WORTHING CYCLE STRATEGY REVIEW

Final Report

Sustrans

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WORTHING CYCLE STRATEGY REVIEW

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1 INTRODUCTION

1.1 Worthing is the largest town in West Sussex, with a population of approximately 98,000. The town is a major shopping and employment centre as well as being a tourist and leisure attraction.

1.2 Although Worthing is predominantly an urban area, the town has the dual attractions of the coast and the countryside. To the south, the seafront plays an important role in the character of the town. The South Downs Area of Outstanding Natural Beauty to the north gives Worthing a unique setting, with views from the town of the surrounding countryside.

1.3 Worthing is served by a range of public transport services, providing both local and long distance bus and rail services. The Borough enjoys reasonably good strategic road links, although like most urban areas, traffic congestion can be significant on the local road network during the morning and evening peak periods. There are particular problems of delay and congestion during much of the day on the section of the A27 South Coast trunk road that passes through the northern edge of the town.

1.4 Cyclists are currently not well catered for in Worthing. Traffic conditions present particular difficulties for cyclists and there are few dedicated facilities to assist cyclists. Nevertheless, the need for improved conditions to encourage cycling has been recognised by the Borough Council.

1.5 Walking and cycling have historically been neglected modes of transport, although in recent years this has begun to change. Even though some cycle facilities have been provided in many of the UK's major towns and cities, the vast majority of people still perceive cycling as an inconvenient or dangerous form of transport. Any measures to raise the modal share of cycling must take this into account and provide facilities to encourage new cyclists, rather than just helping existing cyclists.

Study Brief

1.6 Worthing Borough Council have commissioned Sustrans and Babtie Group to undertake a Cyclo Strategy Review for Worthing.

1.7 The main elements of the study include :

- review and development of routes previously identified as forming a cycle network for Worthing;
- identification of additional links to serve the town centre and other major destinations, incorporating existing sections of cycleway;
- development of proposals to encourage easy interchange with other transport modes, particularly rail services;
- further development of cycle parking within the Borough;
- consideration of options for the South Coast Cycle Route, part of the National Cycle Network, crossing the town.

1.8 The need for this study has arisen from a number of developments, including national and local strategies promoting cycling as a means of transport, the emergence of the Local Transport Plan process as the means of allocating capital resources to local authorities, the lack of progress in developing facilities for cyclists in Worthing, together with local concerns about the provision of shared-use facilities.

Why Improve Conditions for Cycling?

1.9 In the second half of this century the freedom to travel whenever and wherever we like has become an everyday reality and expectation for many of us.

1.10 It is now widely recognised, however, that this tremendous freedom of choice has had a high price. Greater freedom for some may mean less freedom for others – such as those without access to a car. Some drawbacks affect all of us – stopping our children from playing outside for fear of traffic, or restricting our freedom to breathe clean air or enjoy quiet countryside. In 1994, the Royal Commission on Environmental Pollution described transport growth as "possibly the greatest environmental threat facing the UK".

1.11 Britain has one of the lowest rates of cycling in Western Europe, but one of the highest casualty rates for cyclists and pedestrians. Cycling accounts for less than 2% of trips in the UK, compared to 10% in Sweden, 11% in Germany, 15% in Switzerland and 18% in Denmark. The UK also has the highest child mortality rate in West Europe from road accidents – 30% over the European average. In these countries and many others in Europe deliberate programmes for action have successfully increased the share of trips by cycle.

1.12 More bicycles are sold each year in the UK than cars. There is enormous potential to convert this interest in cycling into increased levels of cycle use. This country does not have an unusual geography, climate or economy. Switzerland is more hilly, Sweden has colder winters and Germany higher car ownership (and all have a higher standard of living). Yet cycling levels in these countries are at least five times higher than in the UK.

1.13 In the UK, **75 per cent** of all trips are under 5 miles in length and over **half** of all trips are less than two miles in length. Almost two-thirds of all car trips are under 5 miles. These short journeys offer great potential for increased levels of cycling and walking.

1.14 World Health Organisation air pollution limits are often exceeded in many British cities. One in seven children suffers from asthma. A switch to cycling will reduce the toxic emissions which contribute to air pollution and smog, benefiting the population as a whole. Importantly, such a shift will also help reduce emissions of the global warming gas carbon dioxide, to which the Government and many local authorities are committed.

Countryside and Wildlife

1.15 Many part of our beautiful countryside – such as coastal areas and the National Parks – are now endangered by vehicle traffic. The Countryside Commission predicts a trebling of car use in the countryside over the next 20 years unless something is done now. Improved cycle links will enable car-free access to the countryside, and will enable the introduction of rural traffic-calming to reduce the effect of cars.

Benefits for Urban Areas

1.16 Improvements for cyclists will be a stimulus to more civilised urban design, putting people before vehicles, and creating traffic-free and traffic-calmed areas. More cycling and walking in towns will make the streets feel more secure for everyone.

Health And Fitness Benefits

1.17 The majority of people take insufficient exercise. Health professionals agree that both cycling and walking are "ideal" activities for keeping healthy, and unlike many sports, both have a low risk of injury (except in relation to traffic). Cycling and walking have the further advantage than they can be easily fitted into daily life. Regular cycle commuters are as fit as non-cyclists ten years younger.

Green Tourism

1.18 Cycle tourism distributes its benefits widely throughout the local economy, supporting shops, pubs, B&Bs, hotels, bike hire and other outlets. Cycle tourism is growing rapidly in Europe along with national cycle networks in Denmark, Germany, the Netherlands, Belgium, Switzerland and elsewhere. Continental research suggests cycle tourists spend more than car tourists and demand high quality services.

Economic Benefits

1.19 Improved conditions for cycling will help create jobs in the leisure, tourism and retail sectors. Other important economic benefits include reduced congestion, as people switch to cycling and walking and away from cars, and improved fitness – cycle commuters take fewer days off work.

Benefits for Children

1.20 Children in particular suffer when traffic conditions are dangerous. Child cycling and walking have both declined drastically in the last 20 years and only 3% of children now cycle to school, compared to 60% in Holland. Dangerous roads cut children off from each other and from social activities, encouraging a sedentary television-based lifestyle with parents forced to act as chauffeurs. Now traffic-free cycle tracks are safe for even very young children. This will encourage them to start cycling in confidence, before they progress onto roads.

Benefits for Older People

1.21 Walking and cycling remain important modes of transport for elderly people, who are less able to afford to drive. Traffic-free routes for cyclists, with gentle gradients, safe crossings, and regular seats and meeting places, form pleasant and attractive public spaces which are safe and accessible to elderly people.

People with Disabilities

1.22 Newly created paths for cyclists away from roads will be directly accessible to those in wheelchairs, with gentle gradients, ramps not steps, flush dropped kerbs and a smooth, hard surface. Traffic-free sections will also help the partially sighted, partially deaf and the less mobile.

Pedestrians

1.23 Many improvements to benefit cyclists will also benefit walkers. Traffic-free routes are generally 3 metres wide, designed for safe use by both cyclists and walkers and with raised separation markings through busy urban stretches. It is important to realise that in countries where cycling levels are higher, walkers and cyclists mix without conflict.

2 POLICY BACKGROUND

2.1 National

2.1.1 The key national policy for cycling is the **National Cycling Strategy**, launched in July 1996; the Conservative government set a target of doubling cycle usage by 2002 and quadrupling it by 2012. This has been endorsed by the current government. Other national policies which have an influence on the development of cycling are :

- The Integrated Transport White Paper
- Road Traffic Reduction Act
- Local Transport Plans (see Section 9.2)
- PPG13 Transport
- PPG17 Sport and Recreation
- PPG21 Tourism

2.2 Local

2.2.1 Local policies will have a direct influence on whether cycling in the Worthing area is made more attractive and convenient. Relevant local policies include :

- WSCC Structure Plan
- WSCC Local Transport Plan
- WSCC Cycle Strategy
- WSCC/WBC Package Bid
- WBC Local Plan

2.3 Wider Policy Considerations

2.3.1 **Health** – Reports by the British Medical Society suggest that regular cycling can produce a variety of health benefits including : increased fitness; a reduced risk of heart disease; a weight control aid; and reduced levels of stress and depression.

2.3.2 The *Health of the Nation Study (1991)* identified heart disease as the greatest single cause of premature death in England and clear links have been made between a lack of physical activity and the risk of heart disease. Cycling is an ideal form of aerobic exercise, since it involves the rhythmic contraction of major muscle groups, with little strain on the muscle and joints, unlike most other forms of exercise. This makes it an ideal form of activity for all age groups and can be undertaken safely by those who are unfit or overweight.

2.3.3 The results of the *UK National Fitness Survey (1992)* conducted on behalf of Allied Dunbar revealed that up to 72% of men and 87% of women do not currently take enough exercise. The increased availability of motorised transport and the loss of physically active jobs have led to a reduction in the level of physical activity present as an integral part of people's lifestyles. This trend has been further exacerbated by the growth of non-physical leisure pursuits and cut-backs in the level of sports in the school curriculum.

2.3.4 People often cite a lack of free time as a primary reason for not taking more exercise, but as the Government's *Active for Life* campaign suggests, walking or cycling to work is a good way of integrating exercise within a hectic modern lifestyle.

2.3.5 **Environment** – It is now widely recognised that the ever-increasing levels of traffic on the road and the associated congestion and pollution are neither desirable nor sustainable.

2.3.6 The Royal Commission on Environmental Pollution have stated that : "The unrelenting growth of transport has become possibly the greatest environmental threat facing the UK and one of the greatest obstacles to achieving sustainable transport?"

2.3.7 Recent technological advances in controlling exhaust emissions mean that modern cars produce less pollution than in the past. However, studies have now shown that increased traffic volumes have largely negated the benefits of this 'clean technology'. It has also been shown that catalytic converters are not fully active for the first 3 minutes of a car's journey, which is a significant part of a typical short urban journey.

2.3.8 The Bicycle Association estimated that if 20% of trips currently made by motorised transport were made by bicycle, that the amount of carbon dioxide (largely responsible for the greenhouse effect) released into the atmosphere would be reduced by 4.5m tonnes per year. (To put this into context, the average car is estimated to produce approximately 4 tonnes of CO_2 per annum).

2.3.9 **Tourism** – Government figures show that tourism spending in this country totalled around £25 billion in 1991 and, in fact, the UK ranks fifth in the world for overseas visitor spending.

2.3.10 However, the bulk of tourist expenditure in this country is as a result of domestic trips. Tourism is on the increase, largely as a result of increased personal income, leisure time and mobility. Growth markets include short breaks, day trips and activity holidays, such as cycle touring and mountain biking.

2.3.11 In recent years, leisure travel has become the fastest area of traffic growth, with social and leisure trips accounting for approximately one-third of all trips made in the UK. In fact, in terms of mileage, leisure trips are more popular than those made for any other purpose. Inevitably, many of those trips are made to rural areas, where public transport is often limited and so the car is often the primary mode of transport.

2.3.12 The *UK Day Visits Survey (1994)* conducted on behalf of the Countryside Commission revealed that of the 1.1 billion trips made to the English countryside each year, nearly half are local (less than 5 miles), but only 3% are made by bike. The Commission also predicts that there will be a four-fold increase in rural traffic over the next 15 years. This will put enormous pressure on the rural road network, and the increased traffic volumes will detract from the beauty and tranquility of the more popular areas.

2.3.13 It is therefore desirable to encourage more sustainable modes of transport for as many of these visits as possible. Walking and cycling are already important leisure activities, and as forms of transport, they are the least damaging to the rural environment, and should, therefore, be heavily promoted and appropriate facilities provided.

2.3.14 Although 'Green Tourism' is currently a small sector of the tourism market, it has been steadily growing in recent years and has great potential to generate significant amounts of new jobs and revenue to boost the local economy. Sustrans has predicted that the National Cycle Route in Wales alone will generate 140 new jobs and approximately £5.7m per year.

2.3.15 It has also been shown that 'Green Tourists' spend significantly more than conventional visitors. Surveys of cycle path users in the Peak District revealed that the average daily spend was £7.28 per adult, rising to £24.54 for those on holiday, with the majority of money going directly to local facilities. This compares with an average, national, visitor spend in the countryside of £4.50 per day.

2.4 National Cycle Network

2.4.1 In 1995, Sustrans launched proposals for a National Cycle Network (NCN), aimed at providing a major impetus to the development of cycling in the UK. The NCN consists of around 6,500 miles of routes for cyclists throughout the UK, illustrated on Figure 2.1. Figure 2.2 provides more detail of these routes and other regional cycle routes, within West Sussex. The NCN is anticipated to be completed by 2005 and will significantly improve conditions for cyclists in the UK.

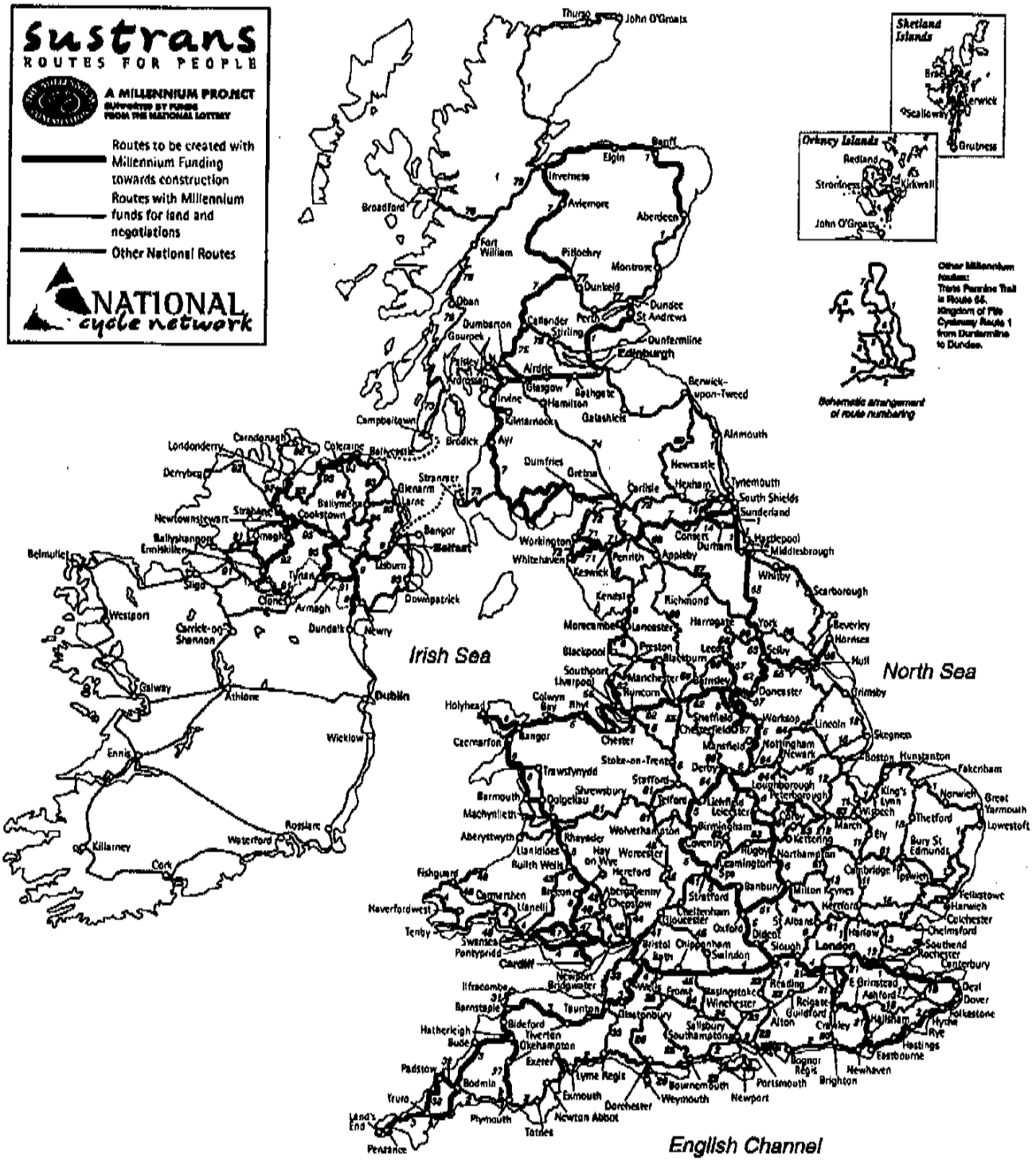
2.4.2 Part of the NCN has been designated as a Millennium Network, totalling around 2,500 miles. Sustran's aim is for this to be complete by 2000. The total cost of the Millennium Network is £183 million, to which the Millennium Commission has made a grant of £42.5 million. The balance is anticipated to be funded by various sources such as local transport funds, development contributions, other grants (e.g. from the European Union) and other sources.

2.4.3 It is expected that the NCN will benefit both walkers and cyclists, with around 45% of journeys on traffic-free sections being made by cyclists. Of these, around 60% are predicted to be utility journeys, with the remainder for leisure or recreation. Although provision for recreational cycling has generally not been eligible for funding from central government, there is evidence from routes already built by Sustrans for a causal link between an increase in recreational cycling and a subsequent increase in utility cycling. Hence, cycle routes with a predominantly recreational focus still have a part to play in increasing utility cycling.

2.4.4 There is a great deal of evidence showing the wider benefits of the NCN which is summarised in the "Information for Local Authorities" issued by Sustrans in October 1995. In general, the network will bring environmental, economic and mobility benefits, and in particular will be part of the means to achieve the National Cycling Strategy target of a doubling of cycle usage by 2002 and a quadrupling by 2012.

Figure 2.1

The National Cycle Network

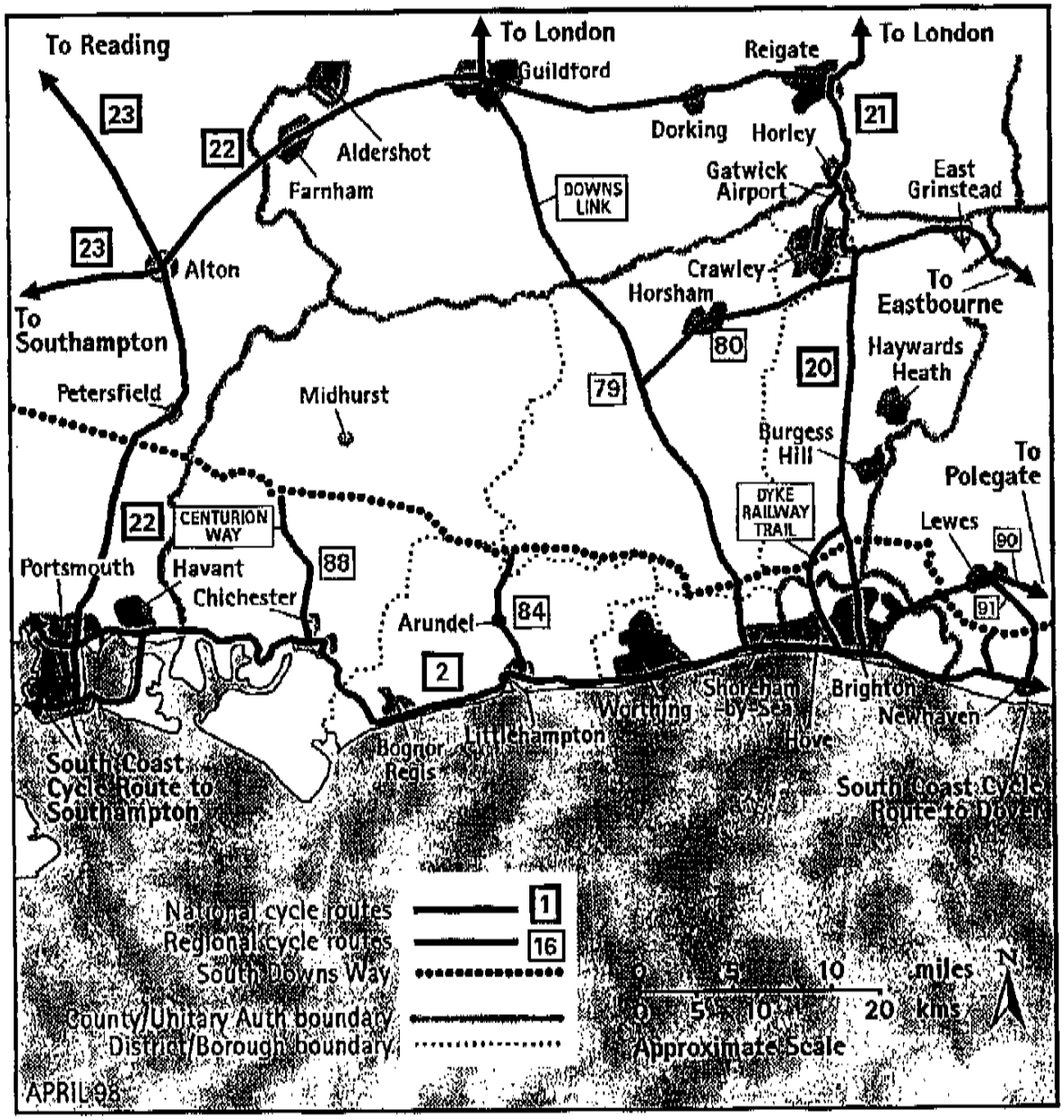


Delta/Penny/Maps/NCN.ai/NCN routes/27th April 1999

Figure 2.2

NATIONAL cycle network

The National Cycle Network in West Sussex



A MILLENNIUM PROJECT
SUPPORTED BY FUNDS FROM THE NATIONAL LOTTERY

Sustrans
ROUTES FOR PEOPLE

3 OFTPA Report

3.1 In 1994, West Sussex County Council commissioned Oscar Faber TPA to undertake a study into the needs of cyclists in Worthing.

3.2 The report included an analysis of census and traffic data in order to quantify cycle use, together with a study of cycle safety. An urban network was developed comprising of seven separate utility routes, together with proposals for the South Coast Cycle Route. The report also considered links to public transport, additional recreational routes and proposals for improved cycle parking.

3.3 Since 1994, there has, however, been limited progress in taking forward the cycle strategy. A short length of segregated shared-use cycle facility, together with a toucan crossing has been introduced in High Street as part of the Broadwater and East Worthing routes. Design work and consultation has been undertaken on an amended Goring to Worthing town centre route by West Sussex County Council for implementation during 1999.

3.4 A cycle track was introduced along the Esplanade between the Lido and George V Avenue. However, there was a highly publicised serious accident between a cyclist and a pedestrian in 1994. Whilst the accident occurred beyond the eastern limit of the shared-use scheme, the incident has strongly focused public opinion against shared-use cycle facilities. Although accidents between cyclists and pedestrians on shared-use facilities are rare, it has proved difficult in the intervening time to convince public opinion of the acceptability of shared-use facilities. Following the accident, the facility along the Esplanade was subsequently removed.

3.5 In 1996, Sustrans was commissioned by Worthing Borough Council to draw up alternative plans to replace the facility along the Esplanade. The Council subsequently decided to defer consideration of a route along the Esplanade until it was placed in the context of a borough-wide network, and requested the County Council to develop a strategy for the entire South Coast Cycle Route.

3.6 Since 1994, there have been a number of national and local policy initiatives related to cycling. These include :

- The National Cycle Network - 1995
- The National Cycle Strategy - 1996
- A New Deal for Transport - the White Paper on Integrated Transport 1998
- The Road Traffic Reduction Act 1997
- The West Sussex Deposit Structure Plan 1996
- The Worthing Local Plan Review - Deposit Draft 1997

3.7 In addition, whilst the original report provides an overview of cycling within Worthing and provides an indicative network, there are a number of more detailed considerations that require further investigation. These include :

- additional detail and costings for the routes put forward;
- further routes to serve the town centre;
- development proposals in the Local Plan have not been taken into consideration;

- a more comprehensive network is required to serve all of the major educational, shopping, employment and medical destinations;
- the potential for improved interchange with other transport modes, particularly rail, has not been fully explored.

4 Existing Situation

4.1 Introduction

4.1.1 Worthing is located between the sea and the South Downs on the coastal plain. The majority of the urban area is relatively flat and compact. The town centre is within 4 km of most residential areas.

4.1.2 In spite of these advantageous geographic characteristics, conditions for cycling within Worthing are poor. There are few dedicated facilities for cyclists and the highway network presents a number of difficulties for cycle journeys. Cycle use, particularly for journey to work purposes is, nevertheless, higher than the national average, although this is matched by a disproportionately high level of cyclist involvement in road traffic accidents.

4.2 Existing Facilities

4.2.1 Existing facilities for cyclists within Worthing are limited. Although there is a short section of cycle track, together with a toucan crossing in High Street, restricted access to the facility (upper High Street is one-way only) means that the route is not well used. There is also a section of shared-use path in West Durrington linking various areas of new housing to Romany Road. The route does not, however, adequately fit into a wider network of facilities for cyclists, is poorly signed and is unattractive in terms of personal security, and hence is of limited use for cyclists.

4.2.2 Worthing does nevertheless have reasonable provision for cycle parking within the town centre. There are numerous sites that are well used and a clear demand for additional parking elsewhere.

