WEST YORKSHIRE LOCAL TRANSPORT PLAN

ANNUAL PROGRESS REPORT 2002 / 2003

APPENDIX 1

MONITORING REPORT

CONTENTS

			PAGE
CHAPTER 1	**INTRODUCTION**		1-1
CHAPTER 2	**IMPACT REPORTS**		
	2.1	Introduction	2-1
		County Wide Schemes	
	2.2	Installation of Safety Cameras	2-5
		Main Centre Schemes	
	2.3	Halifax Town Centre Automated Bollards	2-9
	2.4	Review of UTMC Off-peak Plans for Leeds City Centre Loop	2-13
		Urban Area Schemes	
	2.5	South Bradford Quality Bus Initiative	2-15
	2.6	Traffic Calming Schemes in Bradford	2-23
	2.7	CCTV at Bus Stations	2-27
	2.8	East Leeds Quality Bus Initiative	2-31
	2.9	Review of Mid-block Pedestrian Crossings in Leeds	2-37
	2.10	Leeds and Liverpool Canal Towpath Improvement	2-41
	2.11	Safer Routes to School – School Crossing Patrol Safety in Calderdale	2-45
	2.12	Keighley Bus Station	2-49
	2.13	Interchange Strategy "Category C" Locations	2-55
	2.14	Improved Rail Station Facilities – Guiseley and New Pudsey	2-61
	2.15	Schemes Covered in Previous Annual Progress Reports	2-64
CHAPTER 3	**BASELINE DATA AND TRENDS BY INDICATOR**		
	3.1	Introduction	3-1
	3.2	Regeneration and Sustainable Economic Growth	3-5
	3.3	Operational Efficiency	3-13
	3.4	Maintaining the Transport Infrastructure	3-20

3.5	Safety, Security and Health	3-32
3.6	Equal Opportunities	3-43
3.7	Environmental Quality	3-50
3.8	Reduce Transport Contributions to Greenhouse Gas	3-62
3.9	Subsidiary Objectives	3-64

List of Tables

2.1	Schemes Contained Within the Impact Report	2-2
2.5.1	Inbound Journey Time Changes	2-16
2.5.2	Outbound Journey Time Changes	2-17
2.5.3	Bradford Monitoring Cordon Data 2000 - 2002	2-19
2.6.1	Road Traffic Accidents	2-24
2.6.2	Road Traffic Speeds and Volumes	2-25
2.10.1	Towpath Usage Before and After Surveys: All Sites Combined	2-43
2.12.1	Keighley Bus Station, Rating of Facilities	2-51
2.12.2	Rating of Specific Services Within the Travel Centre	2-52
2.12.3	Rating of Accessibility to Other Areas in and Around the Keighley Bus Station	2-52
2.15.1	Schemes Reported in Previous Annual Progress Reports	2-65
3.1	Key and Background Indicators, Local Transport Plan and National Targets	3-2
3.2.1	Unemployment Rates Calculated as Proportion of Estimated Resident Population of Working Age, March Figures	3-6
3.2.2	Availability and Occupancy of Retail Floor Area	3-8
3.2.3	Rental Values for Industrial Premises	3-9
3.2.4	Rental Values for Shops	3-10
3.2.5	Rental Values for Offices	3-10
3.2.6	Pedestrian Activity In Centres	3-11
3.3.1	West Yorkshire Journey Time Survey Five Year Programme	3-13

3.3.2	Bradford Journey Time Survey Results 1998 - 2002	3-14
3.3.3	Calderdale Journey Time Survey Results 1998 - 2002	3-14
3.3.4	Kirklees Journey Time Survey Results 1998 - 2002	3-15
3.3.5	Leeds Journey Time Survey Results 1998 - 2002	3-15
3.3.6	Wakefield Journey Time Survey Results 1998 - 2002	3-16
3.3.7	Estimated Generalised Central Area Commuting Costs 2003	3-17
3.3.8	Percentage of Journeys to Work in Different Bandwidths of Journey Length - Persons with a Workplace in Each District (All Modes).	3-18
3.3.9	Cost Per Passenger Journey of Subsidised Bus Services	3-19
3.4.1	Bridges with Completed Assessments	3-25
3.4.2	Percentage of Bridges Strengthened (All Roads, All Owners)	3-26
3.4.3	Percentage of Structures Subject to General and Principal Inspections in 2002 / 2003	3-28
3.4.4	Percentage of Structures with Temporary Weight or Width Restrictions	3-29
3.4.5	Percentage of Structures Requiring Preventative or Essential Maintenance	3-30
3.5.1	West Yorkshire Road Casualty Trends	3-33
3.5.2	West Yorkshire Casualty Trends for Different Road Users	3-35
3.5.3	West Yorkshire Road Casualty Trends for Children	3-37
3.5.4	Local Authority Off Street Car Parks with CCTV Surveillance	3-38
3.5.5	Number of Rail Station Car Parks with CCTV Surveillance	3-39
3.5.6	Security at Bus Stations	3-40
3.5.7	Local Authority Off Street Parking Spaces with and without Awards	3-41
3.5.8	Percentage of City Centre Streets Covered by CCTV	3-42
3.6.1	Station Facilities within West Yorkshire	3-45
3.6.2	Provision at Controlled Crossings	3-47
3.7.1	Summary of Road Transport Emissions	3-53
3.7.2	Summary of First Round Air Quality Review and Assessment Progress.	3-55
3.7.3	Summary of Noise Insulation	3-58

3.9.1	Bradford Central Cordon - AM Peak Period Inbound Traffic Flows	3-65
3.9.2	Halifax Central Cordon - AM Peak Period Inbound Traffic Flows	3-65
3.9.3	Huddersfield Central Cordon - AM Peak Period Inbound Traffic Flows	3-66
3.9.4	Leeds Central Cordon - AM Peak Period Inbound Traffic Flows	3-66
3.9.5	Wakefield Central Cordon - AM Peak Period Inbound Traffic Flows	3-67
3.9.6	Urban Centre Targets for People Entering the City Centres by Mode in the Morning Peak for 2006	3-68
3.9.7	Modal Split - AM Peak (0730 - 0930) 2002 Inbound to Centres	3-69
3.9.8	Modal Split – Inter Peak (1400 - 1500) 2002 Outbound from Centres	3-69
3.9.9	Modal Split – PM Peak (1600 - 1800) 2002 Outbound from Centres	3-70
3.9.10	Car Occupancy 2002	3-72
3.9.11	Size of Parking Survey Areas	3-74
3.9.12	Parking Inventory 2003	3-75
3.9.13	Average Cost Of Council Controlled All Day Parking And Changes In Parking Charges 1997 - 2003. (Where Charges Apply)	3-75
3.9.14	Percentage of Total All Day Parking Under Direct Council Control and the Weighted Average Cost of All Day Parking	3-76
3.9.15	Volume of Bicycle Counts Across West Yorkshire 1994 - 2002.	3-77
3.9.16	Local Bus Service Kilometers Operated and number of passenger journeys	3-78
3.9.17	(BVPI 103) Percentage of Users Satisfied with Local Provision of Public Transport Information	3-80
3.9.18	(BVPI 104) Percentage of Users Satisfied with Local Bus Services	3-81
3.9.19	Percentage of Users Satisfied with Local Rail Services	3-82
3.9.20	Bus Punctuality and Reliability	3-82

List of Figures

2.7.1	User Perception of Bus Station Safety 2001 / 2002	2-28
2.12.1	Days per Week/Month Passengers Use Keighley Bus Station	2-50
2.12.2	Frequency of Travel from Keighley Bus Station Compared to One Year Ago	2-50
2.12.3	Purpose of Current Trip	2-51
2.13.1	Quality of Timetable Information on Free Standing Display Cases	2-57
2.13.2	Quality of Network Map and Destination Information	2-57
2.13.3	Provision of Timetables at Stops	2-57
3.2.1	Claimants as a Proportion of Residents of Working Age	3-7
3.3.1	Estimated Generalised Central Area Commuting Costs 2003	3-17
3.3.2	Average Travel Distance to Work, West Yorkshire, 1991	3-19
3.4.1	BVPI 100 Number of Days of Temporary Traffic Controls or Road Closure on Traffic Sensitive Roads Caused by Local Authority Road Works per Km. of Traffic Sensitive Road.	3-21
3.4.2	BVPI 96 Percentage of the Roads Network with Negative Residual Life, Derived from Deflectograph Surveys	3-22
3.4.3	BVPI 97(a) Percentage of Non-Principal Classified Roads with Significant Defects (Visual Inspection).	3-23
3.4.4	BVPI 105 Repairs To Dangerous Defects	3-24
3.4.5	Bridges with Completed Assessments	3-25
3.4.6	Percentage of Bridges Strengthened (All Roads All Owners)	3-27
3.5.1	West Yorkshire Road Casualty Trends Since 1989	3-33
3.5.2	West Yorkshire Traffic and Accident Growth Trends	3-34
3.5.3	West Yorkshire Casualty Trends for Different Road Users Since 1989	3-36
3.5.4	West Yorkshire Road Casualty Trends for Children Since 1989	3-37
3.6.1	AccessBus Patronage Trends	3-44
3.6.2	Controlled Crossings in West Yorkshire with Accessible Features	3-48

3.7.1	West Yorkshire Annual Average NO_2 Monitoring – Summary Data	3-51
3.7.2	Total Number of Hourly NO_2 Exceedences	3-51
3.7.3	West Yorkshire Annual average PM_{10} Monitoring – Summary Data	3-52
3.7.4	Total Number of Daily Exceedences - Summary Data	3-53
3.7.5	Changes in Emissions of NOx 2000 - 2002	3-54
3.7.6	Length of Low Noise Asphalt Laid	3-58
3.7.7	Percentage of Principal Road Network with Low Noise Asphalt	3-59
3.8.1	West Yorkshire Traffic Growth Trend 1992 - 2002	3-63
3.9.1	Changes in Modal Share AM Peak 1998 - 2002	3-70
3.9.2	Changes in Modal Share Inter Peak 1998 - 2002	3-71
3.9.3	Changes in Modal Share PM Peak 1998 - 2002	3-71
3.9.4	Changes in Car Occupancy AM Peak 1998 - 2002	3-72
3.9.5	Changes in Car Occupancy Inter Peak 1998 - 2002	3-73
3.9.6	Changes in Car Occupancy PM Peak 1998 - 2002	3-73
3.9.7	West Yorkshire Rail Patronage (Million Passengers per Year)	3-79

CHAPTER 2 IMPACT REPORTS

2.1 INTRODUCTION

2.1.1 The following Impact Reports describe in detail schemes which were implemented or started in West Yorkshire during 2002 / 2003 and which are listed in Table 2.1. The report does not contain all LTP schemes, but includes a representative sample, for which detailed monitoring has been carried out. This monitoring is carried out to demonstrate the effectiveness of a particular measure or group of measures in contributing to the Plan objectives. Such monitoring also provides essential feedback to the Plan programme, allowing successful schemes to be identified.

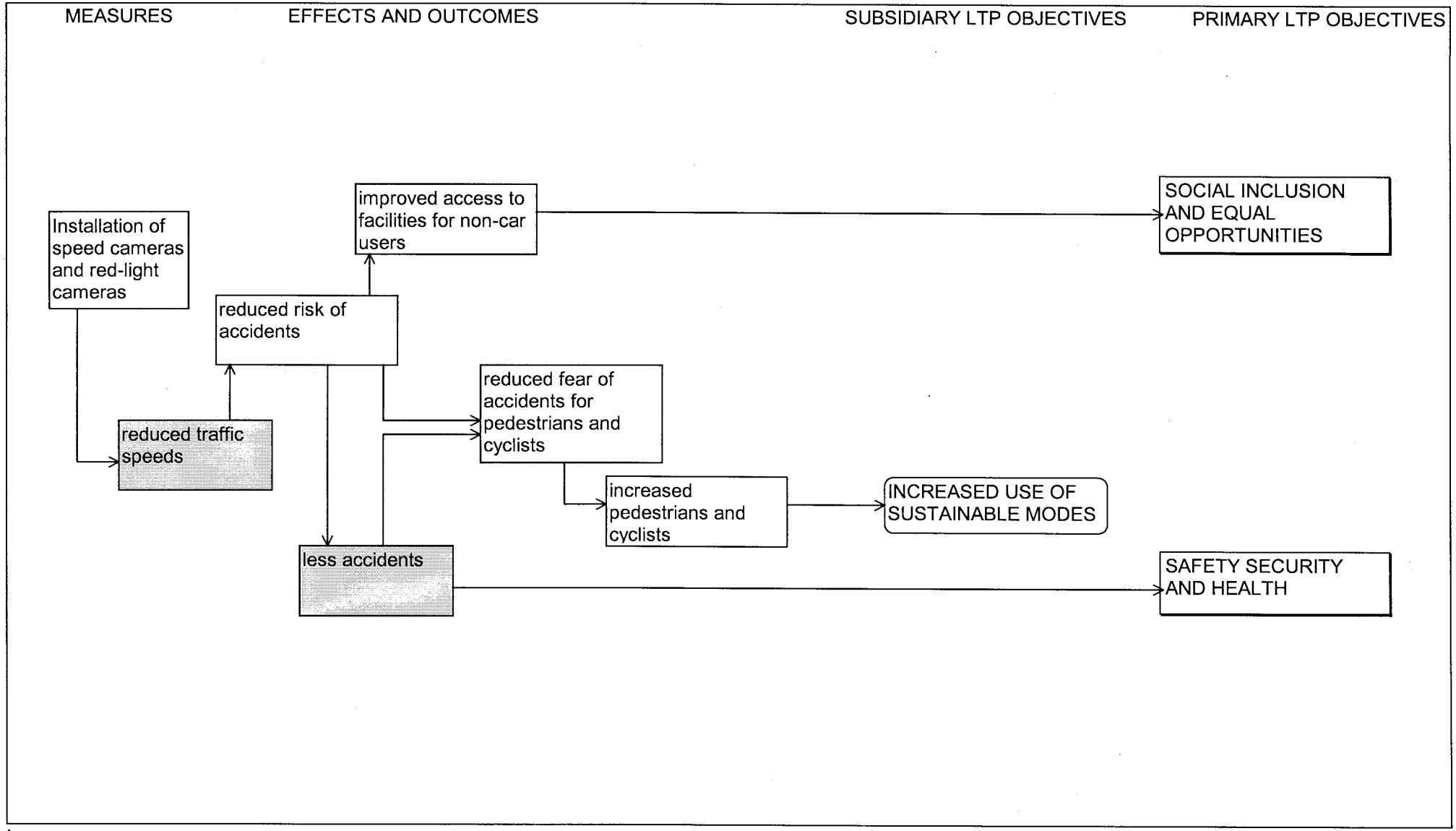
2.1.2 Each scheme report comprises a causal chain, a description of the scheme, cost details and the results from the monitoring of scheme impacts, with a discussion covering the effectiveness of the schemes. The causal chain shows how the scheme supports the wider LTP objectives and how the monitored data measures the effectiveness of the scheme.

2.1.3 Schemes for which Impact Reports have been presented between 1997 and 2000 / 2001 are summarised at the end of this chapter. These previously reported schemes are presented in a common format, allowing impacts to be clearly identified. This process of detailed examination enables the effectiveness of the measures to be clearly demonstrated and also allows the future Plan strategy and programme to be adjusted towards those types of measure which prove to be most effective. Whenever significant subsequent monitoring is undertaken the scheme will be reported in future years in greater detail.

Countywide Schemes
Installation of Safety Cameras Within West Yorkshire
Main Centre Schemes
Halifax Town Centre Automated Bollards
Review of UTMC off-peak Plans for Leeds City Centre Loop
Urban Area Schemes
South Bradford Quality Bus Initiative
Traffic Calming Schemes in Bradford
CCTV & Bus Station Helplines
East Leeds Quality Bus Initiative
Review of Mid-block Pedestrian Facilities
Cycle Route on Leeds / Liverpool Canal Towpath
Safer Routes to School
Keighley Bus station
Category 'C' interchanges
Improved Rail Station Facilities New Pudsey & Guiseley

Table 2.1 Schemes Contained Within the Impact Report

SAFETY CAMERAS WITHIN WEST YORKSHIRE CAUSAL CHAIN



key

PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | potential negative effect | data monitored

COUNTYWIDE SCHEME

2.2 Installation of Safety Cameras Within West Yorkshire

Objectives

- to reduce the number of injury accidents caused by exceeding the speed limit;
- to reduce the number of injury accidents caused by going through a red light.

Scheme Description

2.2.1 Evidence from the Department for Transport (DfT) shows that up to one third of the injury accidents on the roads are caused by excessive speed. Throughout West Yorkshire we are looking to ensure that all motorists drive at the appropriate speed and in particular do not exceed the posted speed limit. In addition it has been shown that there is a direct relationship between speed and the severity of injury (i.e. higher speeds tend to lead to more deaths and serious injuries). Reducing the speed of vehicles will also reduce the severity of the accidents.

2.2.2 An analysis of the injury accident statistics shows that several signal-controlled junctions within West Yorkshire have accidents at them caused by drivers deliberately going through a red light.

2.2.3 In order to prevent the casualties from both these types of accidents, safety cameras are to be installed at locations that meet the criteria laid down by the DfT.

2.2.4 In 2002 the West Yorkshire Casualty Reduction Partnership officially received notification from the DfT, that they could participate in the national "netting off" scheme. This means that the revenue raised from the safety camera "fines" can be fed back to the partnership to help fund the whole process. Importantly, this means that Police Officers can be allocated to service the cameras and therefore ensure that cameras can be fully utilised.

2.2.5 The full membership of this partnership includes: West Yorkshire Police, Bradford MDC, Calderdale MBC, Kirklees DC, Leeds CC, Wakefield MDC, Yorkshire Health Authority, West Yorkshire Magistrates Court Service and The Highways Agency.

2.2.6 Prior to 2002, there were approximately 60 speed cameras installed within West Yorkshire. During 2002 / 2003, this total was increased by 75 with a further 80 planned for 2003 / 2004. In addition to this there are already 25 red light violation cameras in operation and during the next 12 months a further 17 will be installed. The West Yorkshire Police will also increase their operation of mobile speed cameras at locations which have been identified as having injury accidents.

Monitoring

2.2.7 After safety cameras have been installed there is a regular monitoring regime to confirm that they do have a positive effect. With all camera installations the most important feature is to ensure that they have contributed to a reduction in the total number of accidents and in particular the number of incidents resulting in fatal and serious injuries.

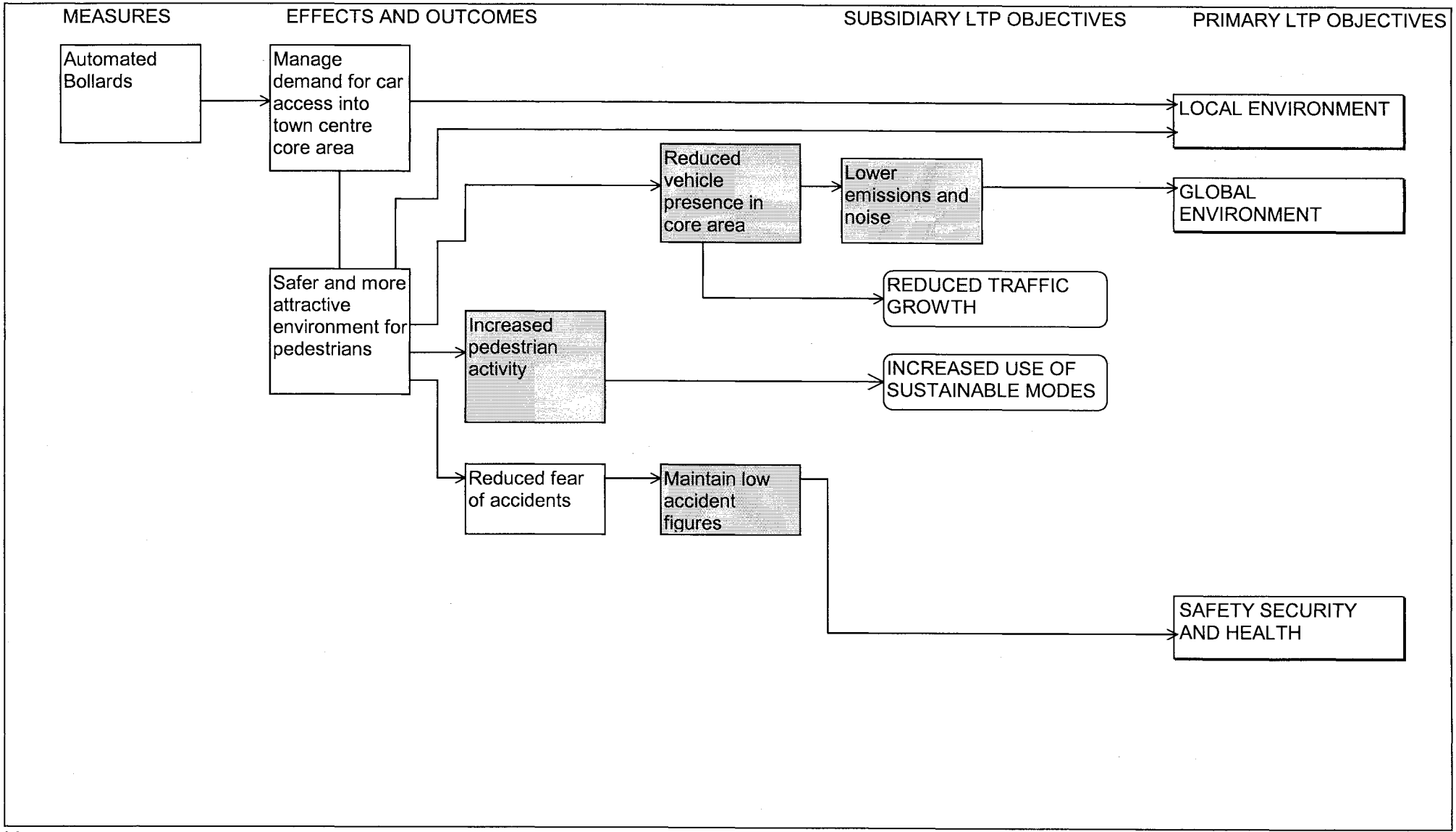
2.2.8 In the case of speed cameras the speed of vehicles along the length is also regularly checked.

2.2.9 It is too early to be statistically certain about the injury accident savings from the installations, but the early evidence suggests that the savings so far are 12 killed or serious accidents per year and a total of 80 injury accidents per year.

Discussion

2.2.10 The total number of casualties saved should increase as the number of camera housings installed increases over the next few years. There is certainly a demand from local residents to have cameras installed in their area. Speed cameras should not, however, be seen as the first resort in reducing speed on the roads of West Yorkshire. In fact, the DfT guidelines make it perfectly clear that all other methods of reducing accidents have to be considered *before* cameras can be installed.

HALIFAX TOWN CENTRE AUTOMATED BOLLARDS - CAUSAL CHAIN



Key:

PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | data monitored

MAIN CENTRE SCHEME

2.3 Halifax Town Centre Automated Bollards

Objectives

- to manage vehicle access in the pedestrian precinct;
- to protect pedestrians from illegal vehicle movement;
- to provide a safe and pleasant vehicle free shopping environment;
- to protect the high quality refurbished pavement scheme;
- to increase shop security by preventing direct vehicular access;
- to aid police enforcement;
- to provide associated CCTV coverage.

Background

2.3.1 Automated bollards are increasingly in use throughout the UK, although Calderdale is the first to introduce them within West Yorkshire. Approximately twenty-five towns and cities use this technology including major centres such as Manchester, Liverpool, Newcastle and the pioneers, Cambridge.

