


Greater Bristol Bus Network Major Scheme Business Case

Appendix 2A

Problems, Objectives and Transport Needs

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2A.1. Problems, Objectives and Transport Needs

BACKGROUND

- 2A.1.1 Around 9% of all journeys to work in the JLTP area are by bus, rising to over 29% in Bristol City Centre and 20% in Bath (source: Census 2001). In total, over 55M passengers per year are carried by bus in the area, a figure that has grown in the last two to three years. This contrasts with the national picture outside London, which has seen a decrease in bus use. Overall, bus use in the JLTP area accounts for around one third of the total in the South West and is therefore crucial in achieving national targets for growth in this region.
- 2A.1.2 Improving bus services and encouraging bus use is central to meeting targets linked to the four shared priorities of congestion, air quality, road safety and accessibility. The JLTP consultation process identified strong support for actions to meet these aims.
- 2A.1.3 Building on the success of the showcase bus routes during the first LTP period, it is proposed to target resources at the main radial corridors to achieve maximum passenger growth in the short term. To achieve maximum impact and value for money, these showcase routes have been developed as part of a package including road safety, walking and cycling measures which have been built into the works programmes.

TRAFFIC CONDITIONS

- 2A.1.4 Traffic conditions for buses vary on each of the ten corridors. The corridors themselves range from urban motorway to dual carriageways to single carriageway roads linking surrounding towns with the city. The traffic generators and attractors include commuter towns, suburban residential areas, educational sites, major shopping and district centres, business parks and other employment sites. While there are distinct traffic characteristics associated with each corridor, all suffer from severe traffic congestion. These conditions seriously undermine the reliability and overall attractiveness of the bus network.
- 2A.1.5 Over recent years, traffic levels have grown by up to three times the national average and this has placed huge pressures on existing infrastructure and services. Much of this growth in traffic congestion can be linked to large-scale housing and economic development, particularly in the northern and eastern fringes of the Bristol built up area, Weston-super-Mare and Portishead. This expansion has not been accompanied by sufficient investment in transport infrastructure.
- 2A.1.6 The increase in traffic congestion has also contributed to a reduction in traffic speeds. Average peak hour traffic speeds in Bristol are now down to 16 mph,

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making it one of the most congested cities outside London; these problems affect bus users as well as car drivers.

- 2A.1.7 Bus priority measures are already in place at a number of locations in Bristol, Bath and North Somerset. These measures are proving their worth; however, with the reduction in traffic speeds identified above there is an urgent need to roll out further measures to provide an even wider integrated network, with a focus on where greatest benefits for bus passengers can be achieved. The strategy of targeting investment on buses and encouraging a mode shift to public transport will, over time, assist other road users as delays are reduced.

BUS RELIABILITY

- 2A.1.8 There are real and acknowledged opportunities to make bus travel in the JLTP area more attractive by improving the reliability and increasing the frequency of services and the general standards of passenger comfort and amenity. The JLTP integrated transport financial planning guidelines gives some scope for investment in bus priority improvements, but it is recognised that a step-change improvement in the reliability and attractiveness of bus services will only come through a successful MSB.
- 2A.1.9 The linkage between improving reliability and increasing bus patronage is highlighted in results from the GBSTS. Surveys illustrate that just under three quarters of respondents (73%) stated that they would be very willing (35%) or willing (38%) to use buses as an alternative to the car if improvements were made. Data from the GBSTS has also identified that in the period up to 2016, bus usage will decline by 2.8% if no additional action is taken to tackle congestion.
- 2A.1.10 The local Traffic Commissioner has gone on public record on several occasions to acknowledge the severe impact traffic congestion and constraints posed by the local road network cause to the operation of reliable bus services in the Bristol area.
- 2A.1.11 The new JLTP bus punctuality targets will also force all councils to give even greater priority to this issue.
- 2A.1.12 Addressing reliability through Quality Bus Corridor (QBC) investment matched by operator investment has already delivered major patronage increases on several local corridors. This includes a 12% patronage increase on the A38 QBC in its first year and 20% increase on Service 7 Quality Bus Partnership (QBP) in Weston-super-Mare over two years.

ACCIDENTS

- 2A.1.13 The measures proposed in the bid will provide wider benefits for pedestrians, cyclists and other traffic. The needs of all road users, but particularly of more

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vulnerable road users, have been considered as part of the process of scheme identification, development and preliminary design.

2A.1.14 Bus related accidents on each of the ten corridors are few and far between. The majority of such accidents are minor. The separation of buses from other traffic through the provision of bus lanes will reduce the accident risk further. Other complementary measures such as improved pedestrian crossing facilities will provide additional and wider benefits.

2A.1.15 An accident assessment has been undertaken on each of the corridors (see plan C00-003) with a focus on accident history in the vicinity of the proposed new scheme. The accident history covers the five year period up to autumn 2004.

DEVELOPMENT

2A.1.16 The JLTP area is the major focus of population, employment and services in the South West. Almost 400,000 of the area's residents were in employment at the time of the 2001 census. In the previous decade employment in Central and North Bristol have risen by 9,000 from 122,000 to 131,000. The same period saw the creation of almost 37,000 new jobs in the North Fringe with employment growing from 58,000 to 95,000. Employment in Bath rose by 11,200 (27%) over the 10-year period from 41,000 to 52,000. Weston-super-Mare, Nailsea, Portishead, Thornbury, Keynsham, Norton-Radstock and Yate have also attracted considerable residential expansion. This has not been matched by economic growth with significant proportions of the rising populations of these towns commuting to jobs in the Bristol area.

2A.1.17 Large scale housing growth and economic development, particularly in the northern and eastern fringes of the Bristol built up area, have not been accompanied by sufficient investment in transport infrastructure. This recent historical growth in housing and employment is set to continue in Bristol, Bath and Weston-super-Mare, identified in the RSS as Strategically Significant Cities/Towns. The West of England Spatial Strategy foresees up to 100,000 new homes being located in the area over the next 20 - 30 years. Ensuring that the necessary transport infrastructure is in place to support sustainable development is a key prerequisite; this will require investment in public transport infrastructure, which lies at the heart of this public transport MSB for a network of showcase bus corridors.

OBJECTIVES

2A.1.18 The objectives for the GBBN bid are the same as those for the new JLTP Bus Strategy. They are to:

- ◆ Increase the number of bus passengers;
- ◆ Increase satisfaction with bus services;

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- ◆ Improve bus reliability and punctuality and reduce bus journey times; and
- ◆ Increase the percentage of the population within 45 minutes journey time by bus of the major centres of Bath, Bristol, Cribbs Causeway, the North Fringe and Weston-super-Mare.

2A.1.19 Increasing the number of bus passengers is recognised as essential to securing additional private investment in the bus fleet and expanding the bus network. This increase will be achieved through mode shift away from single occupant car use associated with a successful bid combined with investment from the bus operator and developers. Putting improving bus services at the heart of the Joint Local Transport Plan will contribute to increased satisfaction with bus services, improved reliability and punctuality.