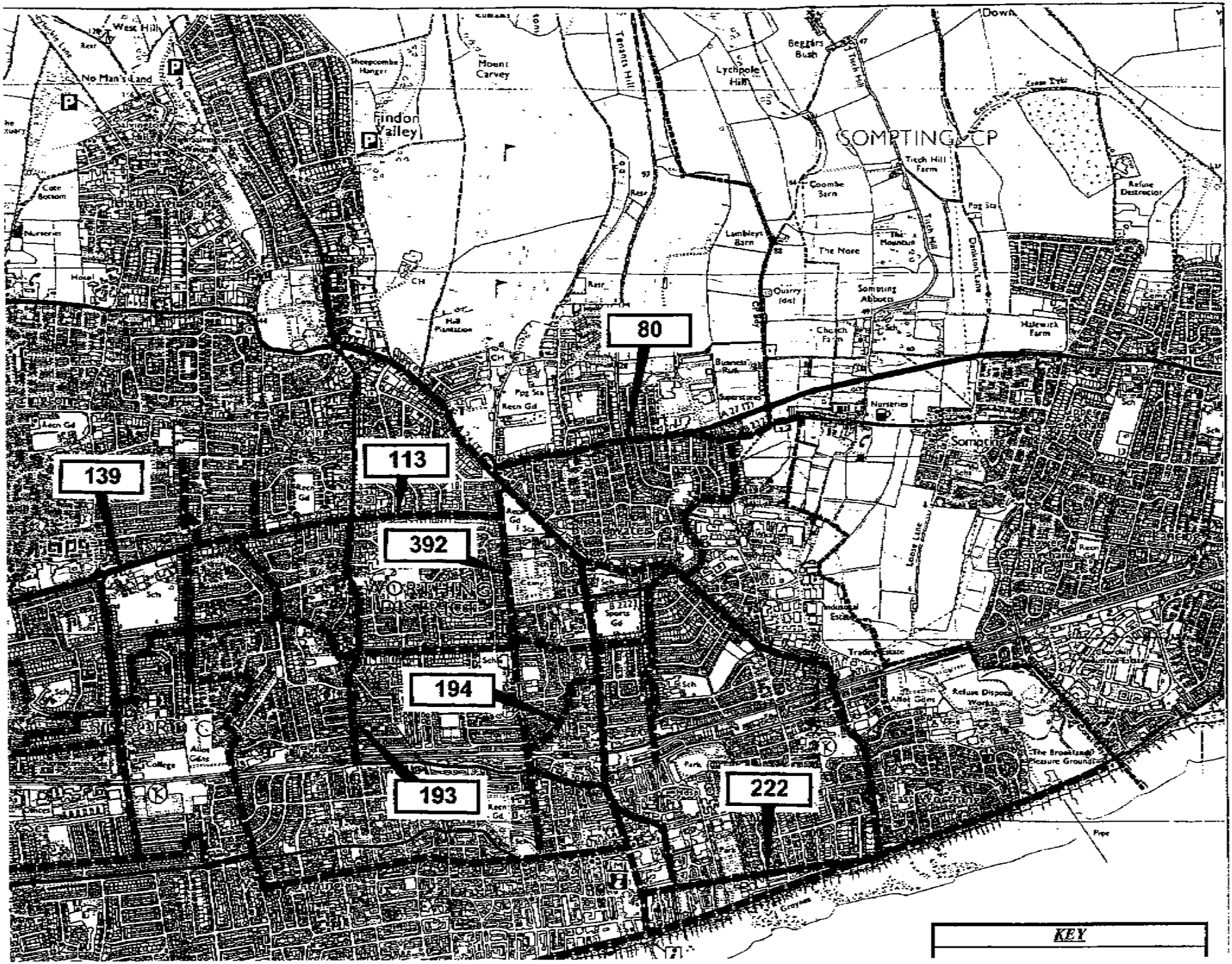
4.3 Cycle Usage

4.3.1 Figure 4.1 identifies existing corridors used by cyclists. The data is based on various traffic counts undertaken by West Sussex County Council during 1992 and 1993. The counts were not specifically undertaken to identify cycle routes and in order to provide a more comprehensive overview of existing cycle use within Worthing it is recommended that additional monitoring is undertaken as a separate exercise.

4.3.2 It can be seen that there are significant flows of cyclists on many of the main roads, notably Littlehampton Road, South Farm Road and Rectory Road. This would indicate that in spite of the unattractive traffic conditions, these roads provide the most direct and convenient routes for cyclists.

4.3.3 Data from the 1991 Census indicates that cycling represents approximately 7% of all journey to work trips within the Borough. This is approximately twice the national average, which probably reflects the compact urban area and relatively short journeys to work distances.

4.3.4 No other data is available for specific cycle journey purposes.


80
113
139
392
194
193
222
KEY

4.4 Problems for Cyclists

4.4.1 The existing network of roads does not provide an attractive environment for cycling. Many of the roads have heavy volumes of fast moving traffic and there are few opportunities to develop continuous routes based on quiet streets. In particular, the A27, A24, A259 and A2032 all present significant barriers to cycling, in terms of unpleasant conditions cycling along the road and difficulties crossing the road.

4.4.2 Roundabouts pose particular problems for cyclists. No only are they intimidating and difficult to negotiate, particularly for less experienced cyclists, but they represent a significantly higher accident risk for cyclists in comparison with other forms of junction. Roundabouts, highlighted as being of particular problem for cyclists, include :

- A27 Warren Road/A24 Findon Road
- A27 Warren Road/Upper Brighton Road
- A2032 Littlehampton Road/Durrington Lane
- A2032 Littlehampton Road/Palatine Road
- A2032 Littlehampton Road/A259 Goring Street
- A24 Broadwater road/Newlands Road
- A24 Broadwater Road/A2031 Teville Road
- A24 Chapel Road/North Street
- A24 North Street/High Street
- A24 North Street/Union Place
- B2223 Dominion Road/Sompting Avenue

4.4.3 Small or mini-roundabouts present less difficulties for cyclists, particularly where approach speeds are low, visibility is good and there are few multi-lane entries. Their use is, however, generally restricted to less heavily trafficked junctions.

4.4.4 Cyclists are especially vulnerable when crossing roads or making right turn manoeuvres. Therefore, many cyclists may prefer to remain on direct and continuous major roads, rather than more suitable parallel roads that require frequent turning or crossing movements. As an example, many cyclists would appear to use Goring Road/Richmond Road rather than the parallel quieter route of Lansdowne Road/Shelley Road.

4.4.5 One way systems and restrictions on turning movements can have a particularly detrimental impact upon cycle journeys. Although the additional trip distances that such measures impose may only appear slight in a car, the additional journey lengths can be a significant detriment to cycle use. For example, the one-way sections of Upper High Street and Dagmar Street effectively restrict the ability of these roads to form a longer distance route for cyclists.

4.5 Safety

4.5.1 Accident data relating to cyclists has been supplied by West Sussex County Council from their road traffic accident database. This information has been supplied for the three year period April 1995 to March 1998 for the whole of the Borough of Worthing.

4.5.2 It has been possible to compare this accident data with that used in the OFTPA report, for the period February 1991 to January 1994.

4.5.3 For the most recent three year period, 281 personal injury accidents involving cyclists were reported to the police. This represents a 16% increase in accidents over the previous three year period. 285 separate casualties resulted from these accidents, of which 250 were slight, 35 serious and none were fatal. Table 4.2 provides a summary of this data.

4.5.4 The total number of road traffic accidents over the same period was 1132. With 281 of these accidents involving cyclists, cyclists therefore represent 25% of all road traffic accidents. Nationally, cyclists represent an average of 8% of all reported road casualties. **This would indicate that the reported level of accidents for cyclists in Worthing is three times worse than the national average, which is a serious cause for concern.** This poor road safety record is further emphasised by data that would indicate that cycling in Worthing represents 7% of work trips (twice the national average).

Table 4.2 : Worthing Cycle Accidents
April 1995 - March 1998/February 1991 - January 1994

	April 1995 - March 1998	February 1991 January 1994	Difference (%)
Total Accidents	281	242	+ 16%
Casualties			
Slight	250	207	+ 21%
Serious	35	43	- 19%
Fatal	0	1	- 100%

4.5.5 It should be noted that accident data relies on casualties being reported to the police. Many accidents, however, go unreported. Comparisons of police data with hospital records nationally would suggest that between 25% and 40% of all road traffic accidents are not reported, and hence do not appear in road traffic accident statistics. There is, however, an even greater level of under-reporting of cycle accidents, with up to three-quarters of slight and serious cycle casualties being unreported.

4.5.6 When broken down by time of day, 19% of accidents occurred during the morning peak (0700 - 0900), 18% during the late afternoon (1500 - 1700) and 15% during the evening peak (1700 - 1900). This would indicate that approximately half of all cycle accidents are related to journey to/from school and work.

4.5.7 Cycle accidents are relatively evenly distributed throughout the year. Whereas normally it might be expected for there to be an increase in accidents during the summer months due to more cycling activity during the fine weather, accidents remain fairly constant throughout the year. It is, however, difficult to undertake further analysis without access to cycle flows, recorded throughout the year. Table 4.3 illustrates this distribution.

4.5.8 The main contributory factors resulting in accidents are vehicle restarts at junctions (30%), right turn manoeuvres (23%) and overtaking manoeuvres (20%).

Table 4.3 : Worthing Cycle Accidents April 1995 – March 1998 Distribution by Month

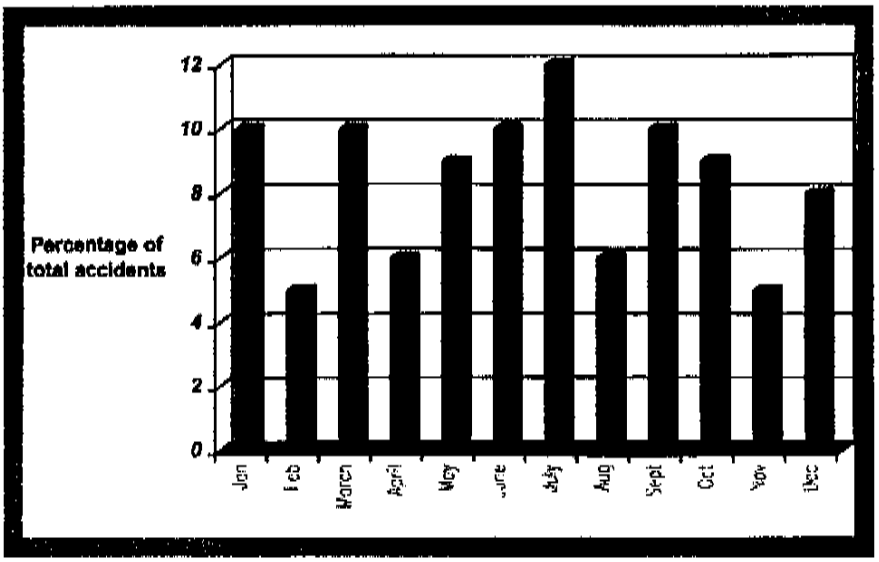
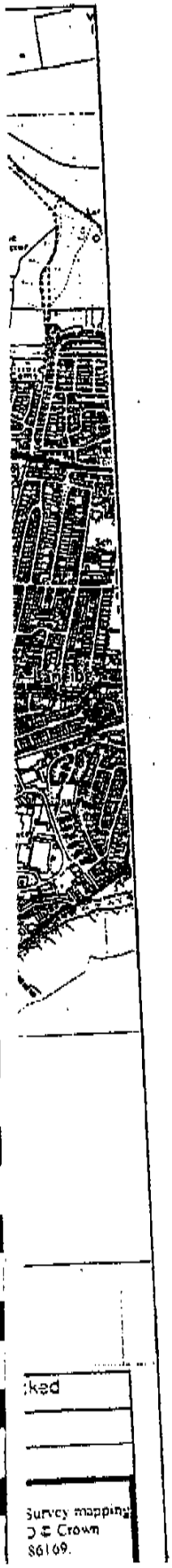


Table 4.4 : Worthing High Risk Cycle Accident Sites

Location	Accidents April 95 – March 98	Accidents February 91-January 94
A2032 Littlehampton Road/Yeoman Road/Palatine Road	9	5
The Boulevard/The Strand	6	3
A27 Warren Road/Upper Brighton Road	5	3
A24 Chapel Road/A250 North Street	4	5
A2031 Rectory Road/St Lawrence Avenue	4	-
A2031 Rectory Road/Glebe Road	4	-
A24 Broadwater Street West/Broadwater Street East	3	5
A259 Richmond Road/Clifton Road	3	3
A259 High Street/Brighton Road	3	-
A24 Broadwater Road/A2031 Teville Road	3	-
Newland Road/Co-op access	3	-
A2031 Offington Lane/Ashacre Lane/Offington Avenue	3	-
A24 Broadwater Road/Georgia Avenue/Queen Street	3	-
A2032 Littlehampton Road/The Boulevard/Durrington Lane	2	5
A2031 Tarring Road/South Farm Road	2	4
The Boulevard/Terringes Avenue/Palatine Road	1	4
South Farm Road/Wiston Avenue/Carnegie Road	1	3
A2032 Littlehampton Road/A259 Goring Street/Titnore Lane	0	4
Keene Road/Rowlands Road	0	4
Romany Road/Columbia Drive	0	3
A259 Richmond Road/Crescent Road	0	3
Church Road/South Street	0	3



.5.9 Table 4.4 indicates high risk accident sites within Worthing. This identifies sites with three or more cycle accidents during the latest 3 year period, together with sites previously identified in the OFTPA report. Whilst it is interesting to note the fluctuation in accidents at various sites, it is significant that a number of sites have a persistently poor road safety record for cyclists. Of these sites, the majority are heavily trafficked roundabouts.

5.10 It should also be noted that there are a number of corridors where cycle road safety problems exist. These are generally characterised by frequent junctions or large volumes of turning traffic. Table 4.6 identifies the corridors with the highest cycle safety problems. These figures do, however, exclude separately identified high risk cycle accident sites.

Table 4.5 : Worthing Cycle Accidents April 1995-March 1998
High Risk Cycle Accident Corridors
[n.b. excludes separately identified junctions]

Corridor	3 year Accident Record
A2031 Teville Road	10
A259 Goring Road	9
Durrington Lane (Salvington Road to Littlehampton Road)	9
Sompting Avenue/Sompting Road	8
The Boulevard (Littlehampton Road to Nelson Road)	7
A259 Brighton Road (Madeira Avenue to St George's Road)	7
Tarring Road (Grand Avenue to Heene Road)	6
A24 Findon Road	6
A259 North Street/High Street	5

1 The location of these accidents is indicated on Figure 4.6.

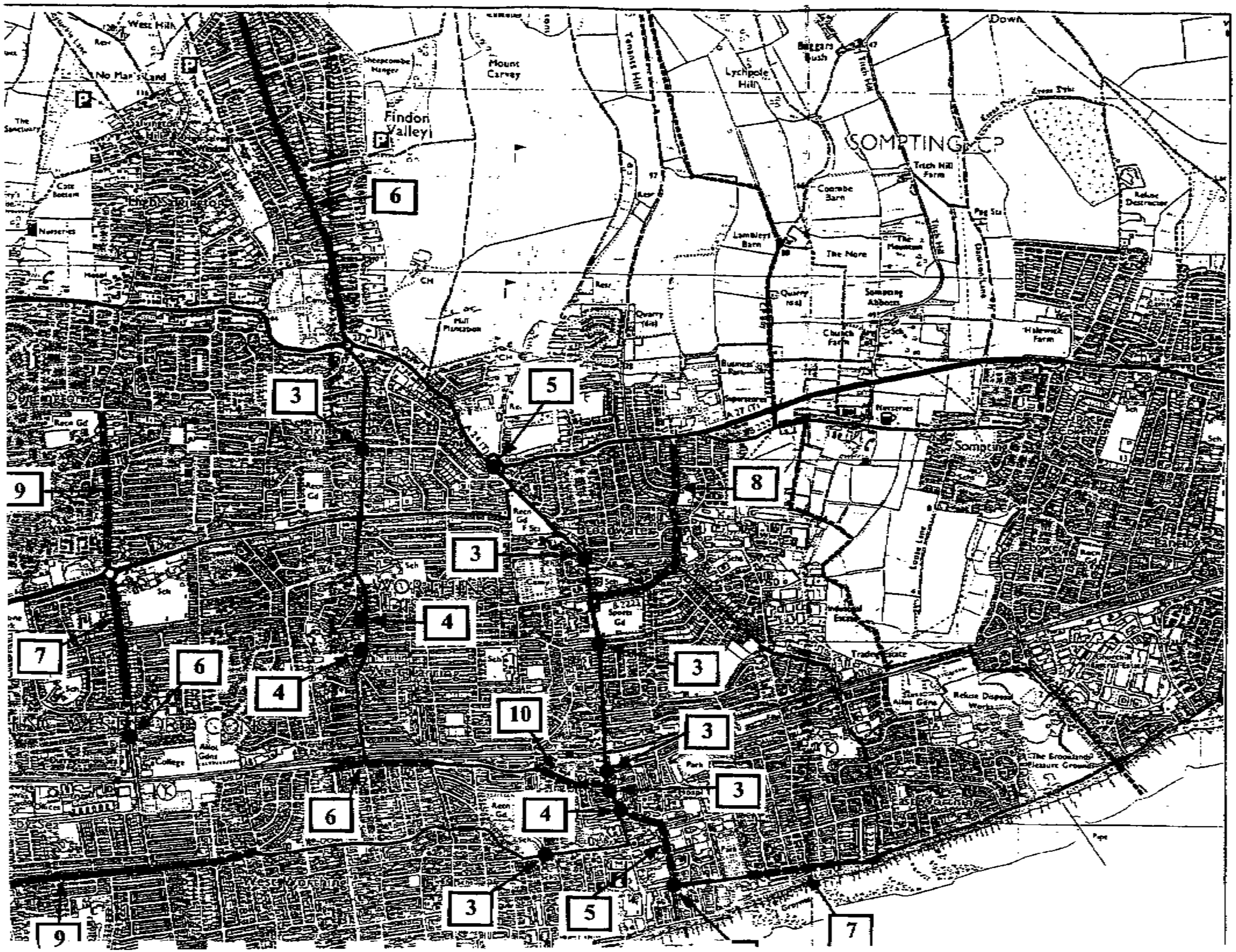
South Coast Cycle Route

Route 2 of the National Cycle Network includes the South Coast Cycle Route, which will run between Dover and Southampton. The section through Worthing, leg 202, does not form part of the Millennium network of routes to be completed by 2000, but is part of the second phase of the network to be implemented by 2005.

The South Coast Cycle Route presently exists as a signed on-road route using roads running parallel to the seafront. It extends across Worthing from Brighton Road, Lancing to Sea Lane Ferring.

Whilst the present route does provide a continuous facility adjoining the seafront, it uses some heavily trafficked roads that are not suitable for cycling by novices or for leisure. In particular, the section of A259 Brighton Road, to the east of the town centre is the main coastal route for motor traffic between Worthing, Shoreham and Brighton, and forms the only alternative route to the A27 trunk road. The section of West Parade/Marine Parade west of the town centre is a main distributor road for South Worthing and again is subject to heavy traffic flows, although much of it is local or recreational traffic related to the seaside.

Only the section of Marine Drive/Marine Crescent through Goring-by-Sea can be considered appropriate for cycling. It should be noted that the speed and volume of



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Church Farm
Hallewick Farm
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Sompting
Broadwater
WORTHING
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Industrial Estate
Refuse Disposal Works
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traffic mean that the route would fall outside of the criteria adopted for the National Cycle Network. In addition, the concrete surfacing along much of the road means that the ride quality is not particularly comfortable and the relatively circuitous nature of the route, being remote from the seafront, means that this is not a particularly attractive route for cyclists.

4.7 Current Proposals

4.7.1 Worthing has been subject to successful package bid funding for a number of years. An allocation of £300,000 for the financial year 1999/2000 was announced in December 1998.

4.7.2 The Worthing package bid was previously focused on maximising traffic and environmental benefits arising from completion of the A27 Worthing/Lancing trunk road scheme. The deletion of this scheme from the Department of the Environment, Transport and the Regions (DETR) main programme in 1996 has brought a greater emphasis on the package as a means to reduce local car trips within Worthing, which will ease conditions on the A27 trunk road.

4.7.3 The A27 corridor is subject to a number of separate studies. One study will examine the strategic role of the whole of the A27 South Coast Trunk Road. A multi-modal study of the A27 corridor through Worthing has been commissioned by the DETR to investigate the potential for on-line capacity improvements. There is also the present safety study which is investigating short-term safety and access improvements.

4.7.4 Schemes included in the Worthing package bid for 1999/2000 and beyond will include :

- provision of bus priority in Worthing;
- development of business TravelWise;
- development of Safer Routes to Schools and enhanced bus services and concessionary fares for school pupils;
- implementation of the cycle network;
- implementation of a signing strategy including variable message signs and traffic management measures to reduce circulating traffic;
- High Street improvements;
- developing a public transport partnership following the introduction of low floor buses and the start of the bus stop enhancement programme.

4.7.5 There are also a number of development-related schemes within Worthing which will have an impact on local transport or will present opportunities for enhancements to transport infrastructure.

5 Wider Network Proposals

5.1 The Design Cyclist

5.1.1 A frequently asked question when developing a network for routes for cyclists is "what is a typical cyclist and what sort of facilities do they want?" There is no easy answer, since clearly there are different categories of cyclist with different journey purposes and varying requirements from the highway/cycleway network.

5.1.2 A modified version of the *Cycle-Friendly Infrastructure* classification identifies different users and a variety of journey purposes:

- **Vulnerable Cyclists** - Children, inexperienced adults and elderly people. Speed is usually less than 15mph. Predominantly short trips.
- **Utility Cyclists** - Generally non-commuter trips i.e. social and shopping journeys. Speed and directness is usually of less importance than safety and convenience. Speed is usually below 15mph. Short to medium length trips.
- **Commuter Cyclists** - Adults, reasonably confident in traffic. Value speed and directness. Speed is typically 15-20mph. Medium length trips.
- **Sports Cyclists** - Experienced adults, usually prepared to claim their road space. Speed in excess of 20mph. Longer trips.

5.1.3 For the less-experienced and vulnerable cyclists, minor roads, traffic calmed streets, or off-carriageway routes are the most appropriate form of facility - with the emphasis on the latter for the most vulnerable cyclists.

5.1.4 If significant increases in the number of cyclists are to be achieved in line with the targets set out in the National Cycling Strategy, then facilities need to be provided where inexperienced and vulnerable cyclists can gain confidence and refine their road-sense.

5.1.5 Where provision is to be made for attracting new cyclists or to cater for vulnerable cyclists, it is recommended that emphasis should be placed on a network based on minor roads, traffic calmed streets and off-carriageway routes.

5.1.6 Commuter cyclists, on the other hand, generally look for fast, direct routes for their journeys and so appropriate facilities would be on-carriageway cycle lanes (either mandatory or advisory), shared use of bus lanes, together with traffic management facilities, and dedicated facilities at junctions.

5.1.7 Since commuter cyclists tend to be more confident about riding in traffic, such cyclists would be unlikely to use off-carriageway facilities unless they provided a short-cut which would be quicker or more convenient than remaining on the road.

5.1.8 Sports cyclists tend to be the most experienced group of cyclists and, as such, generally shun cycle facilities that constrain them to particular sections of the road, or reduce their overall speed. Given the small relative difference in speed between sports cyclists and motor vehicles in urban areas, general road safety measures are considered the most appropriate way of assisting this category of cyclist.

5.2 Development of Cycle Networks

5.2.1 Cyclists do not require isolated sections of cycle route. Rather, they need access to all destinations - i.e. a network of routes that are suitable for cyclists.

5.2.2 Research documented in the Dutch *Design Manual for Cycle Friendly Infrastructure*, produced by Centre for Research and Contract Standardisation in Civil and Traffic engineering (CROW), suggests that there are five core criteria which should be considered when planning cycle facilities. These are:

- **Safety** - all cycle infrastructure should be designed to reduce conflict with other users and minimise casualties.
- **Coherence** - cycle networks should aim to provide continuous links between all major trip origin ands destination points. Isolated sections of routes are of little benefit to cyclists (except for local journeys) and the inconsistencies of route quality and additional junctions can actually increase danger for cyclists.
- **Directness** - cycle routes should always follow as direct a route as possible whilst incurring minimal delays on the way. Routes should closely follow identified desire lines where practicable, to ensure that the facilities are well-used and avoid needless detours.
- **Comfort** - cycle routes should be designed according to the anticipated speed of the end-user, but, broadly speaking, they should have a high quality, even surface to promote rapid progress with the minimum of effort and discomfort.
- **Attractiveness** - cycle facilities should be designed as an integral part of their environmental setting and should be attractive and pleasant to use.

5.2.3 It should be noted that providing dedicated cycle facilities is not always desirable or feasible and often there are other measures that could be introduced which would constitute a more appropriate and cost-effective use of resources. Cyclists require routes that are suitable for cycling rather than cycle routes, and the IHT/CTC publication *Cycle-Friendly Infrastructure* suggests a series of measures which should be considered when choosing an appropriate design solution.

- **Traffic reduction** - as traffic flows drop, so does the potential danger of conflict between cyclists and motorists. The fewer the vehicles, the safer and more attractive a route becomes. Cyclists are particularly vulnerable when sharing road-space with heavy goods vehicles, and every effort should be made to separate the two.
- **Traffic calming** - the speed reduction achieved through the introduction of traffic calming can often render a road suitable for cyclists.
- **Junction improvements and traffic management measures** - it may be that there are particular locations which pose a significant risk to cyclists' safety, and can be satisfactorily tackled with localised solutions.
- **On-carriageway facilities** - on wider roads, cyclists can be given the space they need by taking a portion of the carriageway from the private motorist. This space can often be satisfactorily shared with buses and taxis.

- **Off-carriageway cycle facilities** - facilities constructed away from the highway, which should be segregated from pedestrians wherever possible, and always where there is significant pedestrian traffic or poor visibility. Such facilities are nevertheless a last resort where there is no opportunity to improve conditions on the carriageway.

5.2.4 It is important to remember that the type of facility appropriate for a particular route will not only depend on the traffic volume and speed, but also on the type of cyclist and the journey purpose that can be expected.

5.2.5 The development of a comprehensive cycle network cannot be based on a uniform standard. Each route should be investigated to determine which categories of cyclist will be using it and for what journey purpose, before deciding on the most appropriate type of facility to provide. This decision will be heavily influenced by other factors and constraints, such as traffic speeds and flows, the number and type of accidents, pedestrian flows, land availability and cost.

5.2.6 Ultimately, this may lead to differing standards of cycle facility overlapping on particular sections of a network. For example, shared-use, off-carriageway facilities for school journeys alongside a major road, with cycle lanes and shared bus/cycle lanes on the main carriageway for commuter use.

5.3 National Cycle Network

5.3.1 Whilst many of the points referred to above are also relevant to the development of routes that will form part of the National Cycle Network, there are a number of key issues that are of paramount importance in the design of a successful scheme. Appropriate design standards are determined by the overall aims of the National Cycle Network. These aims are :

(i) to provide nationwide network of safe, attractive, high quality routes for cyclists which also extent the provision for walkers and wheelchair users alike:

(ii) to promote cycling as a form of transport. The network will be aimed at providing a standard appropriate to the needs of inexperienced or novice cyclists;

(iii) to stimulate wider measures benefitting cyclists and pedestrians, and help to promote local and regional route network.

5.3.2 The design standards for the National Cycle Network must therefore provide routes that encourage cycling amongst those who do not presently do so. To achieve this, routes should ideally be :

(i) safe, continuous, attractive and suitable for novice cyclists, family groups or a sensible unaccompanied twelve year old;

(ii) useful for everyday cycling journeys by local people and existing cyclists;

(iii) memorable and interesting for visitors and tourists alike.

5.3.3 Guidance on appropriate facilities for National Cycle Network routes is contained in "National Cycle Network – Guidelines and Practical Details – Issue 2" published by Sustrans in 1997.

5.4 South Coast Cycle Route

5.4.1 Proposals for the South Coast Cycle Route have been developed which set out to balance the strongly held views of those opposed to the introduction of facilities shared with pedestrians with the requirements for a safe and attractive recreational cycle route.

5.4.2 Whilst on-road cycle facilities are most suitable for utility and commuter cycle journeys, the volumes and speed of traffic make the roads along the seafront unsuitable for a cycle route that would conform with the aims of the National Cycle Network. Only if there were substantial reductions in vehicle speeds and volumes could an appropriate on-road route be developed.

5.4.3 However, given the significance of these roads in the Worthing highway network, measures to reduce speeds and traffic flow are likely to have a wider geographical impact. Issues such as traffic capacity and road safety on parallel routes, the impact upon public transport, together with the transfer of traffic onto less suitable alternative routes, would need to be carefully evaluated. It is therefore recommended that such measures could only be considered as part of a wider traffic study of the area.