Scheme Description

2.3.2 Six independent bollard systems are located at the precinct entry and exit points, each comprising a site installation layout as below:

- a pair of hydraulic bollards;
- control software housed in an on-street cabinet;
- traffic signal control posts;
- inductive loop vehicle sensors;
- user intercom linked to the CCTV control centre;
- audible warning system;
- CCTV coverage of the site;
- manual key operated override switch;
- swipe card system software;
- bollard warning and instructions loop sign;
- adjacent manual drop down bollards for wide loads.

2.3.3 All bollard sites are manually operated via remote control from a central CCTV control room. The existing town centre CCTV network has been expanded to view all bollard sites, and the control room has been upgraded to provide telephone links to bollard control boxes and intercoms. Movement of

the bollards is accompanied by an automated voice warning for pedestrians and safety features in the operating software reduce the chance of "spearing" vehicles. The bollards may also be operated on site via key or swipe-card for additional flexibility and authorised users can gain access to the pedestrian zone by calling the control room via intercom.

Scheme Costs

2.3.4 The scheme, which opened in April 2002, cost £163,000 with an additional £19,200 annual running costs.

Before Monitoring

2.3.5 Prior to installing bollards, the pedestrian precinct had undergone extensive refurbishment utilising high quality materials in order to promote pedestrian activity. The pedestrian precinct was then also protected by a vehicular access prohibition, but unfortunately it was often ignored.

2.3.6 The resulting conflict between improved pedestrian facilities and unauthorised vehicles required additional enforcement of the vehicular prohibition if the full benefits of the pedestrian scheme were to be realised. Policing resources were insufficient to control the situation, which was a position that regular abusers took full advantage of, even within the newly refurbished areas.

After Monitoring

2.3.7 After the bollards were installed, the legal prohibition of vehicles was reinforced by physical exclusion from the zone between 09:30 and 16:00 hours. The precinct was transformed into a pedestrian friendly and regenerative shopping area. Footfall surveys in the precinct are ongoing, but the popular streets of Southgate and Crown Street have already shown an increase in footfall of 3.5% and 5% respectively over the last year.

2.3.8 By 10:00 hrs the precinct is cleared of all vehicles until 16:00 hrs when they are allowed back in for unloading and loading. Shops and the Borough Market have generally accepted the new regime with little complaint, and public satisfaction appears positive. To date only three minor vehicle impacts have been recorded and no pedestrians have been injured. Pedestrians have been known to stumble over rising bollards but no injuries have been sustained as the bollards rise slowly, taking five seconds to rise to their full height.

Discussion

2.3.9 The main issue is that the bollards require almost daily attention, due to either technical failure or regime management.

2.3.10 The system has many safety features that regularly trip the bollards into the default mode of locking the bollards into the ground. An extensive "bedding in" period of technical faults was experienced but reliability has since improved. However there is still an ongoing problem of technical failure.

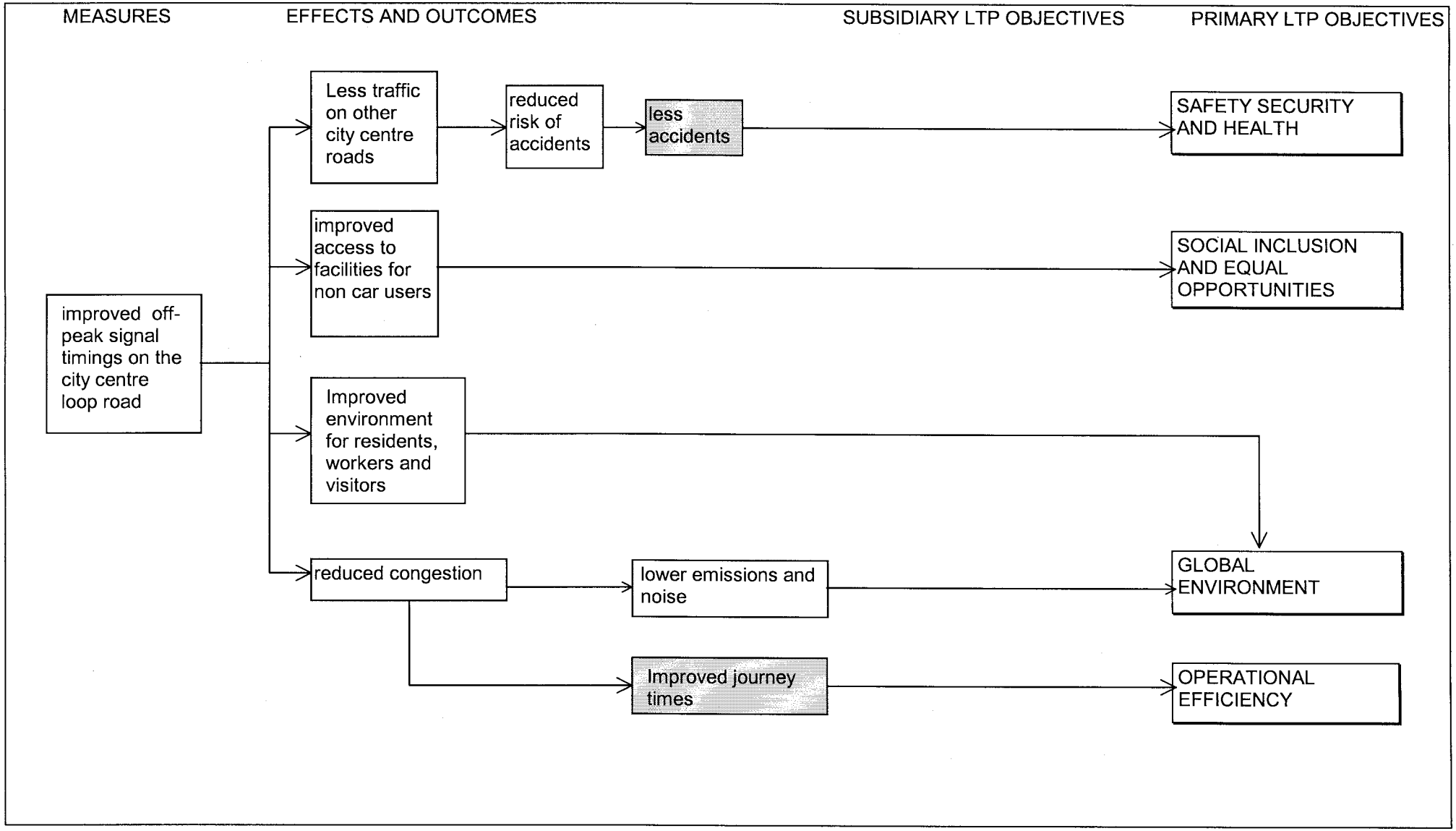
2.3.11 In the first year the manufacturers (ATG) have been called out twenty

times to repair system failures.

2.3.12 Police warden management of the precinct could be improved. Wardens are more inclined to request release from the zone, rather than issue a fine and detain offenders until 16:00 hrs. This could lead to an undermining of the prohibition of access if allowed to continue.

2.3.13 The bollards have achieved all their objectives yet would benefit from greater reliability. Visually they are unobtrusive and are an important contributor to the success of the £2.9 million Halifax town centre scheme.

REVIEW OF UTMC OFF-PEAK PLANS ON CITY CENTRE LOOP ROAD, LEEDS CAUSAL CHAIN



MAIN CENTRE SCHEME

2.4 Review of Urban Traffic Management and Control (UTMC) off-peak Plans for Leeds City Centre Loop

Objectives

- to enhance the City Centre environment for residents, workers and visitors by the removal of extraneous traffic;
- to reduce stopping / queuing at traffic signals for off peak traffic on the loop;
- to improve conditions for motorists and pedestrians in the vicinity of the loop;
- to reduce travel times;
- to encourage more traffic to use the loop in accordance with the policy of minimising traffic on other city centre roads.

Scheme Description

2.4.1 The City Centre Loop Road is located substantially inside the Inner Ring Road and creates a one-way closed circuit along existing streets generally following the former circulation system. Access to / from the loop into adjacent areas is organised on a cell basis. Priority for public transport to cross the loop to / from the public transport box is provided by 4 bus gates with 2 further gateways planned. Characteristic local signing has been developed to direct drivers to car parks and city centre destinations.

2.4.2 Traffic approaching Leeds city centre is encouraged to use the 'loop' route as much as possible to minimise use of other roads inside the loop. As there is a large volume of traffic using this route at all times of day it is important not to compromise traffic capacities for vehicles joining the loop. It was also essential to consider the safety implications of co-ordination for traffic and pedestrians on dual crossings.

Monitoring

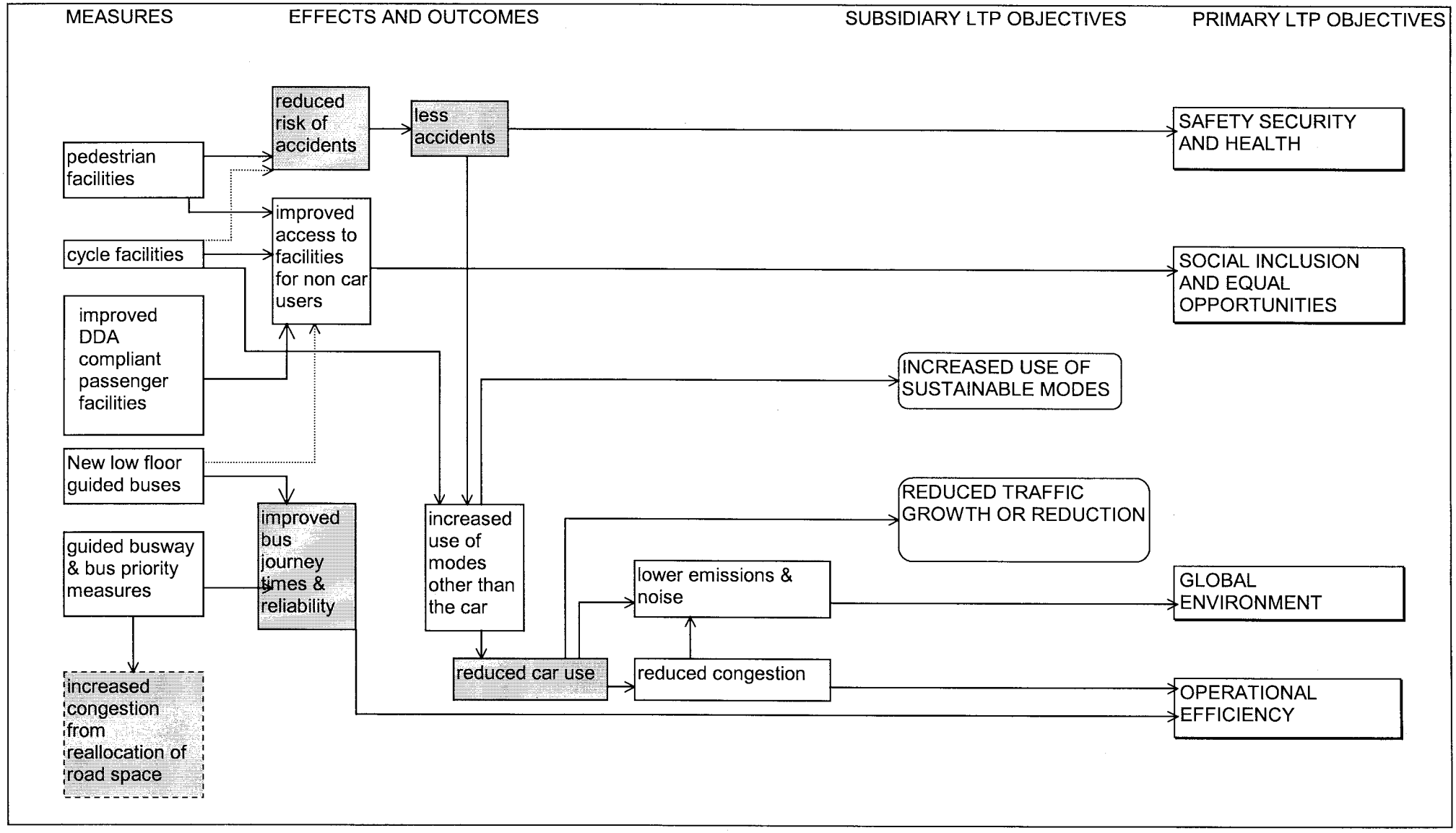
2.4.3 An initial review of the co-ordination of the off-peak UTMC plans around the City Centre Loop was completed in March 2002. A total of 20 traffic signal installations on or adjacent to the City Centre Loop were investigated. Further adjustments were made, and new timings introduced for the off-peak period in March 2003. Timed runs indicated a 'before' journey time of 7.9 minutes (daytime) and 7.2 minutes (night time).

2.4.4 Timed runs done on the same basis as the 'before' runs gave an 'after' journey time of 6.4 minutes (daytime) and 6.0 minutes (night time).

Discussion

2.4.5 The results of the surveys indicate an improvement in journey time of 19% daytime and 16% night-time. As a relatively small number of journeys were timed, the results are indicative rather than precise. Note also that the daytime runs are particularly susceptible to the random effects of driver misbehaviour (illegal parking, unloading, bad lane use, queuing for car parks etc) which may all cause intermittent congestion.

SOUTH BRADFORD QUALITY BUS INITIATIVE CAUSAL CHAIN



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PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | potential negative effect | data monitored

URBAN AREA SCHEME

2.5 South Bradford Quality Bus Initiative

Objectives

- to improve the reliability of bus services;
- to improve bus journey times;
- to increase passenger confidence;
- to encourage modal shift from the car.
- to enhance pedestrian safety and access

Scheme Description

2.5.1 The scheme is located to the southwest of Bradford City Centre on the A641 Manchester Road / Huddersfield Road radial, which provides the principal link between Bradford and Huddersfield. The scheme comprises:

- 520 m of inbound kerbside bus lane on the approach to the grade separated junction with the A6036 at Odsal;
- 160 m of kerbside bus lane with pre-signal on the inbound slip road from the A6036 junction to Manchester Road;
- 550 m of inbound guided busway with pre-signal on the approach to the junction with A6177 Mayo Avenue (Bradford Outer Ring Road);
- 80 m of inbound kerbside bus lane with pre-signal on the approach to the junction with St. Stephen's Road;
- 1220 m of inbound guided busway with pre-signals / exclusive signals in three sections on the approaches to the junctions with Bowling Old Lane, Mill Lane and A647 Croft Street (Bradford City Ring Road);
- 250 m of outbound kerbside bus lane with pre-signal on the approach to the junction with St. Stephen's Road;
- 600 m of outbound guided busway with pre-signal on the approach to the junction with A6177 Mayo Avenue (Bradford outer ring road);
- the provision of 27 new or improved bus stops, including new shelters, lighting and information;
- new or upgraded pedestrian facilities at four junctions and ten other locations;
- provision of advanced stop lines for cyclists at four signalled junctions and all pre-signals;
- reduction in speed limit from 40 mph to 30 mph between Odsal and the City Centre;
- new buses.

2.5.2 The scheme opened to public use on 31st January 2002. The estimated total project cost is £10.5 M, including contributions from the bus operators and Metro.

Monitoring

2.5.3 Extensive 'before' surveys were carried out in May and June of 2000. These comprised: bus and car journey time surveys using registration matching, on Manchester Road and the Outer Ring Road; Automatic traffic counts on Manchester Road and adjacent parallel routes; Manual classified junction counts at the seven principal junctions on Manchester Road / Huddersfield Road; Manual classified link counts on a number of minor roads adjacent to Manchester Road which are currently used as 'rat runs'. Bus usage was monitored over three days at two sites on Manchester Road and additional farebox data has been provided by the bus operators. The surveys were repeated in May and June 2002.

Survey Results

Journey Times

2.5.4 Tables 2.5.1 and 2.5.2 show the changes in average inbound and outbound bus and car journey times. Changes that are statistically significant at the 95% level are shaded.

		Before surveys – May / June 2000		After surveys – May / June 2002		Changes	
	Time period	Mean journey time (secs)	Standard deviation (secs)	Mean journey time (secs)	Standard deviation (secs)	Mean journey time (secs)	Standard deviation (secs)
Bus Journey times							
Inbound Common Rd to Croft St	0730 - 0930	752	209	693	136	-58	-73
Inbound Common Rd to Croft St	0800 - 0900	833	189	706	136	-127	-53
Inbound Common Rd to Croft St	0930 - 1030	544	143	612	140	+68	-3
Car Journey times							
Inbound Common Rd to Croft St	0730 - 0930	563	159	645	200	+82	+41
Inbound Common Rd to Croft St	0800 - 0900	627	159	756	165	+130	+6
Inbound Common Rd to Croft St	0930 - 1030	329	45	364	42	+35	-3

Table 2.5.1: Inbound Journey Time Changes

2.5.5 Statistically significant improvements in bus journey times and standard deviations have been achieved in both the morning peak period and peak hour. In contrast, car journey times have worsened. In the off peak both cars and buses show increased journey times and similar changes are also apparent in the afternoons between 1500 and 1830 (not shown). It is considered that the increased journey times are linked to the additional at-grade pedestrian crossings (up from 3 to 11) and the reduced speed limit.

		Before surveys – May / June 2000		After surveys – May / June 2002		Changes	
	Time period	Mean journey time (secs)	Standard deviation (secs)	Mean journey time (secs)	Standard deviation (secs)	Mean journey time (secs)	Standard deviation (secs)
Bus Journey times							
Outbound Croft St to Common Rd	1500-1600	633	177	624	161	-9	-16
Outbound Croft St to Common Rd	1600-1830	755	158	673	147	-82	-11
Outbound Croft St to Common Rd	1700-1800	842	150	709	153	-133	+3
Car Journey times							
Outbound Croft St to Common Rd	1500-1600	321	59	383	64	+62	+5
Outbound Croft St to Common Rd	1600-1830	535	167	543	159	+8	-8
Outbound Croft St to Common Rd	1700-1800	641	142	630	121	-11	-21

Table 2.5.2: Outbound Journey Time Changes

2.5.6 Outbound bus journey times have improved by a similar amount to the morning peak, although there have been no significant changes in reliability. In contrast to the inbound direction car journey times in the peak have been little affected, although off peak times have worsened. Off peak bus journey times have only changed marginally, and this is also true between 0730-1030 for both buses

and cars (not shown).

2.5.7 Journey time surveys of Outer Ring Road traffic show that car journey times have improved in all times periods by around 1 minute, with a 2 minute saving occurring for westbound traffic in the morning peak period. These benefits are attributable to the effect of the advanced signals on the Manchester Road junction with the Ring Road which have the effect of platooning vehicle entry onto the roundabout and creating gaps for Ring Road traffic.

Bus patronage

2.5.8 There is strong evidence that the scheme has attracted additional passengers onto the buses. The growth in bus patronage on Manchester Road in the first seven months of the operation has exceeded growth elsewhere in Bradford by up to 10%. Surveys of bus occupancy show growth in usage in the afternoons of around 20% between May 2000 and May 2002 and evening peak growth of around 10% over the same period.

Attitudinal surveys

2.5.9 Attitudinal surveys of bus users were carried out in 1998 and again in April 2002. The surveys carried out in April 2002 show a high level of positive support for the scheme. When questioned about a range of 16 indicators, 63% of respondents (from a sample of 240) ranked the service as either good or very good. This shows a statistically significant improvement over the situation in 1998 when the comparable figure was 37% out of a sample of 133.

2.5.10 Most respondents in 2002 (72%) had made the same journey a year earlier, and of these 4% had previously travelled by car. 15% of respondents were travelling more frequently by bus compared with the previous year, and almost half of these said that the improved journey times had been the reason for this increase.

2.5.11 In 2002, just 31% of respondents rated peak period congestion as serious, compared with 60% in 1998. Perceived changes in journey times were considerably greater than those observed, with 59% of respondents estimating improvements in the range 1-5 minutes, and the remainder saying they had improved by more than 5 minutes.

Traffic levels

2.5.12 Significant changes in traffic levels have occurred as a result of the scheme. Both peak and all day traffic levels on Manchester Road have fallen and increased traffic has been observed on parallel routes such as Wakefield Road and Little Horton Lane. Surveys of the minor road network, however, indicate that traffic levels have fallen here too and there is evidence that across a wide area of South Bradford there is less traffic now than before the scheme commenced.

2.5.13 Table 2.5.3 shows changes across a cordon from Wakefield Road to Little Horton Lane taken from ATC data.

Site	Wakefield Rd	Hall Lane	Bolling Rd	Manchester Rd (N)	Park Road	Little Horton La	Total
AM Peak Period (0730-0930)							
2000 Two way flow – vehs	6734	1277	1298	6623	428	2684	19043
2002 Two way flow - vehs	6961	1041	1234	5615	376	2819	18046
Change	**227**	**-236**	**-63**	**-1008**	**-52**	**134**	**-997**
% change	**3%**	**-18%**	**-5%**	**-15%**	**-12%**	**5%**	**-5%**
PM Peak Period (1600-1800)							
2000 Two way flow – vehs	6899	1364	1279	6044	618	2706	18910
2002 Two way flow – vehs	7125	1184	1210	5447	621	2810	18397
Change	**226**	**-180**	**-69**	**-597**	**3**	**104**	**-513**
% change	**3%**	**-13%**	**-5%**	**-10%**	**0%**	**4%**	**-3%**
24 Hour Weekday							
2000 Two way flow – vehs	43213	6859	7151	40623	3184	16788	117818
2002 Two way flow – vehs	44989	6119	6939	36306	2888	18344	115585
Change	**1776**	**-740**	**-212**	**-4317**	**-296**	**1556**	**-2233**
% change	**4%**	**-11%**	**-3%**	**-11%**	**-9%**	**9%**	**-2%**

Table 2.5.3: Bradford Monitoring Cordon Data 2000 - 2002

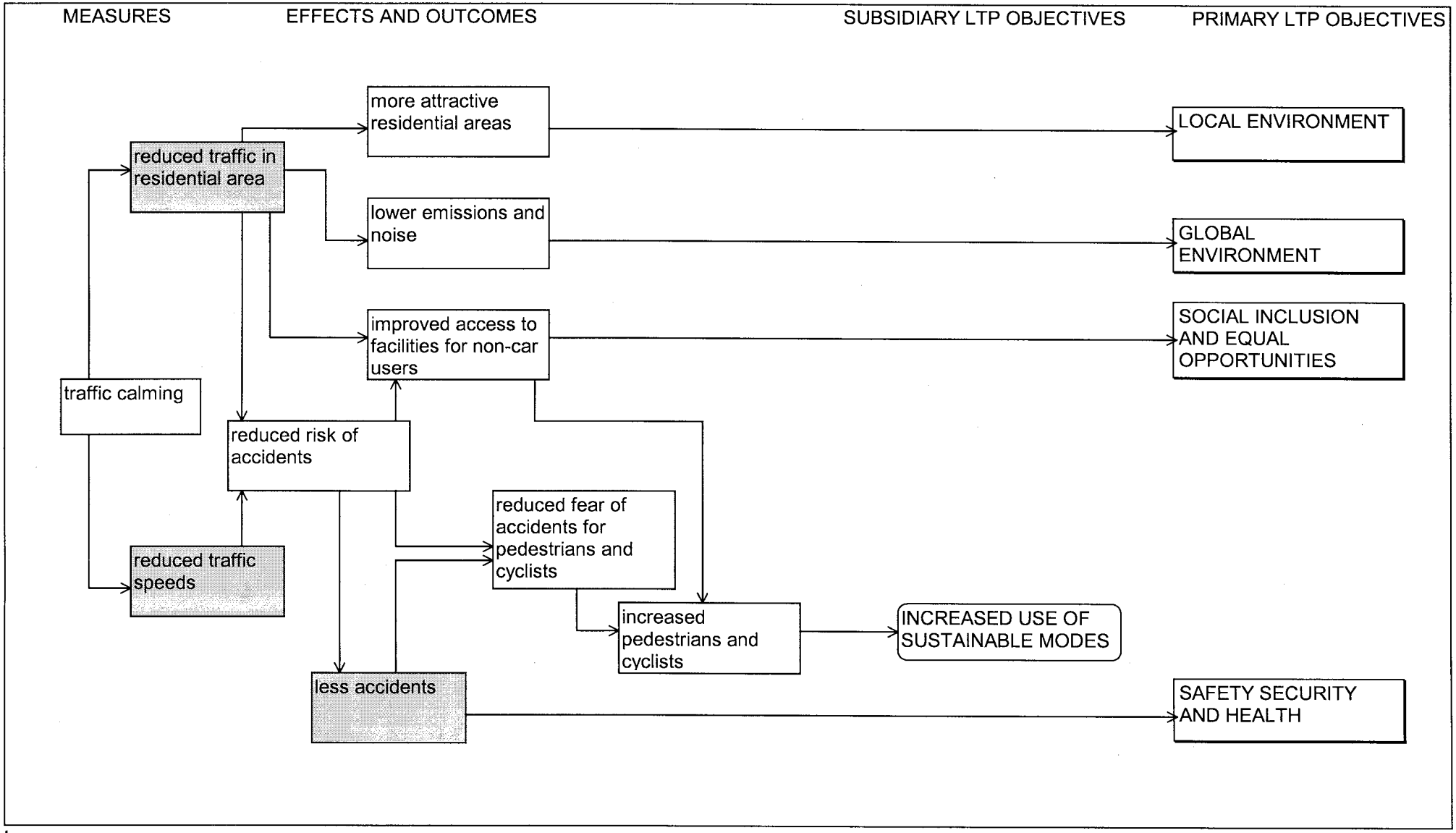
2.5.14 Manual classified counts throughout the minor road network show that in most cases traffic levels have fallen. This is likely to be linked to a programme of traffic calming in the area, however, it demonstrates that displaced traffic from Manchester Road has not reassigned to more sensitive areas. The principal exception to this is a link between Cleckheaton Road and A6036 Halifax Road, Netherlands Avenue, which allows traffic from the south to cross A641 Huddersfield Road to reach the western side of the city without using the A641. Here, traffic levels have increased by 20-40% in the peak periods, despite the designation of the road as Access Only, adding up to 150 vehicles per hour to this minor road.