2A.1.20 The four Councils' joint approach to meeting these objectives can be summarised as:

- ◆ Improving reliability (improving the proportion of scheduled journeys operated, achieved through improved operator practices);
- ◆ Improving punctuality (increasing the proportion of journeys operating on-time; defined as 1 minute early and 5 minutes late);
- ◆ Reducing overall journey times (faster journeys, achieved through bus priority, express bus services and quicker boarding times);
- ◆ Improving all aspects of quality (i.e. buses, services, interchanges, waiting facilities, information);
- ◆ Increasing frequency and capacity of the bus network;
- ◆ Improved interchange, both between bus services and between the bus and other modes; and
- ◆ Improving accessibility to the bus network, ensuring that the network provides access to jobs, education, healthcare, food shopping etc. by means of a larger, more frequent network; bus stop improvements; route extensions/modifications).

2A.2. Corridor One – M32

TRAFFIC

2A.2.1 The M32 is the main highway into Bristol City Centre, connecting the city with the national motorway network. The road is a dual carriageway generally with two lanes in each direction plus hard shoulder, widening to three lanes between junctions two and three. The road carries up to 25,000 vehicles in each direction at the point where it enters the city centre (based on twelve hour weekday traffic surveys). The majority of the route is managed by the Highways Agency, with the exception of Newfoundland Street (designated as the A4032), which is managed by Bristol City Council.

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2A.2.2 Traffic congestion on the route is particularly acute for inbound movements in the morning peak, with queuing extending from Junction 2 all the way into the city centre. This congestion severely affects the reliability of inbound bus services on the corridor. The key cause of the congestion is the constraint on capacity for inbound vehicles passing through the Houlton Street and Bond Street junctions. Whilst these junctions will be remodelled shortly as part of the redevelopment of Broadmead shopping centre, there will only be very limited scope to increase inbound capacity on this corridor.

2A.2.3 The M32 between the approaches to Junctions 1 and 2 is relatively free flowing. The slip roads and the M32 adjacent to the southbound entry slip road experience delays during the weekday peak periods. The off slip on Junction 1 has recently been extended by the Highways Agency to manage better AM and PM peak traffic flows seeking to join the A4174.

ACCIDENTS

2A.2.4 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 1 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004.

2A.2.5 Overall, the bus priority measures on the corridor are expected to have a slight beneficial impact on reducing traffic accidents. This is expected to be achieved through the reduction of traffic speeds on the inbound approach to the city and the separation of buses from other general traffic.

BUS SERVICES

2A.2.6 Details of the bus services on this corridor are shown in Figure 2B.1 in Appendix 2B.

2A.2.7 The M32 plays a key role in accommodating express services from the outer urban area of Bristol and beyond.

2A.2.8 The corridor also carries a number of express services. Added to this are regional and national coach services plus university sponsored bus services. A significant expansion of express services is planned in the future linked to new development at Emersons Green East.

2A.2.9 Many of the existing express services play a critical role in offering an attractive alternative to private car use for trips between satellite towns and areas on the outer edge of the greater Bristol conurbation to the city centre. An example is the X84. This provides a vital link between Bristol and the University of the West of England (UWE), generating substantial bus patronage and complementing travel plan initiatives already underway.

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BUS SERVICE RELIABILITY

- 2A.2.10 As previously mentioned, major delays occur to all traffic particularly in the morning peak on the inbound approach to Bristol. Buses are affected and the result is very long journey times and unpredictability in arrival time. The bus operator compensates for the unpredictability of arrival time by adding additional buses into the operating cycle. The knock on impact of this is to make the services expensive to operate leading to very high fare levels. The proposed schemes on this corridor seek to break this cycle of decline and make the bus option much more attractive. Investment in a network of bus priority measures will also support of the councils in meeting the new bus punctuality targets.

BUS SERVICE PATRONAGE

- 2A.2.11 This corridor (made up of services X10, X29, X30, X40, X42, X62, X73, X84) carries a combined patronage of 1,200 in the morning peak hour (0800 – 0900), 2,306 in the evening peak hour (1700 – 1800). The all day total is 15,700. University of West of England supported bus services, National Express Coach and other operator services are excluded from these totals.

2A.3. Corridor 2 - A4018

TRAFFIC

- 2A.3.1 This corridor plays a critical role in accommodating local bus services into the city centre from the northwest quadrant of the city, serving important residential areas including Clifton, Westbury-on-Trym, Lawrence Weston and Avonmouth. In addition, many of the services terminate at the Cribbs Causeway Mall shopping centre thus reducing reliance on the private car for trips to this area.
- 2A.3.2 Congestion is significant in both directions, but particularly during peak periods where the route approaches the city centre, Park Street and Whiteladies Road (between Queens Road and Blackboy Hill) are heavily congested in both directions during peak periods. The corridor carries a 12 hour two-way traffic flow into the city centre of approximately 13,500 vehicles.
- 2A.3.3 The part of the corridor where it is proposed to implement additional bus priority measures can be characterised as having wide single carriageways with many sets of signal controlled junctions. In addition, it serves a number of urban district centres with a high demand for on-street parking.
- 2A.3.4 Bus priority measures have already been introduced on parts of this corridor and include an inbound 24 hour bus lane (240 metres) on Westbury Road approaching its junction with Blackboy Hill, and an inbound peak period bus lane (270 metres) on Whiteladies Road approaching its junction with Tyndalls Park Road. Despite

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these measures, buses still experience major delays and problems with punctuality due to the congestion.

- 2A.3.5 The Cribbs Causeway/Mall area is characterised by congestion during peak retail periods (i.e. weekends, school holidays and pre-Christmas) that result in extensive queues approaching junctions and delay to all traffic. During these peak retail periods, delays occur in the right lane (for Mall bound traffic) approaching the roundabout from Cribbs Causeway (road). The left lane (for the M5 bound traffic) is relatively free flowing. The Mall bound exit from the roundabout is relatively free flowing, with queuing on Lysander Road back from The Cone roundabout not generally extending as far as the roundabout.
- 2A.3.6 On Lysander Road, between The Cone and Highwood Lane Roundabouts, delays occur during the peak retail periods, in both directions, for the whole length of the road. Exiting traffic is delayed at The Cone roundabout by incoming traffic, resulting in delays to traffic attempting to leave the car parks. These delays in turn delay incoming traffic. The various turning movements at all the junctions and roundabouts also contribute to the delays.