5.4.4 Proposals for the route have consequently been developed based on the presumption that separation of cyclists from motor traffic is the only means to achieve an appropriate standard of cycle route that would comply with NCN guidelines. This does not necessarily require the taking of space from pedestrians.

5.4.5 In consideration of the development of facilities for cyclists, there would appear to be great potential for shared-use of the Esplanade. The route is away from traffic, it provides uninterrupted views of the beach and the sea and is wide enough to allow the construction of an appropriate design of segregated shared-use facility. However, the climate of public opinion against shared-use facilities means that such proposals, at the present time, are unlikely to be acceptable to much of the wider local community.

5.4.6 Whilst such attitudes may change over time, particularly with the successful development of similar facilities elsewhere, this is unlikely to be achieved within the short-term for the section of route through Worthing.

5.4.7 The key issue is that conditions along the 8km length of seafront between Ferring and Lancing vary greatly in terms of physical characteristics and usage. By sub-dividing the route into separate sections, appropriate designs for individual elements of the route can be developed which tackle local problems, rather than adopting a common standard throughout the length of the route.

Sea Lane to George V Avenue

5.4.8 The existing section of path from Sea Lane Ferring to George V Avenue, is a relatively narrow concrete or crushed stone path that adjoins the beach. Although the path runs parallel with Marine Drive/Marine Crescent, the two are separated by the extensive area of open space between them. At the western end of the path, there is screening provided by gorse bushes which gives the path the characteristic of an isolated rural footpath. The path is well used given its relative width. This issue of its width, together with the limitations of its surface mean that the path is not particularly well used by

walkers with mobility problems, family groups with prams or buggies, or those with wheelchairs or pavement scooters (electrically assisted wheelchairs).

5.4.9 Widening the existing path to provide a shared-use facility is not considered appropriate and is not recommended. Such measures would destroy the character and setting of the existing path and it is unlikely that issues of separation between user groups could be easily overcome.

5.4.10 It is therefore recommended that a new 2.5 metre wide path is constructed running parallel with the length of the existing path. The new path would be physically separate from the existing path, being set back by between 3 and 6 metres, running mainly at the bottom edge of the embankment. At the eastern end of this section, adjoining the boat club, there is the option of widening the existing concrete path to create a segregated shared-use facility. A new 2.5 metre wide shared-use path is suggested to link northwards to Aldsworth Avenue to replace the existing well-worn path across the open space.

5.4.11 Since the path would be designed to provide a smooth-surfaced all-weather facility using a crushed stone or similar construction, this facility is likely to be used by others apart from cyclists, such as those with buggies or electrically assisted wheelchairs. The final design would therefore reflect the needs of these other user groups as well.

5.4.12 It is noted that land at Sea Place/Eirene Road adjoining the yacht club is designated as a development site within the Deposit Draft Review of the Worthing Local Plan. This includes housing a café, together with youth and community facilities. It is therefore suggested that redevelopment proposals incorporate upgrading the existing path to a shared-use pedestrian/cycle route.

George V Avenue to the Lido

5.4.13 The section of the Parade between George V Avenue and the Lido is typical British seaside. The Parade is wide and accommodates large numbers of walkers, particularly towards the Lido. A number of facilities are found along the route including shelters, kiosks and refreshment stands. The Esplanade is popular for families with buggies or prams, together with those using wheelchairs or electrically assisted wheelchairs. A land-train also runs along part of the Esplanade.

5.4.14 The existing section of road that adjoins the Parade , although busy, is relatively wide. Along much of this route, there is a grassed verge or footway at road level, separate from the Parade.

5.4.15 It is therefore suggested that a separate two-way cycle track is constructed between the Parade and the road. Over the majority of this section, this would require surfacing of the existing grassed verge. Part of the route would require construction of a new cycle track into what is presently the road. This could be achieved by narrowing the existing central hatching and through traffic lanes so that the cycle track could be implemented without any adverse impact of traffic flow or capacity, and without any loss of parking spaces. Narrowing the existing carriageway widths would have significant benefits in terms of reducing overall traffic speeds, which would provide an enhanced environment for pedestrians, as well as improving overall road safety.

5.4.16 On the approach to the Lido, there is an existing footway running alongside the road. Since practically all walkers use the Parade, this footway is lightly used by pedestrians, mainly those going to and from their parked cars. Given that the available width of this

section of footway is between 2.5 and 3 metres, has very low flows of pedestrians and that a more attractive facility exists along the Parade, it is suggested that this footway is converted to allow use by cyclists.

The Lido to Beach Parade

5.4.17 The section of the Esplanade between the Lido and Beach Parade is probably the most difficult in terms of achieving a satisfactory route for cyclists. With Worthing Pier being opposite South Street, the main shopping street, the area is characterised by extremely heavy flows of pedestrians, both along the Parade together with crossing Marine Parade. The road narrows considerably, although traffic flows remain high and there are a number of on-street parking spaces together with a major on-street bus and coach terminal just east of the pier.

5.4.18 Achieving a facility for cyclists which separates them from traffic has not proved possible.

5.4.19 Nevertheless, there are proposals to reduce the amount of through traffic in the area. Such measures, if accompanied by traffic calming and speed reduction measures (such as a 20 mph zone) together with environmental enhancements, would have considerable benefits to pedestrians and cyclists alike. Options for the re-distribution of carriageway space have therefore been developed, which would assist cyclists.

Beach Parade to Western Road

5.4.20 Between Marine Parade and Western Road Lancing, traffic flows on the A259 Brighton Road are significantly higher than along other sections of coastal road through Worthing. In these circumstances, it has not been possible to develop a satisfactory on-carriageway cycle scheme.

5.4.21 Pedestrian flows do, however, reduce quite rapidly east of Marine Parade. In such circumstances, a scheme has been developed that would widen the existing Esplanade to provide for segregated shared use between pedestrians and cyclists. A range of options have been developed to either widen existing paths, or to provide separate new facilities.

5.4.22 All sections of route would incorporate full segregation of cyclists from pedestrians using the appropriate tactile paving and lining, together with the necessary signing, in accordance with latest guidance from DETR.

5.4.23 Land south and west of the Aquarena is designated as a development site within the Deposit Draft Review of the Working Local Plan. It is suggested that redevelopment proposals allow for an improved pedestrian/cyclist route to be constructed as part of any scheme.

5.4.24 At the eastern extremity of the route in Worthing, it is proposed that the shared-use footway continues into Adur District to provide a link to Lancing. A link should be provided back onto the carriageway at the Brighton Road/Western Road traffic signals. Adjacent to this junction, a spur is proposed to take cyclists into Brooklands Pleasure Grounds. Not only is this park a destination for leisure cycle trips, but there is potential for the route to be used for work journeys to/from the Churchill Industrial Estate. One option would be to widen existing paths to provide for shared pedestrian/cycle use, whilst an alternative would be to construct a new path around the periphery of the park.

5.4.25 In order to enhance facilities for other users along this section of route, wherever possible, ramps would be provided in addition or to replace existing steps.

5.4.26 Figure 5.1 indicates the proposed route. Figure 5.2 indicates cross-sections of the various sections of the proposed route.

5.5 Cycle Routes for Everyday Journeys

5.5.1 Whilst the development of leisure and recreational cycle routes is important for a number of reasons, the majority of cycling journeys will be for everyday purposes – going to the shops, to work, to school or visiting friends etc. It is important therefore to differentiate between leisure cycling and cycling for everyday purposes in order to understand the requirements of different cycle journeys.

5.5.2 For leisure and recreational cycling, the enjoyment of cycling is part of the reason, if not the main reason for the journey. Therefore attractive linear or circular routes are important to meet the needs of cyclists.

5.5.3 For everyday or utility cycle journeys, the reason for the journey is the requirement to be somewhere else. Whereas enjoyment may be a factor in the decision to travel by cycle, there are many other influences that determine the use of a bicycle as a means of travel. These utility cycle journeys will have a much wider spread of trip origins and destinations. Therefore, whilst sections of cycle routes will form important elements of the overall journey, a much wider network of routes is required for everyday cycle journeys.

5.5.4 Figure 5.3 indicates the distribution of different land uses across the Borough. A network has therefore been developed which provides access to the majority of these areas. Clearly, it would be impractical to link all these destinations with a network of cycle tracks. A network primarily making use of the existing road network has therefore been developed.

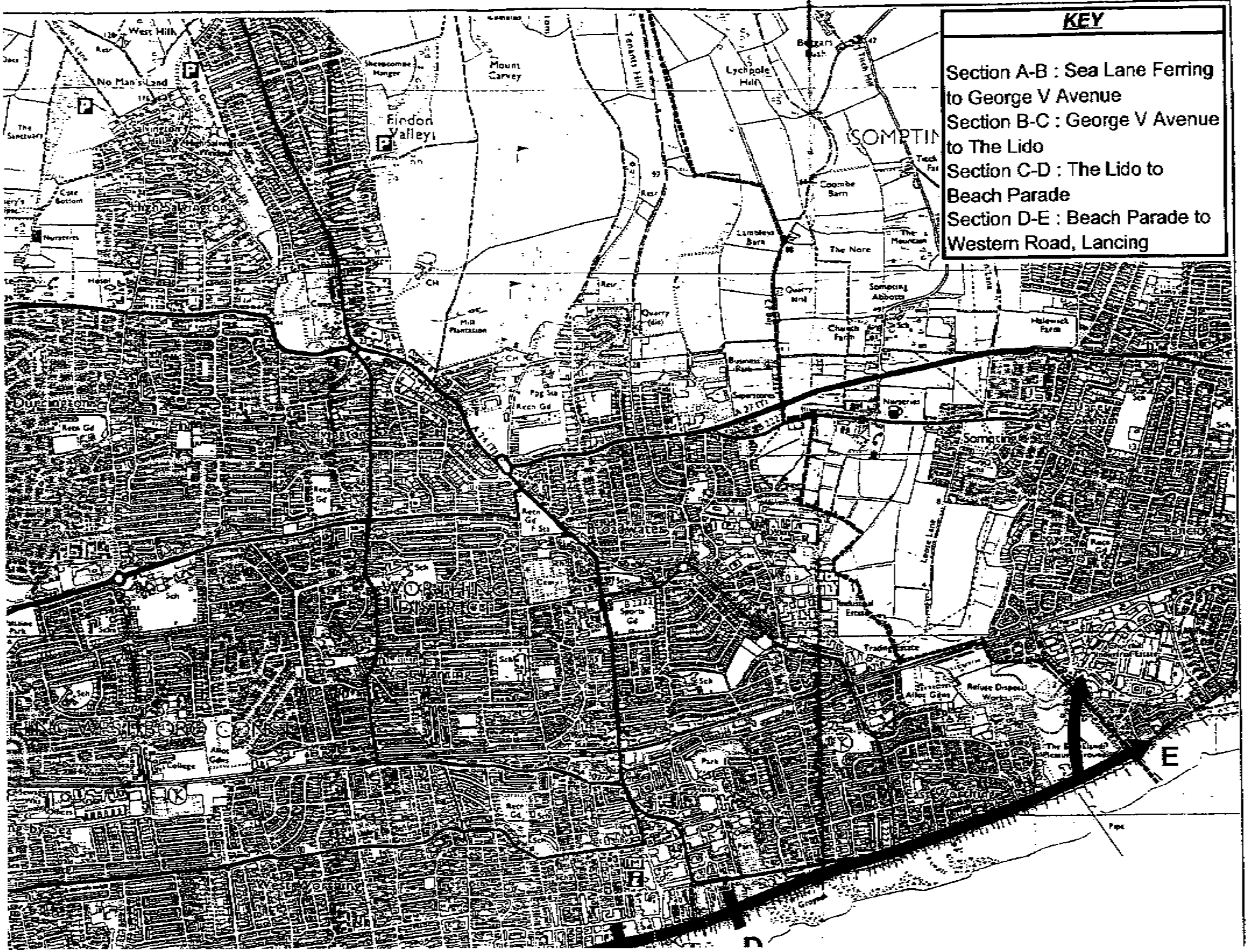
5.5.5 Whilst an overall network for Worthing has been formulated, it is suggested that there is considerable scope for the development of local networks within individual areas, for example around district centres, as part of Safe Routes to School initiatives, or within the proposed West Durrington development area. The development of these local networks would form the essential local links into which the Borough-wide network would connect.

5.6 Worthing Town Centre to Goring Cycle Route

5.6.1 Figure 5.4 indicates the town centre to Goring cycle route proposed by West Sussex County Council. The route is an essential element in the development of a cycle network for Worthing, providing an important east/west link for utility cycle journeys using a mixture of quiet roads, traffic management measures and on-carriageway cycle lanes. The scheme pays particular emphasis to assisting cyclists at junctions.

5.6.2 For the reasons described in Section 5.5, this route could form the basis from which a wider network of cycle routes could be developed. Therefore a number of additional links are proposed to make maximum benefit of the route proposed. These additional sections of route are indicated on Figure 5.4.

5.6.3 To the west, it is suggested that the route is continued along the A259 Mulberry Lane/Goring Way as far as Goring Street as on-carriageway cycle lanes. This would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Section B-C : George V Avenue to The Lido
Section C-D : The Lido to Beach Parade
Section D-E : Beach Parade to Western Road, Lancing
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Mount Carvey
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Coombe Barn
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No Man's Land
West Hill
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Refuse Disposal Works
Trading Estate
Industrial Estate
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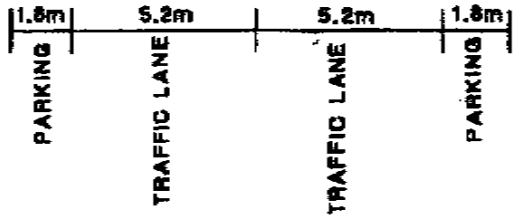

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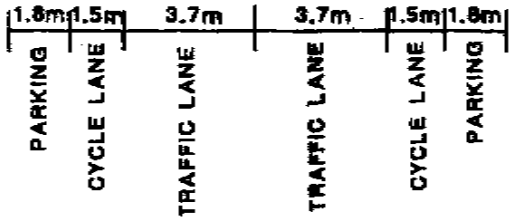

Marine Parade - adjacent to the Lido

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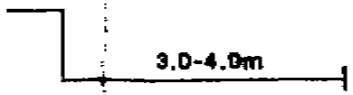

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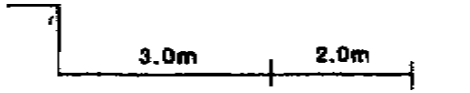
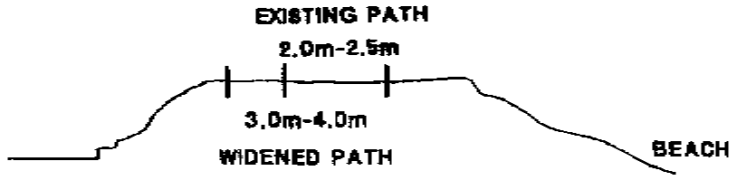


Beach Parade



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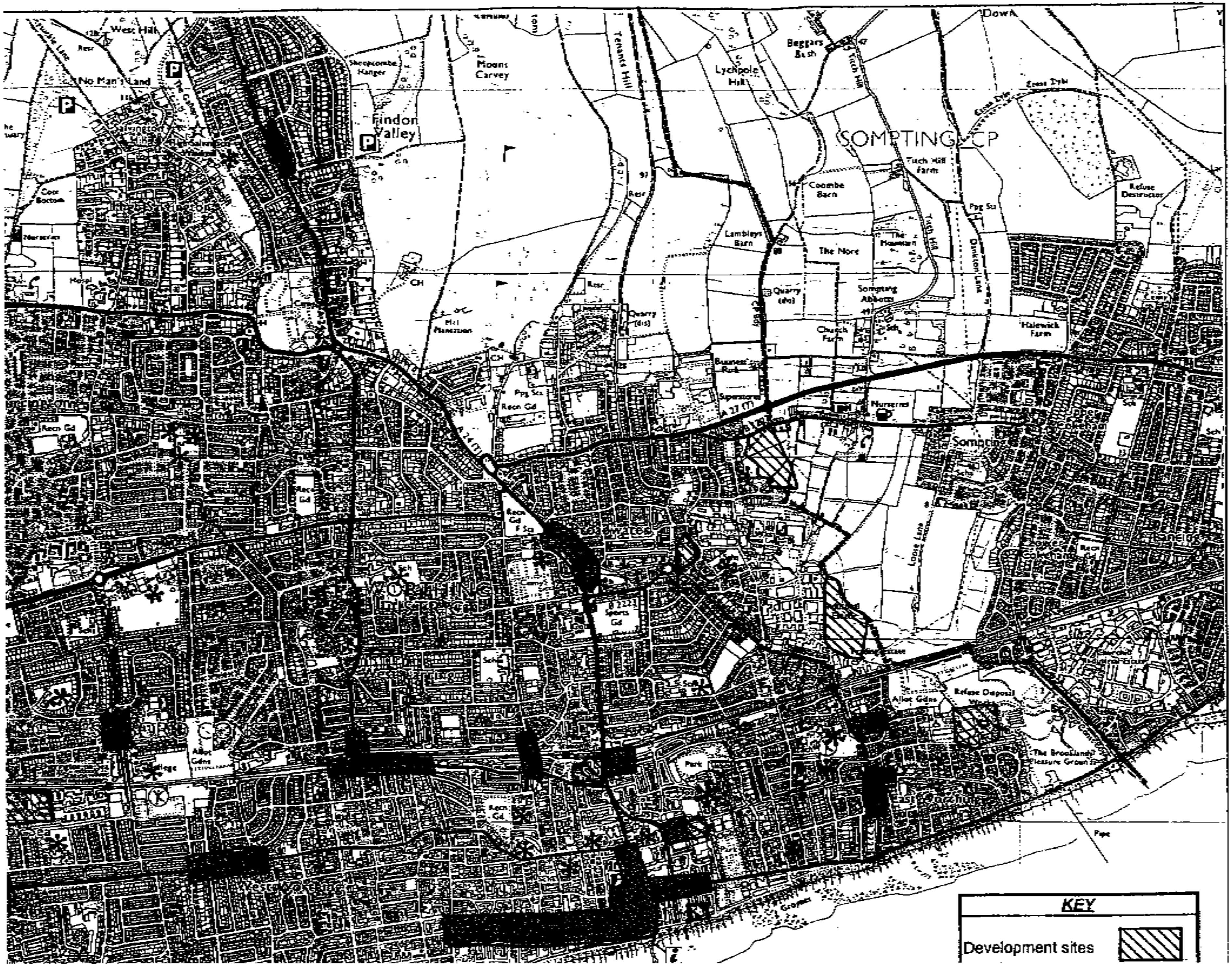
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Nurseries
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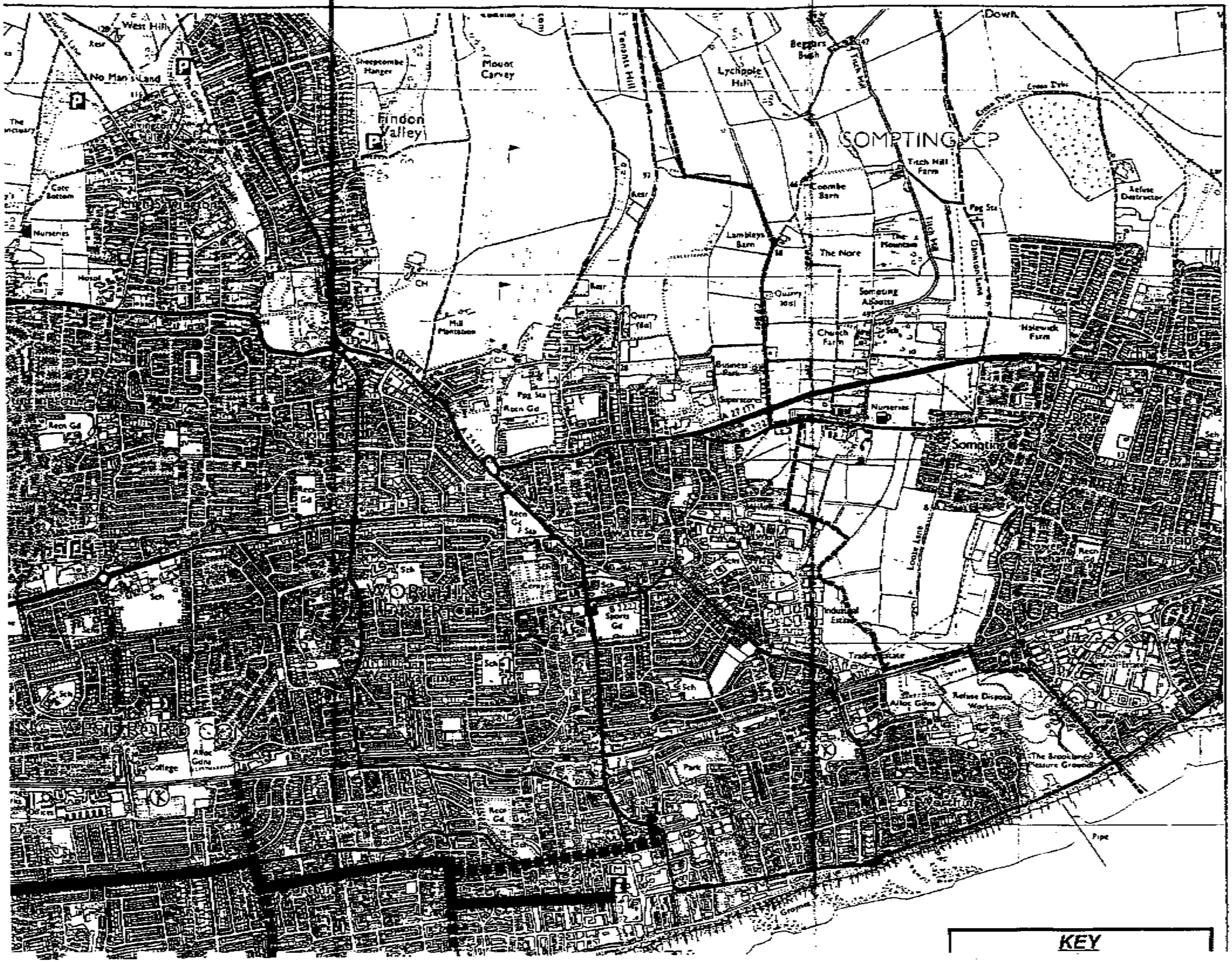
Development sites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The Brooklands Pleasure Grounds
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Park
College
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provide a link to/from Goring Station. Sea Lane could be used as a link from the south, requiring only signing, with possible general traffic management measures to reduce vehicle speeds. The use of the existing Ilex Way bridleway would provide a link to Ferring.

5.6.4 In order to provide additional links into the route, it is suggested that Elm Grove/Wallace Avenue and Heene Road are developed as signed quiet routes. The only specific cycle measures that would be required would be the introduction of cyclist advanced stop lines at the A259 Mill Road/Heene Road junction.

5.6.5 Whilst the route provides a direct link to the western side of the town centre, it does not provide a convenient route for destinations on the east of the town centre or for journeys across the town. It is therefore considered essential that a route across the town centre is developed.

5.6.6 The opportunities for developing a route across the town centre are limited. However, based on existing cycle usage, a clear desire line exists along Richmond Road. A route is therefore suggested along Richmond Road and Union Place linking to the existing and proposed cycle facilities on High Street. Such a route would provide a link across the town centre for longer journeys (e.g. to/from Worthing Hospital) as well as providing more convenient access to the eastern side of the town centre.

5.6.7 It is suggested that on-carriageway cycle lanes with coloured surfacing are introduced along Richmond Road. As well as assisting cyclists, such measures would have traffic calming benefits through narrowing the overall road space. Advanced stop lines for cyclists would be required at Richmond Road/Chapel Road/Union Place to cater for the variety of different cycle turning movements at this junction. The form of cycle facilities along Union Place and on High Street would be dependent upon development proposals in the area and the proposed High Street improvement scheme. Either traffic signal control or toucan crossing facilities for pedestrians and cyclists could be introduced at the Richmond Road/Wykeham Road junction.

5.6.8 Although additional links within the town centre may be practical, they are unlikely to link so effectively into the wider cycle network. Hence, in order to provide an attractive through route for cyclists, it is suggested that a cross-town route using Richmond Road and Union Place is an essential element of a wider Worthing cycle route network.

5.7 OFTPA Network

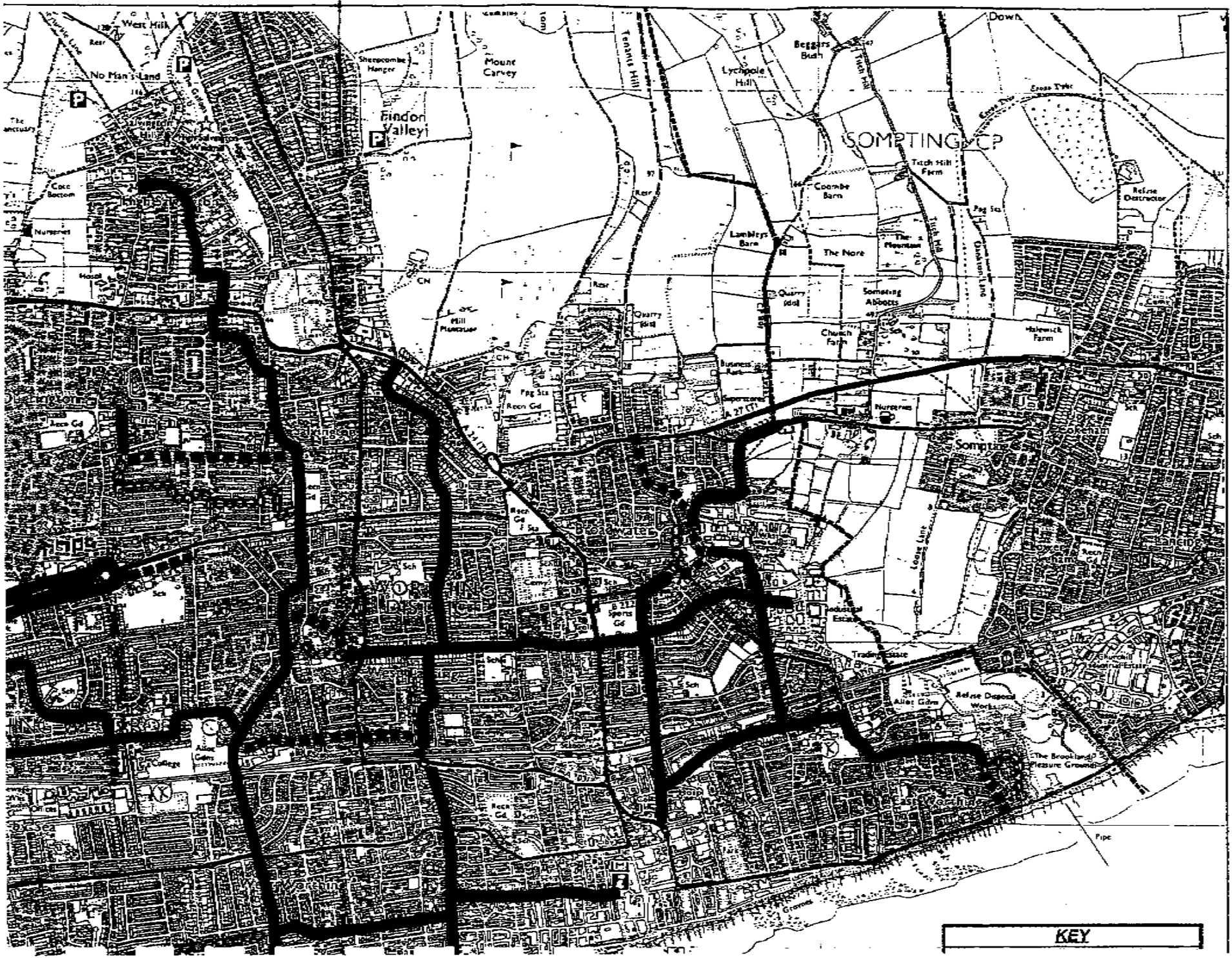
5.7.1 The OFTPA report of 1994 identified a basic network of cycle routes for Worthing. For various reasons, the seven identified routes do not adequately serve the Borough as a cycle network. This basic network has therefore been reviewed and amended or further links added to the network.