Discussion

2.5.15 The scheme has been successful in meeting its objectives. Peak bus journey times and variability have been improved, and overall journey times are much more consistent throughout the day. Bus patronage has increased by around 10% more than in Bradford as a whole, and passenger surveys indicate a high level of approval for the scheme. There is evidence that some of this increased patronage has been attracted from former car users, and the fall in traffic levels across the corridor helps support this view.

2.5.16 In the AM Peak average inbound bus transit times are now 3 minutes faster than car transit times.

SOUTH BRADFORD TRAFFIC CALMING CAUSAL CHAIN



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PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | potential negative effect | data monitored

URBAN AREA SCHEME

2.6 Traffic Calming Schemes in Bradford

Objectives

- to reduce the number and severity of road traffic accidents;
- to reduce vehicle speeds;
- to discourage the use of minor roads by through traffic.

Scheme Description

2.6.1 This impact report relates to five traffic calming schemes implemented within south Bradford in 1996, 1997 and 2000. The first four schemes were funded from the Casualty Reduction Programme. The Bierley scheme was reported more fully in the 2000 / 2001 APR, but, at that stage no accident data was available for the 'after' situation.

2.6.2 The schemes comprise:

Location	Measures	Completion date	Scheme cost (£)
Gaythorne Road (West Bowling)	Cushions, priority build-outs (incorporating cushions)	March 1996	57,500
Lower Rushton Road (Thornbury)	Round topped road humps	March 1997	21,750
Reevy Road West (Buttershaw)	Cushions	March 1997	87,000
Parkside Road (West Bowling)	Round topped road humps, cushions, chicanes	March 1997	108,000
Bierley Lane (Tong)	Chicanes, mini roundabouts	August 2000	188,000

Monitoring

2.6.3 Before and after data on traffic volumes, traffic speeds and accidents were collected for each scheme.

Survey Results

2.6.4 Table 2.6.1 shows the changes in accidents for each of the five schemes. With the exception of Bierley Lane the data relates to a 5 year period.

Location	Accidents – 5 year period			Casualties – 5 year period		
	Before	After	Change	Before	After	Change
Gaythorne Road (West Bowling)	20	2	-18	21	2	-19
Lower Rushton Road (Thornbury)	11	2	-9	12	2	-10
Reevy Road West (Buttershaw)	19	4	-15	21	4	-17
Parkside Road (West Bowling)	30	7	-23	38	9	-29
Bierley Lane # (Tong)	10	3	-7	12	3	-9

before data = 3 year period, after data = 28 months.

Table 2.6.1: Road Traffic Accidents

2.6.5 Table 2.6.2 shows the changes in average speeds and traffic volumes. Data is provided for three locations on Bierley Lane where monitoring took place. The small fall in average speeds on Bierley Lane at Bierley House Avenue is attributable to a 'missing' chicane which has not yet been provided due to conflicts with a proposed development site. The higher drop in traffic levels at this location is partly caused by the signalisation of the roundabout junction with A6177 Rooley Lane which has increased delays for traffic on Bierley Lane.

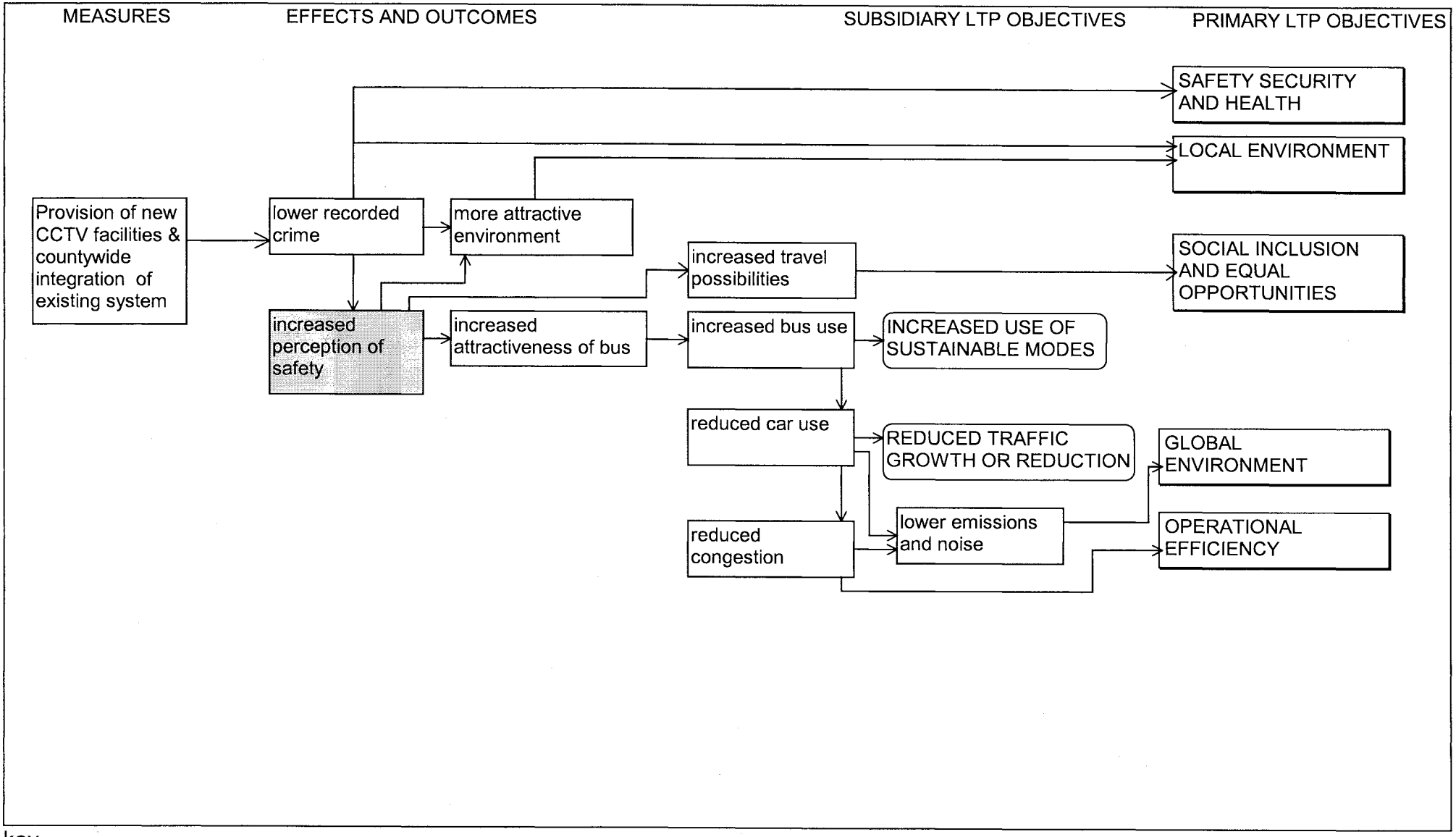
Location	Average speed – mph			12 hour traffic – vehs		
	Before	After	Change	Before	After	Change
Gaythorne Road (West Bowling)	28	19	-9	5299	3971	-1328 (-25%)
Lower Rushton Road (Thornbury)	32	21	-11	1293	1007	-286 (-22%)
Parkside Road (West Bowling)	31	19	-12	3379	3129	-250 (-7%)
Location	Average speed – mph			12 hour traffic - vehs		
	Before	After	Change	Before	After	Change
Bierley Lane - Bierley House Ave	33	32	-1	6547	5209	-1338 (-20%)
Bierley Lane - Currer Ave	33	28	-5	6231	5490	-741 (-12%)
Bierley Lane - Shetcliffe Lane	29	27	-2	5961	5257	-704 (-12%)

Table 2.6.2: Road Traffic Speeds and Volumes

Discussion

2.6.6 The scheme objectives have been clearly met by all five schemes, although the speed reductions achieved in Bierley have been of a lower order than the others. Road traffic accidents have been reduced by around 80%, average speeds have fallen to around 20 mph in four of the schemes, and traffic volumes have been reduced by as much as 25%. As reported in 2001, the proportion of vehicles exceeding the speed limit on Bierley Lane has fallen substantially.

UPGRADING OF CLOSED CIRCUIT TELEVISION AT BUS STATIONS IN WEST YORKSHIRE CAUSAL CHAIN



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PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | data monitored

URBAN AREA SCHEME

2.7 CCTV at Bus Stations

Objectives

- to improve safety and security at bus stations;
- to increase passenger confidence;
- to deter vandalism of the infrastructure;
- to increase areas of surveillance around bus stations.

Scheme Description

2.7.1 All bus stations / bus points in West Yorkshire now have CCTV coverage with the exception of Brighouse, Ossett and Cleckheaton (which are shortly to undergo major refurbishment). The main aim of the scheme was to improve safety and security on public transport in West Yorkshire. The scheme was completed in 2002 at a cost of £560,000, including a grant of £404,000 from the Home Office. The scheme comprises the following improvements to existing CCTV coverage:

Improvements visible to public

- enhanced CCTV coverage of Castleford, Dewsbury, Halifax, Leeds and Pontefract bus stations;
- provision of CCTV surveillance of the main pedestrian approach routes to the bus stations at Bradford, Keighley and Huddersfield;
- improved Metro Help Points to provide a dual facility for CCTV Control Centre security officer response in the case of an emergency or Metroline staff in the case of an information enquiry.

System improvements

- upgraded equipment in order that video information can be shared between the Metro CCTV Control Centre and all major Local Authority CCTV control rooms throughout West Yorkshire;
- upgraded equipment in order that tape review facilities of the Metro CCTV network can be installed within all major Local Authority CCTV control rooms in West Yorkshire for the benefit of the police.

Monitoring

2.7.2 1130 interviews with the public were conducted before and after the scheme was implemented at six bus stations across West Yorkshire. The bus stations represented a cross section from the large city interchange at Bradford, the town stations of Huddersfield and Halifax to the smaller unstaffed stations at Otley, Todmorden and South Elmsall. The interviews were conducted on weekdays from 1000 to 2300 and on Saturdays from 1000 to 1800.

2.7.3 The perception of bus station safety has increased for both daytime and night time users. Bus stations were considered safe during the daytime by 95% of interviewees in 2002 compared with 85% in 2001. For night time users the figures were 41% in 2002 compared to 15% in 2001.

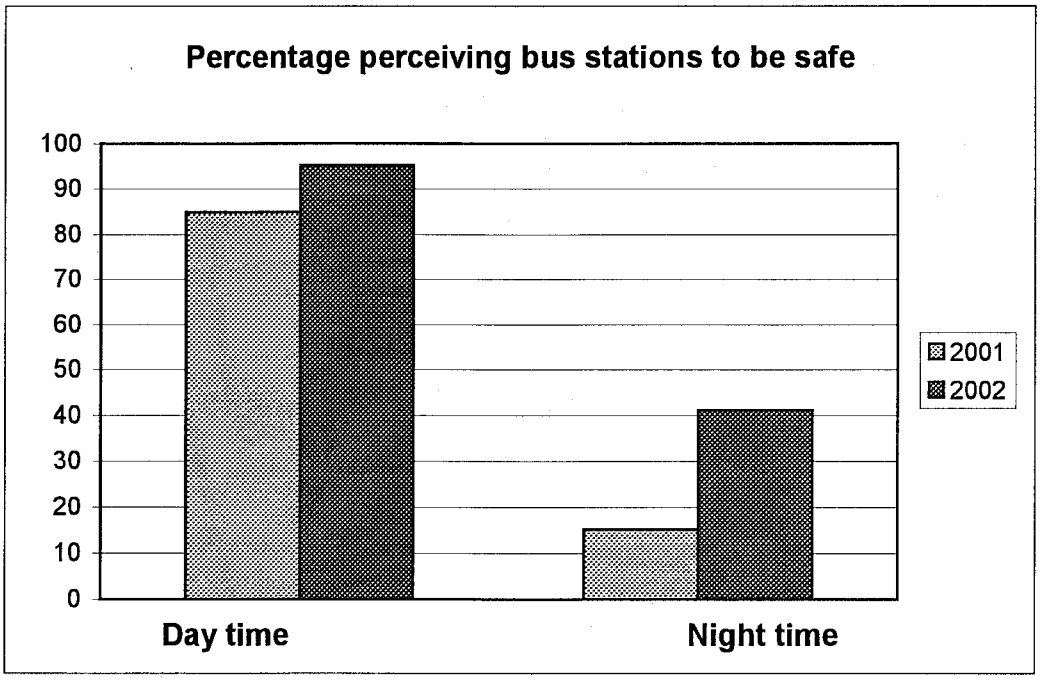


Figure 2.7.1 User Perception of Bus Station Safety 2001 / 2002

2.7.4 The number of interviewees deterred from using bus stations through personal security considerations has decreased significantly from 31% in 2001 to 14% in 2002.

2.7.5 70% of interviewees were aware of the location of the Help Points and 12% had used them. For both information and emergency, 94% felt that the response was good or acceptable.

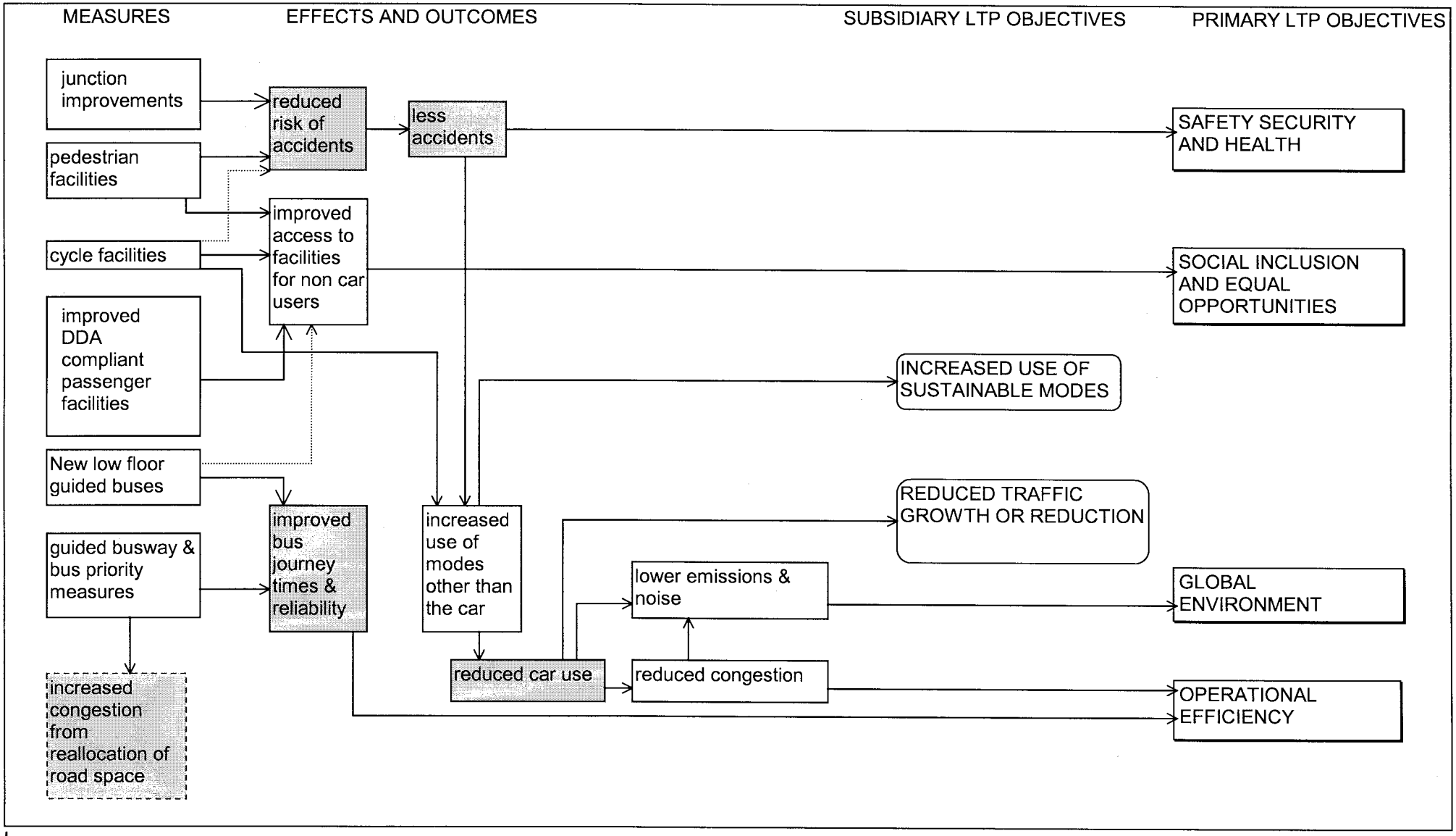
Affected Parties

2.7.6 The enhancements in CCTV coverage and Help Points have given passengers greater confidence in using bus stations. Fewer people are deterred from use of bus stations and a greater proportion consider them safe.

Discussion

2.7.7 Continued expansion in CCTV surveillance will allow for further improvements to this aspect of safety and security. As the rolling programme of bus station refurbishment is carried out improved CCTV coverage will be included. Provision of other facilities such as real time information will additionally give greater passenger confidence in the use of bus stations.

EAST LEEDS QUALITY BUS INITIATIVE - CAUSAL CHAIN



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PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | potential negative effect | data monitored

URBAN AREA SCHEME

2.8 East Leeds Quality Bus Initiative

Objectives

- to improve the reliability of bus services;
- to improve the attractiveness of public transport;
- to improve bus journey times;
- to increase passenger comfort and security;
- to encourage modal shift from the car.
- to enhance pedestrian safety

Scheme Description

2.8.1 **elite** is a ground breaking partnership between Leeds City Council, METRO, FIRSTLeeds and ARRIVA Yorkshire working together to improve bus services and infrastructure in East Leeds. The **elite** service is unique in that two (competing) private companies have joined resources with two public agencies to create a solution to a shared problem.

2.8.2 The scheme is located to the east of Leeds on the A64 York Road / A63 Selby Road radial route between the city centre and the A6120 Outer Ring Road. It provides the main transport link for the many residential communities along the corridor, serving some 100,000 residents in 45,000 households.

2.8.3 The scheme opened on 5 November 2001 and cost £16 million, including £11 million contribution from the bus operators towards new vehicles and infrastructure.

2.8.4 The scheme comprises:

- over 2.1 km of segregated guideway located in the central reserve;
- 2.6 km of 24 hour operation bus lane and cycle lane;
- provision of additional bus priority at junctions through selective bus detection;
- improved crossing facilities at stops and junctions;
- over 330 bus stops and 150 shelters fully refurbished to incorporate enhanced accessibility through level boarding features and improved personal safety and security measures;
- provision of Bus Clearways at the majority of stops to deter illegal parking and improve bus docking;
- improved passenger information;
- provision of over 40 new **elite** branded double-decker buses fitted with guide wheels.

Before Monitoring

2.8.5 Extensive surveys were undertaken in October 1999 to establish baseline data for bus journey times, service punctuality, patronage and modal share. The following data were collected:

- bus journey times - by registration plate matching at 11 sites in East Leeds;
- car journey times - by registration plate matching at the same 11 locations as for buses on the same days to provide comparative data;
- bus reliability - analysis of service punctuality was determined by matching service numbers recorded for the journey time analysis against the service timetable;
- public transport patronage - obtained by a physical headcount of people travelling by bus at 5 key locations;
- traffic volumes - 2 way manual traffic counts were determined at York Road and Stoney Rock Lane;
- car occupancy - was determined at the same locations as traffic counts to allow calculation of modal share for each corridor.

2.8.6 Surveys were generally conducted between 0700 and 1100 inbound and 1400 to 1900 outbound, to match the tidal flow of traffic to and from the city centre.

After Monitoring

2.8.7 This report summarises the initial outcomes of the study into the impact of the **elite** scheme. The before survey was conducted in the autumn of 1999 and the after survey in the autumn of 2002, one year after the opening of the scheme. The data were generally collected between 7:00 to 11:00 in the inbound direction and 14:00 to 19:00 in the outbound direction. The comparison is not a straight like with like as considerable pedestrian access improvements have been incorporated into the scheme including new controlled pedestrian crossing facilities. The impact is not therefore purely related to the introduction of bus priority onto an existing road system.

Traffic flow

2.8.8 Traffic flow data were automatically counted along two screenlines at the extremities of the scheme. There is no evidence to suggest that there has been any overall change in the total volume of traffic crossing these screenlines. For two sites, however, North and South Parkway, increases in traffic flows were recorded.

2.8.9 For South Parkway there is evidence to suggest some diversion in flow may have taken place from the A64 between the Outer Ring Road and Melbourne roundabout. For the North Parkway site, it is likely that this increase is attributable to the re-development of the Seacroft District Centre.

Bus flow changes

2.8.10 The number of buses observed at strategic locations in the East Leeds corridor suggest that the total volume of buses has changed little.