ACCIDENTS

- Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 2 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004.
- 2A.3.8 A range of junction-related casualties are experienced along the route in particular on Whiteladies Road and Park Street. A number of schemes have been implemented over the previous LTP period to address this, and planned remodelling of the Whiteladies Road/Tyndalls Park Road junction should substantially improve conditions for pedestrians at this location. A number of additional road safety improvement are linked to the bus priority measures including replacing refuge islands with formal crossings and upgrading existing formal crossings will improve pedestrian safety. The proposals overall should have a beneficial impact on reducing accidents.

BUS SERVICES

- 2A.3.9 Details of the bus services on this corridor are shown in Figure 2B.2 in Appendix 2B.
- 2A.3.10 The main bus services operating on this corridor are services 1, 43 and 54. Service 1 operates between Cribbs Causeway and Broomhill via central Bristol. Service 43 operates between Cribbs Causeway and Cadbury Heath. Service 54 operates between Cribbs Causeway and Stockwood via central Bristol.

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BUS SERVICE RELIABILITY

- 2A.3.11 The core section of the route in Bristol, used by most services, is also the section with the slowest speeds and the greatest levels of unreliability. In the AM peak the section from Tyndalls Park Road to the Triangle West is a particular source of unreliability. Whiteladies Road and Queens Road are both slow. In the PM peak the Triangle to Tyndalls Park Road is a source of unreliability, and journey times are slow along Park Street between Cotham Hill and Blackboy Hill.
- 2A.3.12 At Cribbs Causeway, passengers can experience severe delays at popular shopping times due to the volume of traffic and the excessive queuing that occurs. First Bristol Buses view action to solve bus punctuality and reliability problems at Cribbs Causeway as one of their main priorities in the Greater Bristol area.

BUS SERVICE PATRONAGE

- 2A.3.13 This corridor (made up of services 1, X14, 41, 43, 43A, 54, 55, X96) carries a combined patronage of 12,204 in the morning peak hour (0800 – 0900), 11,621 in the evening peak hour (1700 – 1800). The all day total is 123,533. This corridor produces the largest patronage of all the ten QBC corridors proposed.

2A.4. Corridor Three – A4

TRAFFIC

- 2A.4.1 This corridor runs through heavily populated residential areas of Bristol & Bath and connects in with small dormitory towns and villages in between including Keynsham and Saltford. It further links in with key transport interchanges including Temple Meads Station, Brislington Park & Ride and Newbridge Park & Ride. Congestion is a major issue throughout, but particularly in the urban areas at peak times.
- 2A.4.2 The A4 is one of the busiest roads in Bristol, carrying a two-way flow of nearly 24,000 vehicles east of its junction with the A37. The corridor contains a mixture of dual carriageway, sections with two traffic lanes and a bus lane, as well as some single carriageway sections. Although the route between Brislington and central Bristol already has substantial bus priority there remain a number of pinch points which slow bus journeys down substantially. The great number of junctions and pedestrian crossings also impact on traffic speeds.
- 2A.4.3 As well as serving intra-urban bus services, the A4 also carries local bus services to local centres off the main corridor in St Annes and Brislington. Many of the bus priorities already in place were introduced to support the dedicated Park & Ride site at Brislington.

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- 2A.4.4 For much of its length in Bath and North East Somerset the route is single carriageway. However, between Twerton Fork and the Globe roundabout and also between Hick's Gate and Broadmead roundabout the route is constructed to dual carriageway standard. Between Hick's Gate and just east of Twerton Fork the road remains a trunk road under Highways Agency control. Traffic flows on the route range from 12 hour weekday average of 31,000 at Hick's Gate to 16,000 at Newbridge on the edge of Bath.
- 2A.4.5 Traffic congestion on this part occurs during both the peak and inter-peak periods. The single carriageway section through the village of Saltford is particularly vulnerable with the slightest incident liable to cause lengthy delays at anytime of the day. Regular congestion occurs at the A4 Windsor Bridge/A4 in Bath and A431/A4 and A4174/A4 junctions. In addition the A4/A36 junction becomes severely congested in the evening peak. All of this congestion is due to traffic flow exceeding available capacity.
- 2A.4.6 These delays have a severe impact on bus services. Unless measures are implemented to improve and encourage bus services increasing traffic flows will exacerbate the existing problem.

ACCIDENTS

- 2A.4.7 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 3 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004 and is summarised in **Error! Reference source not found..**
- 2A.4.8 Hicks Gate roundabout and Twerton Fork on the A4 both experience high traffic volumes throughout the day, and many of the slight accidents experienced at these locations are nose-to-tail accidents. The loss-of-control accidents are attributable to the high speed approaches, particularly at Hicks Gate. The proposed signalisation of the Hick Gates roundabout should reduce the number and severity of accidents.
- 2A.4.9 The A4 into Bath is busy throughout the day with significant vehicle and pedestrian activity, particularly during the peak periods. The majority of accidents are nose-to-tail caused by motorists regularly braking and accelerating, and a number of turning movement accidents at the busier side road junctions. The proposed bus lanes will remove buses from the main traffic stream. This will reduce conflict with other vehicles and should contribute to a reduction in bus related accidents.

BUS SERVICES

- 2A.4.10 Details of the bus services on this corridor are shown in Figure 2B.3 in Appendix 2B.

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- 2A.4.11 A mixture of urban, inter-urban and park & ride services operate on this corridor. The key service within the Bristol urban area is the cross-city service 1 (Brislington to Cribbs Causeway every 10 minutes). Service 1 will also use the QBC Corridor 2 up to Cribbs Causeway. There is also the south Bristol orbital service 36 (every 15 minutes) and the park & ride service 904 from Brislington (every 10 minutes).
- 2A.4.12 The key inter-urban route is service X39 which runs every 12 minutes and operates via Brislington, Keynsham and Newbridge. Other services include hourly service 178 to Midsomer Norton, and service 349 Bristol to Keynsham every 15 minutes.
- 2A.4.13 Within Bath City Centre there are a number of local services that use the A4 including: The 14;17;20A and 20C;418;716 and the 42. This service was introduced in 2003 and travels from the Odd Down Park & Ride site through to the Hospital. The service also has a demand responsive element that is implemented in Twerton and Southdown where passengers book journeys through the council office and specify particular stop numbers. The 21 Newbridge Park & Ride service also uses the A4.

BUS SERVICE RELIABILITY

- 2A.4.14 In the AM peak the Callington Road junction and the approach to Bath Bridge are the greatest source of unreliability. Speeds are slow on the approach to the St. Phillips and Three Lamps junctions. In the PM peak, the whole section between Three Lamps Junction and Callington Road is slow and a cause of unreliability.

BUS PATRONAGE

- 2A.4.15 This corridor (made up of services X39, 178, 339, 349, 664, 665, 667) carries a combined patronage of 2,713 in the morning peak hour (0800 – 0900), 2,046 in the evening peak hour (1700 – 1800). The all day total is 24,495. Other services not included in the above totals include the Brislington Park & Ride and services operated by smaller operators.
- 2A.4.16 This corridor has seen a steady increase in bus patronage associated with investment by the Councils in bus priority measures and investment by the bus operator in new vehicles. The X39 particularly has seen a major increase in patronage rising from 655,000 in 2001 to 825,000 passengers per year in 2004.