5.7.2 The amended OFTPA network is indicated on Figure 5.5.

5.7.3 Additional routes to extend the coverage of the Worthing cycle network are considered in Section 5.8.

Goring to Town Centre

5.7.4 The original report identified the requirement for a route between Goring and Worthing town centre as a high priority. The identified route set out to provide an alternative to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East Worthing
Pipe
KEY

the A259 Goring Road by using quiet parallel routes. There were, however, various practical problems identified in implementing the route in its entirety. The route has evolved into the present WSCC Worthing town centre to Goring cycle route.

5.7.5 Nevertheless, the section of route between Wallace Avenue and Heene Road using Hailsham Road, Pevensey Road and Boundary Road should be retained as a signed route. Kerb build-outs at the Boundary Road/Grand Avenue junction are suggested, similar to those proposed at Lansdowne Avenue on the Worthing town centre to Ferring route. Kerb build-outs are advantageous both to cyclists and pedestrians since they narrow the main carriageway and hence reduce traffic speeds, improve side road visibility, reduce indiscriminate parking at junctions and reduce the widths of roads for pedestrians and cyclists to cross.

East Worthing Route

5.7.6 This route provides a link between East Worthing, Broadwater and other trading estates, Worthing Hospital and the town centre. Only a few minor changes are proposed to the route originally put forward.

5.7.7 At its eastern extremity, whilst Seamill Park Crescent does provide a quiet route for cyclists, the route is rather indirect. An alternative signed route is proposed using Brougham Road. In order to assist cyclists turning right from Brougham Road into Meadow Road, either additional traffic islands or a mini-ghost island right turn lane is suggested.

5.7.8 The section of Ham Road between Meadow Road and Chesswood Road is relatively heavily trafficked, with a significant volume of heavy vehicles travelling from the A259 Brighton Road to the various trading estates in the area. Although the volume and HGV content of the traffic would suggest that separating cyclists from traffic would be desirable, it has not been possible to identify an acceptable off-road route. It is therefore suggested that advisory on-carriageway cycle lanes are introduced on this section of the route. As described in previous sections, the use of on-road cycle lanes have wider traffic advantages through reduced vehicle speeds as a result of the narrowing of available carriageway width .

5.7.9 Although no specific measures are proposed for Chesswood Road, the introduction of kerb build-outs at side road junctions would be advantageous to both cyclists and to pedestrians.

5.7.10 The construction of a new route for cyclists through Homefield Park is suggested in order to link Chesswood Road with Tower Road. Whilst the conversion of existing paths through the park is unlikely to be popular, there is considerable potential to develop a new dedicated route for cyclists through the park. Through the construction of a purpose-built, new facility, the potential for conflict between walkers and cyclists is likely to be significantly reduced, if not eliminated. Such a facility would also reduce the amount of cycling that currently exists on paths through the park.

5.7.11 The route would then use Tower Road and Upper High Street to reach the existing cycle facilities on High Street. There is, however, a difficulty in that both of these roads are one-way only and the return route for cyclists is circuitous and unattractive. Based on recent studies published by the Transport Research Laboratory (Traffic Advisory Leaflet 6/98 – Contraflow Cycling), it is suggested that the traffic orders on these roads are amended to allow two-way cycling, with appropriate traffic restrictions to exempt all vehicles except cyclists at entry points.

5.7.12 A northern spur from this route would link to the Broadwater and other trading estates in East Worthing. This would be a signed quiet route using Southdown View Road and Angola Road, crossing the railway via the existing footbridge.

5.7.13 In order to assist cyclists crossing from Southdown View Road to Angola Road, traffic islands on the main road are proposed. Alternatively, a toucan crossing would provide improved crossing facilities for both cyclists and pedestrians on this route.

Broadwater Route

5.7.14 The Broadwater route would provide a link between the A27 Upper Brighton Road and Worthing town centre via the Broadwater Trading Estate.

5.7.15 The route would commence on the B2222 Upper Brighton Road, which provides a quiet route from Sompting. The signed route would then follow Allington Road, Southways Avenue and Clarendon Road to Northbrook Road. Here, there is the opportunity to develop a link to the A27 Upper Brighton Road via Downlands Avenue and a new section of path through the Lyons Farm recreation ground.

5.7.16 South of Northbrook Road, an amendment to the OFTPA route would utilise Penfold Road in order to link to the East Worthing route on Southdown View Road.

5.7.17 The route would then cross Dominion Road using a toucan crossing, and utilise a shared-use path on the south side of Sompting Avenue. The construction of the roundabout at Sompting Avenue/Dominion Road has left a large area of verge to the south of the junction, that would provide sufficient space to construct a shared-use footway/cycleway as far as the Quashetts.

5.7.18 The Quashetts provides a direct north/south link between Sompting Avenue and King Edward Avenue. There is clear evidence of existing cycle use along this path and it is suggested that cutting back of overhanging vegetation, improved surfacing, together with appropriate signing would improve the existing situation for cyclists and walkers alike.

5.7.19 The route would then use the existing subway to link to Station Road. Whilst the width and height clearance for the subway make it far from ideal for either a pedestrian or cycle route, it is clearly an important link in the cycleway network. Additional lighting and signing is suggested to enhance this section of the route, together with signs requiring cyclists to dismount.

5.7.20 Whilst the route would then utilise Dagmar Street and Upper High Street to connect to the existing cycle route on High Street, both of these roads are one-way, in opposing directions. It is therefore proposed that appropriate exemptions are introduced to allow cyclists to use these roads in both directions.

The Offington North/South Route

5.7.21 The original route described in the OFTPA report would provide a direct north/south link between the A27 Warren Road and Marine Parade on the sea front. A key link in this route is crossing the railway between Pavilion Road and Tarring Road. The footbridge

used to provide this crossing is, however, narrow and steep, and even with the introduction of wheeling ramps, it is unlikely to provide a suitable crossing facility that could be shared between cyclists and pedestrians. Only if the existing bridge could be replaced with a more appropriate structure should a continuous route be considered.

5.7.22 The crossing of the railway using the existing footbridge is not recommended and the southern section of this route has therefore been incorporated as an addition to the WSCC Worthing town centre to Goring cycle route (see Section 5.6).

5.7.23 The remaining northern section of the route would provide a quiet signed route using Offington Drive, Loxwood Avenue, St Lawrence Avenue, Nutbourne Road, St Elmo Road and Pavilion Road. The only improvements necessary would be to provide a crossing at the A2032 Poulters Lane junction. This junction is extremely difficult and dangerous for cyclists and it is therefore suggested that the existing pelican crossing is converted to a toucan crossing.

5.7.24 An addition at the southern end of this route would form an east/west link using Becket Road and Canterbury Road. This would provide links to West Worthing Station and the Salvington north/south route (see Section 5.7.25). Although traffic on South Street is relatively heavy, the traffic is frequently halted at the level crossing or at the adjoining traffic signals, allowing cyclists to cross between Canterbury Road and Becket Road. Minor traffic management measures, including yellow box and keep clear markings would, nevertheless, improve the situation. Whilst it may be possible to introduce more formal cycle crossing facilities in the vicinity of the level crossing using advanced stop lines and sections of cycle lanes, this would require more detailed consideration of available road space, traffic flows and operating requirements of this complicated junction.

Salvington North/South Route

5.7.25 There are very few opportunities to develop an appropriate north/south cycle route in the area between Offington Lane and Durrington Lane. In addition, the A2032 Littlehampton Road forms an effective barrier to north/south cycle movements in this part of Worthing.

5.7.26 The Salvington north/south route uses existing paths either side of the Littlehampton Road to link quiet roads together. Although the paths are relatively narrow, there is clear evidence of existing cycle use. It is therefore suggested that with resurfacing, cutting back overhanging vegetation, together with the introduction of appropriate signing and lining, an acceptable design of shared-use path could be developed.

5.7.27 The route would commence at the top of Salvington Hill and would follow Hayling Rise, Foxley Lane and Uplands Avenue to link to the A27 Arundel Road. A review of traffic priorities on the intervening roads would assist in establishing the development of the cycle route, although appropriate signing and lining, together with minor traffic management measures, would provide an acceptable continuous cycle route.

5.7.28 The current Safety and Access Study for the A27 Arundel Road has put forward a number of short-term improvements along the A27 corridor through Worthing. One scheme is for the introduction of refuge islands on Arundel Road, located between Uplands Avenue and Cotswold Road to assist pedestrians crossing. This facility would equally provide a safe crossing point for cyclists, with the sections of intervening footways converted to shared-use.

5.7.29 South of Arundel Road, the route would use Cotswold Road, Cleveland Road, Half Moon Lane, Ashacre Lane and Ashacre Way to reach the Durrington Recreation Ground. Whilst the majority of the route would be signed via quiet roads, additional traffic management measures or traffic islands would be required to assist cyclists crossing to/from Ashacre Lane.

5.7.30 The existing path on the west wide of the recreation ground would be widened to provide a shared-use facility. This leads to an existing pelican crossing on Littlehampton Road which would be converted to a toucan crossing. South of Littlehampton Road, the existing path to Pelham Road would be converted to shared use.

5.7.31 The route would then use Pelham Road and St Andrews Road as a signed quiet route. Additional traffic islands are suggested at the Terringes Avenue junction in order to assist cyclists crossing. Alternatively, the use of a speed table or contrasting surface treatments could be used to reduce vehicle speeds on the through route.

5.7.32 The existing short section of path between St Andrews Way and Princess Avenue would be widened to provide a shared-use path. South of Princess Avenue, the existing path adjoining the allotments would also be widened in order to link to the footbridge over the railway. The footbridge has ramped steps, however, the introduction of wheeling ramps would assist cyclists together with those pushing wheelchairs and buggies.

5.7.33 The corner of Elm Grove/Tarring Road adjacent to the footbridge is relatively wide, allowing high vehicle speeds on this section of road. In order to address this problem, traffic islands are suggested in order to narrow the available carriageway space. This would influence vehicle speeds, together with assisting pedestrians and cyclists crossing to the footbridge.

5.7.34 The route would then utilise Elm Grove and Wallace Avenue as signed quiet routes, linking into the WSCC Worthing town centre to Ferring route.

5.7.35 A revised route for the link to Durrington Parade on Salvington Road is suggested by formalising the use of the existing path between Cedar Avenue and Twyford Gardens. This would then create a continuous signed route for cyclists using various lightly trafficked residential roads.

Durrington and Maybridge Routes

5.7.36 An existing short section of shared-use cycleway links areas of new housing development to Romany Road. It is assumed that this route will be upgraded to provide the main link to new development proposed in the adjacent areas, as well as being extended southwards. It is proposed to upgrade and convert the existing footways on Romany Road and Yeoman Road in order to provide a link to the A2032 Littlehampton Road.

5.7.37 The Littlehampton Road/Yeoman Road/Palatine Road junction is a considerable barrier to both pedestrian and cycling movements in the area and has been identified as the site with the worst cycle accident record within Worthing. The introduction of signal controlled pedestrian/cycle crossing facilities on Littlehampton Road is therefore

strongly recommended. Advisory crossings between splitter islands on the side roads would also be required. Similar crossing facilities are also recommended at the Littlehampton Road/Durrington Lane and Littlehampton Road/Goring Street roundabouts.

5.7.38 Due to the volume of fast moving traffic on Littlehampton Road, the only means to provide a safe and attractive facility is to provide an off-road cycle route. Shared-use paths on both sides of the road are therefore proposed in order to minimise the need to cross Littlehampton Road. An additional shared-use path is suggested on the south side of Littlehampton Road in order to link to Ringmer Road.

5.7.39 The route would also include a link to The Strand via Palatine Road, Nelson Road and Drake Avenue as a signed quiet route in order to link to the Maybridge route.

5.7.40 The Maybridge route would commence at the junction of The Strand and Goring Street and would run the length of The Strand as a quiet signed route to its junction with The Boulevard/Shaftesbury Avenue. The Strand has recently been traffic calmed with a series of flat topped road humps which, although uncomfortable, are generally satisfactory from a cyclist's perspective. Although road humps have been introduced as part of the traffic calming scheme, The Strand is still relatively wide. It is therefore recommended that additional measures to narrow the carriageway, taking into account the needs of cyclists, are introduced to further reduce vehicle speeds along The Strand.

5.7.41 The roundabout at the junction of The Strand with The Boulevard and Shaftesbury Avenue has been identified as a high risk accident site for cyclists. Although there are footways around the roundabout which could be converted to shared-use, such facilities are unlikely to be attractive to cyclists and pedestrians alike. It is therefore suggested that measures are introduced to improve overall safety, including that of cyclists, on the roundabout itself. This would involve narrowing the approach widths on each entry to reduce vehicle speeds and narrowing the circulatory carriageway to a single lane. Traffic Advisory Leaflet 9/97 describes such measures.

5.7.42 Ultimately, it may be possible to adopt more innovatory measures at this roundabout. There are presently trials underway with the use of continental style cycle lane markings on both the entries and circulatory carriageway of a roundabout. Such an approach would seem appropriate at this location, given the current cycle turning movements at the junction and the present poor safety record.

5.7.43 East of this roundabout, the route would use Bolsover Road and the existing paths between Melrose Avenue, Ringmer Road and Lincett Avenue, in order to link to the Salvington north/south route and to provide a route to Worthing West Station. The existing paths are sub-standard in terms of width and alignment, nevertheless, they do provide a crucial link in this route. In the longer term, it is suggested that a new cycle route is constructed through the allotment site, linking Bolsover Road with Ringmer Road and Canterbury Road. This could ultimately be extended to provide a direct link to Durrington Station through the sixth form college site.

5.7.44 To the west of the route, a north/south link could provide access to Goring Station and the sea front.

5.7.45 Following a signed quiet route from The Strand via Coleridge Road and Coleridge Crescent, it would be possible to link to the existing path on the north side of the railway, that runs under Goring Street to Goring Station. This would ideally be achieved by construction of a new path through the open space immediately behind Coleridge Close, although the alternative of using the existing path could be considered with appropriate signing and lining.

5.7.46 From Goring Station, the route would use Goring Street to Fernhurst Drive, crossing Goring Way with the assistance of additional traffic islands. The route could either use the existing sections of bridleway or Fernhurst Drive, in order to link to Aldsworth Avenue. Aldsworth Avenue, which has been traffic calmed, would be used to reach Marine Drive and link to the South Coast Cycle Route. Ilex Way, which is designated a bridleway, would provide a link to Ferring.

West Tarring to East Worthing Trading Estate Route

5.7.47 An amendment to the route described in the OFTPA report would involve the use of Church Road and South Street to provide a link from St Andrews Road to Rectory Road. This would avoid using the narrow section of footpath between St Andrews Road and Church Road, and the adjoining recreation ground. The alternative route would require a short section of contra-flow cycle lane at the junction of South Street with Church Road.

5.7.48 It is noted that there are a number of cycle accidents (8 in total) at the Rectory Road/Glebe Road and Rectory Road/St Lawrence Avenue junctions. Although there is a cycle only link opposite St Lawrence Avenue, there is no facility to assist cyclists crossing Rectory Road. It is suggested that the poor accident record could be influenced by enhanced cycle crossing facilities at the Rectory Road/St Lawrence Avenue junction. It is therefore recommended that the existing ghost island right turn is removed and additional traffic islands introduced to provide a protected advisory crossing, both for cyclists and pedestrians.

5.7.49 The route would then continue along St Lawrence Avenue and Queen Street, crossing South Farm Road with the assistance of additional traffic islands.

5.7.50 The A24 Broadwater Road is the main traffic route to Worthing town centre from the north. This dual carriageway route is heavily trafficked and forms an effective barrier to pedestrian and cycle crossing movements. In order to provide a safe crossing facility, a signal controlled crossing is essential.

5.7.51 The existing A24 Broadwater Road/Queen Street/Dominion Road junction is presently an uncontrolled crossroads. There are no crossing facilities for either pedestrians or cyclists. It should be noted that there have been 3 recorded personal injury accidents involving cyclists at this junction over the past three years. Although the introduction of a toucan crossing would seem the most appropriate measure, the central island width is insufficient to provide for a two-stage crossing. Whilst it would be possible to construct a toucan crossing by narrowing the existing carriageway widths, it may prove more cost-effective to introduce overall signal control at this junction, which would have wider traffic benefits rather than just providing facilities for pedestrians and cyclists only.

5.7.52 The route would then use Georgia Avenue, Beaumont Avenue and Sheridan Road as quiet signed routes to link to Dominion Road. Although Dominion Road is relatively heavily trafficked, it is suggested that additional traffic islands could be introduced to allow cyclists to cross from Sheridon Road to Harrison Road in two stages.

5.7.53 Harrison Road would be used as a signed route to Southdown View Road, where the route would connect with the East Worthing route. Although the eastern section of Harrison Road exists as a through route to the East Worthing Trading Estate, it is unsurfaced and overgrown over most of its length. It is therefore suggested that this route is upgraded and surfaced to provide a shared-use footway/cycleway.

5.8 Additional Routes

5.8.1 Whilst the OFTPA report identified a basic cycle network for Worthing, there were, however, a number of significant gaps in the network. The following section describes additional routes that develop the coverage of the network. Although some can readily be formed into complete routes, others are individual sections which enhance the coverage of the network.

5.8.2 These additional routes are indicated on Figure 5.6.

Cross Worthing Route

5.8.3 Although the Worthing town centre to Ferring cycle route provides a facility crossing much of the town, a complementary route has been developed crossing the town from east to west which also links the town's five railway stations. The advantage of such a route is that it would link with schemes proposed to improve access to individual stations.

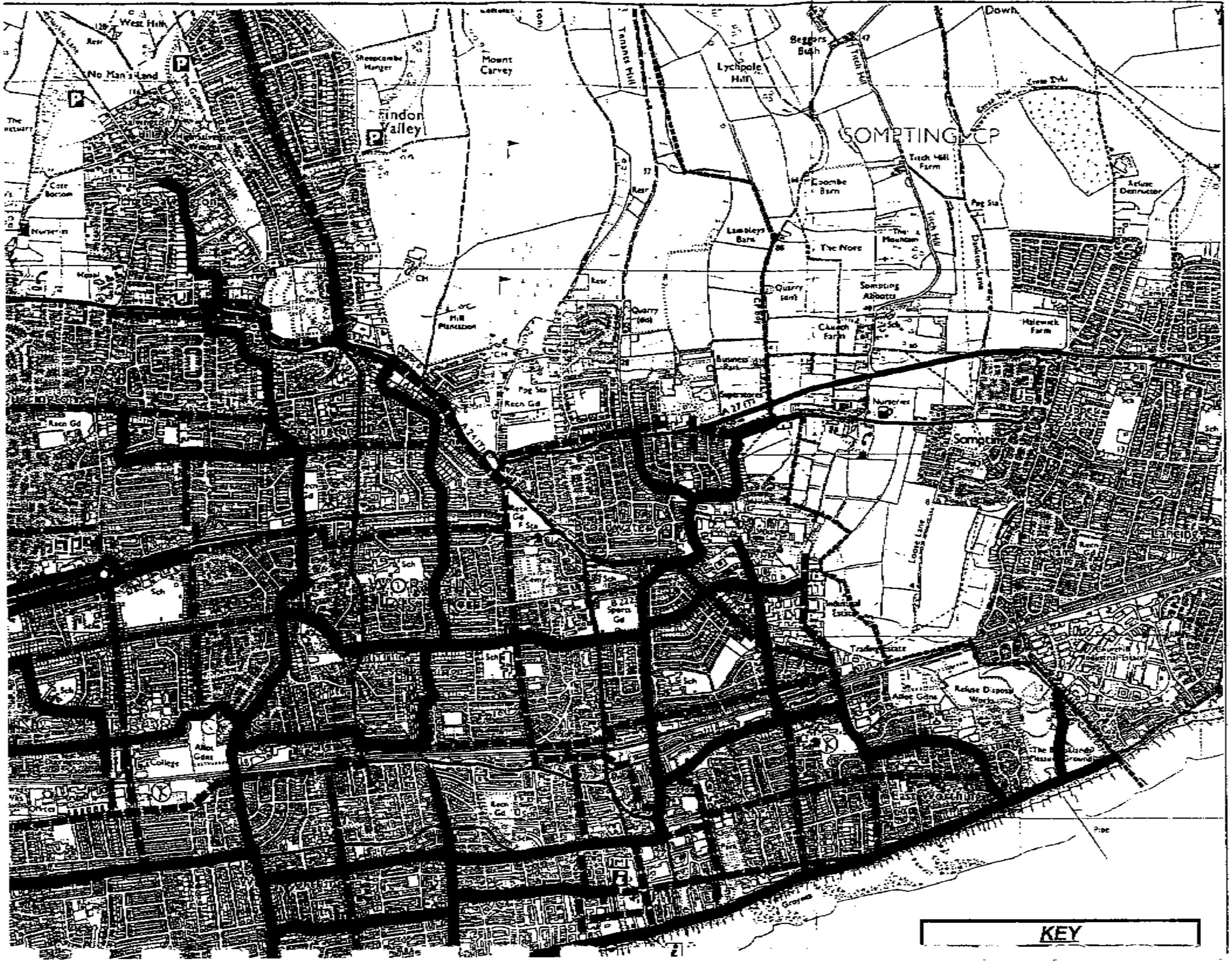
East Worthing – Worthing

5.8.4 Commencing at East Worthing Station, the route would utilise the existing footway on the eastern side of Dominion Road converted to shared-use as far as Meredith Road. Pedestrian flows on this section of footway are relatively light and hence shared-use is considered a practical option, given appropriate signing and lining. The alternative of on-carriageway cycle lanes could be considered, but would require traffic islands to allow cyclists to safely cross to the station.

5.8.5 It is suggested that the existing traffic signal junction at Dominion Road/Dominion Way is modified to incorporate a pedestrian/cycle crossing stage. This would provide access to the East Worthing Trading Estate via Dominion Way. The route would then use Meredith Road and King Edward Avenue as a signed route to the junction with the A24 Broadwater Road.

5.8.6 Broadwater Road has few opportunities for cyclists and pedestrians to cross. The ideal option would be to provide a signal controlled crossing for cyclists and pedestrians linking King Edward Avenue and Bridge Road. Such a scheme would be relatively expensive if considered in isolation, but would be a more viable option if linked to the signalisation of the adjoining road junctions. It is recommended that this is considered as part of any longer-term proposals for the Broadwater Road corridor.

5.8.7 In the short-term, it is recommended that the existing underpass linking Ivy Arch Road with Bridge Road is converted to shared-use. This would require cutting back overhanging vegetation, improving lighting levels, introducing security mirrors at corners, together with the necessary signing and lining. Although use of the underpass is less than desirable from a personal security perspective, increasing usage by both pedestrians and cyclists would help counter the problems of isolated users.


West Hill
No Man's Land
Sheepcombe Hanger
Mount Carvey
Findon Valley
Tenants Hill
Lychpole Hill
Beggars Bush
Titch Hill
SOMPTING CP
Titch Hill Farm
Coombe Barn
Refuse Destructor
Lambleys Barn
The Nore
The Mountain
Dankton Lane
Quarry (dis)
Sompting Abbotts
Church Farm
Halewick Farm
Hill Plantation
Business Park
Nurseries
Sompting
Loose Lane
Lancing
Industrial Estate
Trading Estate
Refuse Disposal Works
Allot Gdns
College
Recn Gd
Sch
Sports Gd
Offices
Groynes
Pipe
KEY

5.8.8 The route would then use Bridge Road and Southcourt Road as a signed route to reach the northern entrance to Worthing Station. Improved signing to the station entrance is suggested, since this is not well indicated at present.

Worthing – West Worthing

5.8.9 To the west of Worthing Station, the route would follow Southcourt Road and Westcourt Road to the junction with South Farm Road. In order to cross to Pavilion Road, it is suggested that additional traffic management measures are introduced including keep clear markings, traffic islands and a central ghost island. Such measures would allow cyclists to cross between the two side roads making best use of gaps in the traffic, particularly when traffic is halted at the adjoining level crossing.

5.8.10 The route would then follow Pavilion Road and Becket Road as a signed route to South Street. At the junction with South Street, similar traffic management measures to those suggested for South Farm Road are proposed in order to provide a crossing from Becket Road to Canterbury Road. The introduction of advisory cycle lanes on South Street linking the two junctions is recommended in order to highlight the continuous route between the two side roads.

5.8.11 Although West Worthing Station is only 30 metres south of Becket Road, access is made difficult by the complicated traffic arrangements at the South Street/Tarring Road junction and adjacent level crossing. Whilst is may be possible to introduce advanced stop lines to assist cyclists through the junction, there is limited space to introduce such facilities and inadequate road widths to introduce cycle lanes on the approaches to the junction. There would therefore appear little that could easily be implemented to assist cyclists at this junction in the short term. Whilst a route to West Worthing Station should be signed through the traffic signals, dedicated cycle facilities could only be introduced as part of a wider traffic improvement scheme in the area.

West Worthing – Durrington

5.8.12 To the west of West Worthing Station, there would be parallel routes, one to the north of the railway using Canterbury Road, the other to the south using Tarring Road. These routes would link to or form part of both the Offington and Salvington routes. The routes would rejoin where the railway footbridge adjoins Tarring Road.

8.8.13 The route would then use Bruce Avenue to link to West Park Recreation Ground. It is proposed that the existing path running through the recreation ground to Worthing Leisure Centre is widened and upgraded to provide a 2.5 metre wide shared-use footway/cycleway. The link to the leisure centre is particularly important since this is potentially a major generator of cycle trips.

5.8.14 Crossing Shaftesbury Avenue in order to reach the eastern section of Barrington Road or Durrington Station presents considerable difficulties. There is an existing pelican crossing on Shaftesbury Avenue, but this is not on the obvious desire line for crossing movements. Although it would be possible to introduce a refuge island to assist both cyclists and pedestrians crossing, there are relatively few interruptions in the traffic flow along Shaftesbury Avenue to allow easy crossing. It is therefore suggested that traffic signal control is introduced at the Shaftesbury Avenue/Barrington Road junction,

incorporating pedestrian and cyclist crossing facilities. Such a measure would have wider traffic benefits, including improving access to the office developments served from Barrington Road. This improvement would be relatively expensive to implement, but there is, nevertheless, the potential for developer contributions from adjoining sites.