Car occupancy changes

2.8.11 For two locations at the western edge of the **elite** corridor, the number of vehicles and their occupants were recorded. This enabled an average occupancy per car to be established. At the Irish Centre, the general pattern is for increases in car occupancies inbound during the morning period (from 1.26 persons per vehicle to 1.29) with a suggestion of reduced occupancies outbound for the 16:30 to 17:30 period (from 1.35 persons per vehicle to 1.34).

Bus occupancy changes

2.8.12 At five locations census staff boarded buses to count the number of passengers onboard. From these observations, an increase in inbound morning and evening outbound peak hour bus occupancies at the Irish Centre is apparent - in the morning increasing from 38 passengers per bus to 42. This is, however, matched by reductions during the inter-peak period. The overall result is of stability in bus occupancy figures. South Parkway is the only site to show consistent and noteworthy increases in bus occupancies, from 12 to 17 passengers per bus in the morning and 9 to 14 passengers in the afternoon.

2.8.13 Comparison of ticket machine data for buses using the guideway for 3 weeks in 2002 with a similar period in 2001 shows a 6% increase in patronage with no loss of patronage on adjacent routes.

Average car journey times

2.8.14 At strategic locations within the corridor the partial registration number and observation time were recorded for a sample of the car traffic. This enabled journey times for over 7% of cars to be established. Four strategic sections have been considered in detail: from Melbourne Roundabout to Killingbeck Retail park; from Killingbeck Retail park to the junction of the A64 and A63; from Halton Village to the same junction; and from the junction of the A63 and the A64 to the Irish Centre. The overall pattern is for statistically significant increases in average car journey times, particularly in the off-peak time period, with only a minority of locations and time periods showing stability in journey times.

Average bus journey times

2.8.15 For the same road sections that were considered for car journey times, bus journey time information is available from a similar registration number matching exercise. Detailed analysis suggests that there has been little or no reduction in the average bus journey times on any of the four links.

Car journey time variance

2.8.16 The variance or consistency in the journey times for cars appears to have deteriorated, of the order of between 8% and 20%, along all routes - although this deterioration is to a lesser extent than that in average journey times.

Bus journey time variance

2.8.17 The picture with bus journey time consistency appears to be mixed. There are links and time periods which see a significant reduction in the journey time

variation whilst others show an increase. The only section where there is evidence to suggest a genuine reduction in bus journey time variation is from the Irish Centre to the junction of the A63 and A64. For afternoon outbound buses reductions in journey time variation of between 13% and 50% were recorded.

Bus punctuality

2.8.18 Using information on the observed arrival time of bus services at stops within the corridor and the scheduled arrival of buses at these same stops, it is possible to measure the punctuality of bus services. For individual buses, how this punctuality changes between them entering and leaving the Elite corridor establishes whether the infrastructure enables each bus to re-gain their punctuality. For the morning peak hour, 8 to 9am, buses which travel via Crossgates Road tend to become less punctual, losing an additional 1 to 3 minutes on average, depending on whether they start from Colton or Austhorpe. In the same time period, buses travelling through Halton show a mixed picture with some services becoming less punctual by 1 minute (Service 18, 18A) whilst others recover between 3 (Service X4) and 10 minutes of punctuality (Service 402). Inbound buses arriving at Colton were, on average, nearly 9 minutes late possibly as a result of difficulty crossing the M1 at junction 46.

Accidents

2.8.19 A consideration of the trends in all reported accidents along the A63 and A64 shows 44 accidents observed in 2002 against a yearly average of 61 in the period 1996 - 2000, a reduction of 28%. A consideration of accidents involving pedestrians shows a slightly smaller reduction of 23% in the 1996 - 2000 trend, from 52 to 40. Considerable improvements for pedestrians, including new crossing facilities at junctions and improved access to bus stops, were implemented along the whole of the scheme. Encouragingly, there have been reduced accident occurrences at several junctions including: Junction of A63 and A64; Junction with Gipton Approach; and Junction with Harehills Lane. Conversely the junction of the A63 with Carden Avenue suggests an increased accident occurrence.

User Survey

2.8.20 The on-board passenger survey completed by 281 passengers showed that 36% of respondents now travel along the corridor more frequently, primarily due to the improved quality of the scheme. The proportion of respondents using the service on 2 days per week or more had increased from 67% in 2000 to over 85% in 2002. The factors, which encouraged more frequent use, were overall quality of service (36%), reliability and punctuality (24%) and faster journey time (22%). The remaining 18% were for reasons unrelated to the scheme.

2.8.21 Passengers are using the service more frequently for commuting therefore indicating a higher patronage during peak times. Travel to work, business, education and training represented 43% of trips in 2000 but in 2002 this had risen to over 60%.

2.8.22 There is evidence of a modal shift with 7% of passengers switching from car to bus compared to journeys undertaken a year ago and with virtually no change in the proportion of respondents with access to a car.

2.8.23 There was a reported improvement on reliability and punctuality with a positive response from nearly 95%, as opposed to 86% in 2000.

2.8.24 The improved infrastructure at bus stops combined with new low floor buses was very well received. Respondents were asked about convenience and accessibility to stops and buses for those both with walking difficulties and with luggage and pushchairs. 98% gave a positive response to the improvements in these areas.

2.8.25 Accessibility to stops was rated highly, including a positive response from passengers with luggage and pushchairs.

2.8.26 Over 87% of passengers gave positive feedback relating to the information available at bus stops.

2.8.27 Only a small percentage of respondents suggested further improvements to the service, the most being related to improved frequencies (5.3%).

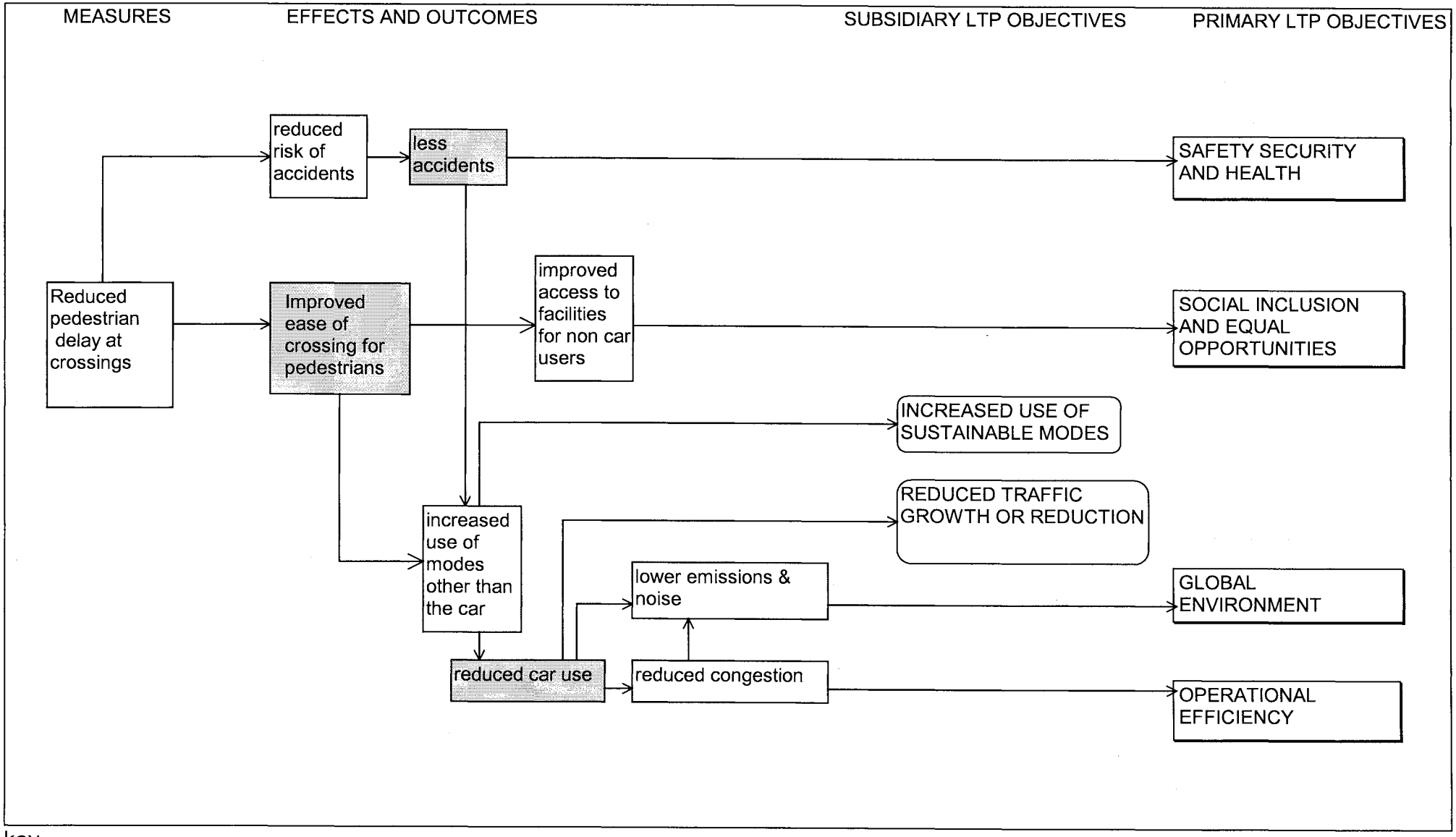
Discussion

2.8.28 The survey results give a mixed picture of the overall impact of the scheme. Further journey time monitoring will be carried out to help improve our understanding of operational performance and assist in developing future scheme refinements.

2.8.29 The main outcomes are:

- increased peak hour patronage of about 10%;
- increased frequency of use for commuting and other journeys;
- increased inbound car occupancy from 1.26 persons per vehicle to 1.29 in the morning period with a slight reduction from 1.35 persons per vehicle to 1.34 in the evening peak;
- overall little or no reduction in average bus journey times. Evidence does, however, suggest improved evening peak journey times between the Irish Centre and Halton Dial;
- significant increases in average car journey times;
- bus journey time variance has significantly reduced on some links and time periods but increased on others;
- high level of user satisfaction with the accessibility of both buses and bus stops;
- high level of user satisfaction with the provision of information.

REVIEW OF MID-BLOCK PEDESTRIAN CROSSINGS - CAUSAL CHAIN



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PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | potential negative effect | data monitored

URBAN AREA SCHEME

2.9 Review of Mid-block Pedestrian Crossings in Leeds

Objectives

- to improve conditions for pedestrians crossing roads throughout the Leeds District;
- to give pedestrians greater priority at mid-block crossings;
- to encourage greater use of signalled crossing and to discourage crossing against a red man;
- to encourage walking as a sustainable form of transport.

Scheme Description

2.9.1 There are an increasing number of signalled road crossings for pedestrians in Leeds. 200 of these are 'mid-block' crossings, i.e. they are between road junctions. These facilities are provided to be a safe road crossing for pedestrians, cycles and occasionally horses.

2.9.2 Historically the timings and mode of operation of these facilities have been biased towards minimising disruption and delay to traffic passing along the road. In line with the aims of the LTP, there is now an increased awareness of the need to specifically consider pedestrians. Reducing delays for pedestrians crossing the road should encourage pedestrians to use the signalled facilities provided, possibly reducing the numbers crossing against a red pedestrian signal and potentially reducing the risk of pedestrian / vehicle accidents. Consequently UTMC has in place a four year programme to review all mid-block crossings.

2.9.3 A number of different techniques were employed, depending on the type of crossing and the surrounding road / signal environment. Some crossings under UTC control were allowed to operate independently of UTC, for part or all of the day. Some were given a longer 'window', or double 'window' opportunity to change to the pedestrian phase. The controller timings at non-UTC crossings were examined, and maximum times for vehicle greens reduced if possible, thus serving the pedestrian more quickly.

2.9.4 Out of the 200 sites under consideration, improvements have already been made at 31 sites in 2001 / 2002, 42 sites were modified in 2002 / 2003. 27 were judged not to be appropriate for this sort of treatment. A further 100 sites remain to be looked at over the next two years.

Monitoring

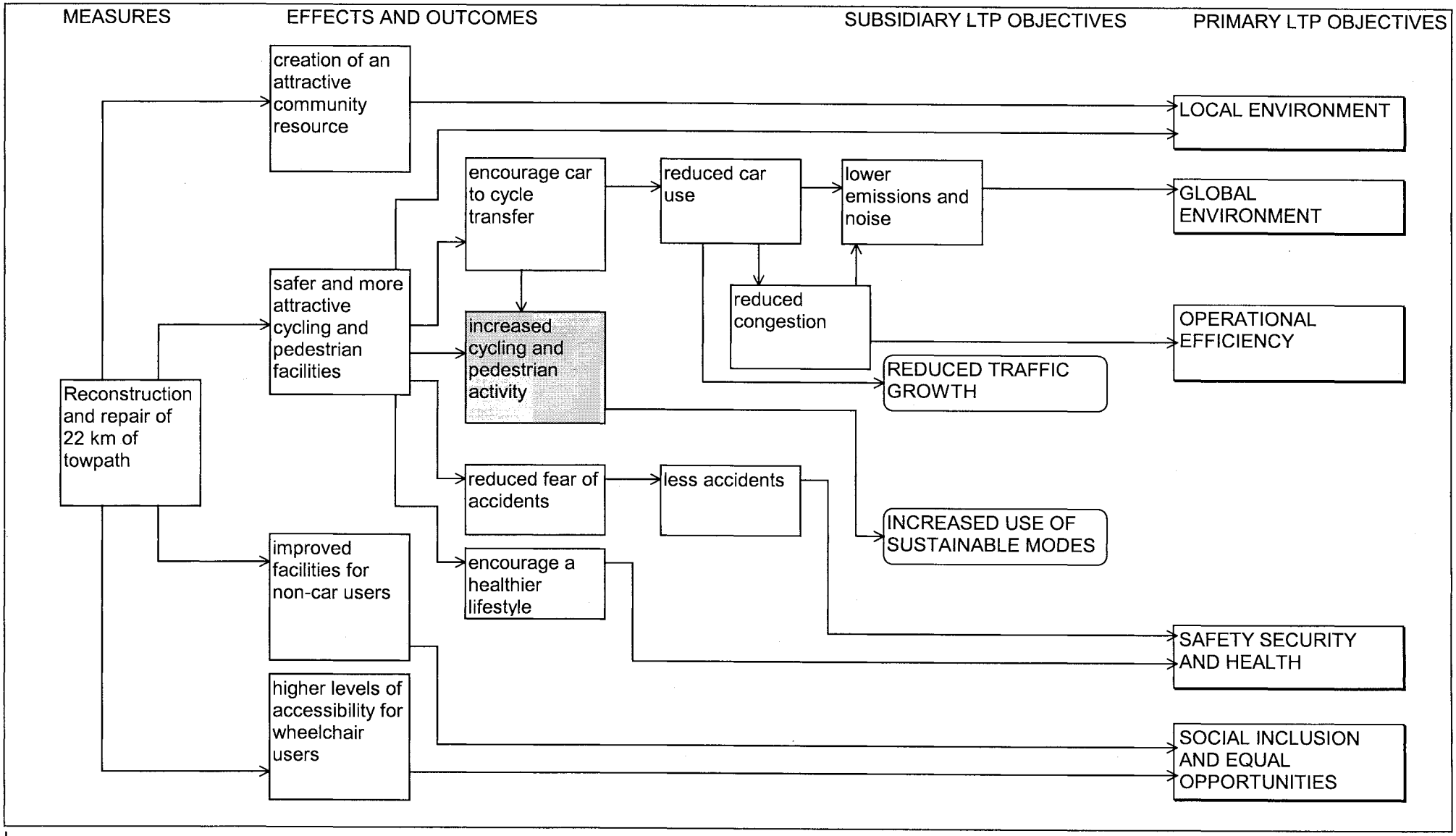
2.9.5 Pedestrian delay was measured at the sites before and after treatment. Survey staff crossed repeatedly and noted down the delay each time. Surveys were done from 07.30 to 11.30, and 14.00 to 18.30, for one day at each site. In 2001 / 2002 all sites modified were surveyed. In 2002 / 2003 a sample of about 67% were surveyed.

2.9.6 The results of the surveys showed a reduction of 30% in average time delay for pedestrians in 2001 / 2002. Those assessed in 2002 / 2003 showed a greater reduction of 38%.

Discussion

2.9.7 The review of pedestrian delay at mid-block crossings has resulted in a reduction of over 30% in average time delay for pedestrians. Further work over the next 2 years will lead to a further 100 sites being assessed. The impact of these measures in contributing to accident reduction will be reported in future years.

LEEDS - LIVERPOOL CANAL TOWPATH IMPROVEMENTS CAUSAL CHAIN



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PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | data monitored

URBAN AREA SCHEME

2.10 Leeds and Liverpool Canal Towpath Improvement

Objectives

- to improve access for all to areas of attractive countryside;
- to maximise the canal as a community resource;
- to encourage walking and cycling for recreation and utility purpose.

Scheme Description

2.10.1 From its start point in Leeds City Centre, the Leeds and Liverpool Canal follows the valley of the River Aire through Leeds and Bradford Metropolitan Districts before crossing the Pennines to Lancashire. It provides a green corridor in the heart of this densely populated area and passes honeypots of industrial and social heritage notably Granary Wharf, Armley Industrial Museum, Kirkstall Abbey ruins and museum, the canal junction at Shipley, Saltaire Village World Heritage Site, Shipley Glen Tramway, Brackenhall Countryside Centre and the famous Bingley Five Rise Locks. Locations of nature conservation include the Centre for British Nature Conservation Volunteers at Kirkstall, Bramley Falls, Rodley Nature Reserve, Lodge Wood, Calverley Wood, Buck Wood and Hirst Wood and Dowley Gap.

2.10.2 The towpath is continuous but many sections have become narrow, overgrown, poorly drained and unevenly surfaced restricting access from the numerous adjacent residential areas.

2.10.3 Parallel roads, notably the A65 and A657 and A650, are very busy and not attractive for walking and cycling even though conditions for these users are being improved by the introduction of dedicated facilities such as cycle lanes and crossings. The canal towpath offers the potential for level, relatively direct and traffic-free routes for many journeys that could be made on foot or cycle.

2.10.4 The towpath improvements were implemented in phases:

Phase 1 consisted of removing various barriers and modifying others to remove obstructions to cyclists, pushchairs and wheelchairs along the towpath and was carried out in autumn 2001. A number of these large metal barriers had been erected to prevent unauthorised use of the towpath by motor vehicles and motorcycles.

Phase 2 involved the reconstruction and repair of the 22km of towpath between Leeds and Saltaire to a minimum width of 1.8 metres using limestone materials with a 6mm to dust wearing course. For those lengths of towpath where the existing surface was generally acceptable, works were confined to patching potholes and local widening where necessary. Elsewhere, a full path construction was undertaken. A considerable amount of small, self-seeded plants, shrubs and saplings were cut back to provide the clear width required and to establish a base for future routine maintenance. In a number of places, the roots of the removed saplings had been invading the stonework of retaining walls and

canal wave walls causing structural deterioration. The main works of this phase extended from March to August 2002.

Phase 3 is intended to consist of further works to complement and enhance the improvements already made. They are likely to target specific features along the route which are less than satisfactory or cause local difficulties for some users, especially those using pushchairs and wheelchairs. It is anticipated these works will be specified during 2003 and implemented as soon as possible.

The Partners

2.10.5 The scheme was devised and implemented through co-operation and joint working between the following partners:

- British Waterways are the landowners and have responsibility for the care, welfare and promotion of the canal. They are co-ordinating the project, taking particular responsibility for the design and implementation of the works and publicity.
- Leeds City Council and the City of Bradford Metropolitan District Council have provided capital funding and contributed to all aspects of the project.
- Sustrans were employed by the three other partners to carry out an initial feasibility study for the project and have continued to be involved in an advisory capacity. Also, they have established a system of volunteer rangers who regularly ride the route and can offer advice to users and gather information to assist in the development and maintenance of the route.

Consultation

2.10.6 Following the initial feasibility report, British Waterways undertook a consultation exercise with organisations representing the various canal users and other interested parties. There was general support for the project but some apprehension was expressed about the impact of increased usage of the towpath especially by cyclists.

2.10.7 A number of press releases have been issued at various stages to inform people of the proposals and the progress being made. In September 2002, a launch event was held where John Battle, a local Member of Parliament, formally opened the route.

An information leaflet has been produced and distributed locally and a website www.airevalleytowpath.org.uk has been created.

Funding

2.10.8 Funding for the Phase 2 works was provided by Leeds and Bradford from their Local Transport Plan allocations. The cost of design, contract supervision and administration, consultation and publicity were met by British Waterways.

Before and After Monitoring

2.10.9 Leeds City Council carried out counts of those using the towpath at four locations (Rodley, Kirkstall, Armley and City Centre) on a Wednesday and a Sunday in March 2002 before the works began. They repeated these counts one year later and a summary is given in Table 2.10.1 below.

Survey Day	Survey Time	Walkers / Runners		Cyclists		Total*		Increase 2002-2003
March		2002	2003	2002	2003	2002	2003	
Wednesday	0730-0930	92	70	34	37	130	107	-18%
	1130-1400	359	305	49	27	412	333	-19%
Sunday	1100-1400	520	882	76	351	598	1245	+108%

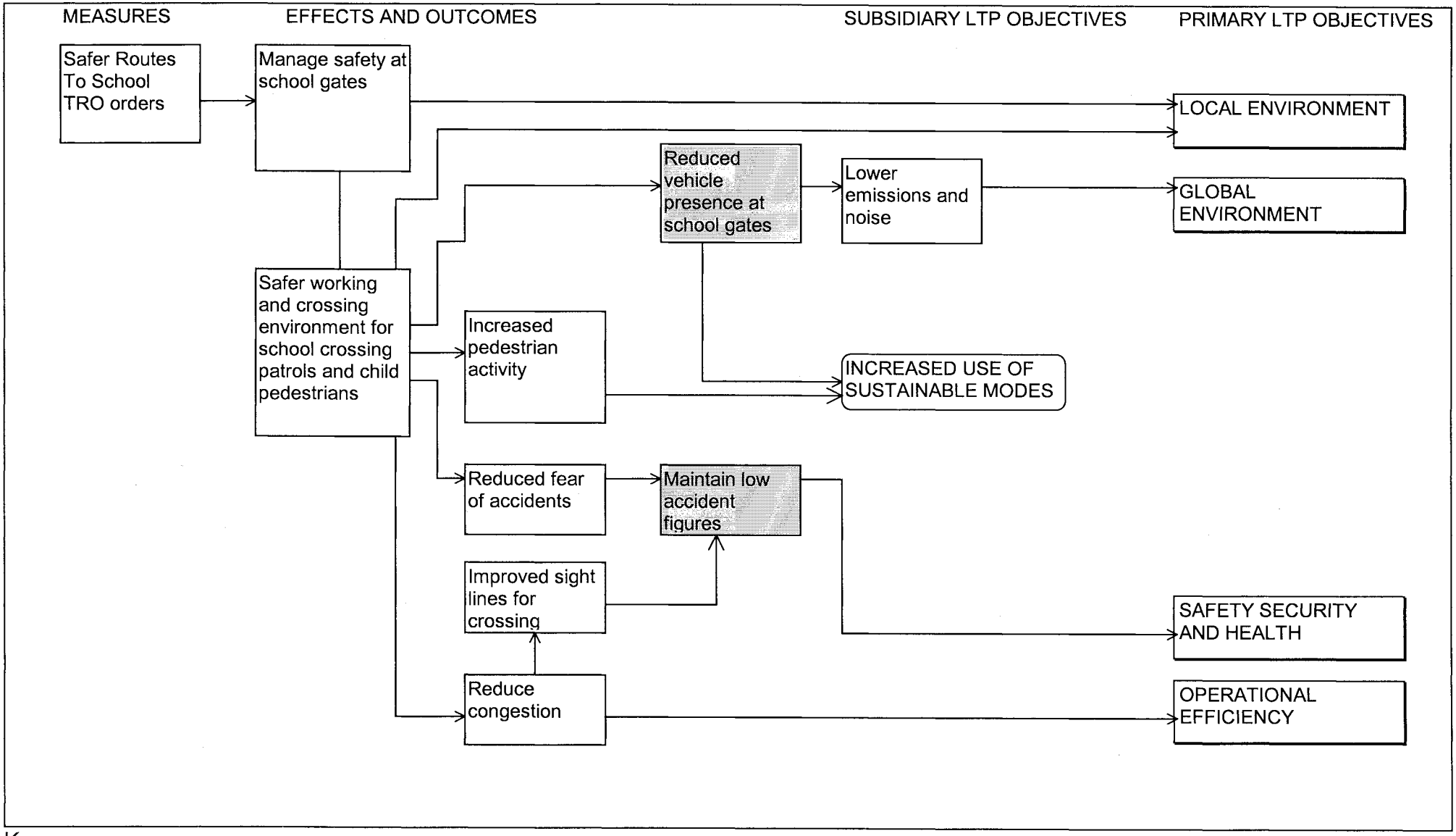
* Includes a small number of other users (horseriders, motorcycles, motor vehicles)

Table 2.10.1 Towpath Usage Before and After Surveys: All Sites Combined

Discussion

2.10.10 It can be seen that a large increase in Sunday usage was observed whilst a small reduction was observed on the Wednesday. It is intended to continue monitoring in future years to establish a robust time series of towpath usage. Future years surveys will also include in-depth interviews with cyclists to determine the extent of any modal and route shift as a result of the improvements.