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2A.5. Corridor Four - 73 Route

TRAFFIC

- 2A.5.1 Corridor 4 is characterised by heavy weekday peak period congestion that results in extensive queues approaching junctions and delay to all traffic. These problems undermine the reliability and attractiveness of local bus services.
- 2A.5.2 The section of the corridor between central Bristol and Filton Avenue has already received showcase bus corridor treatment linked to work on the first A38 QBC.
- 2A.5.3 Proceeding north, Filton Avenue is a single carriageway road, flanked by very wide footways, linking the A38 Gloucester Road with the A4174 Ring Road. At its northern end, the road runs through long established residential areas, which generate commuter trips both northbound and southbound. The road provides a key link for traffic accessing the major employment and educational sites in the north fringe centred around the MoD, Sun Life, HP and UWE.
- 2A.5.4 Great Stoke Way is a key stretch of dual carriageway linking the single carriageway at Brierley Furlong with the dual carriageway A4174 Ring Road. Much greater levels of traffic are generated on its eastern perimeter where a major retail site is located. The road provides access from the residential areas of Bradley Stoke, Stoke Gifford, Winterbourne and Yate to the major employment and educational facilities at MoD, Sun Life, HP and UWE. As it forms a key link on a major route for traffic, long queues inevitably build up, particularly in the evening peak as traffic attempts to join the A4174.
- 2A.5.5 Brierley Furlong is surrounded by major traffic generators on all sides. To the north of the railway bridge is Bristol Parkway Station. To the west is a concentration of educational facilities including a secondary school and two colleges of further education. To the east is the Sun Life Offices. To the south are a major concentration of offices centres around the MoD, HP and Bristol Business Park. The railway bridge at the northern end of Brierley Furlong acts as a choke on all traffic with capacity severely restricted. This contributes to major delays at peak times for vehicles approaching the bridge from all directions. Much of the northbound traffic leaving the Sun Life Offices in the evening peak goes via Westfield Lane and Church Road to get priority at the Church Road mini roundabout junction with Brierley Furlong. Some minor bus services were also rerouted to take advantage of the priority.
- 2A.5.6 Bristol Parkway Station is served by two accesses. From the west, a single carriageway is provided from Hatchet Road. From the east a single carriageway access links to Hunts Ground Road. General car traffic travelling to the North Fringe employment, educational and retail areas and wishing to avoid the congested Winterbourne Road and Hatchet Road areas, currently have the option

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of going through Bristol Parkway Station using the internal access road. This rat running delays genuine station users getting into and out of the car park.

- 2A.5.7 At the top end of the corridor, Aztec West roundabout sits at the heart of a very congested road network with to the north, key access routes from the M4/M5, to the east, Almondsbury Business Park and Bradley Stoke, to the south, the A38 corridor from Bristol, to the west, the main access route into the Aztec West Business Park. The whole area is subject to severe weekday morning and evening peak period queues and delays which regularly have a detrimental impact on the operation and overall attractiveness of bus services. Minor incidents such as breakdowns on the approach to the roundabout can have a disproportionate impact across a much wider area with the network taking many hours to recover.
- 2A.5.8 On the approach to the Cribbs Causeway shopping centre, Pegasus Road is a busy single carriageway road that provides the main eastern access to the retail area. All traffic experiences some congestion on this route during peak retail periods, although buses do benefit from existing bus lanes on Pegasus Road to the west of the bus station.

ACCIDENTS

- 2A.5.9 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 4 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004
- 2A.5.10 The majority of accidents recorded on this corridor are nose to tail. Many of the proposed schemes on this corridor involve construction of new bus lanes and these will assist in reducing bus related accidents.

BUS SERVICES

- 2A.5.11 Details of the bus services on this corridor are shown in Figure 2B.4 in Appendix 2B.
- 2A.5.12 The key route on this corridor is service 73 which operates between Temple Meads Station in Bristol and Cribbs Causeway via Bradley Stoke. The service connects much of the northern half of the city with the major railway stations in Bristol at Temple Meads and Parkway, to the two main shopping centres at Broadmead and Cribbs Causeway and finally to the major employment sites in the North Fringe and central Bristol. A number of other important services also make use of the corridor in part (peak hour services X73, X74).
- 2A.5.13 Corridor 4 also directly links with the existing A38 QBC at Filton Avenue. Bus priority and other quality bus corridor type measures are therefore already in place on the southern section of Corridor 4 between central Bristol and Filton Avenue. Other bus priority measures are also already in place at the northern terminus of

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the corridor in the vicinity of the Cribbs Causeway Mall shopping centre bus station.

BUS SERVICE RELIABILITY

- 2A.5.14 Long queues build up on Filton Avenue at the junction with the A4174 in the morning peak resulting in severe delays to bus services as well as other traffic. The same problems occur at a number of other pinch points, the most severe being at the railway bridge just south of Bristol Parkway Station. Buses here are forced to move into the middle of the road to negotiate the low bridge.
- 2A.5.15 The problems affecting general traffic on Great Stoke Way also affect southbound bus services causing delay and poor punctuality. While a severe problem exists for southbound bus services, northbound bus services benefit from existing bus priority measures including a bus only link into the Sainsbury's car park.
- 2A.5.16 On the approach to Cribbs Causeway, Pegasus Road carries large flows of bus services on route to the Mall Bus Station. Keeping buses moving into and out the bus station, without delay, is crucial to improving the reliability and attractiveness of bus services in the local and wider area.

BUS PATRONAGE

- 2A.5.17 This corridor (made up of services 71, 72, 73, 76, 77, 309, 310) carries a combined patronage of 6,708 in the morning peak hour (0800 – 0900) and 5,776 in the evening peak hour (1700 – 1800). The all day total is 63,549. This is the second busiest of the ten proposed QBC corridors.

2A.6. Corridor 5 – A432 Yate to Bristol City Centre

TRAFFIC

- 2A.6.1 This corridor comprises several key commuting routes that carry major traffic flows on very congested roads towards Bristol from suburbs and other areas to the north east of the city. Severe delays are also encountered at key junctions and points closer into Bristol, particularly during peak times.
- 2A.6.2 Two key sections of bus priority have already been provided on this corridor. The Easton Way/Stapleton Road junction prohibits general traffic from east-west movements; these movements being restricted to buses have substantially improved reliability for buses on the Stapleton Road section of this corridor. In addition, a 1km inbound AM peak bus lane operates on Fishponds Road on its approach to Royate Hill.