5.8.15 In order to access Durrington Station from the south, there is an existing path from Barrington Road to the westbound platform. This path is, however, narrow and wholly unsuitable for cycle use. It is therefore suggested that the western footway on the Shaftesbury Avenue bridge is converted to shared-use. Although relatively narrow (just over 2 metres), there is good visibility along the path and no intervening access points. This route would then use The Causeway to access the station from the north.

5.8.16 As an alternative to converting the Shaftesbury Avenue footway to shared-use, the option of introducing on-carriageway advisory cycle lanes could be developed. Such a measure would, however, require further consideration of available road widths, traffic flows, volumes of heavy goods vehicles and traffic speeds.

Durrington – Goring-by-Sea

5.8.17 Immediately south of Durrington Station, Barrington Road exists as two separate sections of road separated by approximately 250 metres of path. It is proposed that this well-used path is upgraded and widened to provide a 2.5 m width shared-use footway/cycleway. Ownership of the path and its status as a right-of-way require further investigation.

5.8.18 The route would then use the remaining section of Barrington Road together with Mulberry Lane to link to the existing subway under the railway. It is suggested that the subway could be upgraded and converted to shared-use. Improvement works would include painting the existing concrete walls to enhance the visual appearance of the route, together with upgrading lighting provision.

5.8.19 North of the subway, the route would then use Limbrick Lane and the signed route to Goring Station described previously in Section 5.7.45.

5.8.20 West of Goring Station, the section of Goring Street that has been bypassed by the new railway bridge provides an attractive lightly trafficked route. In order to provide a link northwards to Littlehampton Road and Northbrook College, it is suggested that a new cycle track is constructed on the west side of the existing A259. This would then use advisory crossings on the roundabout splitter islands to link to the existing footbridge over Littlehampton Road. Ultimately, it may be possible to develop further links northwards along Titnore Lane to serve the West Durrington development site.

5.8.21 There would appear to be considerable potential for developer contributions towards funding this route. Proposed housing and business development on the Worthing Waste Water and British Gas sites adjacent to Barrington Road could fund part of this route, including the crossing of Shaftesbury Avenue (see 5.8.15). Not only would such measures improve cycle and pedestrian access to the business site, but it would provide an appropriate link from the proposed housing to the leisure centre, and ultimately Worthing town centre. The West Durrington development could equally fund elements of this route, in order to improve access to Goring-by-Sea Station.

A27 Arundel Road – Upper Brighton Road

5.8.22 The A27 corridor through Worthing presents considerable problems for cyclists. Heavy traffic flows, a high proportion of heavy goods vehicles and congested traffic conditions mean that the route is unattractive for cyclists wishing to travel along the road and presents an effective barrier to cyclists and pedestrians wishing to cross the road.

5.8.23 There are a number of sections of the A27 that are relatively well used by cyclists, in spite of the traffic conditions. Nevertheless, it is suggested that demand for cycle movements along and across the A27 are suppressed by the absence of appropriate facilities.

5.8.24 Proposals have therefore been developed which would provide sections of shared-use route along the A27, together with improved crossing facilities in order to provide links into the wider cycle network. Although the conversion of existing footpaths to shared-use facilities is far from desirable, it is suggested that traffic conditions on the A27 would preclude any form of on-carriageway provision. Allowing cycle use would provide additional justification for upgrading and improving existing paths, together with the introduction of new crossing facilities.

5.8.25 As part of the Salvington route, it is proposed to cross the A27 Arundel Road via new refuge islands located between Uplands Avenue and Cotswold Road. In order to link into this route, it is suggested that the footway on the south side of Arundel Road is converted to shared-use between Durrington Hill and Half Moon Lane, and the northern footway converted to shared-use between Hayling Rise and the Offington Corner roundabout. Although there is the potential to widen the existing footpaths into the verge in order to provide a segregated shared-use facility, this is unlikely to be justified given expected levels of use.

5.8.26 The provision of adequate crossing facilities at the A27/A24 Offington Corner roundabout is considered essential. Although it is possible to use the existing splitter islands at the roundabout to cross, the sheer volume of traffic, together with the multi-lane entries make this particularly difficult. It is understood that the existing A27 safety study is investigating options for crossing facilities at this junction.

5.8.27 In order to provide a link from Findon Valley, it is suggested that the footway on the south side of Warren Road is converted to shared-use. This would connect to the Offington route at Offington Drive and link to South Farm Road, avoiding the Warren Road/Upper Brighton Road roundabout.

5.8.28 The Warren Road/Upper Brighton Road roundabout has been identified as a high risk accident site for cyclists. Ultimately, it is suggested that signal controlled pedestrian/cycle crossing facilities are introduced at the junction, possibly in conjunction with the implementation of traffic signal control on the roundabout. In the short term, the footway around the roundabout could be converted to shared-use, with advisory crossings between the roundabout's splitter islands.

5.8.29 Eastwards from the roundabout, conversion of the footway on the north side of Upper Brighton Road would link to Charmandean Lane, which provides a bridleway route into the South Downs. Conversion of the adjoining pelican crossing to a toucan crossing would provide a link to the Broadwater route via Downland Avenue.

Worthing Town Centre – Worthing Station

5.8.30 Cycle access across Worthing town centre is poor. There are either barriers of heavily trafficked roads (Richmond Road, High Street) or wholly pedestrianised streets (Warwick Street, Montague Street). Whilst the problems of busy roads are easily understood, pedestrian-only streets present their own difficulties. Cyclists are allowed to push their cycles through pedestrianised area, however, many are reluctant to dismount and do so. Therefore, in the absence of suitable alternative routes, pedestrianised streets can in themselves become a deterrent to cycling.

5.8.31 Research conducted by the Transport Research Laboratory, published as Traffic Advisory Leaflet 9/93, observed that there are no real factors to justify excluding cyclists from pedestrianised areas. In addition, the report suggests that cycling could be more widely permitted without detriment to pedestrians. Nevertheless, although the study cited few recorded accidents between pedestrians and cyclists, there is a perception of safety risk amongst many pedestrians.

5.8.32 It is therefore suggested that cycle access through the existing pedestrianised area is permitted outside of the main shopping hours in order to allow commuter journeys e.g. restrictions would apply 10.00 to 17.00, similar to those in Chichester. These east/west routes would be particularly effective at improving cycle access to the town centre when linked to South Street, which is restricted to buses and cycles only.

5.8.33 Further opportunities exist by providing a link between Shelley Road and South Street. This would require amendments to existing traffic orders on Liverpool Road to permit two-way cycling, and conversion of the path between Liverpool Gardens and Liverpool Road to shared-use.

5.8.34 Worthing Station is effectively cut-off from the town centre by a number of major roads. Although Christchurch Road/Grafton Road/Salisbury Road to the west of the town centre could effectively provide a suitable cycle route, problems with crossing main roads are difficult to overcome. Only if these intervening junctions were converted to traffic signal control, as part of a wider traffic improvements scheme, could such a route be effectively developed.

5.8.35 An alternative route linking to the east of the town centre is nevertheless feasible, although this is a less direct and attractive route. This would utilise the existing pedestrian route through the Teville Gate multi-storey car park to provide a link between Victoria Road and Newland Road under the Broadwater Road railway bridge. Amendments to the one-way restrictions on Ashdown Road would allow cyclists to access the town centre via the existing cycle facilities on High Street/North Street.

5.8.36 Steps on both sides of the Teville Gate car park would require wheeling ramps, and lighting improvements would be necessary through the car park and under Broadwater Road. Ultimately, it may be possible to provide a more attractive route as part of the Teville Gate redevelopment proposals.

Littlehampton Road

5.8.37 The Maybridge route suggests the use of shared-use paths along sections of Littlehampton Road as the only means to provide an acceptable route for cyclists along this fast moving, heavily trafficked road. Littlehampton Road is identified as a clear desire line for cyclists, therefore additions to these routes are proposed.

5.8.38 To the east, conversion of the existing footway on the south side of the road as far as Chantry Road is suggested. This would link with the Salvington north/south route and would provide additional east/west links via Highdown Avenue and Broomfield Avenue.

5.8.39 Cycle tracks are proposed on both sides of the road between the Littlehampton Road/Palatine Road and Littlehampton Road/Goring Street roundabouts. The advantage of having two-way cycle facilities on both sides of the road is that it would minimise the need for crossing movements over this busy dual carriageway.

5.8.40 In order to provide an inter-urban route to the west, a cycle track along the south side of Littlehampton Road to the west of Goring Street is suggested. This would link up with existing cycle facilities in Ferring and Angmering.

Findon Valley

5.8.41 The A24 Findon Road is the principal route into Worthing from the north and is heavily trafficked during much of the day. The route, running along the bottom of the valley, effectively separates the two sections of this mainly residential area. Given the available road widths and the volumes of traffic, it has not been possible to develop a satisfactory on-road cycle route.

5.8.42 It is therefore suggested that the existing footway on the eastern side of Findon Road is converted to shared-use. This would extend northwards from the A27 Offington Corner roundabout to the Borough boundary, but could logically be extended through to Findon village itself. There is a grassed verge along much of the route which would allow a 2.5 metre width path to the achieved. In the vicinity of the shops, the option of widening the existing path into the carriageway is suggested.

South Farm Road

5.8.43 South Farm Road is the route with the highest recorded cycle flows within Worthing. It provides a direct north/south route avoiding the busy A24 Broadwater Road. It has not, however, been possible to identify specific measures to assist cyclists. General traffic management measures such as traffic islands are proposed, in order to reduce overall vehicle speeds and assist cyclists and pedestrians crossing the road.

The Boulevard

5.8.44 The Boulevard, together with Shaftesbury Avenue, forms a north/south link between Littlehampton Road and Goring Road. The route serves a number of major destinations, including Durrington Station, the adjoining employment area, schools to the north, together with linking to the Maybridge and Cross Worthing cycle routes.

5.8.45 Although The Boulevard is presently a dual carriageway, it is suggested that traffic levels could be accommodated by one traffic lane in each direction. There is therefore potential to reallocate road space to provide dedicated cycle facilities between Littlehampton Road and The Strand. This could be achieved through the introduction of on-carriageway cycle lanes in each direction, together with safety improvements at the Palatine Road/Terringes Avenue roundabout, similar to those described for the roundabout at The Boulevard/The Strand(5.7.41).

5.8.46 Palatine Road and Terringes Avenue would be signed to link to other cycle routes.

Lyndhurst Road-Brougham Road

5.8.47 Cycle access to the town centre from the east is not well provided for at present. Relatively high flows of cyclists use the A259 Brighton Road which, although direct, is unattractive due to the volume and speed of traffic. Whilst it is anticipated that a large proportion of these existing cyclists would use a route along the seafront if this were provided, there is potential to establish a more direct route using Lyndhurst Road/Brougham Road.

5.8.48 The main difficulty with this route is the narrow section of Lyndhurst Road immediately east of High Street. This section of road is of insufficient width to allow a car to overtake a cyclist without encroaching into the opposing traffic lane. Whilst this may be acceptable with a lightly trafficked residential or rural road, the volume of traffic of Lyndhurst Road puts cyclists at an unacceptably high road safety risk.

5.8.49 However, with the proposed redevelopment of the gas works site, there is the potential to develop a cycle route through the site, avoiding the narrow section of Lyndhurst Road. This could provide a direct route between Union Place/High Street and the wider section of Lyndhurst Road, east of Park Road. It would also link the town centre to Worthing Hospital.

5.8.50 East of Park Road, there are relatively few problems for cyclists. It is, nevertheless, suggested that advanced stop lines for cyclists are introduced at the Lyndhurst Road/Brougham Road/Ham Road traffic signals.

Dominion Road-Ham Road

5.8.51 Dominion Road and Ham Road form a north/south link to the east of Worthing, linking the A259 coastal road with the A24 and ultimately the A27. This route provides the main access to the various trading estates to the east of Worthing, and hence is heavily trafficked, with a high proportion of HGVs. The need for crossing facilities along the road has been identified for the various routes that cross the road. However, there are significant volumes of cyclists along Dominion Road and Ham Road which would indicate that it should be considered as a cycle corridor in its own right.

5.8.52 Traffic levels on the road would indicate that provision of an off-carriageway route for cyclists would be desirable. However, although sections of route could be developed, it is not possible to identify a continuous off-carriageway route. Therefore an on-carriageway signed route is proposed, with advanced cycle stop lines at traffic signals, and advisory cycle lanes on the section of road between Southdown View Road and Meadow Road.

6 Links to Public Transport

6.1 Rail Stations

6.1.1 There are five rail stations within Worthing Borough. From east to west these are East Worthing, Worthing, West Worthing, Durrington-on-Sea and Goring-on-Sea. Worthing is the main station, where all passenger services stop, whilst the other stations tend to be served by local stopping services only.

6.1.2 Rail services through Worthing cover a wide range of destinations. The majority of services are provided by Connex South Central. As well as regular services to London Victoria, Gatwick Airport, Littlehampton, Brighton and Portsmouth, there are also services to Southampton, Cardiff, Reading, Basingstoke and London Waterloo. There are approximately six trains in each direction during most of the day.

East Worthing

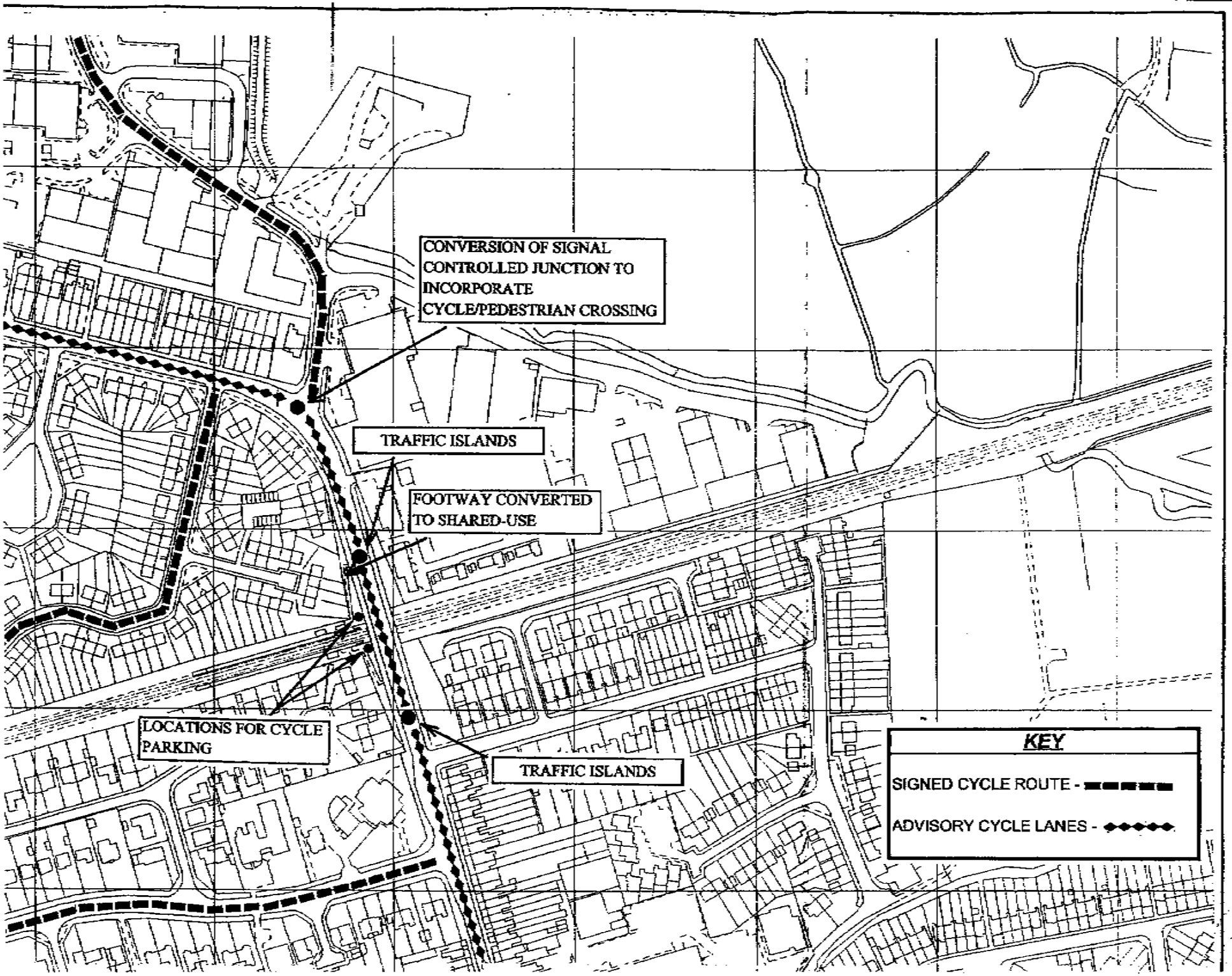
6.1.3 East Worthing would appear to be the least busy of Worthing's five railway stations. The area surrounding the station is predominantly residential, with the Ham Bridge and East Worthing trading estates located approximately 400 metres north of the station. The station is of traditional "halt" type construction with narrow pre-fabricated concrete platforms and basic passenger facilities. The station provides a poor passenger waiting environment, with clear evidence of vandalism and graffiti.

6.1.4 Access to the station is taken from the road overbridge via ramped paths down to the platform. These paths are relatively narrow with sharp right-angle turns and are therefore not particularly convenient for cyclists walking with their bicycles, or for those with wheelchairs or buggies, particularly at busy times. Improvements to these access ramps would therefore have wider benefits to rail users, not just for passengers with their bicycles.

6.1.5 There is presently no cycle parking at East Worthing station. Space on each platform is limited and there is a lack of suitable locations to locate cycle stands elsewhere. Whilst the introduction of cycle parking should be a requirement of any station redevelopment, it would be possible to introduce undercover cycle parking facilities adjacent to the ramps leading down to the platforms, with a limited amount of new construction work.

6.1.6 Figure 6.1 indicates local measures to improve cycle access to the station. The main items are refuge islands located on the approaches to the overbridge. These would assist both pedestrians and cyclists crossing to the station. The width of road would be sufficient to allow the introduction of 2 metre wide refuge islands, whilst retaining 3.5 metre through traffic lanes.

6.1.7 Conversion of the western footway to shared-use between Chesswood Road and Meredith Road would be desirable, since this would improve cyclist convenience and safety by reducing the need for cyclists to cross the busy main road for certain journeys. Whilst this would legitimise what many cyclists do already, this may only prove possible if the path were widened (it is presently approximately 3 metres) or unsegregated shared-use adopted.


CONVERSION OF SIGNAL CONTROLLED JUNCTION TO INCORPORATE CYCLE/PEDESTRIAN CROSSING
TRAFFIC ISLANDS
FOOTWAY CONVERTED TO SHARED-USE
LOCATIONS FOR CYCLE PARKING
TRAFFIC ISLANDS
KEY
SIGNED CYCLE ROUTE -
ADVISORY CYCLE LANES -

Worthing

6.1.8 Worthing is the main station within the Borough. It serves a predominately residential area to the north, together with the principal shopping and business centre of Worthing, located approximately 750 metres south of the station.

6.1.9 Worthing station has three platforms – one for westbound services and two for eastbound services. Access to all eastbound services is provided from a subway with steps, which links to entrances both to the north and south of the station. Only the westbound platform can be accessed by a ramped approach, but this is remote from the main entrance through the station building. Cycle access to and from trains therefore requires bicycles to be physically carried up and down stairs. This is not always practical and does little to encourage integration between cycling and rail travel.

6.1.10 Whilst improving the convenience of cycle access onto the platforms could be achieved by the introduction of wheeling ramps on the various stairs, this would do little to improve overall access onto the station for other user groups. Clearly, all stations must be made accessible to all under the terms of the Disability Discrimination Act. Therefore, any works necessary to improve access for disabled people, are likely to benefit other passengers, including those with cycles.

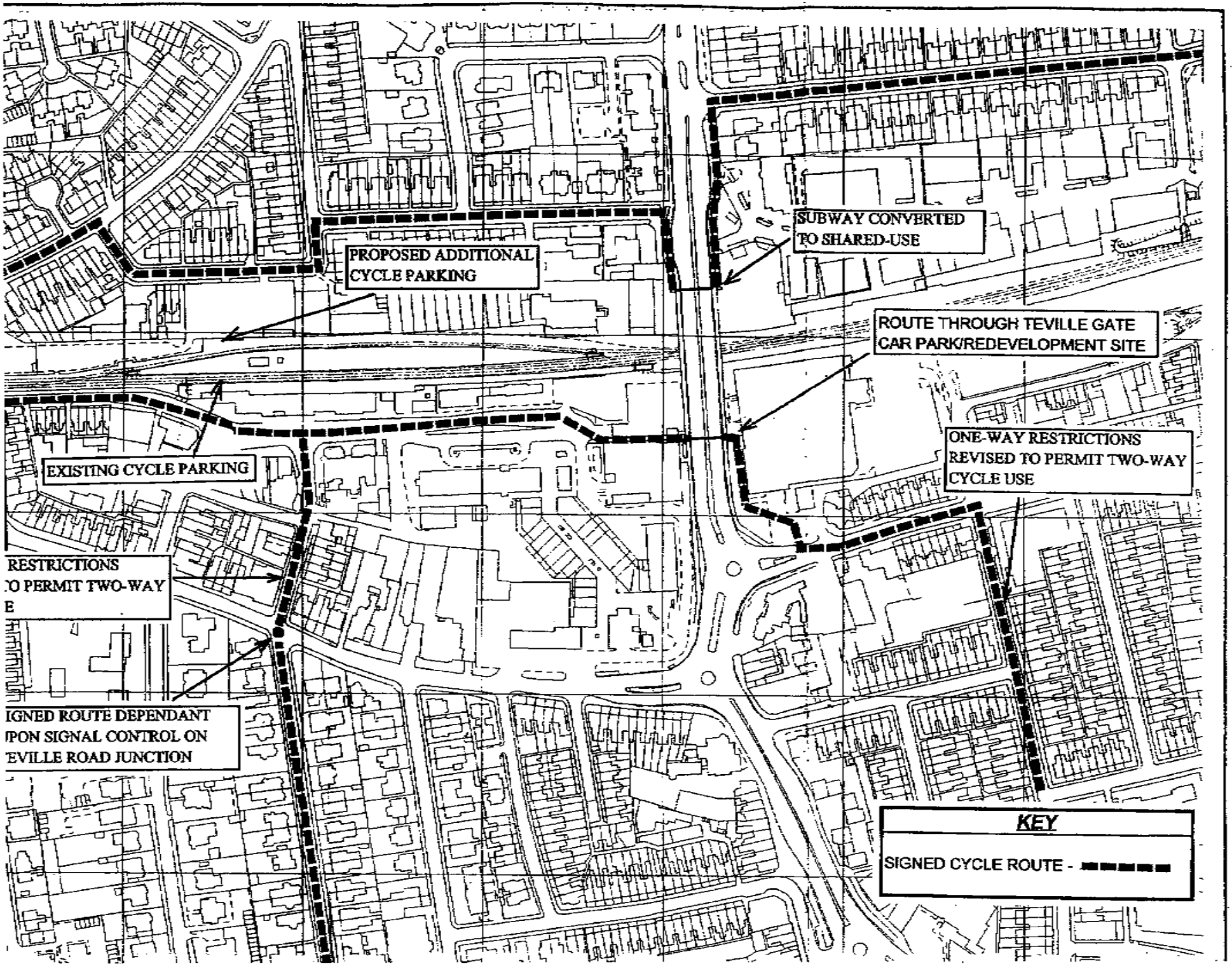
6.1.11 There is presently one main area of cycle parking at Worthing station with space for 28 cycles. This is located on the westbound platform which is undercover and relatively secure due to being overlooked by waiting passengers. There is also informal parking in the car park to the north of the station, using various railings, posts etc. as available. It is recommended that undercover, well lit and secure cycling parking is introduced, possibly replacing one or two car parking spaces. Appropriate cycle parking facilities would be a requirement of any redevelopment proposals submitted for the site.

6.1.12 Given the importance of Worthing station, there are a number of routes used by cyclists to/from the station. Figure 6.2 identifies local measures to improve the convenience and safety of cyclists travelling to the station.

6.1.13 Whilst access to the station from the north and the west could be enhanced by traffic management measures that would assist cyclists, access to the town centre is made difficult by problems of crossing the two heavily trafficked roads that run to the south and east of the station. Due to the major changes that would be necessary in order to implement appropriate cycle facilities, improvements for cyclists are most likely to come about as part of wider infrastructure improvements in the area. There would appear to be a number of such schemes presently being considered – redevelopment of Teville Gate, revised access arrangements to the station, including improved junctions onto Teville Road together with modified junctions on Broadwater Road/Chapel Road. It is therefore essential that appropriate measures to assist cyclists are incorporated into such schemes from an early stage of development, in order to capitalise on the opportunities being presented.

West Worthing

6.1.14 West Worthing station dates from 1889, and serves a mainly residential area. The main station building is located on the south platform, adjacent to Tarring Road. Both platforms can be accessed via a ramped approach, although on the south platform this is separate from the main stepped access through the station building.


SUBWAY CONVERTED TO SHARED-USE
PROPOSED ADDITIONAL CYCLE PARKING
ROUTE THROUGH TEVILLE GATE CAR PARK/REDEVELOPMENT SITE
EXISTING CYCLE PARKING
ONE-WAY RESTRICTIONS REVISED TO PERMIT TWO-WAY CYCLE USE
RESTRICTIONS
O PERMIT TWO-WAY
E
IGNED ROUTE DEPENDANT
PON SIGNAL CONTROL ON
EVILLE ROAD JUNCTION
KEY
SIGNED CYCLE ROUTE -

6.1.15 Access between the platforms is via a subway with steps rather than ramps. In the short-term, wheeling ramps would assist cyclists crossing between platforms, but this would have few benefits to other train passengers. Ramped access between the platforms can nevertheless be achieved by using South Street and Tarring Road.

6.1.16 Adequate cycle parking stands are available on the station. It is nevertheless recommended that all-weather undercover facilities are provided.

6.1.17 Figure 6.3 indicates local improvements to cycle routes used in the vicinity of the station. The main issue is the crossing of South Street in order to provide a continuous through route between Canterbury Road and Becket Road. The introduction of advanced stop lines for cyclists would have to be carefully considered due to the narrow width of the existing road. Alternatively, revised yellow box markings may provide sufficient opportunities for cyclists to cross whilst traffic is halted at the adjacent level crossing.

Durrington-on-Sea

6.1.18 Durrington-on-Sea is located adjacent to a district centre, together with a number of offices, including the extensive Inland Revenue Complex. It also serves a school, sports centre, together with an area of residential development.

