Cost Ratio, BCR	11.793	(9)=((6)-(7))/-(7)				
Value/Cost to Govt Ratio, VCGR	10.79	(10)=(6)/-(8)				

APPENDIX 2 Appraisal Summary Table 1

2016 Strategy – With Junction Improvements			Problems	Present Value Cost To Government £M
OBJECTIVE	**SUB- OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
ENVIRONMENT	**Noise**			
	Local Air Quality			
	Greenhouse Gases			
	Landscape			
	Townscape			
	Heritage of Historic Resources			
	Biodiversity			
	Water Environment			
	Physical Fitness			
	Journey Ambience			
SAFETY	**Accidents**			
	Security			
ECONOMY	**Transport Economic Efficiency**			User benefits: NPV £200.4M Private providers: NPV £0 Public providers: NPV -£21.1M
	Reliability	Improvements to the transport network will enhance capacity and improve journey time reliability for road users.		Beneficial impact
	Wider Economic Impacts			
ACCESSIBILITY	**Option Values**			
	Severance	Reduction in severence for those travelling to Chichester and beyond from the Manhood Peninsula.		Large beneficial impact
	Access to the Transport System	Positive improvements through reduction in queues on north/south approaches to the bypass junctions.		Large beneficial impact
INTEGRATION	**Transport Interchange**			No change
	Land-Use Policy	Performs well against national and regional guidance as well as LTP and Structure Plan.		Beneficial impact
	Other Government Policies	Consistent with Government policies relating to access to employment opportunity, reducing road accidents, promoting urban regeneration and promoting slow modes.		Beneficial impact

APPENDIX 2 Appraisal Summary Table 2

2016 Strategy – With Junction Improvements and Stockbridge Bypass			Problems	Present Value Cost To Government £M
OBJECTIVE	**SUB- OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
ENVIRONMENT	**Noise**			
	Local Air Quality			
	Greenhouse Gases			
	Landscape			
	Townscape			
	Heritage of Historic Resources			
	Biodiversity			
	Water Environment			
	Physical Fitness			
	Journey Ambience			
SAFETY	**Accidents**			
	Security			
ECONOMY	**Transport Economic Efficiency**			User benefits: NPV £265.3M Private providers: NPV £0 Public providers: NPV -£24.6M
	Reliability	Improvements to the transport network will enhance capacity and improve journey time reliability for road users more than with the junction improvements only.		Beneficial impact
	Wider Economic Impacts			
ACCESSIBILITY	**Option Values**			
	Severance	Reduction in severence for those travelling to Chichester and beyond from the Manhood Peninsula.		Large beneficial impact
	Access to the Transport System	Positive improvements through reduction in queues on north/south approaches to the bypass junctions more than with junction improvements only.		Large beneficial impact
INTEGRATION	**Transport Interchange**			No change
	Land-Use Policy	Performs well against national and regional guidance as well as LTP and Structure Plan.		Beneficial impact
	Other Government Policies	Consistent with Government policies relating to access to employment opportunity, reducing road accidents, promoting urban regeneration and promoting slow modes.		Beneficial impact

APPENDIX 2 Appraisal Summary Table 3

2016 Strategy – Do Minimum with Green Travel Plans (15% reduction in trips)			Problems	Present Value Cost To Government £M
OBJECTIVE	**SUB- OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
ENVIRONMENT	**Noise**			
	Local Air Quality			
	Greenhouse Gases			
	Landscape			
	Townscape			
	Heritage of Historic Resources			
	Biodiversity			
	Water Environment			
	Physical Fitness			
	Journey Ambience			
SAFETY	**Accidents**			
	Security			
ECONOMY	**Transport Economic Efficiency**			User benefits: NPV £571.7M Private providers: NPV £0 Public providers: NPV -£1.0M
	Reliability	Worsening of the transport network journey time reliability for road users.		Large negative impact
	Wider Economic Impacts			
ACCESSIBILITY	**Option Values**			
	Severance	Increase in severence for those travelling to Chichester and beyond from the Manhood Peninsula.		Large negative impact
	Access to the Transport System	Increase in queues on north/south approaches to the bypass junctions although access by non-car modes will improve.		Overall negative impact
INTEGRATION	**Transport Interchange**	Local measures required to enable successful travel plans to operate will improve interchange facilities.		Small positive benefit
	Land-Use Policy	Performs well against national and regional guidance as well as LTP and Structure Plan.		Beneficial impact
	Other Government Policies	Consistent with Government policies relating to sustainability.		Small beneficial impact