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2A.6.3 The main road on this corridor is the A432, which is mainly single carriageway. The effectiveness of this road as a key bus corridor is constrained particularly within the urban area by a large number of signal junctions and zebra crossings to accommodate pedestrian crossing movements. The corridor also passes through several district centres with high demand for on-street parking. Further out from the city, the corridor passes through rural areas of South Gloucestershire before terminating in the dormitory town of Yate.

2A.6.4 The section of the route to the east of M32 Junction 2 is substantially busier than that to the west. Combined two-way traffic flows for the busier section is about 27,000 vehicles.

ACCIDENTS

2A.6.5 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 5 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004.

2A.6.6 There is an existing history of high accident levels on the Fishponds Road, with particular cluster sites in the vicinity of junctions. The measures proposed will address these sites where they complement bus priority measures. The overall impact should be to reduce the number and severity of road accidents.

BUS SERVICES

2A.6.7 Details of the bus services on this corridor are shown in Figure 2B.5 in Appendix 2B.

2A.6.8 This corridor carries a combination of local and strategic bus services serving the north-east quadrant of the Bristol urban area and country services connecting Bristol with Yate, Frampton Cotterell and Coalpit Heath.

2A.6.9 The 48/49 is the key urban service on the corridor. This high patronage service, runs between the city centre and Emersons Green and serves a range of district centres including Stapleton Road, Fishponds, Downend and Staple Hill. In addition, four buses per hour operate between Yate and Bristol provided through services X30, X40, X42 and 342.

2A.6.10 Complementary measures planned for this corridor include a Park & Ride at Nibley just to the west of Yate and a new developer funded bus interchange near Yate Shopping Centre.

BUS RELIABILITY

2A.6.11 Despite the priority measures that have already been implemented, substantial journey time delays are still experienced on Fishponds Road, Staple Hill Road and

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Badminton Road in peak periods. This is due to the existence of constraints on inbound capacity at a number of junctions along the route, together with flows of pedestrians at zebra crossings delaying general traffic including buses.

2A.6.12 The section between Cross Hands and Lodge Causeway is slow inbound in the AM peak and outbound in the PM peak.

2A.6.13 The route has been enhanced with the introduction of an inbound bus lane between Kendleshire and the Wick Wick roundabout. It will benefit further from a planned bus lanes at Old Market in the city centre as part of the A420 showcase bus route being implemented from JLTP Integrated funding and to be completed in summer 2007.

BUS PATRONAGE

2A.6.14 This corridor (made up of services 24, 48, 49, 342) carries a combined patronage of 5,757 in the morning peak hour (0800 – 0900) and 5,062 in the evening peak hour (1700 – 1800). The all day total is 58,469.

2A.7. Corridor Six – A37

TRAFFIC

2A.7.1 The A37 primary route is the main radial extending southwards from Bristol into the mainly rural areas of Bath and North East Somerset and connecting the city with the town of Norton-Radstock and with Wells and other Somerset towns.

2A.7.2 Within Bristol, the corridor serves residential areas and also a district shopping centre at Broadwalk. The corridor contains sections of dual carriageway and single carriageway. It already has some bus lane on the inner section through Knowle and Totterdown. Two-way 12 hour flows just inside the ring road are just over 15,000 vehicles.

2A.7.3 South of Bristol the route is generally of single carriageway standard passing through a series of small villages. Traffic congestion generally occurs during weekday peak periods with particular problems at the A362 signalised junction at Farrington Gurney and also in Whitchurch as the route enters the urban environment. Two-way 12 hour weekday traffic volumes range from 15,000 at Farrington Gurney to 13,500 at Whitchurch.

2A.7.4 The route is used by commuters from Bristol's rural fringe and also from the towns of Midsomer Norton and Radstock. Both towns have experienced much residential development in years and this is likely to continue. Without improved public transport services the number of car trips, particularly in peak periods, is likely to continue grow as commuters seek to reach the centre and north fringe of Bristol.

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ACCIDENTS

- 2A.7.5 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 6 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004
- 2A.7.6 There is an existing history of accident levels on the Wells Road A37, mainly occurring at junctions. The measures proposed are likely to have a slight beneficial impact on reducing accidents. Far fewer accidents occur in the more rural areas of the corridor, south of the city limits.

BUS SERVICES

- 2A.7.7 Details of the bus services on this corridor are shown in Figure 2B.6 in Appendix 2B.
- 2A.7.8 The key urban route is the cross-city service 54 operating between Stockwood and Cribbs Causeway via central Bristol. It will also utilise both QBC corridors 6 and 2.
- 2A.7.9 The key routes operating south of the city into the more rural area, are services 375 (Bristol to Bridgwater) and the 376 (Bristol to Yeovil). The combined frequency is every half hour with all journeys calling at Temple Meads, Whitchurch and Clutton.
- 2A.7.10 Other services include the peak time only service 379 (Bristol to Midsomer Norton) and the hourly service 173 (Bristol to Midsomer Norton).

BUS SERVICE RELIABILITY

- 2A.7.11 Inbound in the AM peak the biggest cause of delays is the junction with the ring road (Airport Road/Callington Road). Traffic speeds are slow from Three Lamps junction. Outbound in the PM peak there are delays due to the Broad Walk and Airport Road junctions.
- 2A.7.12 South of the city, buses experience delays at points such as Farrington Gurney. In 2004 varying levels of infrastructure improvements were made to all the stops between Farrington Gurney and Whitchurch as part of an infrastructure upgrade scheme.

BUS PATRONAGE

- 2A.7.13 This corridor (made up of services 51, 52, 54, 55, 376, 379) carries a combined patronage of 6,379 in the morning peak hour (0800 – 0900) and 5,901 in the evening peak hour (1700 – 1800). The all day total is 62,374.

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2A.8. Corridor Seven – Avon Ring Road A417

TRAFFIC

- 2A.8.1 The Avon Ring Road is characterised by weekday peak period congestion that result in extensive queues approaching junctions and delay to all traffic. Traffic data for the period 1998 to 2002 shows a significant increase in peak period flows on sections of the Ring Road east and south of Wick Wick Roundabout as a result of completion of Stage II of the Ring Road in September 2001. West of Wick Wick Roundabout the increase in traffic is less pronounced due to the pre-existing severe traffic congestion on this section. A complementary developer funded major scheme package (the North Fringe Major Scheme) has been prepared to deal with the congestion related future infrastructure requirements.
- 2A.8.2 The Ring Road HOV lanes are a key feature of this corridor. They provide a real time saving for car sharers and buses through making more effective use of the road network - the HOV lane carries 51% of people in only 30% of vehicles on those sections where they operate. Car sharers also save between 8 and 15 minutes in overall journey time compared to non-eligible traffic. The HOV lane has resulted in an increase in the proportion of car sharers on the Ring Road from 19% in April 1998 to 34% in 2005.
- 2A.8.3 A number of small-scale bus priority measures are also already in place on this corridor. These include a bus gate scheme just north of the Abbey Wood Roundabout which provides a traffic free route all the way through to the signals at Coldharbour Lane. A signal phase is then provided for buses to go south down Coldharbour Lane towards the University.
- 2A.8.4 Traffic conditions will change considerably in future years when major development takes place at places such as Emersons Green East, Wallscourt Farm (HP) and Filton North Field. Further investment in this bus corridor is now needed to ensure that the growth in travel can be managed sustainably.
- 2A.8.5 The Abbey Wood roundabout is a major cause of queue and delay. This roundabout has traffic signals on three of its five arms. The most significant delay is experienced from the north by traffic on Great Stoke Way, which is one of the main accesses to the Ring Road from Bradley Stoke, Stoke Gifford, Parkway Station and the Parkway business parks to the north. The existing geometry of the junction does not allow for this arm to be signalised, so delays of up to 20 minutes can be experienced on the two-lane approach during peak periods. This affects bus services on this section. The Ring Road MoD entry and exit arms are traffic signal controlled, so queue and delay for these movements is less extensive.
- 2A.8.6 During the morning peak period, an eastbound queue forms for the right turn from Abbey Wood to Coldharbour Lane, UWE and the Bristol Business Park. This