SAFER ROUTES TO SCHOOL – CROSSING PATROL SAFETY



Key:

PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | data monitored

URBAN AREA SCHEMES

2.11 Safer Routes to School – School Crossing Patrol Safety in Calderdale

Objectives

- to improve safety within the working environment of the school crossing patrols;
- to improve the pedestrian environment so that children have the opportunity to walk or cycle to and from school in safety;
- to reduce traffic congestion and pollution at the school gate;
- to improve the safety of roads and reduce child casualties;
- to improve children's health and fitness through walking and cycling;
- to improve road awareness in children and to provide familiarity with public transport.

Background

2.11.1 Historically the provision of measures at the "school gate" has been financially limited. This situation arose from the need to justify any expenditure against a saving in the number of road casualties. Fortunately, the number of casualties near schools is low, but financially this limits the opportunity to justify any further investment. Consequently the "school gate" sites, while still currently safe, have not been addressed for some time.

2.11.2 Unfortunately this untreated area at the "school gate" is also the workplace of the school crossing patrols. The safety of these council employees is not only important for them as individuals, but also as the safety managers of child pedestrians.

2.11.3 Under the Health and Safety at Work Act 1974, it is important to provide all council employees with a safe working environment, and it was under this umbrella that the area outside schools has now been addressed, even though there is no history of road casualties.

Scheme Description

2.11.4 Twenty-three schools across the borough were identified for measures that could improve the working environment for the school crossing patrols.

2.11.5 A series of Traffic Regulation Orders were used to establish a clear area around the school gates. An urban clearway Order between the hours of 08:15 to 09:15 and 14:30 to 16:00 augmented the existing school zig-zags, and additional lining was used to extend their effective length. The opposite side of the road was also treated across a similar distance using double yellow lines and tabs, again specified for the times shown above. Clearway signs were used to advise motorists of the Order throughout the clear area. Currently seventeen of the twenty-three schools identified have been completed on the ground, with the remaining six awaiting completion.

Before Monitoring

2.11.6 The initiation of this process results from the potential danger to the school crossing patrols and the responsibility of the council toward its employees. In this respect the safer routes to school team has been proactive with this project, rather than responding to a trend of accidents. Therefore monitoring in this instance has been difficult, as the experience of engineers and the perceptions of the school crossing patrols have been the driving force.

After Monitoring

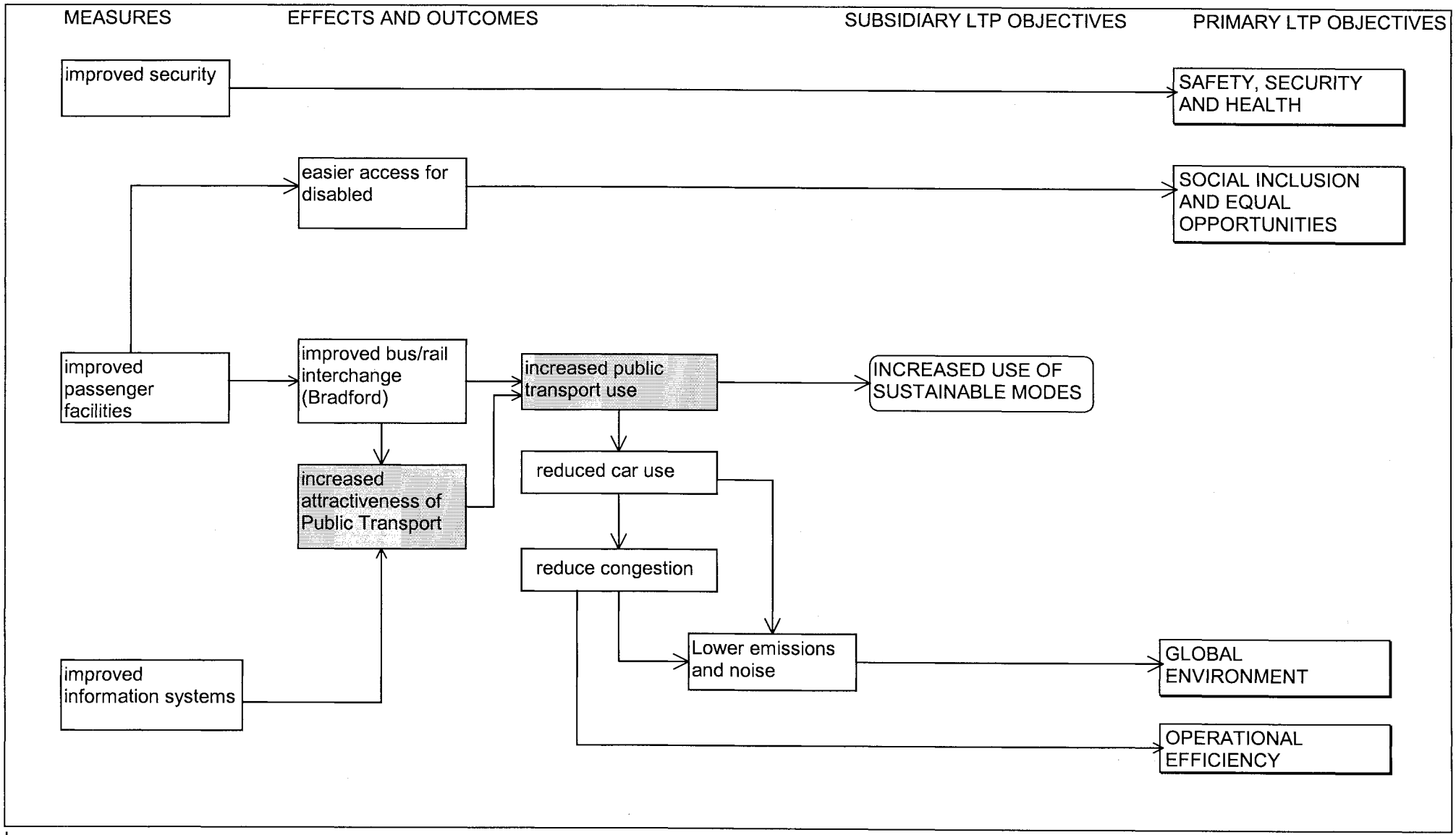
2.11.7 Following the installation of the first round of Traffic Regulation Orders, congestion at the school gates was reduced but some vehicles still invade the area. All of the seventeen schools involved reported that they considered the resultant projects to be "good" with some citing the schemes as being "very good". With these results in mind the preliminary list of seventeen schools has certainly supported the addition of the remaining six schools into the scheme, and has even solicited enquiries from other nearby schools to be included.

Discussion

2.11.8 The introduction of measures under the health and safety umbrella has given an opportunity to provide a useful addition to the school environment. Although the main objective was to improve the working safety of the school crossing patrols, the obvious additional benefit is one of improved safety for the school children. In keeping both sides of the carriageway clear, the lines of sight for the patrols have been notably increased; particularly when children cross towards the schools in the mornings.

2.11.9 The provision of clearway areas can exclude traffic, however this often simply displaces the problem. Over time the authority of the scheme may erode as the parents become accustomed to its presence. Enforcement is therefore important to re-emphasise the exclusion, but police or traffic warden presence may be difficult to obtain. In the future the decriminalisation of parking offences may allow council wardens to specifically enforce these "school gate" Orders on a basis of random rotation between school sites.

KEIGHLEY BUS STATION – CAUSAL CHAINS



key

PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | data monitored

URBAN AREA SCHEME

2.12 Keighley Bus Station

Objectives

- to develop a safe and secure environment for passengers;
- to improve passenger safety by reducing the conflict between vehicle and passenger movements;
- to improve passenger security through provision of centrally monitored 24 hours CCTV;
- to improve the provision of information, allowing passengers to make better use of alternative services to their destination and easier access to prepaid tickets and promotional activity;
- to provide new passenger facilities including toilets, travel centre and tourist information centre outlet, newsagents and cafeteria;
- to ensure the facility was fully accessible by disabled people.

Scheme Description

2.12.1 The scheme involved the reconstruction of a high quality 15 stand Drive In Reverse Out operation (DIRO) bus station, with covered accommodation for passengers, on the same site as the previous outdated facility. Construction works commenced in April 2001 and a public event was held to celebrate the opening of the new facility in February 2002. The scheme comprises:

- provision of DIRO;
- introduction of level boarding bus bays;
- provision of electronic departure information;
- a travel centre;
- CCTV centrally monitored 24 hours a day.

Monitoring

2.12.2 A questionnaire survey was conducted in October / November 2002 to gauge passenger opinion on the individual facilities at the newly built bus station. A sample of 140 people participated in the survey, with most answering all the questions.

Bus station usage

2.12.3 Responses showed that over 50% of passengers use this station five or more days per week. A further 33% use the station more than two days per week.

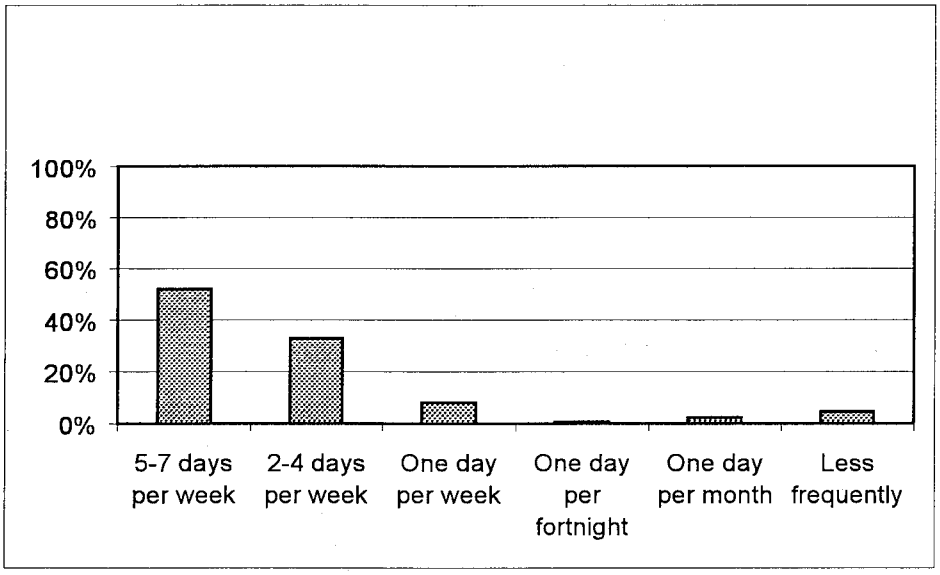


Figure 2.12.1 Days per Week/Month Passengers Use Keighley Bus Station

2.12.4 Nearly 90% of respondents reported that they have used the bus station for over one year. Over 55% of these passengers now use the station more frequently than a year ago.

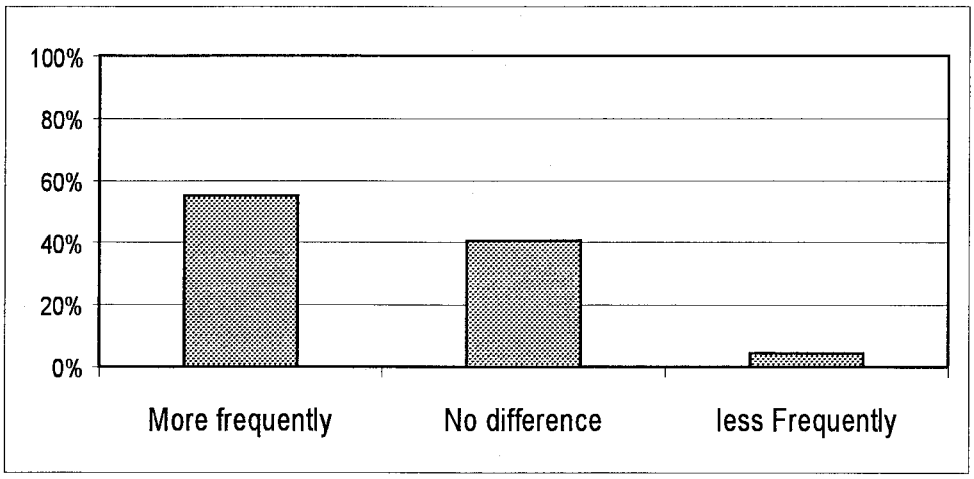


Figure 2.12.2 Frequency of Travel from Keighley Bus Station Compared to One Year Ago

2.12.5 The people who use the new station more frequently were asked what the encouraging factors for more frequent travel are. The results show that 30% of more frequent travellers cited the bus station improvements as the main factor.

Journey Purpose

2.12.6 The most popular trip purpose among users of Keighley Bus Station is shopping, accounting for 36% of passenger journeys. This was closely followed by work (25%) and leisure (23%) trip purposes.

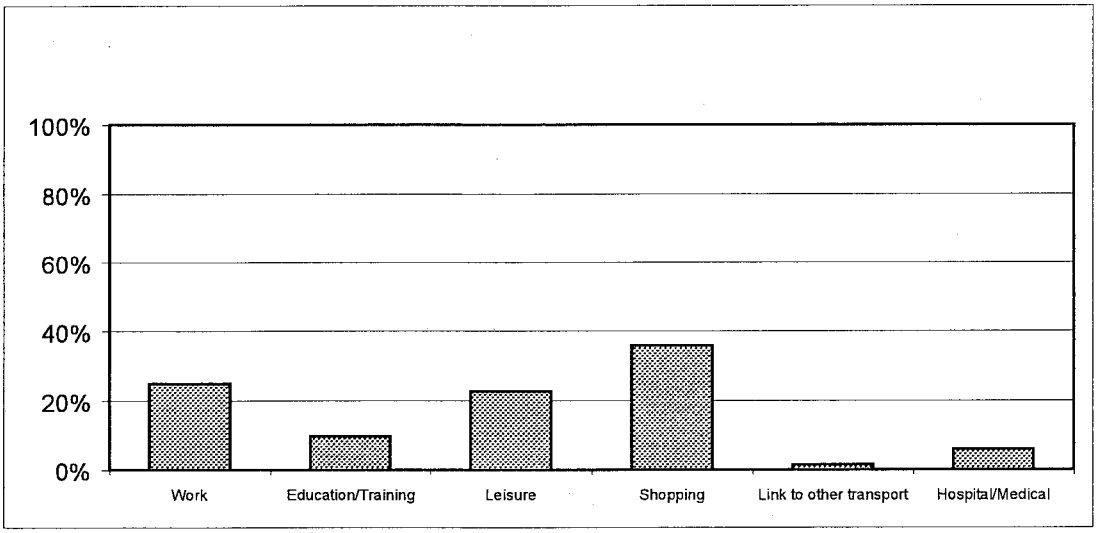


Figure 2.12.3 Purpose of current trip

Bus Station Facilities

2.12.7 The questionnaire predominantly concentrated on the new bus station facilities. The respondents were asked how they rated these facilities. Table 2.12.1 shows that nearly all respondents are happy with the facilities within the new development. Over 85% of respondents rated each facility as being good or very good.

	Very Good	Good	Acceptable	Poor	Very Poor
Feeling of safety and security	44%	44%	10%	1%	0%
Bus frequency information	56%	39%	2%	2%	1%
Cleanliness and comfort of environment	53%	43%	3%	1%	0%
Staffed travel centre	39%	55%	6%	0%	0%
Toilets/baby care facilities	52%	46%	2%	1%	0%
Available shops	39%	55%	6%	0%	0%
Enclosed waiting area	45%	45%	9%	1%	1%

Table 2.12.1 Keighley Bus Station, Rating of facilities

Travel Centre

2.12.8 The questionnaire established that 35% of the respondents use the travel centre. Table 2.12.2 shows how they rated specific services at the travel centre. On the whole, over 75% of respondents to these questions rated each service within the travel centre as good or very good.

	Very Good	Good	Acceptable	Poor	Very Poor
Availability of route/timetable information	26%	51%	15%	4%	4%
Politeness& helpfulness of staff	44%	44%	9%	2%	0%
Ease of purchasing tickets/travelcard	53%	33%	11%	2%	0%
Information on concessionary travel	61%	34%	5%	0%	0%
Waiting time in queue	65%	23%	12%	0%	0%
Layout of travel centre	43%	36%	11%	5%	5%

Table 2.12.2 Rating of Specific Services Within the Travel Centre

Pedestrian Access

2.12.9 Accessibility to areas within and surrounding the bus station is an important factor, therefore passengers were asked to comment on their views of accessibility, specified in Table 2.12.3. Most respondents think that access to nearly all the above areas is good. This is probably due to the compact layout of the new station, which is also in very close proximity to the main shopping centre in Keighley. However, the figures relating to pedestrian access to the railway station are probably less positive due to the fact that it is around half a mile away from the bus station.

Access to:	Good	Acceptable	Poor	Don't know
Railway Station	5%	21%	13%	9%
Town Centre	96%	2%	0%	2%
The bus	97%	3%	0%	0%
Travel Centre	88%	2%	0%	10%
Toilet facilities	92%	3%	0%	6%

Table 2.12.3 Rating of accessibility to other areas in and around Keighley Bus Station

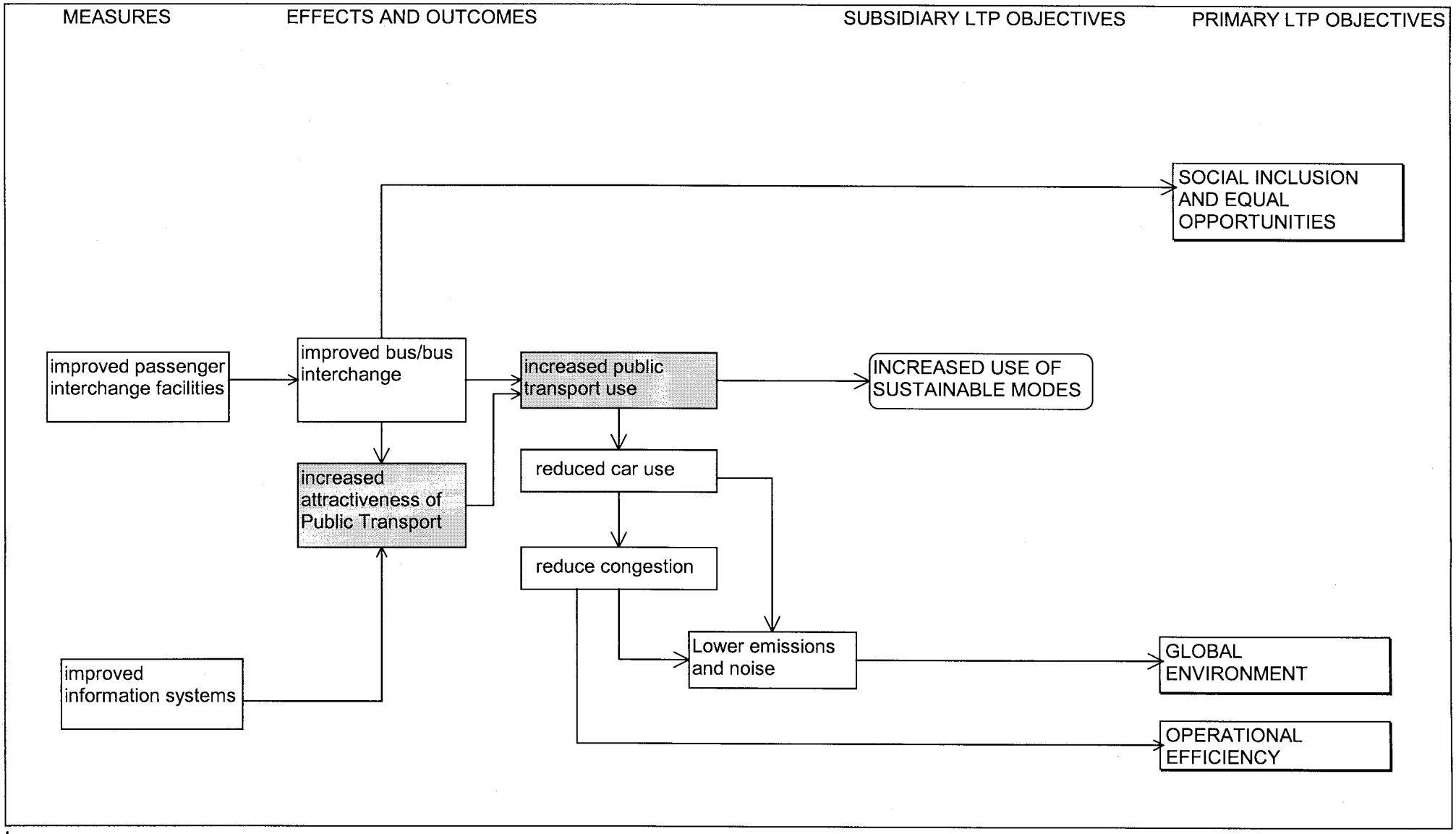
Commentary

2.12.10 The provision of a state of the art bus station built on the site of the old facility has been well received by passengers. Over 55% of respondents use the station more frequently now compared to one year ago with almost one third of these stating the bus station improvements to be the main factor. Other improvements specifically mentioned by passengers better safety and security and the enhanced electronic information. Respondents are very satisfied with access to the town centre, the travel centre and toilet facilities from the concourse. All respondents are happy with accessibility of the bus from the bus station.

2.12.11 The bus station has won three awards:

- 2nd prize Institute of Logistics and Transport Public Transport infrastructure award;
- 2nd prize National Bus Industry awards;
- 1st prize British Shopping Centre Council Town Centre Environmental and Accessibility Award.

INTERCHANGE STRATEGY "CATEGORY C" LOCATIONS – CAUSAL CHAINS



URBAN AREA SCHEME

2.13 Interchange Strategy "Category C" Locations

Objectives

- to achieve seamless bus-bus and bus-rail interchanges;
- to increase bus patronage;
- to increase passenger confidence;
- to provide quality on street infrastructure and related highway works;
- to provide accessible Disability Discrimination Act (DDA) compliant stops / shelters.