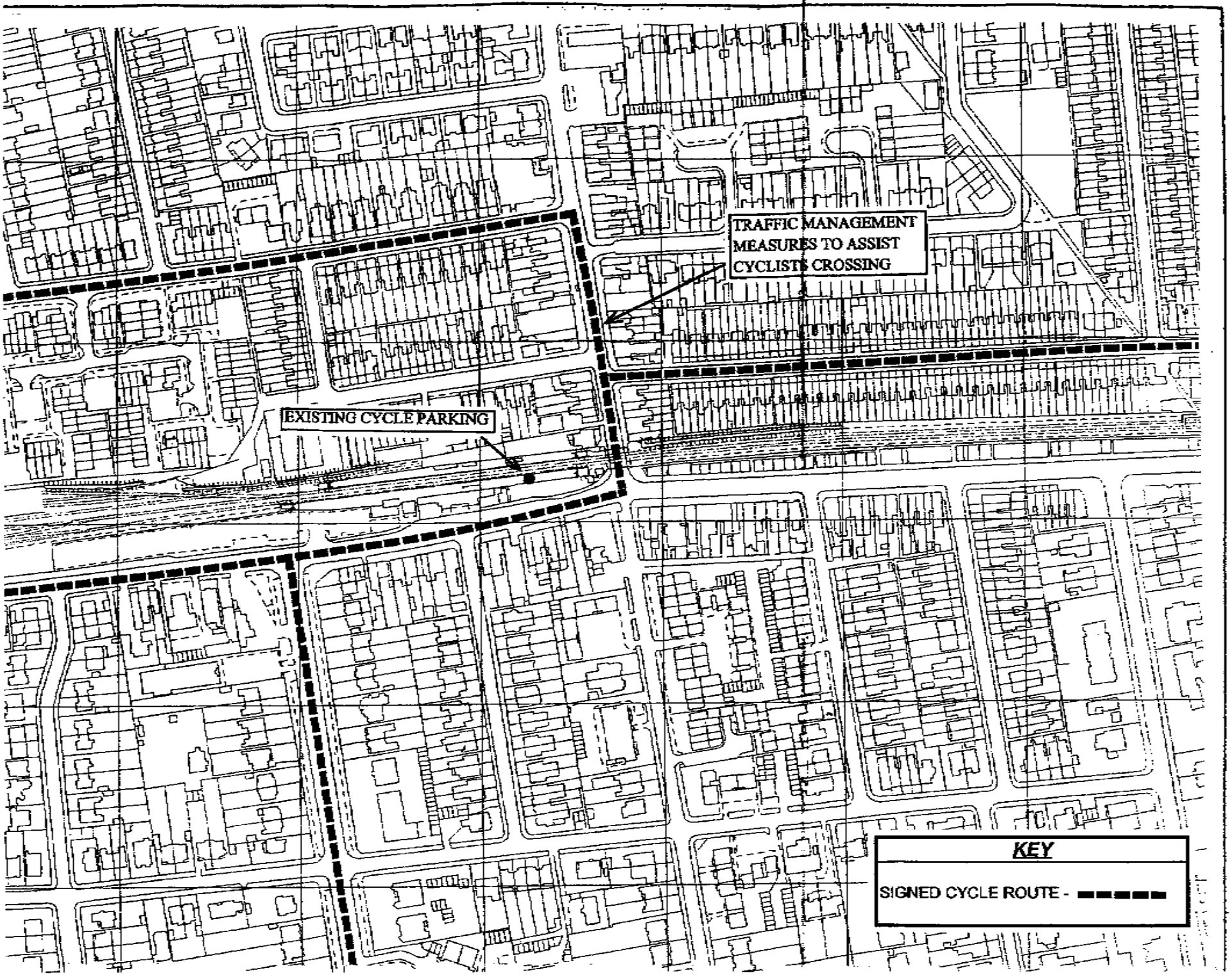
6.1.19 The main pedestrian, cyclist and vehicular access to the station is from the north, from The Causeway. There are also pedestrian routes to the adjoining college, and from the southern platform to Barrington Road.

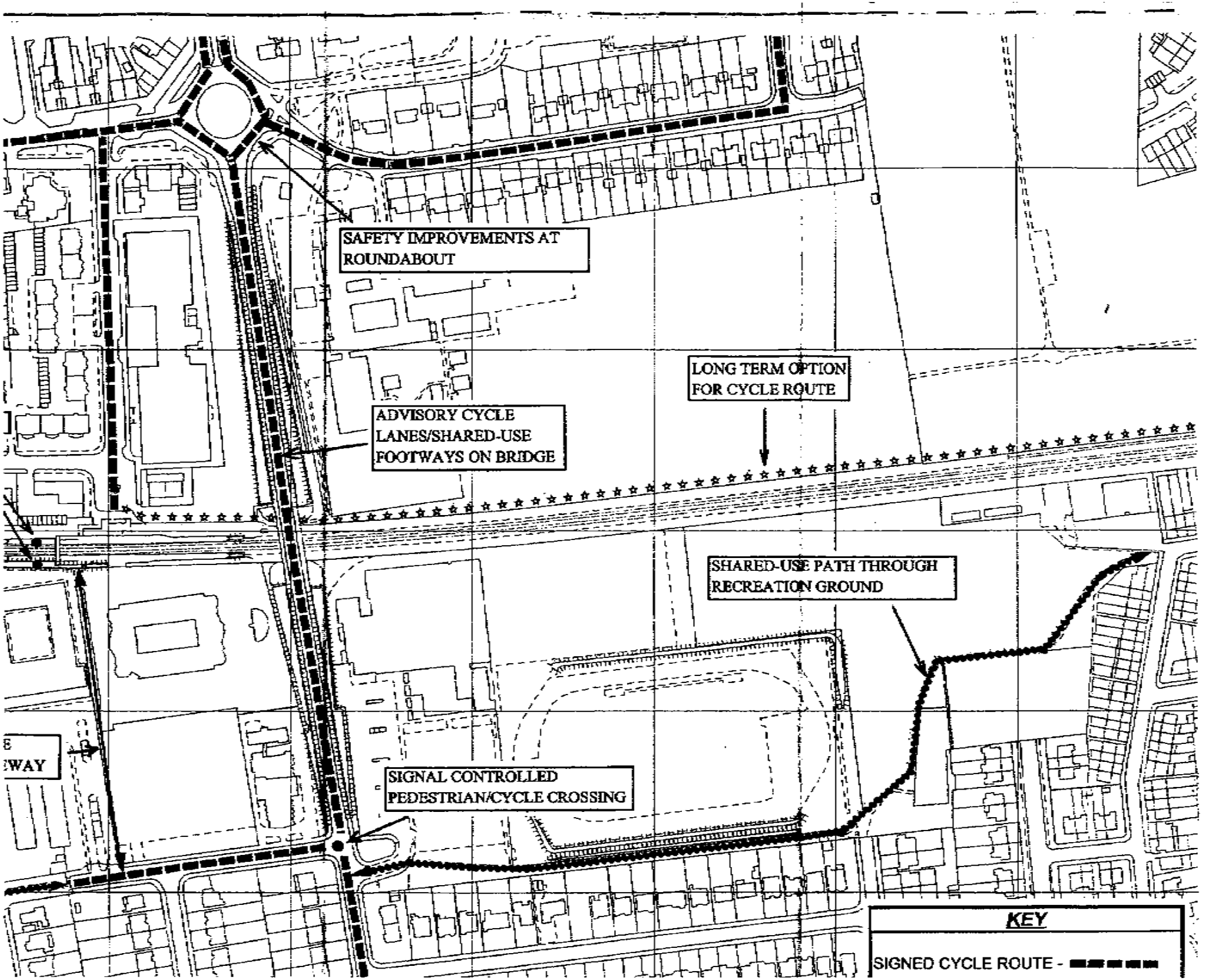
6.1.20 There are two areas of parking at the station. One area is located on the north side of the station. Cycle parking is limited to approximately 5 Sheffield stands, sufficient for 10 bicycles. Additional stands, together with an overall roof, are recommended. There are also cycle parking stands located on the westbound platform. Access to these stands is however difficult and, consequently, they appear to be lightly used.

6.1.21 Although access to the north (Brighton-bound) platform is ramped, the path is relatively narrow and involves some tight right-angle turns, which are difficult with a bicycle in crowded conditions. Access to the south platform is poor. The existing overbridge is narrow and steep, and it would be extremely difficult to cross with a bicycle. Access from Barrington Road is via a narrow footpath with high fences or hedges on either side. From a personal security point of view, the path is particularly unattractive. There is only sufficient space for two pedestrians to pass, and the path would be totally unsuited for cycling in its present condition.

6.1.22 Figure 6.4 indicates local improvements to cycle access for the station. Whilst many of these are minor traffic management measures, including additional refuge islands, it should be noted that the roundabout at the junction of The Boulevard/The Strand/Shaftesbury Avenue is identified as a high risk cycle accident site. Although described more fully in Section 5.7.41, it is suggested that the number of entry lanes on each approach to the roundabout is reduced and that the width of the circulatory carriageway is reduced. This would have benefits to cyclists using the roundabout, and is likely to assist pedestrians, due to the reduced widths to cross.

6.1.23 The most problematical section is the approach to the station from the south. It is recommended that the path is increased in width to provide a 4 metre wide shared-use footway/cycleway. This would be of benefit to the office developments located to the


TRAFFIC MANAGEMENT MEASURES TO ASSIST CYCLISTS CROSSING
EXISTING CYCLE PARKING
KEY
SIGNED CYCLE ROUTE -


SAFETY IMPROVEMENTS AT ROUNDABOUT
LONG TERM OPTION FOR CYCLE ROUTE
ADVISORY CYCLE LANES/SHARED-USE FOOTWAYS ON BRIDGE
SHARED-USE PATH THROUGH RECREATION GROUND
SIGNAL CONTROLLED PEDESTRIAN/CYCLE CROSSING
KEY
SIGNED CYCLE ROUTE -

south of the station, together with the residential properties south of Barrington Road. Clearly, land acquisition from either or both of the office sites would be required in order to provide this path. Unless the necessary land could be acquired through negotiation with the owners (possibly as part of the development of a Green Commuter Plan), it is recommended that the improved path be progressed through the development control process, whenever redevelopment is proposed.

Goring-by-Sea

6.1.24 Goring-by-Sea is the western-most station within the Borough, and is built in the style of a typical small rural station. The station serves a mainly residential area, together with the local college, located about 750 metres north of the station. Goring-by-Sea would be the nearest station to the Durrington development site, which is scheduled for approximately 800 houses.

6.1.25 With construction of the A259 overbridge, most through traffic bypasses the station. Access is taken from Goring Street, which is lightly trafficked and suitable for cycling.

6.1.26 Cycle parking, in the form of Sheffield stands, is located on both platforms. Cycle parking for approximately 20 cycles is available, although it did not appear to be well used. The only obvious improvement option considered would be for the introduction of some form of roof, in order to protect parked bicycles from the weather.

6.1.27 Cycle access onto the platforms is directly from Goring Street and is ramped, hence there is little difficulty in accessing the parking or the trains.

6.1.28 Figure 6.5 indicates local measures to improve cycle access to the station. It should be noted that the only works of any significance would be the introduction of shared-use facilities north of the station in order to provide links to Northbrook College and the Durrington development site.

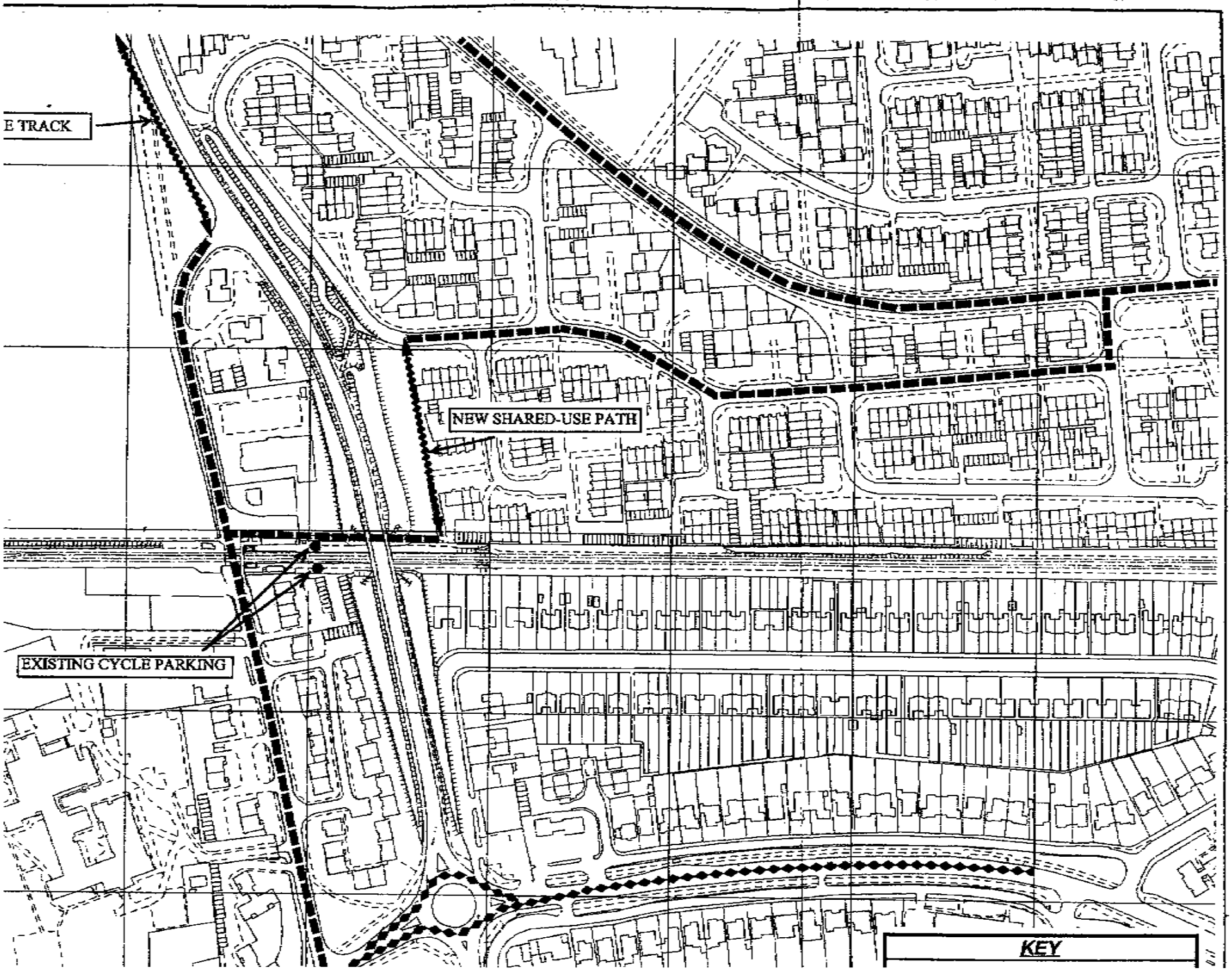
6.2 Cycle Carriage on Trains

6.2.1 Rail services through Worthing are provided by a number of operators, with Connex South-Central operating the majority of services. Most services use electric trains based on 1950's carriage design. These incorporate a traditional guards compartment with a luggage section, which has ample space for up to a dozen cycles.

6.2.2 The design of these trains mean that doors for loading/unloading cycles open from the outside only. Therefore, in most cases, this relies on the guard for assistance. In most instances, guards were happy to help with this, together with the loading/unloading of cycles. This, nevertheless, provides a level of reassurance about taking bicycles on a train.

6.2.3 There are presently no restrictions on the carriage of cycles in either peak or off-peak times for travel within the local area for the majority of services. In addition, there are no restrictions on the number of cycles that can be carried on each train.

6.2.4 The consequence of having ample space for cycles on trains together with no restrictions on use, is that there are sizeable numbers of cycles carried on local train services. This is particularly significant for work and school journeys. Levels of cycle carriage on trains is considerably higher than on similar services elsewhere within the country.


E TRACK
NEW SHARED-USE PATH
EXISTING CYCLE PARKING
KEY

6.2.5 With the exception of providing racks or some form of support for cycles within the existing trains, there would appear to be little that could be introduced to improve facilities for cycles on existing train services. The measures carried out to the luggage compartments on the refurbished three-car sets used for the Littlehampton-Seaford service, carried out in 1997-98, have not benefited cyclists and to some extent have introduced a conflict with other users. It appears that no consultation with groups representing cyclists, people with disabilities or rail users in general took place before introduction of these measures, which include the installation of two vertical posts supposedly to form a rest for bicycles but which actually make it more difficult to store them within the compartment.

6.2.6 Changes in train operating requirements have meant that more recent train designs have not included such levels of space for luggage, mail or cycles. The consequence is that most modern train designs only include space for one or two cycles per two or three coach units. This means that services to destinations such as Reading, the West Country and South Wales using such rolling stock require advance reservation for the limited number of cycle spaces or exempt cycle carriage altogether. Fortunately, such services only form a small proportion of the train services through Worthing.

6.2.7 The only way to improve cycle carriage in such circumstances would be to introduce a flexible storage space that accommodates luggage, bicycles, wheelchairs or buggies. Such measures would, however, require the replacement of an existing seating bay to achieve this. Whilst similar facilities have been introduced by Thames Trains on its fleet of Thames Turbos, any operator must be confident that the benefits of the storage space outweigh the disbenefits of losing passenger seating. Such a decision would be based on commercial grounds only i.e. there is no requirement for the train operating companies to carry cycles.

6.2.8 Whilst the existing level of service for cycle carriage on trains through Worthing is good, there are concerns about possible changes in the future which would adversely affect cyclists.

6.2.9 The main issue is that almost all train services are composed of vehicles constructed during the 1950's or 1960's which are now considered outdated in terms of passenger accommodation, performance and running costs in comparison with modern rolling stock design. In addition, following the Clapham rail crash, the safety of such vehicles in the event of a collision has been criticised. There are therefore commercial and safety pressures for the early replacement of the existing rolling stock, although there are no plans to do so at the present.

6.2.10 Given that rolling stock will have a life span of 30 to 40 years, it is essential that adequate cycle carriage facilities are incorporated within the basic design of any new trains. Whether the future Strategic Rail Authority will require all new rolling stock to incorporate cycle facilities as part of the government's integrated transport strategy remains to be seen. The Office of the Rail Regulator has issued a guidance note which recommends that rolling stock should be able to carry bicycles, but this has no legal force.

6.3 Cycle Mark Initiative

6.3.1 Sustrans, the Cyclists' Public Affairs Group and the Cyclists Touring Club have developed a Code of Practice setting out objectives for an improved standard of service for cyclists by rail operators in the privatised network. The Code of Practice sets out that rail operators should provide, as far as is reasonably practical :

- general customer information on cycle facilities;
- improved access for cyclists to stations;
- sufficient, adequate and convenient cycle parking at stations – under surveillance and well-signed;
- on-board storage of bicycles which is sufficient, safe and secure and does not unduly inconvenience other users;
- at-station information and help for cyclists.

6.3.2 Rail operators are invited to meet these objectives. Those that do, have been awarded a Cycle Mark recognition of their achievements.

6.3.3 The Cycle Mark initiative is endorsed in the White Paper on the future of transport as one means of achieving a more integrated public transport system.

6.4 Bus

6.4.1 With rail services providing east/west routes across the Borough and beyond, improved cycle access to stations is unlikely to have an influence on local journeys, particularly to Worthing town centre and on north/south routes. There would, however, appear to be considerable opportunities for improved integration with bus services for local journeys, and for journeys not served by rail services e.g. Worthing-Storrington-Horsham.

6.4.2 Elsewhere, integration has been achieved by providing carriage of cycles on or in the bus. This has proved particularly successful on longer-distance recreational and leisure services. Such a service, providing carriage for both cyclist and cycle up into the South Downs, possibly linking with adjoining towns and railway stations, would appear to have considerable opportunities for recreational journeys. However, the time penalties imposed on bus services through loading and unloading cycles would mean that such services are unlikely to prove acceptable for commuter and utility journeys. This has been borne out by trials of such a system in Brighton.

6.4.3 Improved, integration between bus and cycle could, nevertheless, be achieved through provision of secure cycle parking as part of bus stop design. It is anticipated that this would take the form of under cover Sheffield style stands, adjoining or adjacent to the bus stop.

6.4.4 Planning guidelines indicate a maximum walking distance from home to bus stops of 400 metres in residential areas. Enhanced interchange with cycling could considerably improve the accessibility of bus services to a wider area. This could prove particularly beneficial with express bus services, or routes where bus priority measures are to be introduced. Recent studies have investigated the benefits of improved integration between LRT services and cycling, but such benefits could equally apply to links between cycling and bus services.

6.4.5 Similar facilities for cycle parking at public transport stops are common throughout Europe. Standard designs for appropriate waiting facilities with cycle parking are therefore available commercially. Since bus stop enhancements form part of the bus service improvements included within the Worthing package, it is therefore recommended that facilities to accommodate cycles are considered.

7 Cycle Parking

7.1 The provision of adequate cycle parking is a critical element in encouraging cycling as a mode of transport. It is essential therefore that secure and convenient cycle parking is available at both ends of the journey. The DETR Traffic Advisory Leaflet 7/97 'Supply and Demand for Cycle Parking' provides advice on such matters.

7.2 Cycles are particularly vulnerable to theft. They are highly mobile, exposed, high enough in value to be worth stealing, yet too low in value to be worth equipping with expensive security devices. Many existing cyclists and potential users are deterred from riding a bicycle through fear of having it stolen. Carefully planned provision of secure cycle parking facilities can do much to encourage new users and make existing cyclists more confident about leaving their bicycles.

7.3 Cycle theft in Worthing is a serious problem. The recent Crime and Disorder Audit of the town centre identified that cycle theft is three times the national average.

7.4 At the origin of the journey, most houses can provide a secure location to park a bicycle - in a garden shed or a garage. This is not, however, always the case with flats, student residential accommodation or with many forms of 'starter' homes. Shared hallways, lack of sheds, garages or any form of secure accommodation for a bicycle, is likely to suppress cycle ownership and hence use.

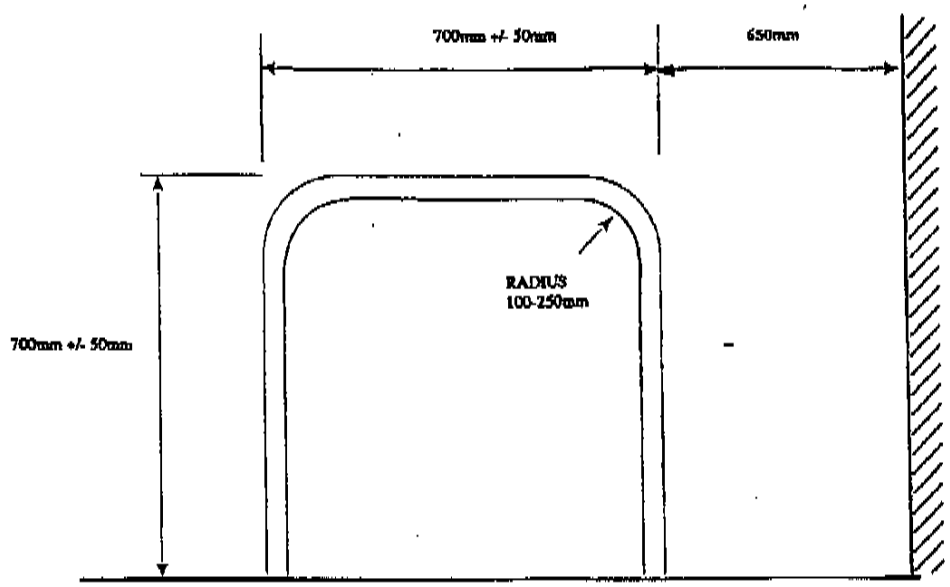
7.5 At the trip destination, proximity to the ultimate end point of a journey is the major influence on cyclists choice of parking location. The majority of cyclists will park within 50 metres of their trip destination. This ultimately leads to inappropriate use of railings, posts, drainpipes, etc., often obstructing facilities for pedestrians. In order to provide for the needs of cyclists, appropriately located parking facilities should be placed in small clusters in frequent intervals rather than in larger concentrations at fewer sites.

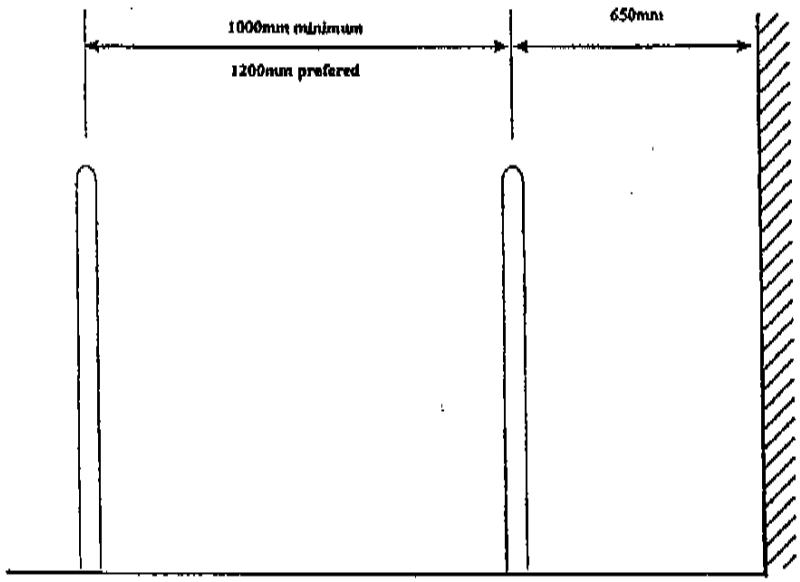
7.6 Cycle parking should ideally be located as close as possible to building entrances, particularly at public facilities. Not only does this convey a positive image of cycling by making it more prominent and convenient than car parking, but it enhances security for users.

7.7 The Sheffield type stand or rack is the most appropriate and cost effective form of cycle parking facility, being simple, secure, efficient in terms of space and practically maintenance free. Such stands should be located in a position that is accessible and convenient for cyclists, in a location that is under effective surveillance and at a site that is well lit. For longer stay parking, there should be protection from the elements, provided this can be achieved without compromising security.

7.8 Spacing of Sheffield stands is critical if they are to be used efficiently. If they are positioned too close to each other cyclists will only park one to a stand, or it becomes impossible to park a bicycle with luggage. It is recommended that stands are placed 1000-1200 mm apart. Figure 7.1 illustrates a Sheffield stand with key dimensions.

7.9 The use of lockers to provide secure long-term cycle parking can be considered, but the requirement for parking to be located as close as possible to the ultimate trip destination needs to be carefully assessed. The use of locking cycle stands is not recommended since they do not appear to be popular with cyclists and there are long-term maintenance problems with certain designs. Rust can be a particular problem in a seaside environment.





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Client: sustrans

project: Worthing Cycle Strategy Review

drawing: Figure 7.1
Sheffield Stand - Dimensions & Spacing

Babtie
BABTIE GROUP
MULTI-DISCIPLINARY CONSULTANTS

drawn	checked	approved	date
			19 May 99

7.10 Cycle parking for shopping journeys is slightly different in that shoppers in town centres have multiple destinations and therefore walk further from their bikes than people with a single destination.