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queue can extend back through the Hewlett Packard junction and incur a delay of up to 10 minutes. Buses are able to bypass this queue along a bus only link from Abbey Wood roundabout. Buses continue to be delayed by heavy traffic eastbound of the Coldharbour Lane junction.

- 2A.8.7 The Ring Road between Coldharbour Lane and the Hambrook Crossroads is the most congested section in the Ring Road corridor. The regulating effect of traffic signal controlled junctions at each end of this route section has restricted traffic growth in the peak periods. The traffic flows in both directions and during both peak periods have changed little in the last five year period. However the evening peak period in the eastbound direction has experienced a steady increase in traffic volumes in the period 15.00-16.00 hrs and a decline in traffic flow in the period 16.00-17.00 hrs. The average daily two-way flow for November (which includes Saturdays and Sundays) has increased by just 1.6% from 32,780 vehicles in 1998 to 33,330 in 2002.
- 2A.8.8 Coldharbour Lane has a single lane southbound from the Ring Road to the UWE roundabout, and two lanes northbound, the nearside lane of which is an HOV lane for left turning buses and HOVs. The operation of Coldharbour Lane southbound has improved following the recent closure of Filton Road to through traffic. However, the pedestrian crossing mid-way between the Ring Road and UWE contributes to traffic queues on occasions. The road operates satisfactorily northbound in the morning peak period, but in the evening peak period queues extend back from the Ring Road for the right turn towards the M32. Only one lane is provided for this movement. When this queue forms, it extends back onto the HOV lane section of Coldharbour Lane such that left turning non-HOV traffic is also delayed in the queue.
- 2A.8.9 The adjacent HOV lane tends to operate more freely, providing an incentive for people to car share. However, a proportion of ineligible traffic uses the HOV lane to bypass the non-HOV traffic queue, and the HOV lane is also used by right-traffic HOVs even though it is signed only for left turning vehicles. When the right-turning HOVs reach the head of the general purpose traffic queue it waits in the HOV lane until the queue moves forward. Waiting vehicles block the HOV lane to other traffic, including buses that would turn left at the Ring Road.
- 2A.8.10 M32 Junction 1 is a key junction on the Ring Road. It provides access south towards Bristol city centre and north to the M4 and M5 motorways. The Highways Agency has stated in correspondence that it would not like to see improvements to the Ring Road increase this flow. The Highways Agency is also concerned about queues that extend back from the Ring Road junctions onto the motorway mainline. Northbound queues from Bristol are largely accommodated in an extended auxiliary lane, but traffic queues in this lane can sometimes extend back onto the northbound carriageway of the M32. However southbound queues at M32 Junction 1 are a real concern as these queues now regularly extend back to M4 Junction 19, affecting its operational performance and in turn causing queues to form on its slip roads that extend onto the M4 itself.

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ACCIDENTS

- 2A.8.11 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 7 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004.
- 2A.8.12 The schemes will have a neutral to slight beneficial impact on reducing accidents. The accidents clusters occurring between Bromley Heath and Wick Wick, and Wick Wick to Lyde Green should reduce following the signalisation of key roundabout junctions at Wick Wick and Westerleigh Road.

BUS SERVICES

- 2A.8.13 Details of the bus services on this corridor are shown in Figure 2B.7 in Appendix 2B.
- 2A.8.14 The UWE at Frenchay is the biggest generator of bus patronage in South Gloucestershire and it is the main focus for the current and future network of bus services linked to this corridor. The University itself is redeveloping its campus in a manner that will reduce car trips and encourage more sustainable travel patterns. This includes building four new accommodation blocks for nearly 2,000 students on existing car parks and putting restrictions on students bringing cars to the campus. The redesigned campus will also include a more direct bus link between the Romney Avenue Bus Link and Coldharbour Lane, together with further bus lanes on the internal campus roads. Investigations are also underway into how the existing bus interchange can be modernised and expanded to meet the anticipated future growth in bus travel.
- 2A.8.15 The current bus interchange accommodates 62 departures during the morning peak hour. This is anticipated to increase to at least 85 once future developments at Emersons Green East, HP and Filton North Field deliver on agreed plans for new orbital bus services and improved radial routes into central Bristol. The new bus interchange will act as a focal point for bus services for not just UWE, but also the Bristol Business Park and new housing development at HP, Stoke Park and on land to the east of Coldharbour Lane. The A4174 corridor also serves many major employment sites including the MoD with 6,500 staff.
- 2A.8.16 A multiplicity of bus services will use corridor 7. Going east to west, the service pattern can be split into three distinct sections. Section 1 is between Emersons Green East and the A432 intersection with corridor 5. This section has no bus services at present but will by 2007/08 have two new developer funded express services, one operating to Cribbs Causeway along the full length of corridor 7, the other operating to central Bristol via the M32 and corridor 1. Section 2 is between the A432 and the M32 Junction 1 and carries the existing X40 and X42 express services (Yate to Bristol) and the X62 express service (Mangotsfield to Bristol). Section 3 is the section of the A4174 corridor east of the M32 to its intersection

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with the A38 and as mentioned earlier carries a dense network of high frequency bus services concentrated on the UWE campus.

- 2A.8.17 Corridor 7 links together a number of other proposed and existing quality bus corridors. It links to the existing A38 QBC, also the proposed QBC corridors 1, 4 and 5. It also has the potential to be further expanded south of Emersons Green East to join up with the existing A420 QBC at Kingswood and the proposed QBC corridor 3 at Hicks Gate.

BUS SERVICE RELIABILITY

- 2A.8.18 Bus service reliability issues are comprehensively covered in the preceding section on *traffic*.