Scheme Description

2.13.1 The West Yorkshire Interchange Strategy defines over 200 principal locations, where it is known that bus-bus and bus-rail interchange occurs or where there is considered to be a particular potential for interchange to take place. From this a sub-total of 136 locations were identified as "Category C" sites, which are defined in the Strategy document as "places where there is an opportunity to change between services or modes and where minimum facilities are adequate". Often such places provide for interchange in a very informal way: for example, a pair of adjacent bus stops where two routes cross; or a small railway station with bus stops in the forecourt.

2.13.2 A sub total of 72 out of the overall total of 136 "Category C" locations are situated within core high frequency corridors, defined by the terms of the proposed Yorkshire Bus Initiative.

2.13.3 The introduction of several features should help to establish a specific quality standard and corporate image for this type of interchange. Public transport users should consequently be able to recognise this image, which will be re-enforced through the production of related bus and timetable maps and on-street information displays. The 136 "Category C" locations will be recognised as places where seamless bus-bus and bus-rail interchange is achievable.

2.13.4 In order to obtain a thorough evaluation of the facilities and levels of service proposed as part of the "Category C" specifications, a trial exercise has been undertaken at two of the 72 core route locations. These sites were specifically chosen because new shelters and raised kerbs, which form part of the specification requirements, had already been provided as part of previous corridor based projects. One site, Town Street in Armley was given a "do minimum" approach and the second site, Shaftesbury Junction on the A64 corridor in Leeds, developed more extensively, in order to be able to provide a comparison of available options.

Town Street, Armley

2.13.5 A"do minimum" approach was taken at Armley, with improvements

limited to the provision of an additional information display within each of the two existing Signature Smart 5 shelters. Complementary highways works, including the provision of raised kerbs, carriageway and footway re-instatements, re-marking of existing clearways / double yellow lines, lay-by narrowing and the provision of drop tactile kerbs and installation of a new Trueform shelter are to be expedited at this location later this financial year.

Shaftsbury Junction works

2.13.6 Shaftsbury Junction Interchange location comprises seven stops. Three stops situated on the main A64 carriageway previously provided with new Signature Smart 5 shelters and raised kerbs / clearways as part of the "elite" project. Further enhancements include:

- additional integral information cases fitted within the Smart 5 shelters and an Adshel Insignia unit;
- two Trueform free standing information frames, incorporating three information panels, installed at strategic positions within the interchange area;
- local network map and service destination summary by stop displayed within the information frames and the Smart 5 / Adshel shelters. Summary timetable sheets also displayed at the information frame locations;
- new bus stop poles provided at two non-shelter locations;
- all seven stops provided with special codes, displayed on maps and on bus stop plates.

Monitoring

2.13.7 Recent surveys were carried out at both locations, although collated data is only available for Shaftsbury Junction at present. Over 270 interviews were conducted by Metro staff who presented questionnaires to passengers using the interchange facility.

2.13.8 In addition to the detailed survey results, several other questions were asked about users' interchange characteristics, i.e. how often they use the specific bus service, how often they change services at the interchange point and what specific bus services they use etc. They were also asked to comment on planned as well as possible future improvements, for example CCTV provision, real time information, safe pedestrian links between stops, good street lighting etc. The main objective was to gauge passenger views on the new information displays. The questionnaires requested feedback relating to the usage and quality of the interchange.

Service Change

2.13.9 Passengers were asked to indicate whether they used this location to change from one service to another. A total of 25% of recipients said they did change services here.

New Information Displays

2.13.10 The questionnaire requested passenger views on the quality of all

information contained on the new information displays. Over 90% of recipients reported that the quality was good or very good on all these aspects:

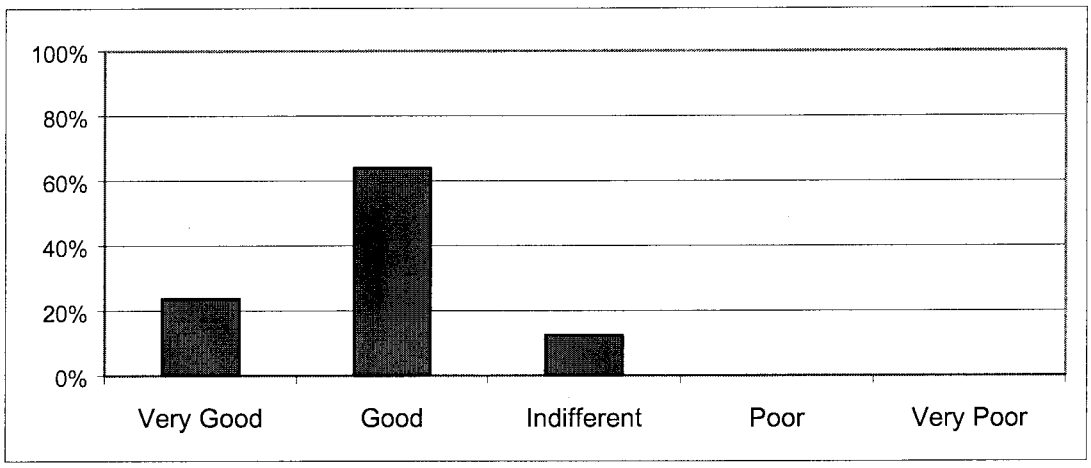


Figure 2.13.1: Quality of Timetable Information on Free Standing Display Cases.

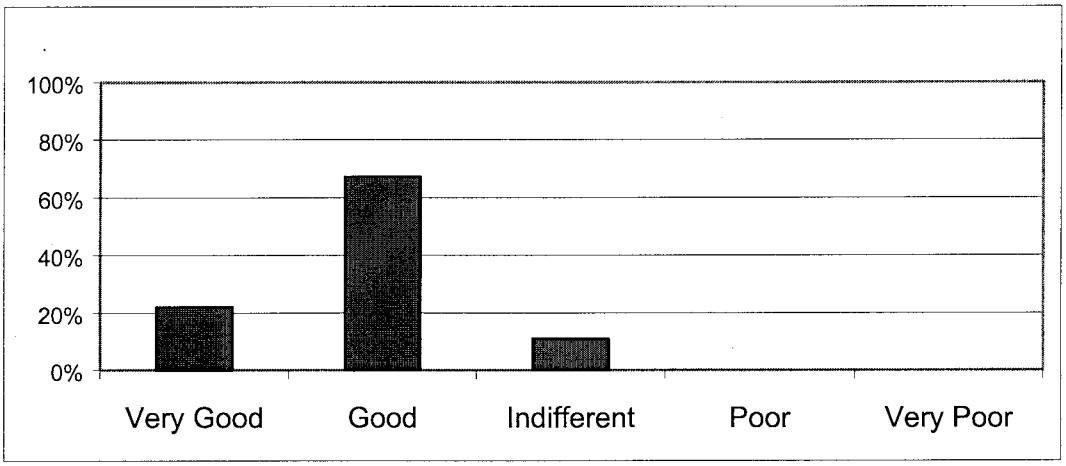


Figure 2.13.2: Quality of Network Map and Destination Information

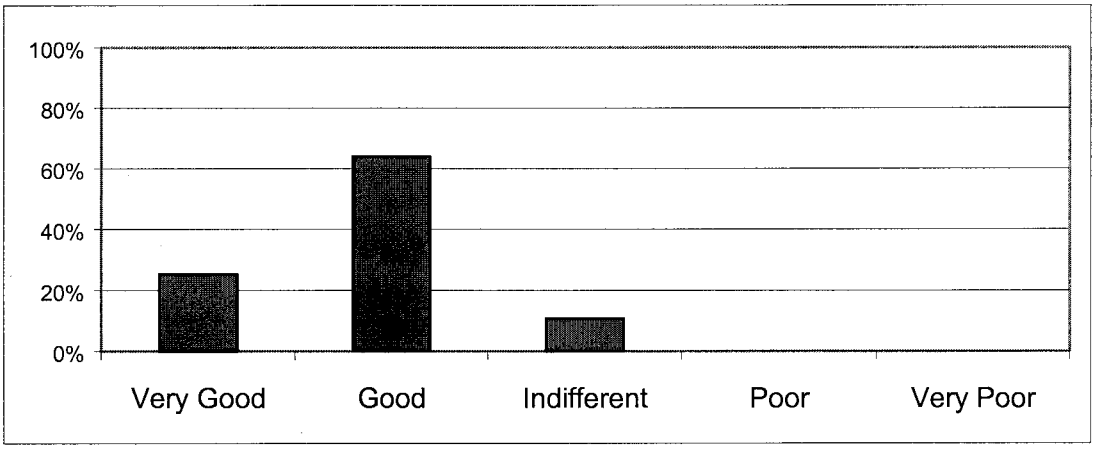
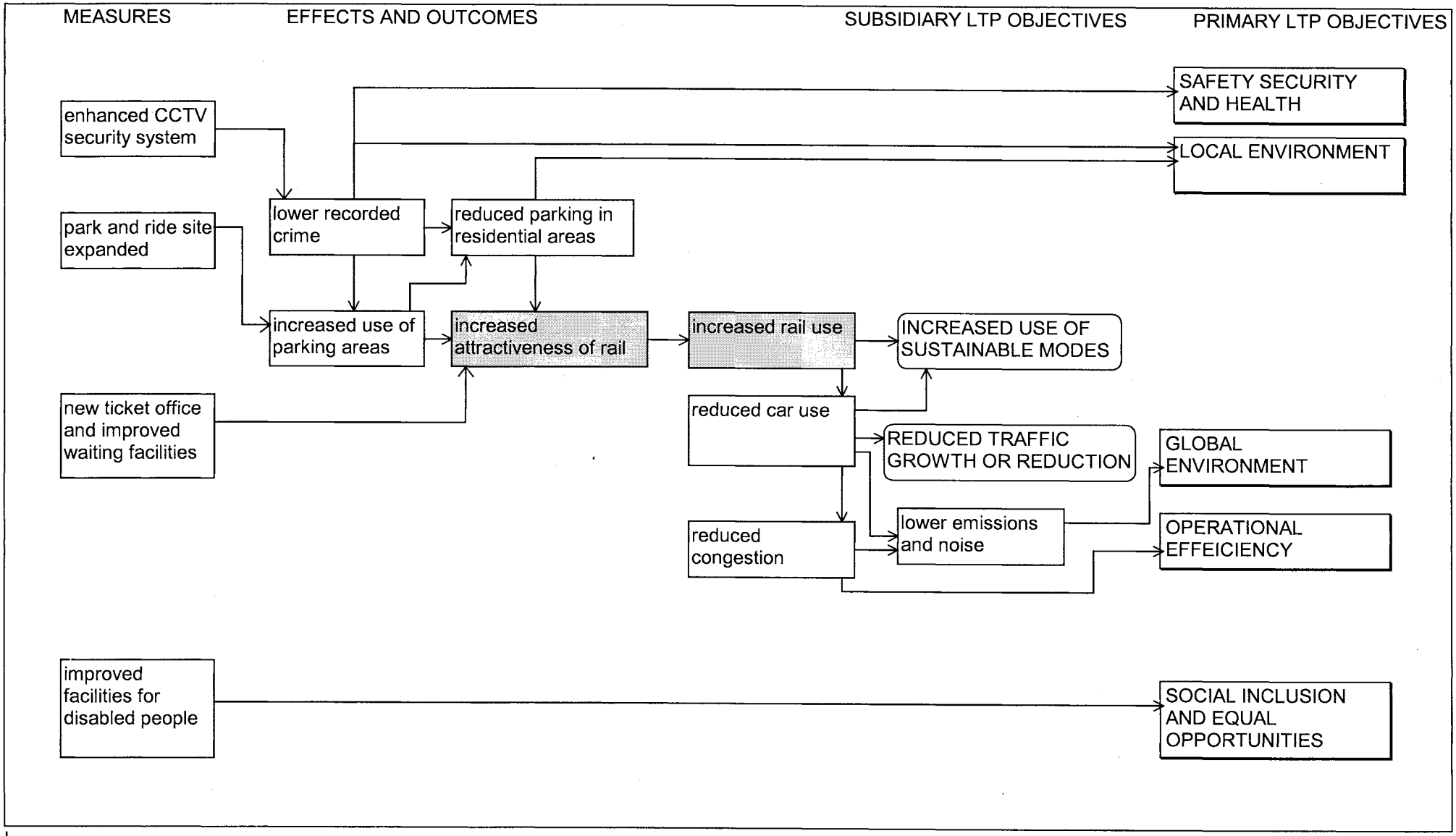


Figure 2.13.3: Provision of Timetables at Stops

Commentary

2.13.11 The initial results of the pilot are very encouraging. Following a full assessment of the survey responses the information will be used to inform the treatment of other "Category C" interchange locations.

GUISELEY AND NEW PUDSEY RAIL STATION IMPROVEMENTS CAUSAL CHAIN



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PRIMARY OBJECTIVE | SUBSIDIARY OBJECTIVE | data monitored

URBAN AREA SCHEME

2.14 Improved Rail Station Facilities - Guiseley and New Pudsey

Objectives

Guiseley Station Project

- to significantly improve the passenger waiting environment and thus encourage increased use of the station;
- to provide better information and assistance to passengers;
- to provide passenger and vehicle safety and security measures;
- to provide for the sale of the full range of train tickets and Metro prepaid tickets.

New Pudsey Station Project

- to significantly improve the passenger waiting environment and thus encourage increased use of the station;
- to increase the car park capacity;
- to provide improved passenger and vehicle safety and security measures;
- to provide improved toilet and baby changing facilities for station users.

Scheme Description

Guiseley Station

2.14.1 The main aim of the project was to improve station facilities, which were very basic. The success and monitoring outcomes of a similar scheme at Menston Station were borne in mind when planning the new facilities at Guiseley. The facilities comprise:

- new waiting rooms on both platforms;
- new ticket office facilities on the Ilkley-bound platform;
- CCTV surveillance monitored during opening hours from the ticket office – at other times 24 hour recording.

New Pudsey Station

2.14.2 The main aim of the project was to improve the station facilities, which were now worn and outdated, being largely unchanged since the station opened in 1967. There was also a need to extend the car park, which was recorded as regularly having more vehicles than it could properly accommodate. The new facilities comprise:

- new waiting rooms on both platforms;
- improved ticket office, ticket hall and toilets;
- extension to car park;

- enhanced CCTV surveillance.

Monitoring

2.14.3 Questionnaires were distributed to passengers at both stations throughout the day. The overall response rate was 40%.

Guiseley Station

2.14.4 The 318 returned questionnaires showed a very positive response to the improvements:

- 80% of respondents found new waiting facilities good or very good;
- nearly 77% found ticket office facilities good or very good;
- station security was rated good or very good by 32% and adequate by 40%;
- 40% of respondents said they had increased their use of Guiseley station during the last year and of these almost one quarter had done so because of the improvements which had been made.

New Pudsey Station

2.14.5 The 197 returned questionnaires showed a very positive response to the improvements. 85% of respondents found new waiting facilities good or very good and nearly 90% found ticket office facilities good or very good. 99% of respondents who used the toilet facilities rated them as good or very good. Station security was rated good or very good by nearly 40% and adequate by 42%.

2.14.6 Improvements to car parking facilities have also been very well received. The provision of additional car parking capacity was rated very highly, with 97% rating parking space availability as very good or good. Other comments on the improvements to the parking area were:

- for surface quality and surface markings over 70% of respondents rated them good or very good with 20% indifferent;
- car park security was rated good or very good by 50% with 38% indifferent;
- 45% of respondents said they had increased their use of New Pudsey station during the last year and of these one quarter had done so because of the improvements which had been made.

Affected Parties

2.14.7 The overall positive response to the improvements to both stations was further underlined by a question on the general appearance of the station. 82% of respondents rated the general appearance of New Pudsey good or very good. At Guiseley this rating was given by almost 90% of respondents. Security was not rated as high at either station as the other improvements were. This may be because such improvements are not visible to the general public.

Discussion

2.14.8 The results of the survey work are encouraging, particularly as increased patronage is shown to be directly attributable to the station improvements. There is a rolling programme in the LTP of a variety of improvements to station facilities, including the introduction of staffing and ticket offices where it is justified by patronage levels.

2.15 SCHEMES COVERED IN PREVIOUS ANNUAL PROGRESS REPORTS

2.15.1The following table, Table 2.15.1 summarises those schemes reported in previous Annual Progress Reports which have been completed since 1 January 1997. It shows the contribution of the various schemes to the Plan objectives and illustrates what effect the schemes have had on ten key indicators. The impact of the schemes is measured according to the following notation:

An objective of the scheme	•	
	Measured	**Perceived**
Significant improvement	✓✓	++
Improvement	✓	+
Neutral effect (where an objective of the scheme)	O	□
Worsening	×	▭
Significant worsening	××	▭▭

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
Countywide Schemes																								
Target 1 TravelWise Project		●				●		●	●		●		9-01											
Monitored CCTV at Bus Stations		●		●	●	●	●					1,600	3-00											Pre-scheme report – monitoring data to be included in subsequent years
Cycle and Ride Lockers at Rail Stations						●	●	●	●		●	95					+	+		+	+			£110,000 spent 1996-2000
Leeds Travel Blending		●		●		●			●			26	2-98				✓	×	×	✓	✓✓			Car use reduced, apparent shift to cycle and train, not bus
Leeds Urban Area Schemes																								
Leeds City Centre Loop & Public Transport Box	●			●	●	●	●	●	●			6,400	01			✓	✓✓							

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
The Methleys Homezone				●	●	●	●		●				01-02						✓✓			✓✓		TRL undertaking monitoring of Homezone pilots for DfT
East Leeds Quality Bus Initiative		●		●	●	●		●	●			9,100	11-01											Interim impact report
Leeds 1st	●	●		●	●	●		●	●			165,000	5-02	✓	✓✓		✓✓	✓✓		✓✓		○	✓✓	Interim survey results
Cross Green-Colton Cycle Route				●	●	●	●	●				265	1999						+		+		+	Links to main employment areas and with other regeneration schemes
Briggate Pedestrianisation	●	●		●	●	●	●	●				951	8-98	+	+	+			++					
A61 Scott Hall Road Guided Busway (Phases 5 and 6)		●		●	●	●			●				7-98	✓✓	+		✓	✓		✓	+			

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
A647 Stanningley Road HOV Lane		●		●	●	●		●	●			585	5-98	✓✓	✓✓		✓	✓✓			+			Journey time savings for HOVs without extra delay for non-HOVs
A61 Scott Hall Road Guided Busway (Phases 1 to 3)		●		●	●	●			●			3,300	6-97	✓✓	+		+	✓✓		++			✓✓	
Burmantofts Street Bus Lane		●		●	●	●			●			884	6-97	++	+	+		+		+				
M1-A1 Link Road	●	●		●		●		●				DBFO	2-99	+	+	✓✓	O							Successful at removing extraneous traffic and reducing accidents
Leeds City Centre Controlled Parking Zone Extension		●				●		●	●			200	6-01				O		O	+			+	Reduced long stay commuter parking, increased short stay parking in the zone. Some evidence of relocation of parking

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
Bradford Urban Area Schemes																								
South Bradford QBI – Manchester Road Guided Bus		●		●	●	●		●	●			10,500	1-02											Interim report
Bradford Bus Station		●		●	●	●							2-01					✓✓		✓			✓✓	
B6154 Thornton Road Bus, Cycle and Pedestrian Measures		●		●	●	●		●	●			1,765	9-98	✓✓	++			✓		+				
Bradford City Centre Pedestrian and Environmental Improvements	●			●	●	●	●	●	●			3,140	1998		✓✓									Traffic reduced by 50%
Manningham Lane Bus and Cycle Priority Measures		●		●	●	●	●	●	●	●		478	7-97	O	+		□			+			+	
Safer Routes to School – Heaton Middle School												27	4-97				xx	O	xx	xx		✓		

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
Bierley Traffic Calming				●			●					188	8-00									✓✓		Traffic levels reduced by 12%
Halifax Urban Area																								
Calder High School 'Bike Train'		●		●	●	●	●	●	●				5-02				✓			✓	✓✓			Pilot Scheme
Yellow School Bus Pilot		●		●	●	●	●	●	●			36	2-02			+	++	++	+	++				Pilot Scheme
Halifax Town Centre Strategy			●	●	●	●	●	●	●		●	2,900	4-01			○	✓✓		✓✓				✓✓	
Safer Routes to School				●	●		●		●			49	3-01			+	+			✓				Significant proportion of children walking to school – start of a wider roll-out
Halifax Town Centre – Wards End		●		●	●		●				●	801	1-01			+			++		+		++	Improved facilities for pedestrians

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring											Comments
	Primary							Subsidiary				Cost	Date	Indicators									
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
Halifax Town Centre – Market Street	●			●	●		●	●				810	12-00	+		+	++		+		+		++	Extraneous traffic removed and new pedestrian facilities provide a better environment
Bull Green Improvement		●		●			●				●	733	1-99	□	□	+		□	++		+		++	Important first phase of the five year town centre strategy needed to establish the "zones and loops" network
A58 Godley Lane Cycle Lanes, Halifax				●	●		●		●			51	5-98								+			Local cycle groups welcome the outcome
A629 Huddersfield Road Improvements		●		●	●		●		●		●	487	3-98	✓✓	+								+	No effect on general traffic speeds
A629/A6026/ B6112 Calder and Hebble Junction Improvements		●			●		●		●		●	289	2-98	✓✓	✓✓	✓✓							+	Significant improvement for buses
King Cross Corridor and Calder Valley		●		●	●		●		●		●	53	3-97	✓✓	+									No effect on general traffic journey times

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
Ovenden Way – Bus Accessibility Demonstration Access Corridor Phase 2		●		●	●		●		●		●	137	11-00			+		+				+	++	Improved accessibility to buses
Heavy Woollen Area Schemes																								
Spen Valley Greenway				●	●	●	●	●	●			730	3-01						✓✓	+	✓✓		+	Very successful cycle route scheme with strong community support
Huddersfield Urban Area Schemes																								
A629 Wakefield Road Integrated Corridor Improvements, Phases 2		●		●	●	●	●	●	●			1,022	9-99	✓	✓	O		✓✓	+	+	+	O	+	Quality bus partnership. Bus patronage has increased by 2-3% Continuation of further schemes in this corridor.

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
A644/A62 Three Nuns Bus and Cycle Priority Scheme		●		●	●	●	●	●	●			214	1-98	✓✓	✓✓							✓		
A629 Penistone Road Integrated Corridor Improvements		●		●	●	●	●	●	●			40	12-00	✓✓	✓	○		○	□	+	○	✓	+	
Rawthorpe to Lindley Bus Accessibility Measures			●	●	●	●	●	●	●			580								+	□	✓	✓✓	Other stages of the scheme to be completed before further monitoring is carried out
Wakefield Urban Area Schemes																								
Route 110 Announce Project				●	●	●	●					3-01						✓					✓	
A61 Intelligent Road Stud Trial				●								35	99			✓✓								Trial
A61 Demonstration Access Corridor				●	●	●			●			218	5-98	✓	✓	✓		✓		+			✓✓	Positive response to Metro survey of local population.