7.11 There are a number of cycle parking locations within Worthing town centre that appear well located and well used. Many of the sites are located at the edge of the pedestrian precinct in order to reinforce the pedestrian-only nature of the main shopping streets. The most popular cycle parking location is at the junction of South Street/Chapel Street, which is not so surprising, since South Street provides the main cycle route into the heart of the shopping area. It was noted on a number of occasions that there was little or no spare capacity for further cycles at this particular location.

7.12 It is recommended that the number of cycle parking places at South Street/Chapel Street is at least doubled, and that additional groups of one or two cycle stands are located along South Street and Chapel Street. Although there is an issue that this may introduce additional clutter into the street scene, it should be considered in relation to the existing number of cycles parked against railings, benches, traffic signs etc.

7.13 The existing cycle parking within the town centre appears to cater for mainly short-term shopper journeys. It is therefore recommended that some undercover cycle parking is provided to accommodate longer term commuter journeys. Suggested locations include Buckingham Road/Montague Street, Portland Road/Montague Street, Shelley Road/ Liverpool Road, together with a site in the vicinity of South Street/Chapel Road.

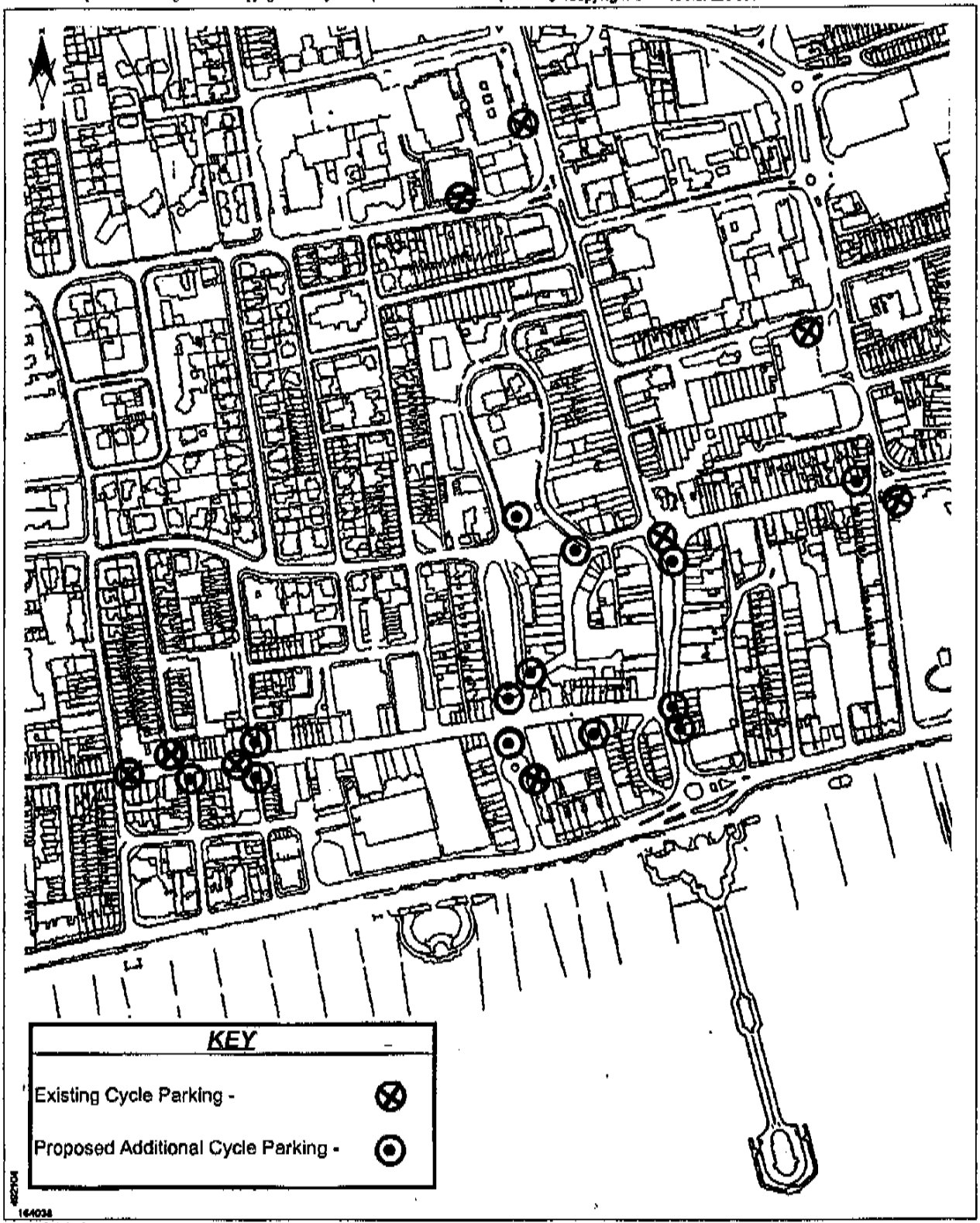
7.14 The possibility of replacing on-street car parking with cycle parking should also be considered. Approximately 12 cycles can be parked in the space required for one car. Not only is this an efficient use of limited space, but gives a clear message that the role of the bicycle is being taken seriously.

7.15 Figure 7.2 indicates existing cycle parking within Worthing town centre and identifies sites for additional cycle parking provision.

7.16 Within the local district shopping centres, it is recommended that the strategy of small clusters of cycle parking stands located at frequent intervals is progressed.

7.17 It has not been possible to identify the extent or adequacy of cycle parking provision at other major destinations, such as schools, colleges, the hospital, offices or factories. Clearly, the introduction of appropriate and adequate cycle parking facilities would follow from cycle parking standards for new developments, or from adoption of Green Commuter Plan type policies.

7.18 Table 7.3 provides guidance for appropriate levels of cycle parking provision for a variety of different types of development. Cycle parking provision is related to usage on floorspace rather than the number of car parking spaces. It is intended that standards will vary according to location and accessibility, with out-of-town developments requiring fewer spaces than a town centre site. The figures quoted should be used as a guide and may be adapted to suit local circumstances.



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Client: sustrans

project: Worthing Cycle Strategy Review

drawing: Worthing Town Centre Cycle Parking

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drawn	checked	approved	date
			19 May 99

Table 7.3 : Cycle Parking Requirements for New Developments

TYPE OF DEVELOPMENT	APPROPRIATE PROVISION
Residential	
Flats	1 space per unit
Student Halls of Residence	1 space per 2 residents
Places of Employment	
Offices	1 space per 150 m^2
Factories/Warehouses	1 space per 200 m^2
Business/Science Parks	1 space per 200 m^2
Commercial	
Large Retail (superstores, shopping centres, etc.)	1 space per 300 m^2
Recreation	
Leisure Centres	1 space per 10 staff plus 1 space per 20 peak period visitors
Theatres and Cinemas	1 space per 50 seats
Community Facilities	
Hospitals	1 space per 5 staff plus 1 space per 10 staff for visitors
Health Centres	1 space per 5 staff plus 1 space per 5 staff for visitors
Libraries	1 space per 10 staff plus 1 space per 10 staff for visitors
Schools	
Primary	1 space per 25 staff and pupils
Secondary	1 space per 15 staff and pupils
Colleges/Universities	1 space per 25 staff and pupils
Transport Interchanges	
Rail Stations	5 spaces per peak period train
Bus Stations	2 spaces per 100 peak period passengers

8 Access to Countryside

8.1 Worthing is located on the coastal plain and extends between the sea and the edge of the South Downs. The seaside has its obvious attractions, whilst the South Downs, which are designated an Area of Outstanding Natural Beauty (AONB) offers a rich and varied landscape, together with superb views over the surrounding areas.

8.2 Given this location, Worthing would appear to offer considerable potential for leisure and recreational cycling – easy rides along the coast, together with moderate to challenging rides along or over the South Downs. Opportunities for recreational rides into the countryside around Worthing are, however, limited.

8.3 One of the main areas of difficulty for cycling is the lack of quiet roads that are suitable for leisure cycling. The almost continuous strip of urban development along the coastal plain between Littlehampton and Brighton puts tremendous pressure on east/west communications in the area, meaning that all through roads are heavily trafficked. There are few opportunities to develop pleasant continuous routes for cyclists. This problem is even more acute for north/south journeys, since there are few roads, let alone quiet roads, that provide access to the South Downs.

8.4 The South Downs themselves are criss-crossed with a network of bridleways and byways that are open to use by cyclists. This network of routes offers wonderful opportunities for a variety of circular routes through the Downs, using both the South Downs Way and the Monarchs Way which run east/west, together with the many connecting north/south links. These routes are, however, only really suitable for mountain biking due to the variable nature of the surface quality of the paths used.

8.5 These difficulties emphasise the importance of developing the South Coast Cycle Route as an attractive leisure and recreational cycle facility for the people of Worthing, that is accessible to all.

8.6 There are, nevertheless, opportunities for improving cycle access to the countryside, mainly to the north of Worthing. All such options would start immediately north of the A27 trunk road. It is therefore essential that the A27 multi-modal and safety studies take account of the need for suitable cycle crossing points. It should also be emphasised that such crossings would also have considerable benefits to walkers as well.

8.7 In the absence of safe and attractive routes to areas with recreational cycling potential, many people are likely to drive to such locations with their bicycles, only cycling once they were "in the countryside". Whilst this activity is understandable for those who are leisure cyclists only, it is far from desirable since it puts further pressure on the countryside in terms of additional vehicle movements, provision of additional car parking facilities, etc.

8.8 Findon Loop

8.8.1 The OFTPA report identified a circular route through Findon Valley linking to Cissbury Ring. This route would commence at the junction of Foxley Lane with Uplands Avenue and run directly northwards using The Gallops, which is designated as a bridleway. The route would then run north-eastwards along Bost Hill, cross the A24 Findon Road, and

use May Tree Avenue and Storrington Rise to reach the bridleway leading up to Cissbury Ring. From this point the route would run due south and then west along bridleways, returning to Findon along Combe Drive and Lime Tree Avenue. Following a crossing of the A24, Hill View Rise would be used to rejoin The Gallops.

8.8.2 This plan is shown on Figure 8.1.

8.8.3 The only modifications suggested to this route are that traffic islands are introduced at both crossing points on the A24 Findon Road in order to assist cyclists. These measures would also have considerable benefits for pedestrians crossing the road and for local utility cycle journeys. It is suggested that such measures could be developed in conjunction with wider traffic management measures to reduce vehicle speeds on the A24.

8.8.3 It is noted that the OFTPA report recommends that The Gallops is treated with a crushed stone or aggregate surface. Whilst surfacing of the bridleway would indeed create a suitable all-weather, all-year-round path for cyclists which would have considerable benefits for less hardy walkers, such as family groups, the surfacing of paths is not generally welcomed by horse riders, many of the more traditional ramblers, together with local residents who may oppose the urbanising impact of such works. The surfacing or treatment of any paths needs to be carefully considered in the light of differing views and requirements of the various user groups. Ideally, where possible, separate paths should be considered. Ultimately, local circumstances will dictate which is likely to be achievable.

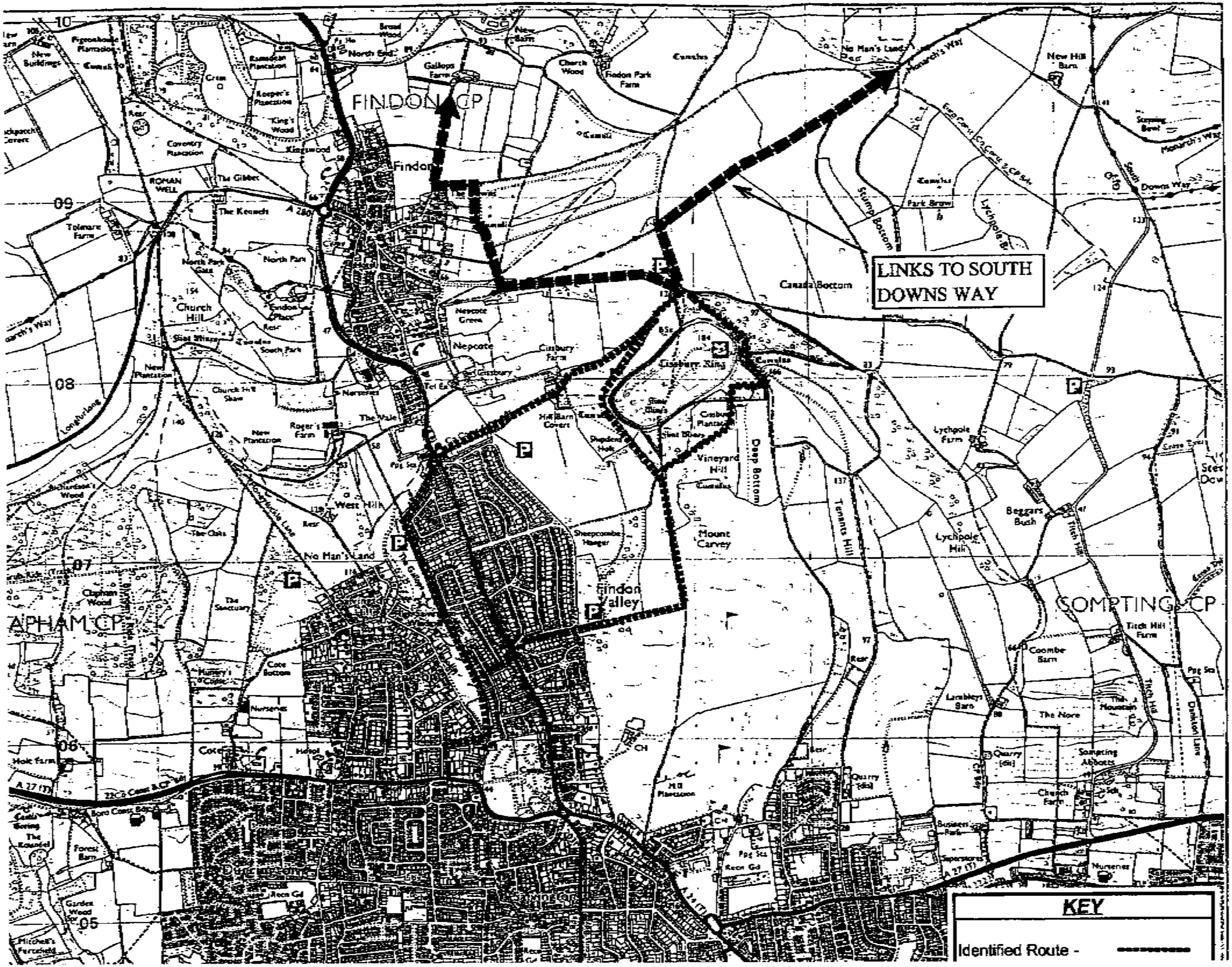
8.9 Other Routes

8.9.1 Whilst the Findon Loop is wholly within Worthing Borough, there is tremendous potential for other circular routes into the South Downs that extend beyond the Borough boundary. These include Cissbury Ring – Chanctonbury Ring, Findon – Lancing College – Steyning – Findon, or Findon – Amberley – Arundel – Findon. Figure 8.2 indicates some of the potential circular routes showing links back to the Worthing urban area, together with local car parks. Parts of these circular routes run along the South Downs Way, and the link from this to the built-up area and its facilities would clearly be of significant benefit to the development of green tourism in Worthing.

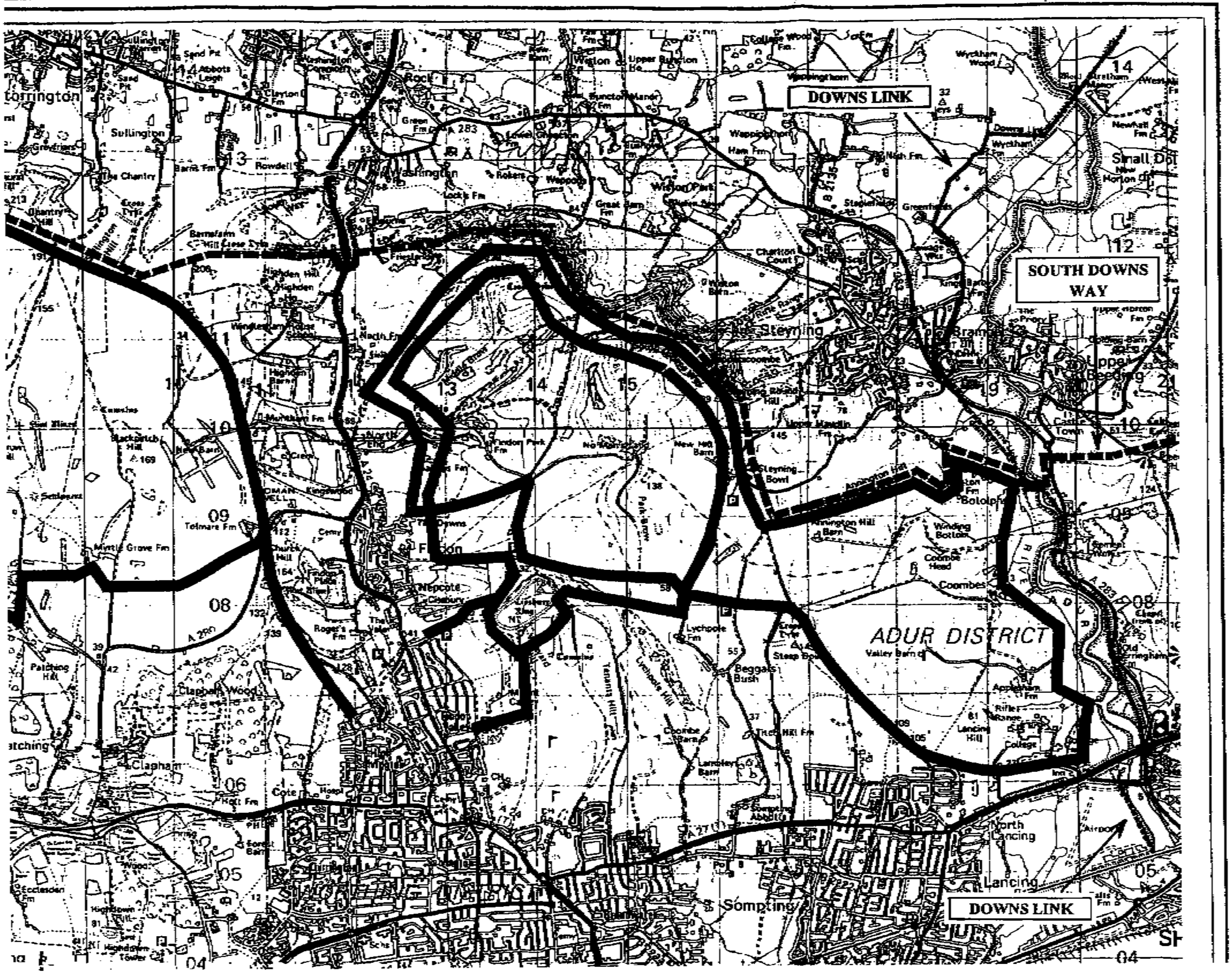
8.9.2 Although wholly outside of the Borough, a link to the Downslink path along the former Shoreham to Horsham railway line must be regarded as desirable. Linked to a high quality South Coast Cycle Route through Worthing, this would present a number of opportunities for recreational cycling.

8.10 Bus links

8.10.1 As mentioned briefly in the public transport section, one possible means of improving cycle access into the South Downs, would be the provision of a bus service that carried bicycles, aimed at recreational cyclists and walkers. A number of services exist elsewhere in the country, in locations such as the Peak District, which offer the option of car-free journeys into the countryside, thereby minimising the environmental impact of increasing the number of rural leisure trips.



LINKS TO SOUTH DOWNS WAY
FINDON CP
Findon
COMPTING CP
APHAM CP
Findon Valley
Cissbury Ring
Canada Bottom
Deep Bottom
Tenants Hill
Vineyard Hill
Mount Carvey
Lychpole Farm
Lychpole Hill
Beggars Bush
Coombe Barn
Titch Hill Farm
Sompting Abbotts
Church Hill
West Hill
No Man's Land
New Hill Barn
Gallops Farm
Findon Park Farm
Church Wood
North End
ROMAN WELL
The Gibbet
The Kennels
North Park
Nepcote
Nepcote Green
Cissbury Farm
Hill Barn Covert
The Vale
Roger's Farm
New Plantation
Tolmare Farm
Coventry Plantation
Clapham Wood
Cote Bottom
Sheepcombe Hanger
Stump Bottom
Park Brow
The Nore
Dankton Lane
Monarch's Way
South Downs Way
A 280
A 27 (T)
KEY
Identified Route -


DOWNS LINK
SOUTH DOWNS WAY
ADUR DISTRICT
DOWNS LINK
Steyning
Washington
Sullington
Clapham
Sompting
Lancing
North Lancing
Upper Beeding
Bramber
Coombes
Findon
Nepcote
Patching Hill
Clapham Wood
Wiston Park
Steyning Bowl
Beggars Bush
Lychpole Fm
Valley Barn
Applesham Fm
Lancing Hill
Botolphs
Annington Hill
Winding Bottom
Coombe Head
Tenants Hill
Lychpole Hill
Park Brow
Findon Park Fm
Cissbury
Tolmare Fm
Myrtle Grove Fm
Blackpatch Hill
Highden Hill
Barnsfarm
Rowdell
Storrington

8.10.2 Such a service, providing links into the Downs from local railway stations and adjoining towns, would seem to have considerable potential. It would, however, need to take in a wider geographical area in order to provide a full range of journey options and hence would need to be considered by a number of authorities that adjoin the South Downs.

9 Funding Opportunities

9.1.1 Funding for cycle facilities can be drawn from a variety of different sources. The potential sources for funding cycling infrastructure extends beyond those associated specifically with the provision of transport infrastructure, particularly for recreational and leisure routes. However, it is important to emphasise that funding from transport infrastructure sources is generally restricted to utility and commuter cycle routes only.

9.2 Transport Policies and Programmes Package Bids Local Transport Plans

9.2.1 Historically, the great majority of urban cycle schemes have been funded through the TPP process (Transport Policies and Programmes), whereby local authorities submit bids to central government for transport infrastructure funding. In most cases, this is achieved through credit approvals rather than in direct grant.

9.2.2 Supplementary Credit Approvals are tied to particular schemes or programmes. There is, however, no specific provision for funding cycle schemes. Of particular significance to cyclists though will be funding for Local Safety Schemes, Minor Works (which for 1999/2000 have placed an emphasis on projects to discourage car use and to encourage greater use of walking, cycling and public transport) and package bids (which can be used for a combination of different schemes).

9.2.3 Transport Supplementary Grant (TSG) exists for major schemes costing over £2 million. This is generally of little relevance to cyclists, except where cycle facilities form an integral part of a major highway scheme.

9.2.4 It is noted that in the West Sussex TPP for 1999-2000, the Worthing package bid was for £700,000, however, only £300,000 was allocated as part of the overall settlement.

9.2.5 An overall allocation of £600,000 has been identified for the implementation of town cycle networks across the County as a whole, for the period 1999-2003.

9.2.6 A key issue is that only a minority of the urban cycle network is likely to be implemented as part of cycle-specific schemes. Thus other schemes, such as traffic management and traffic calming measures, road safety schemes, traffic signal schemes or maintenance schemes all play an increasingly important role in developing the overall network of routes for cyclists. The role of cycle audit is therefore essential in order to ensure that the needs of cyclists are not overlooked as new schemes are developed, and to ensure that maximum benefits can be achieved from limited budgets.

9.2.7 The introduction of Local Transport Plans (LTPs) from 2000/01 will replace the current TPP system for allocating capital resources to local authorities. This will require local authorities to develop local transport strategies that will form essential building blocks of the government's wider integrated transport policy.

9.2.8 LTPs will include a 5 year implementation programme of capital investment and policy measures, rather than the annual programmes of schemes that are a feature of the TPP system. It is clear from guidance issued by the DETR that measures which encourage cycling as an alternative means of transport to the car must form an important element of the Local Transport Plans.

9.3 Planning Obligations

9.3.1 Contributions from developers are an important source of funding for the development of new cycle facilities.

9.3.2 Developer contributions can take a variety of different forms. In certain circumstances, planning agreements can require the provision of cycle facilities in conjunction with new development. Where a development will create a need for particular facilities, possibly away from the site, a developer may be required to contribute or pay the full cost of providing these facilities. Contributions can be sought to help meet the cost of infrastructure improvements away from the site, provided that it can be demonstrated that this is required as a direct consequence of the development going ahead. In other instances, it may be possible to reach agreement with the developer to dedicate land for a future scheme or provide cycle access through a development site.

9.3.3 Developer contributions may also take the form of commuted payments, whereby reduced on-site car parking provision is accepted in return for contributions towards measures which promote accessibility by modes of transport other than the private car. This approach is formally set out in Policy TR10 of the Worthing Deposit Draft Local Plan.

9.3.4 Care should be taken to ensure that planning obligations are appropriate, relate to the development directly, tackle the problems identified and can be justified in planning terms. A key issue in this respect is the formal adoption of proposals for a local cycle network as part of the Local Plan or LTP process, in order to provide a basis for planners to approach developers for funding.

9.3.5 The development of green transport plans, whether adopted voluntarily or introduced as part of planning obligations, will play an important role in encouraging alternatives to driving to work. Measures to improve provision of cycle facilities or encourage cycling are key elements of a successful green transport plan.

9.4 Other Capital Budgets

9.4.1 Local authorities have a number of other capital budgets, such as those for leisure, tourism, environment or community, which could be used to support cycle measures. For example, public space, educational and community service facilities, leisure and housing developments can incorporate facilities for cyclists.

9.5 Highways Agency

9.5.1 The Highways Agency has responsibility, as an agent of the Department of the Environment, Transport and the Regions (DETR), for the development and maintenance of the trunk road network. This includes a commitment to provide safe crossing facilities across trunk roads for the National Cycle Network, wherever this is practical.

9.5.2 In Worthing, a multi-modal transport study of the A27 corridor has been commissioned by the DETR. This will specifically look at issues affecting cyclists. Measures for cyclists arising from this study will therefore be funded as part of a future DETR financial scheme.

9.6 Single Regeneration Budget

9.6.1 The Single Regeneration Budget (SRB) comprises 20 separate programmes previously operated by five different government departments. SRB encompasses schemes which:

- support the local economy;
- protect and improve the environment and provide good design;
- enhance the quality of life including health, cultural and sports available.

9.6.2 SRB provides a flexible fund for local regeneration, which can be applied for by local partnerships, including bodies from the public and private sector.

9.6.3 An SRB bid related to social inclusion is presently being developed. Since cycling provides a low-cost means of transport which can improve access to workplaces and everyday facilities to those without access to a car, cycling has a particular relevance in programmes related to social inclusion.

9.7 Local Health Authorities

9.7.1 Local Health Authorities and Trusts have responsibility for health promotion within their areas. This includes the promotion of physical activity as a means of reducing the incidence of ill health conditions such as coronary heart disease. In some instances, this has included the promotion of cycling in collaboration with groups from other sectors.