BUS PATRONAGE

- 2A.8.19 This corridor (made up of services 318, 319) carries a combined patronage of 537 in the morning peak hour (0800 – 0900), 487 in the evening peak hour (1700 – 1800). The all day total is 6,720.
- 2A.8.20 Despite very high car commuting flows along the Ring Road to the major employment centres in the North Fringe, very few buses operate on this corridor. Many services do use short sections of the corridor and are picked up in other corridor totals. More importantly, this corridor is identified as an area of major future public transport growth, linked to areas along the ring road where new housing and employment is proposed.

2A.9. Corridor Eight – A370

TRAFFIC

- 2A.9.1 The A370 is the main direct road between Weston-super-Mare and Bristol, passing through several villages on its route. The road is generally of single carriageway standard, with sections of dual carriageway between Weston town centre and M5 Junction 21 (the Primary Distributor Road, which bypasses the B3440), and on Long Ashton Bypass. Outside Bristol, 12-hour weekday traffic volumes of range from 10,000 to 40,000 vehicles, with the highest flows immediately west of Junction 21.
- 2A.9.2 Traffic congestion on the route is usually limited to the weekday peak periods, with particular problems on the approaches to Junction 21, the traffic signal junctions in Congresbury and Backwell, Long Ashton Bypass, the Cumberland Basin and Hotwells Road/Anchor Road in Bristol. The A370 can also become congested throughout its length during the holidays and weekends, when used by day-trippers to Weston-super-Mare.

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- 2A.9.3 Ongoing residential development on the edge of Weston in Worle and West Wick without matching growth in employment has created high levels of out-commuting to Bristol and the North Fringe; hence, traffic levels can be expected to increase further without attractive public transport alternatives.

ACCIDENTS

- 2A.9.4 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 8 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004..
- 2A.9.5 The accidents on this corridor do not follow a particular trend with most being down to driver error. As the schemes proposed do not affect junctions, where the majority of accidents have occurred, there will be a neutral effect on accidents.

BUS SERVICES

- 2A.9.6 Details of the bus services on this corridor are shown in Figure 2B.8 in Appendix 2B. The Weston-super-Mare to Bristol services on Corridor 8 comprise:
- ◆ X1 via Milton and then limited stops at Congresbury, Cleeve, Backwell, Flax Bourton;
 - ◆ 350 via Upper Milton, Worle, Congresbury, Yatton, North End, Claverham, Backwell, Flax Bourton and Long Ashton;
 - ◆ 351 via Upper Milton, North Worle, Worle, Congresbury, Yatton, Claverham, Backwell, and Flax Bourton;
 - ◆ 352 via Upper Milton, North Worle, Worle, Congresbury, Cleeve, Backwell and Flax Bourton; and
 - ◆ 353 via Milton, Congresbury, Cleeve, Backwell, Flax Bourton and Long Ashton.
- 2A.9.7 The limited stop X1 is the premier service on the corridor and runs twice an hour during the day; it offers a much reduced journey time compared to the stopping services (during the inter-peak, Weston to Bristol takes 53 minutes compared to 85 minutes for the 350). The 350/1/2 caters for a different market by providing an hourly service on routes and in villages that are not served by the X1; in consequence, the routes are longer and slower. The 353 is the evening equivalent to the X1, when it runs every hour; it also in-fills some gaps in the peak period timetable; some of the evening services are supported by the Council.

BUS SERVICE RELIABILITY

- 2A.9.8 The X1 is one of two 'showcase' bus routes in North Somerset, which have received investment in buses and infrastructure since 1998; in consequence, a local target for the X1 was identified in the first LTP, namely: "To work with First to

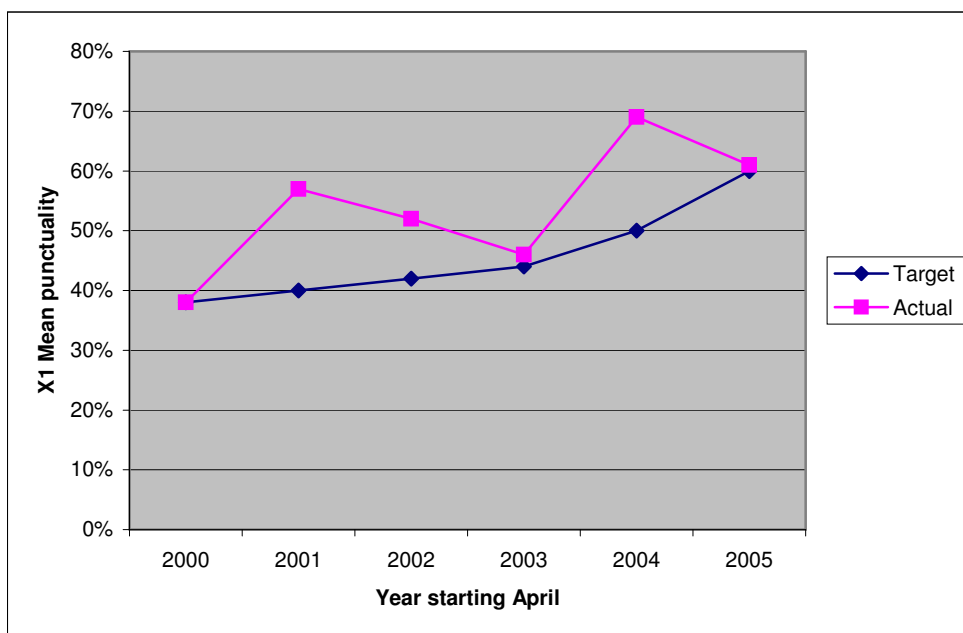
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ensure that at least 60% of bus services on strategic route X1 between Weston-super-Mare and Bristol ... run to time by 2005/06”

2A.9.9 Annual bus punctuality surveys have been undertaken on the X1, which are shown below. The surveys reveal considerable variation in punctuality, although a general improvement since 2001, particularly in the last year.

Figure 2A.1 - Service X1 Punctuality Performance

(Source: North Somerset APR, June 2005)



2A.9.10 The length and nature of the route means that services are vulnerable to delays caused by roadworks and accidents, as well as regularly occurring congestion at the ‘hotspots’ described in the section on traffic conditions. In response to the latter, First has increased the running time of peak services such that, for example, an AM peak X1 from Weston to Bristol is timetabled for 84 minutes, whereas the inter-peak is only 53 minutes.

2A.9.11 In an attempt to improve bus service reliability and, ultimately, reduce peak period journey times, a programme of bus priority measures was implemented in 2005/06 comprising:

- ◆ SVD and MOVA at signal junctions in Backwell, Brockley Combe and Congresbury;
- ◆ Eastbound HOV and bus lanes on Long Ashton Bypass; and
- ◆ Eastbound bus lane on B3440 New Bristol Road in Worle.

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- 2A.9.12 Works programmed for the JLTP period consist of SVD/MOVA at Locking Road/Drove Road in Weston and at the B3440/A370 merge at St.Georges.