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
Sandal and Agbrigg Rail Park and Ride				●			●		●		●	112	5-98					✓✓		+			+	
Wakefield UTMC System		●					●					172	3-98	✓	✓					✓				
Aire Valley and Wharfedale Schemes																								
Menston Station Refurbishment		●		●	●	●	●	●	●			556	9-99					✓✓		✓✓			+	
Shipley Audible Passenger Information					●				●			5.6	8-99										✓	
Steeton and Silsden Station Improvements		●				●		●	●			209	3-99					✓✓		✓✓				
Ilkley Bus Station Access Improvements		●	●	●	●		●		●			108	5-98				+	✓✓		+			++	
Shipley Market Square Infopoint		●			●						●	9	3-97					++		++			+	Easier to access information on public transport

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
Coalfields Area Schemes																								
Hemsworth Cross Hill Transponders	●			●		●		●	●			6	5-99	✓✓	✓✓	✓								Metro and local bus operators support the scheme
Pontefract Market Place Intelligent Bollards	●			●	●	●	●	●				100	10-98			✓	✓							
Pontefract Town Centre Improvements	●		●	●	●		●	●				100	9-98			✓✓			✓				++	Significant reduction in ped/vehicle accidents since introduction
Hemsworth Bus Station Access Improvements			●	●	●		●		●			50	4-98				+	✓✓		+			++	Significantly improves bus operations through key junctions in Hemsworth.
Rural Area Schemes																								
Rural Bus Services 903 & 923		●		●	●	●		●	●				12-99		✓			✓✓					✓✓	

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

	Contribution to LTP Objectives											Scheme Monitoring												Comments
	Primary							Subsidiary				Cost	Date	Indicators										
	Sustainable economic growth	Operational efficiency	Maintain infrastructure	Safety, security and health	Social inclusion and equal opportunities	Global environment	Local environment	Reduced traffic growth or reduction	Modal shift from car	Rail/waterway freight	Policy/mode integration	£000	Scheme completion	Improved bus journey times	Improved bus reliability	Accident reduction	Reduced car use	Increased PT use	Increased pedestrian activity	Encourage modal shift away from car	Increased cycle use	Reduced traffic speeds	Improved accessibility	
Denby Dale Integrated Transport Initiative		●		●	●	●		●	●			366	7-99				✓	✓✓		✓			✓	
Micklefield Rail Park and Ride		●		●	●	●	●	●	●		●	149	6-98					✓✓		+			+	
Sowerby Bridge Rail Park and Ride		●		●	●	●	●	●	●		●	142	6-98					✓		+	+		+	
Carriageway Maintenance Schemes																								
A62 Leeds Road, Huddersfield. Thistle St – Whitacre St		●	●	●	●	●		●	●			1,500		+	+	+		+	+		✓✓		+	
A647 Bradford Road, Leeds. Dawsons Corner to Galloway Lane		●	●	●	●	●		●	●			960	9-01											
A638 Bradford Road, Cleckheaton			●									1,530	2000											
A629 Keighley Road, Halifax			●																					

Table 2.15.1 Schemes Reported in Previous Annual Progress Reports

CHAPTER 3 BASELINE DATA AND TRENDS BY INDICATOR

3.1 INTRODUCTION

3.1.1 In the main APR document, Chapter 3 'Targets and Progress' and Annexes A and B describe progress towards local and national targets. This chapter provides detailed information on the 46 background and key indicators which have been identified to effectively monitor both LTP and associated national and local strategies. Note that not all indicators have associated targets; background indicators are used to inform the overall performance of the LTP strategy whereas key indicators relate directly to LTP or national targets. These indicators are summarised in Table 3.1

3.1.2 Where relevant the appropriate Best Value Performance Indicators (BVPI) are included. Progress is also reported, where applicable, against the Department for Transport's (DfT) Core Indicators.

3.1.3 Data is obtained from a variety of published sources, national databases or specifically developed data collection exercises. The results of this monitoring exercise, which were summarised in the main Annual Progress Report are given in more detail in the following sections.

3.1.4 The indicators used are subject to continuing review and revision. Areas for future development include :

- Indicators for monitoring traffic noise and measures taken to mitigate this
- Development of journey time and congestion data based on data from GPS systems
- Development of cycle monitoring in conjunction with local cycling groups
- Development of travel to work surveys piloted in Leeds in 2003 to monitor modal change.

3.1.5 The remainder of this chapter is structured around indicators developed to monitor the 7 strategy objectives of the Local Transport Plan with a final section devoted to monitoring subsidiary objectives.

LTP Ref.	LTP Objective	Key Indicator or Background Trend Indicator	LTP Target (see Chapter 3, APR)	Link to national target or core indicator
Ec 1	To provide opportunities for fostering a strong, competitive economy and sustainable economic growth	A1 Unemployment		
		A2 Local trade levels/ vacant premises		
		A3 Rental values		
		A4 Pedestrian activity		
Ec 2	To improve operational efficiency within the transport system	B1 Journey times by car and bus		
		B2 Generalised costs		
		B3 Travel distance to work		
		B4 Cost per passenger of subsidised bus services		
Ec 3	To maintain the transport infrastructure to standards which allow the safe and efficient movement of people and goods.	***C1 Maintenance management performance indicators***	L17	DfT core
		C2 Road maintenance programmes	L17	DfT core
		C3 Local indicators and benchmarks		
		C3a Repairs to dangerous defects		
		C4 Bridge assessments completed		
		C5 Bridges strengthened		
		C6a Bridge inspections completed		
		C6b Bridges with temporary weight or width restrictions		
		C6c Highway structures requiring essential and preventative maintenance		

LTP Ref.	LTP Objective	Key Indicator or Background Trend Indicator	LTP Target (see Chapter 3, APR)	Link to national target or core indicator
So 1	To improve safety, security and health, in particular to reduce the number and severity of road casualties.	***D1 Road user casualty trends***	L11, L13	N3,DfT Core
		D2 Casualty trends for different user groups	L7, L9	N3,DfT Core
		D3 Casualty trends for children	L12	N3,DfT Core
		D4 Town centre car park spaces with CCTV		
		D5 CCTV cameras at rail station car parks		
		D6 Security at bus stations		
		D7 Car park spaces with secured car park awards		
		D8 Town & city centre streets covered by CCTV		
So 2	To promote social inclusion and equal opportunities for access to transport	E1 AccessBus patronage		
		E2 Accessibility of bus fleets		
		E3 Accessibility of rail stations		
		E4 Accessibility of bus stations		
		E5 Accessibility of bus stops		
		E6 Provision at controlled pedestrian crossings		BVPI 165
Ev 1	To improve environmental quality and reduce the impacts of transport on air quality and noise	***F1 Air quality monitoring in town and city centres***	L10	N4
		F2 Noise mapping		
		F3 Use of low noise road surfacing		
Ev 2	To reduce the contribution of transport to overall greenhouse gas emissions	***G1 Daily traffic flow***	L1	N1
		G4 CO_2 emissions	L10	

LTP Ref.	LTP Objective	Key Indicator or Background Trend Indicator	LTP Target (see Chapter 3, APR)	Link to national target or core indicator
Sb 1	To reduce the general rate of growth in road traffic	***H1 Town centre traffic flows***	L2, L3	N1
		I1 Modal split	L6,L8	N5
Sb 2	Encourage a greater proportion of journeys to be made by alternatives to the private car.	I3 All day commuter parking supply and cost		
		I4 Cycle monitoring	L6	N5, DfT core
		I6 Local bus services – passengers and vehicle kms.	L4	N2
		I6a Rail patronage	L5	
		I7 % users satisfied with PT information		BVPI 103
		I8 % users satisfied with local bus services		BVPI 104
		I9% users satisfied with local rail services		
		I10 % rural h'holds within 800m of an hourly or better bus service	L16	DfT Core
		I11 Bus punctuality and reliability	L14, L15	

Note : Key Indicators, with associated LTP target shown in Bold Italics

Table 3.1. Key and Background Indicators, Local Transport Plan and National Targets

3.2 REGENERATION AND SUSTAINABLE ECONOMIC GROWTH

Primary Objective

3.2.1 To provide opportunities for fostering a strong, competitive economy and sustainable economic growth.

Summary of Key Trends

- The background indicators demonstrate a continued improvement to the vitality and viability of centres in West Yorkshire;
- Generally unemployment continues to decrease and closely follows the national trend;
- Retail trading space has gradually increased in most districts during the life of the plan with vacant floor space decreasing slightly;
- Rental values have shown an increase for office and industrial premises in all districts . More significant increases in Wakefield are due to considerable development of offices, retail and distribution near the motorway junctions during the past two years;
- In the main, there is evidence that pedestrian activity in the district centres has continued to increase over the past year, indicating a positive response to initiatives and improvement schemes carried out since the commencement of the plan.

Role of Transport

3.2.2 The revised Regional Economic Strategy (RES) for Yorkshire and Humber sets out the economic objectives for the region and it is recognised that transport issues have a direct effect on competitiveness and the economic well being of the area. An efficient transport system with high quality facilities is vital. Providing appropriate access links to district centres, workplaces, retail centres, local communities and the other amenities in the region will have an affect on business success, quality of life and sustainability.

3.2.3 Investment to meet the local transport needs supports the economy by reducing journey times and improving reliability. This results in lower business costs and allows companies to adopt more efficient patterns of production. Similarly, continued improvement to local access, together with environmental enhancements to the district centres, is reflected in the indicators for vitality, regeneration and economic growth that can be monitored consistently at a local level across the five metropolitan districts.

3.2.4 The detailed effect of transport on regeneration is a complex issue and there is no simple unambiguous link between transport provision and local regeneration. The impact of transport policies can, however, be linked to changes in some of the indicators. We will continue to identify key areas for analysis, allowing the contribution of transport investment to regeneration to be assessed with more confidence in the future.

Background Indicator A1: Claimant Count and Unemployment Rates

3.2.5 Release of the 2001 census data provides information pertinent to both the context of transport planning and its impact. Thus far, the data is only available at district level and does not include the "workplace" statistics. Even so, it enables a better appreciation of the local area, more so than a simple measure of year on year unemployment can provide.

3.2.6 Recent trends in unemployment at national level, sub regional level and for the individual districts are indicated in Figure 3.2.1. The figures show the rates calculated as proportion of estimated resident population of working age. This differs from rates in previous submissions which were based on workforce estimates, that is those residents who were economically active. The change has been made as a result of a change in the way Government is calculating and releasing the figures.

3.2.7 The figures show a continuation of the downtrend in unemployment rates in most districts. With Kirklees and Wakefield having the lowest rates, Calderdale and Leeds are slightly higher with Bradford still substantially higher than the national rate.

	Unemployment Rate %							
Area	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Great Britain	6.2	4.8	3.9	3.7	3.3	2.8	2.7	2.7
West Yorkshire	6.3	5.1	4.3	4.2	3.8	3.3	3.1	3.1
Bradford	7.0	5.8	4.9	4.9	4.6	4.1	4.0	3.9
Calderdale	5.7	4.9	4.0	4.1	3.7	3.3	3.1	3.0
Kirklees	5.7	4.4	3.7	3.8	3.3	2.8	2.6	2.6
Leeds	6.4	5.1	4.3	4.0	3.6	3.1	2.9	3.0
Wakefield	6.3	5.1	4.3	4.2	3.5	3.1	2.8	2.7

Table 3.2.1 Unemployment Rates Calculated as Proportion of Estimated Resident Population of Working Age, March Figures

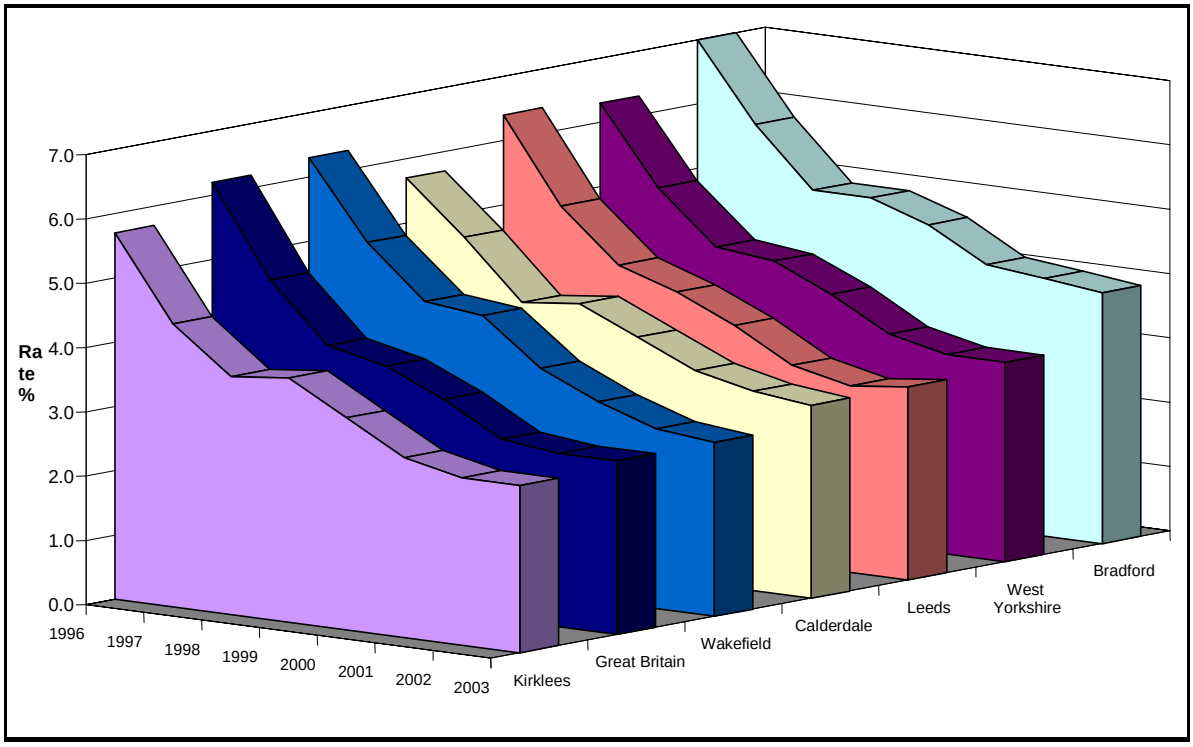

Figure 3.2.1 Claimants as a Proportion of Residents of Working Age

Source: ONS Crown Copyright

Desired Movement

3.2.8 Transport has a role to play in influencing businesses to locate in West Yorkshire and improving people's access to jobs and amenities. Transport investment will broaden the access of employers to available labour markets and, a successful and sustainable transport policy promoting confidence will continue to contribute towards falling unemployment levels.

Background Indicator A2: Local Trade Levels / Vacant Premises

3.2.10 Viability is a measure of capacity to attract ongoing investment for maintenance, improvement and responding to changing needs. Owners and tenants are responding to changing demands and sustaining the vitality and viability of shopping areas depends on flexibility in the use of retail floor space. The transport system needs to meet the needs of the retailers, suppliers and customers.

3.2.11 Retailer's interest in locating in the area is a valuable indicator of viability and vacancy levels, particularly vacancy in prime retail areas. This provides an effective insight into the performance of the cities and towns of West Yorkshire. Table 3.2.2 shows the latest data on the availability and occupancy of retail floor space in the main centres.

District	Year	Floorspace		Vacant Floor		Vacant Units	
		000m^2	No.	000m^2	%	No.	%
Bradford	1996	106	537	15	14	116	21.6
	1997	104	592	6	6.0	100	16.9
	2000	na	na	na	na	na	na
	2002	na	na	na	na	na	na
Halifax	1994	49	472	4	7.7	52	11.0
	1998	51	497	6	11.0	80	16.1
	2000	55	510	9	11.7	38	7.5
	2002**	59	629	5	8.4	81	12.8
	2002	96	821	10	10.4	104	12.7
Huddersfield	1996	89	750	7	7.5	118	15.7
	2000	80	705	16	19.5	94	13.3
	2002	87	739	11	12.8	117	15.8
	2003	83	732	6	7.5	90	12.3
Dewsbury	1997	41	369	5	12.6	83	22.4
	2000	40	354	4	10.9	68	19.2
	2002	46*	351	5	11.6	70	20.0
Leeds	1996	164	973	15.8	9.6	157	16.1
	2000	180	956	15.8	8.8	125	13.0
	2001	180	950	19.8	11.0	129	13.6
	2002						
Wakefield	1996	66	705	5	7.3	43	6.2
	2000	75	574	9	12.6	51	8.9
	2002	72	556	6	7.7	32	5.7

Table 3.2.2: Availability and Occupancy of Retail Floor Area

** The increased total floorspace in Dewsbury is largely due to the opening of ASDA supermarket on Mill Street West.*

*** Halifax town centre has been redefined and was re-surveyed in 2002. The figures shown set out the corresponding results for the new area.*

Note: No inference can be drawn from a comparison of the absolute figures since each centre has been defined according to local circumstances.

Desired Movement

3.2.12 An increase in the provision of retail trading space and a decrease in vacancy rates for floor space and units as local trade improves.

Future Requirements

3.2.13 Key areas such as diversity of use and retailer demand for premises need to be examined and analysed regularly in future years. The data on availability and occupancy of retail floor space will continue to be presented on an annual basis.

Background Indicator A3: Rental Values

3.2.14 The rental values of commercial premises in district centres can be taken as a measure of the marketability of the property and provide an indication of retailer desire to locate within an area. The data presented in Tables 3.2.3 to 3.2.5 is extracted from the Valuation Office Property Market Report (VOPMR), Autumn 2002. This is a national publication, updated on a 2 yearly cycle, which collates rental values of commercial property in major towns and cities throughout the country. The main centres in West Yorkshire are included and comprehensive district centre audits provide rents and yields both from the VOPMR and from private sector specialist businesses.

	Rental Values £/m²														
Location	**Type 1 25 - 75m²**			**Type 2 150 - 200m²**			**Type 3 Circa 500m²**			**Type 4 Circa 1000m²**			**Type 5 Multi Storey**		
	Oct 96	**Oct 00**	**Oct 02**	**Oct 96**	**Oct 00**	**Oct 02**	**Oct 96**	**Oct 00**	**Oct 02**	**Oct 96**	**Oct 00**	**Oct 02**	**Oct 96**	**Oct 00**	**Oct 02**
Bradford	65	66	66	46	47	47	43	47	47	40	41	41	24	na	
Halifax		50	55		45	50		40	40		35	35		15	15
Huddersfield	53	55	55	48	53	53	40	43	45	33	40	40	15	20	20
Leeds	58	60	65	51	55	65	52	50	50	43	45	48	25	27	
Wakefield		48	58		40	58		38	48		33	48		na	

Table 3.2.3: Rental Values for Industrial Premises

Note: Property types as defined in Valuation Office Property Market Report

Location	Rental Values £/m²								
	Type 1 ZPI			Type 2 ZPI			Type 3 GIA		
	Oct 96	Oct 00	Oct 02	Oct 96	Oct 00	Oct 02	Oct 96	Oct 00	Oct 02
Bradford	915	1,250	1,300	425	750	750	92	95	135
Halifax		750	800		400	400		100	150
Huddersfield	800	750	800	420	400	400	80	100	200
Leeds	1,450	2,500	2,690	400	550	600	85	200	260
Wakefield		850	850		460	500		88	135

Table 3.2.4: Rental Values for Shops

Note: Property types as defined in Valuation Office Property Market Report

Location	Rental Values £/m²								
	Type 1			Type 2			Type 3		
	Oct 96	Oct 00	Oct 02	Oct 96	Oct 00	Oct 02	Oct 96	Oct 00	Oct 02
Bradford	113	113	113		113	113	80	80	80
Halifax		70	90		65	85		70	70
Huddersfield	118	110	110	90	100	100	70	70	70
Leeds	180	200	220	180	190	220	140	140	160
Wakefield		70	125		90	145		70	100

Table 3.2.5: Rental Values for Offices

Note: Property types as defined in Valuation Office Property Market Report

Desired Movement

3.2.15 Increasing rental values to indicate an improving economic environment in district centres.

Future Requirements

Information on this indicator will be gathered from the Valuation Office Property Market Report (VOPMR) and will continue to be reported in future years against the base values quoted.

Background Indicator A4: Pedestrian Activity

3.2.17 In shopping areas, the level of pedestrian activity gives a good indication of the health of the retail sector of the economy. The methodology of pedestrian surveys undertaken varies from centre to centre. However, by repeating surveys at the same sites and on the same days of the week, the results can be converted to a single figure for each centre which can be compared year on year with the base figure.

3.2.18 Table 3.2.6 shows the change in the latest results compared with the levels of activity in the base year and the start of the LTP.

Centre	Date	Flow	Index
Bradford	Nov-95	141,876	100.0
	Nov-2000	141,913	100.0
	Nov-2002	130,740	92.2
Halifax	Sep-96	845,900	100.0
	Sept-2001	1,305,774 (***)	154.4 (***)
	Sept-2002	1,163,323 (***)	137.5 (***)
Huddersfield	Apr-96	72,920	100.0
	May-2000	62,064 (**)	85.1 (**)
	Apr-2003	86,867	117.3
Dewsbury	Oct -98	72,442	100.0
	Oct-2000	61,430	84.8
	Oct-2002	63,436	88.9
Leeds	Nov-96	627,500	100.0
	May / June-2000	505,100 (*)	100.0 (*)
	May / June-2002	513,900 (*)	101.7 (*)
Wakefield	May-98	909,300	100.0
	May-2002	339,842	100.0 (****)
	April-2003	321,638	94.6 (****)

Table 3.2.6 Pedestrian Activity In Centres

Notes on Table 3.2.6: No comparison can be made between centres since different numbers of sites and numbers of counts were used.

(*) The methodology of the counts in Leeds changed from May / June 2000,

(**) In Huddersfield the effects of improvement works on King Street, demolition / building work for the Kingsgate scheme and the loss of the Co-op 'Living' department store contributed to the temporary decline in pedestrian footfall,

(***) The impact of the 'zones & loops' (phase1) traffic system and the improved conditions on Southgate pedestrian precinct may have contributed to the apparent overall increase in footfall levels in Halifax centre. The surveys will be continued on a quarterly basis to provide continuity.

(****) The methodology of counts in Wakefield has changed from May 2002. The revised figures will provide the baseline for future years.

Desired Movement

3.2.19 Increased pedestrian activity in shopping areas would indicate a strong economy and assist the retention and development of strong centres.

Commentary

3.2.21 Although no single indicator can effectively measure how well centres are performing in terms of their attraction, accessibility and amenity, a selection of indicators can provide a view of performance and offer a means of assessing vitality and viability. Although still too early to report confidently on any trends in the indicators, monitoring the performance of economic activity by way of a broad-based audit process can indicate strengths and weaknesses of the town centres.

3.2.22 The unemployment rate in West Yorkshire in March 2003 has not actually decreased over the year 2002/03 following the varying downward trend experienced since 1996. However, it continues to closely follow the national trend. The availability and occupancy indicators of retail floor area appear to be affected by uncertainty over redevelopment and regeneration proposals. This has led to some temporary vacancies and it is always likely to be the case in one centre or another. The increases in the level of pedestrian activity in district centres indicates a positive response to improvements. Recent amendments in the monitoring frequency and procedures to establish more reliable methodology means the underlying trends in some centres will not become apparent until repeat counts have been carried out over a number of years.

3.2.23 It is considered that the local performance indicators associated with the trend monitoring in this report are related to transport issues. A baseline audit for Halifax town centre was completed in November 2002 and the information is vital to underpin strategic decisions about the continued development of the centre. A wider range of local indicators may emerge which reflect the impact of measures funded through the local transport plan expenditure as districts develop more comprehensive town centre audits in the future.

3.3 OPERATIONAL EFFICIENCY

Primary Objective

3.3.1 To improve operational efficiency within the transport system.

Role of Transport

3.3.2 The provision of efficient and reliable public transport, particularly on radial routes and between centres, is seen as important in maximising network efficiency.