9.8 Sustrans

9.8.1 The Millennium Commission awarded a grant of £43.5 million to Sustrans in order to develop the National Cycle Network. This will contribute to all costs related to the identified Millennium route network together with route survey, land and legal costs of the remaining sections of the National Cycle Network. The section of South Coast Cycle Route through Worthing falls into this latter category. Only work completed by the end of 2000 can quantify for a contribution from Sustrans' Millennium grant.

9.9 Lottery Sports Fund

9.9.1 The Lottery Sports Fund will consider applications for cycle routes and associated facilities which provide access to a recreational facility, or cycle routes which are considered in themselves to be a recreational route. This will include many sections of strategic rural cycle routes or networks, both on and off highway routes. Projects should enhance existing facilities or provide new facilities in order to increase participation. Grant rates are normally between 50-70%.

9.9.2 The sections of the South Coast Cycle Route not eligible for Millennium Commission funding would be eligible for Sports Lottery funds.

9.9.3 It should be noted that to date there have been few cycle schemes funded by the Sports Lottery and this has been highlighted by the English Sports Council as an area which should receive increased funding.

9.10 Landfill Tax

9.10.1 A tax on the deposit of waste to landfill came into force in October 1996. The tax is levied at £7 per tonne for non-inert waste and £2 per tonne for inert waste. The landfill tax is levied on disposals by landfill operators who may claim a credit if they make a voluntary contribution to an approved environmental body. This contribution is set at 10 per cent of the total cost, with the balance being made up by the tax credit. There are a number of types of projects which can be funded by landfill tax, including the provision of public amenities and environmental or heritage projects.

9.10.2 Contributions from landfill operators and landfill tax credits are successfully employed throughout the country to create large sums of money for environmental projects. Canal towpaths, footpaths and similar recreational corridors are being restored and developed to higher standards, as well as a wide range of interesting ecological and heritage projects. As an approved environmental body, Sustrans have tapped into this source of funding to provide additional links to the National Cycle Network.

9.10.3 In order to be eligible for landfill tax, funding projects must lie within a 10 mile radius of a landfill site. As the Washington site is less than 10 miles from Worthing, the South Coast Cycle Route would be an appropriate project for which to bid for landfill tax funding.

9.11 Private Sector Business Sponsorship

9.11.1 Opportunities to gain good PR from environmentally friendly projects have always been sought from private sector companies. The main aim of businesses in this respect is to join forces with providers of community measures of social and environmental worth because of the linkages of workforce catchment areas or particular advertising themes. Larger companies are increasingly aware of the need for environmental audits, environmental corporate policies, environmental management schemes and waste control measures, because it both saves money to be less wasteful and it is increasingly being demanded by European and national legislation. In addition, larger companies, who are investing millions of pounds in putting down roots into communities from which their workforce is derived, are making links by involving themselves in the social and environmental fabric of places to create employee satisfaction.

9.11.2 There are a number of major companies and Government agencies located within Worthing including from which such sponsorship could be sought.

9.12 Tourism Bodies

9.12.1 Funding from tourism bodies can be achieved but usually through a wider collaborative partnership approach where the outputs and aims last for a number of years and, as such, they are mainly interested in pump-priming activities. The local tourism bodies are themselves collaborations between national/regional interests such as the British Tourism Authority, the Regional Tourist Boards and local authorities. In many parts of the County, however, the local government involvement in tourism provision is on the ascendancy and frequently the most important providers are in District, Borough or County Council offices. This gives tourism a dramatic boost locally and many initiatives are supported strongly by such departments.

10 Preliminary Cost Estimates

10.1 Preliminary cost estimates have been prepared for the various sections of cycle route, based on the schedule of costs outlined in Table 10.1.

10.2 It should be noted that these estimates provide a broad order of costs only. Additional preliminary design work will be required on individual schemes in order to develop more detailed and robust cost estimates.

10.3 In particular, there are a number of issues relating to improved or new paths adjoining the beach which require further investigation. Basic costs of path widening have been assumed, but it may be the case that additional cost implications arise as a result of structural/sea defence considerations. It is, however, strongly recommended that where structural works along the coast are being considered for future programme of works, that improved or widened paths are incorporated into the design in order to accommodate the proposed route for pedestrians and cyclists.

10.4 Whilst an allowance has been made for design fees and site supervision, there would be additional costs related to the preliminary design of the schemes.

10.5 No allowance has been made for alterations to statutory undertakers apparatus. It is assumed that no changes to service equipment will be required, or that the scheme could be designed in order to minimise or avoid such works.

10.6 South Coast Cycle Route (Section 5.4)

10.6.1 Sea Lane Ferring to Sea Lane/Marine Crescent

		£
1690m of new 2m wide crushed aggregate path @ £22 per linear metre	-	37,180
New traffic islands at Marine Drive/Aldsworth Avenue	-	2,500
Signing and lining – item	-	2,500
Contingencies - 10%	-	4,200
Design and supervision fees – 15%	-	7,000
Total	-	**£53,400**

10.6.2 Sea Lane/Marine Crescent to George V Avenue

		£
1450m of new 2m wide crushed aggregate path @ £22 per linear metre	-	31,900
Signing and lining – item	-	2,500
Cutting back gorse and undergrowth – item	-	5,000
Contingencies - 10%	-	4,000
Design and supervision fees – 15%	-	6,500
Total	-	**£49,900**

Table 10.1 : Typical Costs for Cycle Facilities

Item	Unit	Cost (£)
New 3m wide urban path:		
Surfacing	m	40-60
Kerbing	m	15
Concrete Edging	m	8
New 3m wide rural path:		
Surfacing	m	25-35
Timber Edging	m	7
Excavation:		
Soft Material	m^3	5
Hard Material	m^3	20
Drainage:		
New Gully (incl. connection)	no.	250
New Drainage Pipe	m	50-100
Disposal of Excavated Material	m^3	20
Traffic Calming:		
Round-Topped Road Hump	m	100
Flat-Topped Road Hump	m	180
Speed Cushion	no.	250-500
Raised Junction	no.	4,000-8,000
Refuge Island	no.	1250
Signing and Lining:		
Non-illuminated Sign (inc. post and base)	no.	60-100
Cycle Symbol	no.	20-30
White Line	m	1
Average cost of Traffic Order	no.	1,700
Sheffield Stand	no.	30-50
New Toucan Crossing	no.	25,000-30,000
Conversion of Pelican to Toucan Crossing	no.	15,000
Lighting and Services:		
New Street Light Column (incl. connection)	no.	800
Re-position Existing Street Light Column	no.	800
Re-position Telegraph Pole	no.	2,000-5,000
Re-position Junction Box	no.	20,000

10.6.3 George V Avenue to Heene Road

		£
950m of conversion of existing grassed verge to DBM surfaced cycle track @ £35 per linear metre	-	33,250
330m of new 2m wide cycle track @ £60 pr linear metre	-	19,800
Signing and lining of cycle track – item	-	5,000
Revised signing and lining on West Parade	-	10,000
Contingencies - 10%	-	6,800
Design and supervision fees – 15%	-	11,250
Total	-	**£86,100**

10.6.4 Heene Road to South Street

		£
480m of conversion of existing footway to cycle track – no new construction costs		
300m of new 2m wide cycle track @ £60 per linear metre	-	18,000
Signing and lining cycle track – item	-	5,000
Revised signing and lining on Marine Parade	-	6,000
300m of on-carriageway cycle lanes together with revised signing and lining	-	3,000
Conversion of existing pelican crossing to toucan crossing	-	15,000
Contingencies - 10%	-	4,700
Design and supervision fees – 15%	-	7,800
Total	-	**£59,500**

10.6.5 South Street to Windsor Road/Brighton Road

		£
400m of on-carriageway cycle lanes together with revised signing and lining	-	4,000
300m of existing 2m path widened to 3m @ £30 per linear metre	-	9,000
150m of new 3m wide path @ £90 per linear metre	-	13,500
300m existing path converted to shared-use – no new construction costs		
Signing and lining – item	-	7,500
Contingencies - 10%	-	3,400
Design and supervision fees – 15%	-	5,600
Total	-	**£43,000**

10.6.6 **Windsor Road/Brighton Road to Western Road, Lancing**

		£
400m of widening existing path by 2m @ £60 per linear metre	-	24,000
1250m of widening existing path by 1m @ £25 per linear metre	-	31,250
900m of new 2.5m wide crushed aggregate path @ £28 per linear metre	-	25,200
Conversion of two pelican crossings to toucan crossings	-	30,000
Signing and lining – item	-	15,000
Contingencies - 10%	-	12,550
Design and supervision fees – 15%	-	18,850
Total	-	**£156,850**

10.6.7 Total for 8km route between Sea Lane, Ferring and Western Road, Lancing is approximately £450,000.

10.7 OTHER ROUTES

10.7.1 **Worthing Town Centre to Goring (Section 5.6)**

		£
Mulberry Lane/Goring Street		
On-carriageway cycle lanes, signing	-	10,000
Sea Lane		
Signing	-	1,000
A259 Mill Lane/Heene Road		
Advanced stop lines	-	5,000
Mill Road/Heene Road		
Signing	-	2,000
Richmond Road		
Advisory cycle lanes, coloured surfacing.	-	31,200
1300 m @ £24 per lin.metre		1,000
Signing		
Richmond Road/Wykeham Road		
Toucan crossing	-	25,000
Richmond Road/Chapel Road/Union Place		
Advanced stop lines	-	4,000
Contingencies, design and supervision – 25%		20,000
Total	-	**£100,000**

10.7.2 **East Worthing Route (Section 5.7.6)**

		£
Brougham Road/Meadow Road		
Signing, traffic management	-	4,000
Ham Road		
Advisory cycle lanes, coloured surfacing. 700m @ £24 per lin.metre	-	16,800
Signing		1,000
Chesswood Road		
Signing, kerb build-outs	-	5,000
Homefield Park		
400m of new 2.5m wide crushed aggregate path @ £28 per lin. metre	-	11,200
Tower Road/Upper High Street		
Conversion to two-way cycle use	-	3,000
Southdown View Road/Angola Road		
Signing	-	2,000
Dominion Road		
Traffic islands	-	3,000
Contingencies, design and supervision – 25%	-	11,000
Total	-	**£58,000**

10.7.3 **Broadwater Route (Section 5.7.14)**

		£
Upper Brighton Road to Dominion Road		
Signed route	-	5,000
Dominion Road		
Toucan crossing	-	25,000
Sompting Avenue		
300m of existing 2m path widened to 3m @ £30 per lin. metre	-	9,000
The Quashetts		
Surfacing improvements, signing	-	7,500
Ivy Arch Road – Station Road subway		
Lighting upgrade, signing	-	5,000
Dagmar Road and Upper High Street		
Conversion to two-way cycle use	-	3,000
Contingencies, design and supervision – 25%	-	14,000
Total	-	**£68,000**

10.7.4 Offington North/South Route (Section 5.7.21)

		£
Offington Drive to Pavilion Road		
signing	-	7,500
Poulters Lane		
Conversion of pelican to toucan crossing	-	15,000
Contingencies, design and supervision – 25%	-	11,000
Total	-	**£28,500**

10.7.5 Salvington North/South Route (Section 5.7.25)

		£
Havling Rise to Arundel Road		
signing	-	2,000
Arundel Road crossing		part of HA scheme)
Arundel Road to Durrington Recreational Ground		
Signing, traffic islands	-	5,000
Durrington Recreation Ground		
250m of existing 1m path widened to 2.5m @ £45 per lin. metre	-	11,250
Littlehampton Road		
Conversion of pelican to toucan crossing	-	15,000
Littlehampton Road to St Andrews Road		
signing, traffic islands	-	6,000
St Andrews Road to Princess Avenue		
50m of existing 1.5m path widened to 2.5m @ £30 per lin. metre	-	1,500
Princess Avenue to railway bridge		
100m of existing 1.5m path widened to 2.5m @ £30 per lin. metre	-	3,000
Railway bridge		
Wheeling ramps	-	2,500
Elm Grove/Tarring Road		
Traffic islands	-	3,000
Elm Grove/Wallace Avenue		
Signing	-	2,000
Salvington Road to Ashacre Way		
Signed route	-	3,000
Contingencies, design and supervision – 25%	-	14,000
Total	-	**£68,000**

10.7.6 **Durrington Route (Section 5.7.36)**

		£
Romany Road to Littlehampton Road		
conversion of existing footpaths to shared use	-	5,000
Littlehampton Road/Palatine Road roundabout		
Toucan crossings – both sides of roundabout	-	60,000
Advisory crossings on side roads		5,000
Littlehampton Road (Palatine Road-Durrington Lane)	-	61,600
2200m of new 2.5m wide crushed aggregate path @ £28 per lin. metre		
Littlehampton Road/Durrington Lane roundabout	-	60,000
Toucan crossings – both sides of roundabout		5,000
Advisory crossings on side roads		
Littlehampton Road (The Boulevard to Rigmer Road)	-	14,000
500m of new 2.5m wide crushed aggregate path @ £28 per lin. metre		
Palatine Road to The Strand		
Signing	-	3,000
Contingencies, design and supervision – 25%	-	53,000
Total	-	**£267,000**

10.7.7 **Maybridge Route (Section 5.7.36)**

		£
The Strand		
Signing	-	1,000
The Strand/Shaftesbury Avenue roundabout		
Safety improvements	-	15,000
Bolsover Road-Princess Road		
Signing	-	3,000
Adjacent to Coleridge Close		
100m of new 2.5m path @ £75 per lin. metre	-	7,500
Goring Street-Aldsworth Avenue		
Signing, traffic islands	-	4,000
Contingencies, design and supervision – 25%	-	8,000
Total	-	**£39,000**

10.7.8 **West Tarring to East Worthing Trading Estate Route (Section 5.7.47)**

		£
St Andrews Road to Rectory		
Signing, cycle contra-flow	-	7,500
Rectory Road		
Traffic islands	-	3,000
St Lawrence Avenue to Queen Street		
Signing, traffic islands	-	5,000
Broadwater Road		
Toucan crossing	-	50,000
Georgia Avenue to Harrison Road		
Signing, traffic islands	-	5,000
Harrison Road		
Surfacing –m 250m @ £75 per lin. metre	-	18,750
Contingencies, design and supervision – 25%	-	22,000
Total	-	**£112,000**

10.7.9 **East Worthing Station – Worthing Station (Section 5.8.4)**

		£
Conversion of footway on **Dominion Road** to shared-use	-	5,000
Pedestrian/cycle crossing, incorporated within **Dominion Road/Dominion Way** traffic signals	-	30,000
Signed route – **Meredith Road/King Edward V Avenue**		1,000
Minor works to upgrade underpass and convert to shared-use	-	5,000
Signed Route-**Bridge Road/Southcourt Road**	-	5,000
Contingencies, design and supervision – 25%	-	10,000
Total	-	**£51,500**

10.7.10 **Worthing Station – West Worthing Station (Section 5.8.9)**

		£
Signed route – **Southcourt Road/Westcourt Road/Pavilion Road/Becket Road**	-	1,000
Advisory crossing **South Farm Road**	-	5,000
Advisory crossing **South Street**	-	8,000
Signing – **South Street/Tarring Road**	-	500
Contingencies, design and supervision – 25%	-	3,500
Total	-	**£18,000**

10.7.11 **West Worthing – Durrington (Section 5.8.12)**

		£
Signed routes – **Canterbury Road and Tarring Road**	-	1,000
Tarring Road/Elm Grove		
Traffic islands	-	3,000
500m of existing path widened from 1.5m to 2.5m @ £30 per linear metre	-	15,000
Shaftesbury Avenue/Barrington Road		
Traffic signals	-	50,000
Conversion of footway on **Shaftesbury Avenue** to shared-use	-	5,000
Contingencies, design and supervision – 25%	-	18,000
Total	-	**£92,000**

10.7.12 **Durrington –Goring-by-Sea (Section 5.8.17)**

		£
250m of existing path widened from 1m to 2.5m @ £40 per linear metre.	-	10,000
Signed route – **Barrington Road/Mulberry Lane**	-	1,000
Subway upgrading	-	2,000
Signed route – **Limbrick Lane to Goring Station**	-	3,000
400m new 2.0m wide cycle track – **Goring Street to Littlehampton Road** @ £60 per linear metre	-	24,000
Contingencies, design and supervision – 25%	-	10,000
Total	-	**£50,000**

10.7.13 **A27 Arundel Road - Upper Brighton Road (Section 5.8.22)**

		£
Durrington Hill-Half Moon Lane		
Conversion of footway to shared-use Signing and lining, flush crossings		5,000
Hayling Rise – Offington roundabout		
Conversion of footway to shared-use Signing and lining, flush crossings	-	5,000
Offington roundabout-South Farm Road		
Conversion of footway to shared-use Signing and lining, flush crossings	-	4,000
Warren Road/Upper Brighton Road roundabout		
Conversion of footway to shared-use with advisory crossings	-	8,000
Hill Barn Road – Pines Avenue		
Conversion of footway to shared-use Signing and lining, flush crossings	-	9,000
Conversion of pelican to toucan crossing	-	15,000
Contingencies, design and supervision – 25%	-	11,000
Total	-	**£57,000**

10.7.14 **Worthing Town Centre – Worthing Station (Section 5.8.30)**

		£
Cycle use of pedestrianised area Signing	-	5,000
Shelley Road to South Street Signing, conversion to two-way use	-	5,000
Teville Gate car park Lighting improvements, wheeling ramps	-	5,000
Ashdown Road Conversion to two-way cycle use	-	3,000
Contingencies, design and supervision – 25%	-	4,000
Total	-	**£22,000**

* Parking changed to Lane

10.7.15 **Littlehampton Road (Section 5.8.37)**

		£
Ringmer Road to Chantry Road 700m of widening existing 2m footway by 1m @ £30 per lin. metre	-	21,000
Signing		2,000
Palatine Road to Goring Street 1400m of new 2.5m wide crushed aggregate path @ £28 per lin. metre	-	39,200
Signing		2,000
Goring Street to Ferring Lane 700m of new 2.5m wide crushed aggregate path @ £28 per lin. metre	-	19,600
Signing		1,000
Contingencies, design and supervision – 25%	-	21,000
Total	-	**£106,000**

10.7.16 **Findon Valley (Section 5.8.41)**

		£
22300m of widening existing 1.5m footway by 1m @ £30 per lin. metre	-	69,000
Signing and lining	-	10,000
Contingencies, design and supervision – 25%	-	20,000
Total	-	**£99,000**

10.7.17 **South Farm Road (Section 5.8.43)**

		£
Ardsheal Road to Cross Street		
Traffic islands	-	12,000
Signing, lining		5,000
Contingencies, design and supervision – 25%	-	4,000
Total	-	**£21,000**

10.7.18 **The Boulevard (Section 5.8.44)**

		£
Palatine Road/Terringes Avenue roundabout		
Safety improvements	-	15,000
Advisory cycle lanes signing and lining	-	15,000
Contingencies, design and supervision – 25%	-	8,000
Total	-	**£3,800**

10.7.19 **Lyndhurst Road – Brougham Road (Section 5.8.47)**

		£
Brighton Road-Park Road		
Signing	-	1,000
Lyndhurst Road/Ham Road traffic signals		
Advanced stop lines	-	4,000
High Street – Park Road		subject to developers' proposals
Contingencies, design and supervision – 25%	-	1,000
Total	-	**£6,000**

10.7.20 **Dominion Road – Ham Road (Section 5.8.51)**

		£
Southdown View Road – Meadow Road		
Advisory cycle lanes, coloured surfacing – 1500m @ £24 per lin. metre	-	36,000
Signing		1,000
(excludes section included in East Worthing route 10.8)		
Brighton Road-Sompting Avenue		
Signing	-	5,000
Contingencies, design and supervision – 25%	-	10,000
Total	-	**£52,000**

11 Conclusions

11.1 Worthing offers considerable potential for the development of cycling as an alternative travel mode to the private car, due to the compact nature of the urban area and the favourable topography. However, this potential is not presently being realised, due to a number of factors, predominantly the lack of suitable routes for cyclists.

11.2 In order to encourage cycling, a network of routes is required, rather than individual sections of cycle route. It is important to emphasise that cyclists require routes that are suitable for cycling rather than a network of cycle routes. Therefore, the emphasis should be on adopting the existing highway network rather than trying to create an additional parallel network specifically for cyclists.

11.3 The development of a comprehensive network of routes for cyclists is likely to take a considerable length of time based on present and anticipated levels of funding. It is therefore essential that all opportunities are realised by ensuring that all infrastructure improvements have a positive impact upon cycling provision.

11.4 Nevertheless, a prioritised list of proposals has been developed based on three categories of scheme :

- ***safety schemes*** – improving conditions for existing cyclists, also encouraging others to cycle;
- ***utility cycle routes*** – new opportunities for cycling for everyday purposes;
- ***recreational and leisure routes*** – attractive cycle routes to encourage cycling for those who do not presently do so.

11.5 Safety Schemes

11.5.1 For safety schemes, a number of individual measures have been identified to address high risk accident locations. These measures could form elements from which wider routes could be developed :

- safe cycle crossings at A2032 Littlehampton Road/Yeoman Road/Palatine Road roundabout;
- safe cycle crossings at A2032 Littlehampton Road/Durrington Lane/The Boulevard roundabout;
- cycle crossing at Rectory Road/St Lawrence Avenue;
- safety improvements at The Strand/Shaftesbury Avenue/The Boulevard roundabout;
- signal controlled crossing facilities at the A27 Warren Road/Upper Brighton Road roundabout (in conjunction with the Highways Authority).

11.6 Utility Routes

11.6.1 In the development of utility routes, it is suggested that priority is given to building on existing routes, in preference to developing new and isolated sections of route. Such an approach would enable maximum benefit to be gained from existing facilities. Particular emphasis should be placed on developing routes across Worthing town centre.

11.6.2 Conversion of Upper High Street, Dagmar Road and Tower Road to two-way cycle use would improve cycle access to the town centre via the existing High Street cycle facilities. This would form the basis for extensions to these routes both northwards and eastwards.

11.6.3 Extensions to the WSCC Worthing town centre to Goring route should be considered both westwards to Goring Station and Ferring, and eastwards, across the town centre.

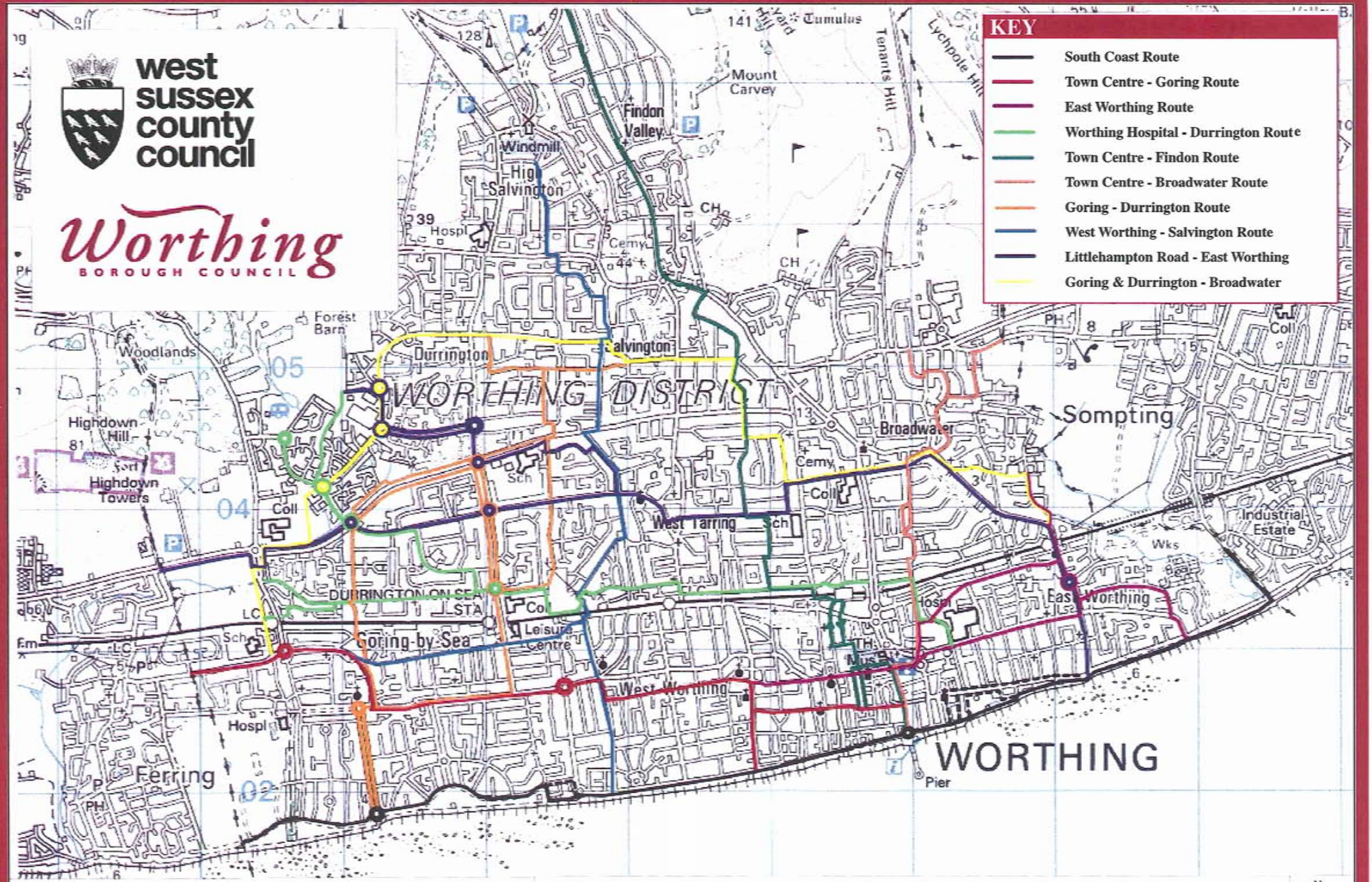
11.6.4 The Cross Worthing route could be developed as a number of separate schemes, that would ultimately form a significant element in the wider network. Individual schemes for priority consideration should include links to Goring Station from the north, Barrington Road link, Shaftesbury Avenue crossing, the path across West Park recreation ground, crossings on South Street and South Farm Road, together with the Bridge Road to King Edward Avenue subway conversion.

11.6.5 Of the remaining routes, it is suggested that the northern section of the Offington route, together with the link to Findon Valley are progressed. This would provide an essential north/south link as well as providing the basis for additional links into the network from the north.

11.7 Recreational and Leisure Routes

11.7.1 Of the various recreational routes identified, those that make use of the existing bridleway network are most likely to appeal to those that already cycle. The South Coast cycle route, would be much more attractive to new cyclists due to its high profile location, the ability to mix cycling with other leisure journey purposes, together with the proximity of the route to the urban area.

11.7.2 It is difficult to disaggregate the South Coast cycle route into small self-contained sections other than three major elements : Sea Lane, Ferring to George V Avenue, George V Avenue to Beach Parade, Beach Parade to Western Road Lancing. It is suggested that there would be benefits in progressing the western section in advance of the other two elements of the route



Worthing Cycle Strategy : Proposed Route Network

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