BUS PATRONAGE

- 2A.9.13 This corridor (made up of services X1, 350, 351, 352, 353) carries a combined patronage of 875 in the morning peak hour (0800 – 0900) and 953 in the evening peak hour (1700 – 1800). The all day total is 10,231.

2A.10. Corridor Nine – A369

TRAFFIC

- 2A.10.1 The A369 is the main direct route between Portishead, Clifton and Bristol. The road is single carriageway standard and 12-hour weekday traffic volumes of range from 10,000 to 18,000 vehicles, with the highest flows on the Portbury Hundred and Abbots Leigh Road.
- 2A.10.2 Traffic congestion on the route is usually limited to the weekday peak periods, with particular problems on the approaches to Junction 19, the traffic signal junction at B3128 Beggar Bush Lane and Clanage Road, plus the Cumberland Basin and Hotwells Road/Anchor Road in Bristol.

ACCIDENTS

- 2A.10.3 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 9 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004.
- 2A.10.4 The predominant accident type on this corridor is nose to tail collisions in queuing traffic. The extra capacity proposed could have a beneficial effect on this type of accident. The proposals to signalise junctions to the East of M5 Junction 19 could have a significant beneficial impact on accidents at these locations.

BUS SERVICES

- 2A.10.5 Details of the bus services on this corridor are shown in Figure 2B.9 in Appendix 2B. There are four routes which stop in Portishead and then run to Bristol:
- ◆ X58 (which also services Clevedon) before running non-stop into Bristol via the A369;
 - ◆ 358 via Easton-in-Gordano, Pill and Abbots Leigh;
 - ◆ 359 via Sheepway, Easton-in-Gordano, Pill and Abbots Leigh; and

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- ◆ 695, which serves the new and ongoing developments around the Docks in east Portishead, before running limited-stop into Bristol via the A4 Portway.

2A.10.6 The hourly X24/25 also serves Portishead, but continue to Cribbs Causeway in the north and Clevedon/Weston-super-Mare in the south.

BUS SERVICE RELIABILITY

2A.10.7 Whilst bus services in this corridor do encounter delays due to congestion and other traffic incidents and did suffer problems when the M5 Avonmouth Bridge was being widened, since the end of these works service reliability is understood to be no worse than that for other comparable routes in the area.

2A.10.8 AM peak journey times from the Redcliffe Bay terminus in Portishead to Bristol Bus Station are 60 minutes for the X58 and 69-72 minutes for the 358/9; in the inter-peak the equivalent time for the 358/9 is 52-54 minutes. The 695 takes an hour from Portishead High Street and benefits from the bus lane on the Portway.

2A.10.9 The development east of Portishead is not only funding the 695 service, but also includes a requirement to improve Junction 19 (flaring of the A369 approaches and new/improved signal control) and, should the Council call for it, an eastbound HOV lane on the Portbury Hundred (starting at Station Road to a set-back pre-signal ~100m from Junction 19).

BUS PATRONAGE

2A.10.10 This corridor (made up of services X58, 358, 359) carries a combined patronage of 758 in the morning peak hour (0800 – 0900) and 656 in the evening peak hour (1700 – 1800). The all day total is 10,231.

2A.11. Corridor Ten – A367

TRAFFIC

2A.11.1 The A367 is the principal road connecting Bath and the town of Radstock. North of the A367 Frome Road in Bath there is a short section of dual-carriageway. Elsewhere within the rural area down to Norton-Radstock, the road is generally single carriageway, including the bypass at Peasedown St. John. The road has a number of long steep gradients, including when leaving both Bath and Radstock. Traffic flows on the road have a 12 hour weekday average of 15,000 to 16,000.

2A.11.2 Traffic congestion occurs usually during the weekday peak periods but can also occur at other times such as Saturday mornings inbound on the approach to the Churchill gyratory in Bath.

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- 2A.11.3 Particular problem regularly occur in the AM peak at:
- ◆ The approach to Odd Down roundabout with queues extending as far back as Dunkerton Hill; and
 - ◆ The A367 approach to Bear Flat within Bath.
- 2A.11.4 In the PM peak the southbound approach to the Red Lion roundabout is severely affected by congestion.
- 2A.11.5 Public transport is also caught up in this congestion. Without improvements to bus priority the situation will only worsen with increased car traffic creating increased delay.

ACCIDENTS

- 2A.11.6 Details of traffic accidents occurring in the vicinity of the proposed bus priority measures on Corridor 10 are shown on the Network Accident Plot numbered C00-003. Data covers the five year period up to autumn 2004.
- 2A.11.7 The A367 into Bath experiences severe congestion during the peak periods with significant vehicle and pedestrian activity throughout the day. As a result, many of the slight accidents along its length are nose-to-tail and turning movement accidents experienced at busy side road junctions, traffic signal installations and roundabouts. Where the A367, A4 and A36 converge at the Churchill Gyratory system, most of the accidents are nose-to-tail accidents caused by the high volume of traffic, number of junctions and complexity of the road layout. The signalisation of Churchill Gyratory should reduce the number and severity of accidents. The proposed bus lanes will remove buses from the main traffic stream. This will reduce traffic conflict with other vehicles and should thereby reduce the number of bus related accidents.

BUS SERVICES

- 2A.11.8 Details of the bus services on this corridor are shown in Figure 2B.10 in Appendix 2B. The main intra-urban bus services include:
- ◆ 173 Bath to Wells via Dunkerton, Radstock, Midsomer Norton;
 - ◆ 178 Bath to Brislington via Peasedown, Midsomer Norton, Paulton, Keynsham;
 - ◆ 184 Bath to Frome via Dunkerton, Peasedown, Midsomer Norton; and
 - ◆ 179 Bath to Paulton via Farmborough, Tunley.
- 2A.11.9 Local Bath services also use the A367 Wellsway into the centre. This includes service 13 from Foxhill to Bathford which is the Bath & North East Somerset Council and First Quality Partnership route.

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BUS SERVICE RELIABILITY

- 2A.11.10 In 2003/04 significant sections of the A367 in Bath were subject to infrastructure improvements as part of the route 13 Quality Partnership.
- 2A.11.11 Delays on the Wellsway have been unpredictable which has affected reliability.

BUS SERVICE PATRONAGE

- 2A.11.12 This corridor (made up of service 13 from Foxhill to Bathford, Park & Ride services and country services 173, 175, 178, 184 and 791) carries a combined patronage of 1649 in the morning peak hour (0800 – 0900) and 1229 in the evening peak hour (1700 – 1800). The all day total is 10,038.

2A.12. Summary

- 2A.12.1 Investment in a network of showcase bus corridors will provide the base necessary for the four Councils, working together with the main bus operator First, to grow the bus market. Incremental expansion of bus priority measures alone will not be enough to meet local and national targets for increasing bus patronage.