Summary of Key Trends

- The 5 year programme of journey time surveys has been completed on schedule in two Districts with two others almost complete. Overall, 90% of routes have been surveyed;
- Leeds is the only main centre where the generalised cost of bus commuting is less than using a car and paying to park;
- Average cost per passenger journey in 2003 on subsidised bus services is £0.66p (Best Value Performance Indicator 94).

Background indicator B1: Journey Times by Car and Bus.

3.3.3 A comprehensive five year programme of car and bus journey time surveys has been devised to cover all the principal routes within the urban area of West Yorkshire (including urban motorways but excluding the M62 and M1). The programme consists of morning peak, evening peak and inter peak surveys and was started in the autumn of 1998. Table 3.3.1 shows the survey lengths planned for each district and the proportion surveyed to date.

Authority	Bradford	Calderdale	Kirklees	Leeds	Wakefield	Total
Length of road (km)	175	65	101	210	67	618
Surveyed to date (km)	175	65	97	157(*)	61	555

Table 3.3.1 West Yorkshire Journey Time Survey Five Year Programme

(*) Includes data collected in 1995 and 1996 prior to the start of the current programme.

3.3.4 Tables 3.3.2 - 3.3.5 show the average bus and car speeds obtained from the surveys carried out to date. The speeds are weighted by route length but not by traffic volume. Morning peak period data was collected between 0730 - 0930, inter peak between 1400 - 1600 and evening peak period between1600 - 1800.

Time / direction	Mean Bus speed (kph)	Mean Car Speed (kph)	% Difference (Car - Bus)/(Bus)
am peak inbound	20.7	32.5	57.1
am peak outbound	23.6	38.7	64.1
inter peak inbound	23.8	39.2	64.6
inter peak outbound	25.2	40.8	62.2
pm peak inbound	24.8	37.6	51.4
pm peak outbound	21.5	34.5	60.4
Distance surveyed (km)	**90.2**	**174.7**	

Table 3.3.2 Bradford Journey Time Survey Results 1998 - 2002

Based on surveys on radial and orbital routes in Bradford and the Aire Valley

Time / direction	Mean Bus speed (kph)	Mean Car Speed (kph)	% Difference (Car - Bus)/(Bus)
am peak inbound	23.1	32.7	41.6
am peak outbound	29.7	39.2	32.0
inter peak inbound	29.4	39.4	34.0
inter peak outbound	29.7	41.0	38.0
pm peak inbound	28.9	34.1	18.0
pm peak outbound	25.8	35.2	36.4
Distance surveyed (km)	**64.9**	**64.9**	

Table 3.3.3 Calderdale Journey Time Survey Results 2000 - 2002

Based on surveys on principal radial commuting routes into Halifax

Time / direction	Mean Bus speed (kph)	Mean Car Speed (kph)	% Difference (Car - Bus)/(Bus)
am peak inbound	21.8	30.8	41.3
am peak outbound	21.9	35.4	61.6
inter peak inbound	24.6	37.6	52.8
inter peak outbound	23.6	37.4	58.5
pm peak inbound	23.7	33.8	42.6
pm peak outbound	20.1	32.0	59.2
Distance surveyed (km)	**65 km**	**97 km**	

Table 3.3.4 Kirklees Journey Time Survey Results 1998 - 2003

Based on surveys on radial and orbital routes in Huddersfield and the Heavy Woollen District.

Time / direction	Mean Bus speed (kph)	Mean Car Speed (kph)	% Difference (Car - Bus)/(Bus)
am peak inbound	21.2	33.2	56.6
am peak outbound	25.3	42.6	68.4
inter peak inbound	24.7	44.7	81.0
inter peak outbound	24.8	44.2	78.1
pm peak inbound	26.7	42.4	58.5
pm peak outbound	22.4	36.9	64.7
Distance surveyed (km)	**61.8**	**156.6**	

Table 3.3.5 Leeds Journey Time Survey Results 1995 - 2002

Based on surveys on radial and orbital routes in Leeds

Time / direction	Mean Bus speed (kph)	Mean Car Speed (kph)	% Difference (Car - Bus)/(Bus)
am peak inbound	21.2	31.9	50.5
am peak outbound	26.4	39.6	50.0
inter peak inbound	26.6	40.6	52.6
inter peak outbound	27.5	40.5	47.3
pm peak inbound	26.0	36.8	41.5
pm peak outbound	24.2	34.6	43.0
Distance surveyed (km)	**58.9**	**61.0**	

Table 3.3.6 Wakefield Journey Time Survey Results 2001 - 2003

Based on surveys on radial and orbital routes in Wakefield and the Five Towns area.

3.3.5 These indicators provide a clear indication of the effects of traffic congestion in terms that are easily understood. The differentials between peak and inter peak, bus and car, are unambiguous. We consider that, in contrast, the DfT congestion Core Indicator fails to provide information on congestion in a form easily understood by members of the public.

3.3.6 It is anticipated that next year's report will be able to show changes in journey times since the surveys started in 1998, as in the majority of Districts the baseline data will start to be resurveyed.

Desired Movement

3.3.7 Congestion effects over time will lead to reductions in vehicle speeds on all corridors. It is anticipated that on corridors where bus priority measures are implemented average bus speeds will increase. The Local Transport Plan aims to increase the modal share carried by public transport. This should lead to reduced numbers of private vehicle trips, and consequent improvements in average speeds for cars as well as buses.

Background Indicator B2: Generalised Costs

3.3.8 Peak period car and bus journey times for radial routes into the five main centres have been used to estimate indicative generalised commuting costs. Three costs have been calculated for each centre:

- Car commuter with free parking at place of work;
- Car commuter using Council controlled long stay off street parking;
- Bus commuter using an annual Countywide Bus Metrocard.

3.3.9 The generalised costs have been calculated for each centre based on the average commuting distance extracted from the 1991 Special Workplace Statistics as data from the 2001 census is not yet available.

3.3.10 Table 3.3.7 shows the estimated indicative generalised costs for each of the district centres where journey time data have been collected. These are also shown graphically in Figure 3.3.1.

			Generalised cost (pence/day)		
Centre	**Distance (km)**	**Parking charge (p)**	**Car driver**	**Car driver**	**Bus user**
Bradford	7.58	1.87	406	795	1059
Halifax	5.82	2.00	297	699	910
Huddersfield	6.57	2.20	332	754	963
Leeds	10.88	4.94	530	1226	1184
Wakefield	7.18	3.00	356	858	1012

Table 3.3.7 Estimated Generalised Central Area Commuting Costs 2003

(based on average journey to work distance from the 1991 census)

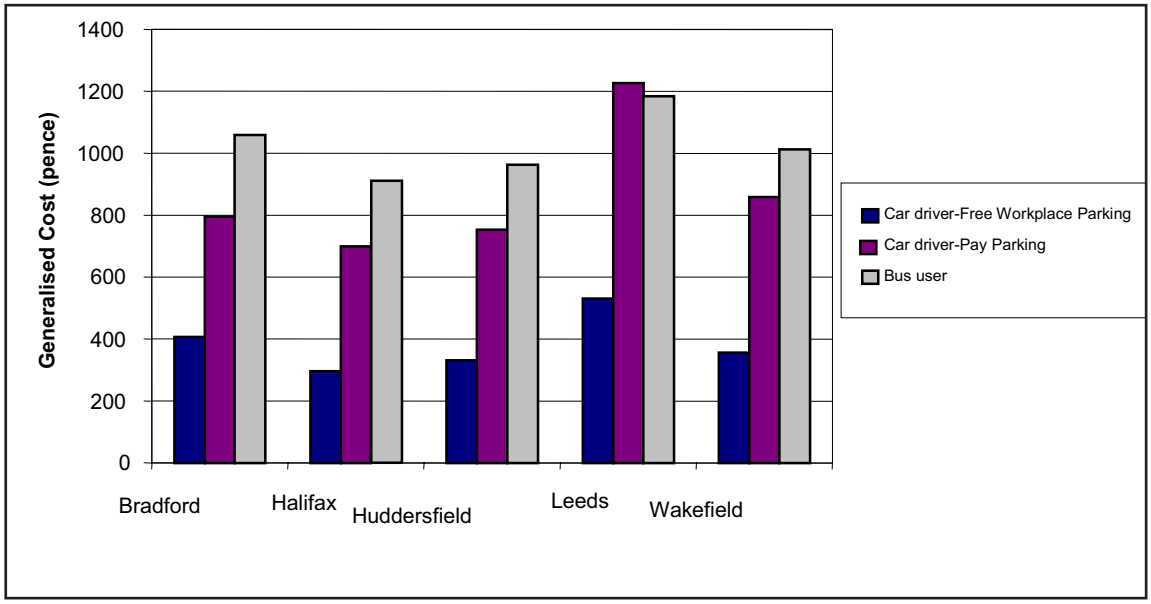

Figure 3.3.1 Estimated Generalised Central Area Commuting Costs 2003

(based on average journey to work distance from the 1991 census)

3.3.11 Leeds is the only centre where the cost of commuting by car (for those who have to pay) is greater than the cost of travel by bus.

3.3.12 It is clear from the generalised cost calculations that commuters who have access to a free workplace parking space (or free on street parking) have a real cost

advantage over those who have to pay to park or use public transport.

3.3.13 For shorter distance commuters the penalties against bus use are proportionately greater because of the amount of walking and waiting time involved in their journey.

Desired Movement

3.3.14 The impact of additional bus priority measures should, over time, increase average bus speeds in the peaks, however, it is likely that reducing boarding times at stops by the use of prepaid tickets and smartcard technology will have a potentially greater impact throughout the day. Bus user generalised costs are therefore expected to fall.

3.3.15 Petrol price increases, re allocation of road space and increased parking charges will increase car user costs. However, the use of other measures to account for the social costs car driver, such as road pricing or workplace parking charges may also be required to achieve significant levels of modal shift.

Future Requirements

3.3.16 The data collected from the ongoing journey time survey programme will be used to update the generalised costs for each centre.

Background Indicator B3: Travel Distance to Work

3.3.17 Long term planning impacts should have an effect on journey length. The only current source of data for this relates only to the journey to work, and is not available by mode. Table 3.3.8 shows the data collected from the 1991 census, data from 2001 is not yet available. An estimate of the average distance travelled is also presented. This is shown graphically in Figure 3.3.2.

District	**Travel Distance (km)**							**Average Distance**
	<2 %	**2 - 4 %**	**5 - 9 %**	**10 - 19 %**	**20 - 29 %**	**30 - 39 %**	**40+ %**	
Bradford	26.9	32.8	24.0	11.3	2.1	0.7	2.2	6.2
Calderdale	33.2	33.4	20.3	8.6	2.0	0.7	1.7	5.4
Kirklees	29.8	32.6	21.7	10.7	2.4	0.9	1.9	6.0
Leeds	20.7	25.0	26.1	17.5	5.3	1.8	3.7	8.7
Wakefield	29.1	27.1	19.9	16.6	3.7	1.5	2.0	7.1
West Yorks	25.9	29.0	23.5	14.1	3.6	1.3	2.6	7.2

Table 3.3.8 Percentage of Journeys to Work in Different Bandwidths of Journey Length - Persons with a Workplace in Each District (All Modes).

Note: Estimated average distance using weighted midpoint distances. Except 40+ assumed = 40km
Source: 1991 Special Workplace Statistics (Data set B - Table B4)

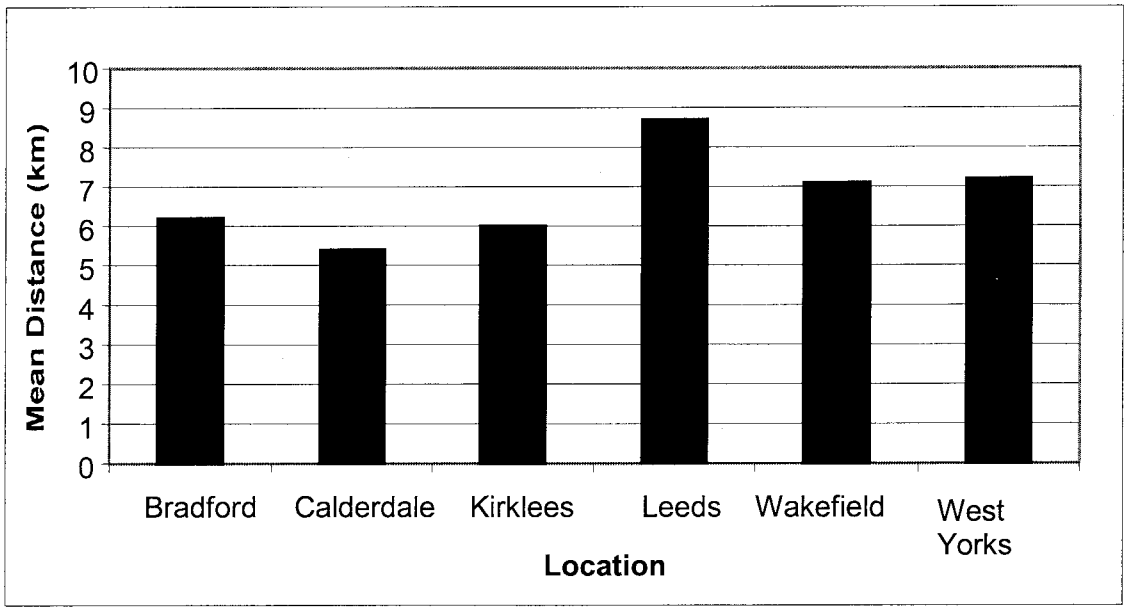

Figure 3.3.2 Average Travel Distance to Work, West Yorkshire, 1991

Desired Movement

3.3.18 In the long term the effects of planning policies will have more impact on this indicator than measures contained in the transport package.

Background Indicator B4: Cost per passenger journey of subsidised bus services (BVPI94)

3.3.19 In order to ensure that bus services are as effective as possible in meeting the travel needs of the people of West Yorkshire, the cost per passenger journey of subsidised bus services has been chosen as a best value performance indicator. Table 3.3.9 shows the current 2003 value compared with the 1999 baseline figure.

	1999	2003	% increase
Cost (pence)	50	66	32.0

Table 3.3.9 Cost per Passenger Journey of Subsidised Bus Services

3.3.20 The increase since 1999 is attributable to a reduction in the number of subsidised services as the more marginal routes have been transferred to the commercial market and are no longer supported by Metro. Whilst this action achieves better value for money overall the cost per passenger increases. In addition, tendered prices have risen significantly in recent years reflecting increases in operator staff costs.

3.4 MAINTAINING THE TRANSPORT INFRASTRUCTURE

Primary Objective

To maintain the transport infrastructure to standards to allow safe and efficient movement of people and goods.

Summary of Key Trends

- The Condition Indicators for Principal Roads suggest that the network condition is no longer deteriorating and is in fact now beginning to improve. Further improvement is anticipated over the next 5 years as the impact of major maintenance works is reflected in condition data, provided current levels of funding are continued.
- Trends in the condition of the non principal network are more difficult to determine as the method of analysis has varied. However funding of these roads and footways has increased and the target to halt deterioration by 2004 is likely to be met on B and C classified roads. The length of the unclassified network is so great that improvements will be more difficult to achieve on these roads.
- Bridge assessments for 40 tonne vehicles including privately owned structures are nearing completion, allowing funding for bridge strengthening to be targeted more effectively.
- There is a significant backlog of maintenance required for highway structures which cannot currently be addressed because at present funding is directed primarily towards the strengthening programme.
- The five West Yorkshire Districts have begun or propose to begin implementing the procedure to calculate Bridge Condition Indicators for their bridge stock developed through the CSS Bridges Group. Bridge Condition Indicators will show whether the condition of highway structures is deteriorating or not and will be used to target maintenance funding more effectively.

Role of Transport Infrastructure

3.4.1 Highway maintenance has a significant contribution to make in support of the initiatives underpinning the LTP. The proper maintenance of footways, carriageways, structures and street lighting is considered vital in meeting the LTP objectives. The Local Transport Plan has been the catalyst for the development of strong working relationships between the five Highway Authorities. This has assisted in the production of comparative data for performance indicators and generated a network condition analysis methodology for a consistent approach to the prioritisation of works.

Key Indicator C1: Maintenance Management Performance Indicators

3.4.2 The previous indicators measuring the percentage of repairs to roads and pavements which were carried out within 24 Hours and the percentage of street lighting working as planned have been deleted from the national BVPIs and are now included as a local performance indicator under C3.

3.4.3 The remaining National performance indicator relating to maintenance measurement is BVPI 100 and measures the number of days major Council road works were in place per km of busy road. This indicator is intended to measure effectiveness in managing road works to minimise disruption to the public and the West Yorkshire authorities all actively manage their works against this criteria. However the weighted average result of 0.91 for the West Yorkshire authorities is higher than the median value nationally of 0.60.

3.4.4 The indicator fluctuates depending in the number of schemes on sensitive roads where traffic controls at sensitive times are unavoidable. There have been occasions where major roads have been closed for short periods where this minimises the overall disruption generated by the works, maximises public safety and produces a more effective and economical end result. It can be seen from the chart that there is no definite trend with the indicator reflecting the nature of the locations included in each years programme.

3.4.5 Consequently BVPI 100 is not always a true measure of performance and the West Yorkshire Authorities have been actively working with Government Departments to find a more satisfactory alternative.

The trend for West Yorkshire can be seen in the chart below.

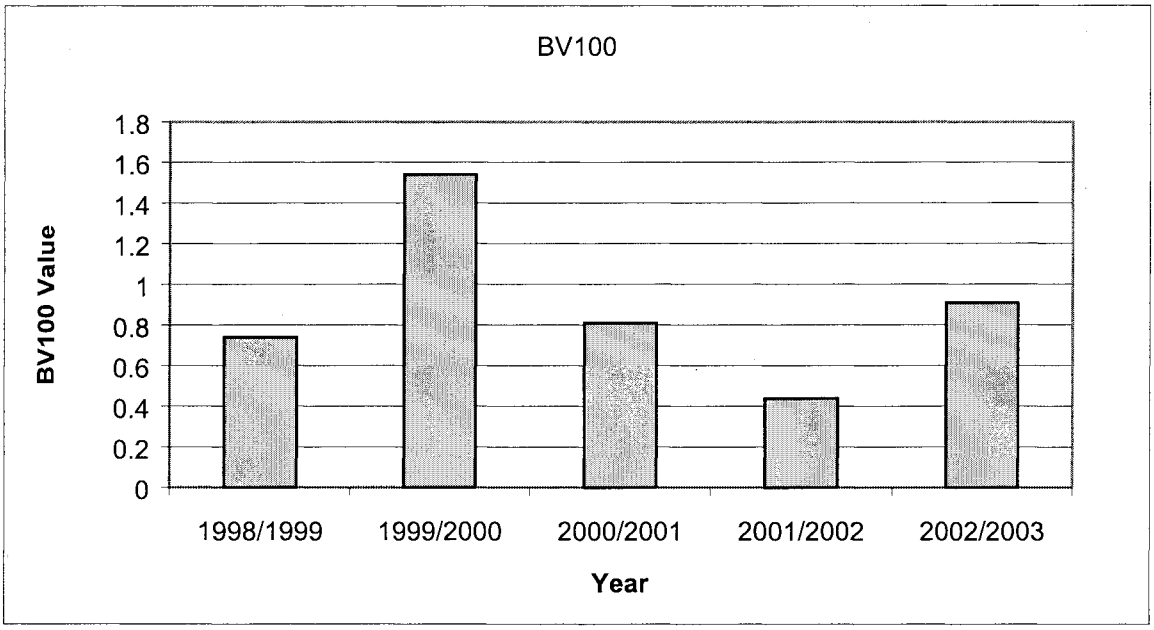

Figure 3.4.1 BV100 Number of Days of Temporary Traffic Controls or Road Closure on Traffic Sensitive Roads Caused by Local Authority Road Works per km of Traffic Sensitive Road.

Key Indicator C2: Road Maintenance Programmes

3.4.6 West Yorkshire averages for all condition performance indicators are calculated from weighted lengths, not an average of the five District values.

3.4.7 BVPI 96 measures the percentage of Principal Roads which have reached the point at which repairs to prolong their future life should be considered. It can be measured using either visual surveys or deflectograph surveys. All West Yorkshire authorities have undertaken deflectograph surveys of their principal roads and four of the five have done full visual UKPMS CVI [1] surveys.

3.4.8 The deflectograph results are presented as the percentage of the length surveyed which has a residual life of zero years or below. Deflectograph surveys are processed by Babtie's for inclusion in the NRMCS [2]. Some NRMCS results have been adjusted to take account of works undertaken since the last survey. The resulting weighted average for West Yorkshire is 27.8% compared with a bottom quartile nationally based on 2001 / 2002 returns of 15%. When compared with Metropolitan Districts West Yorkshire is approximately at the median level nationally and the result did show an improvement in structural conditions compared with previous years as can be seen in the chart below.

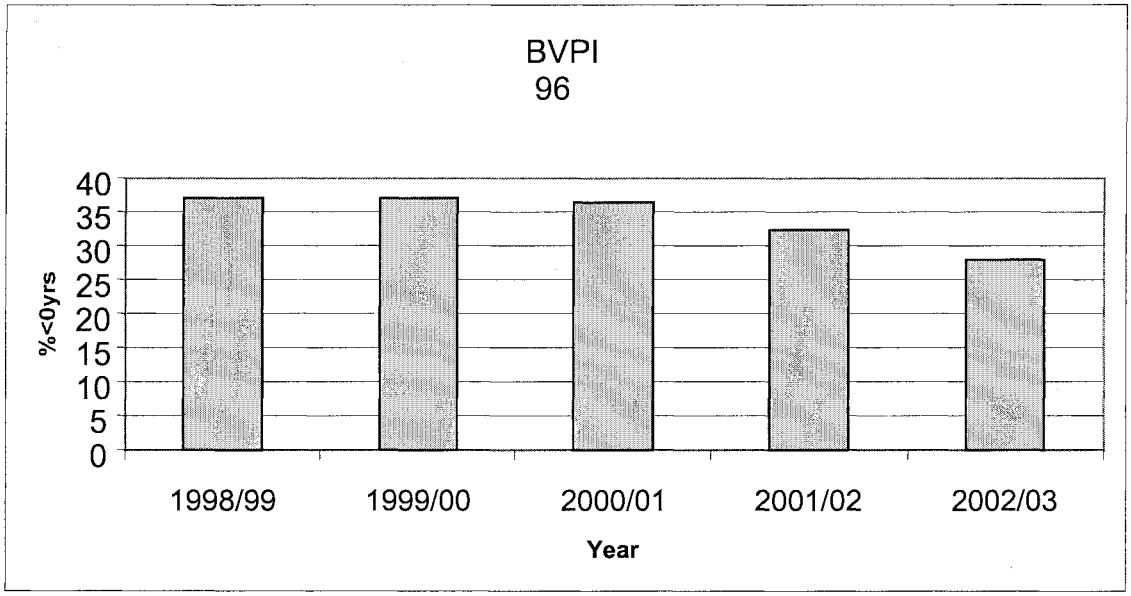

Figure 3.4.2 BVPI 96 Percentage of the Roads Network with Negative Residual Life, Derived from Deflectograph Surveys.

3.4.9 The CVI visual surveys for the five districts had a weighted average value of 5.96, which is just within the national upper quartile range. Three of the five west Yorkshire Authorities will be reporting CVI based data for BVPI 96 this year including the two which are within the upper quartile range. The

[1] United Kingdom Pavement Management System Condition Visual Inspection

[2] National Road Maintenance Condition Survey

other two will be using deflectograph survey based data.

3.4.10 In terms of future requirements, this indicator will be measured using traffic speed machine surveys from 2004 / 2005 and two of the authorities are running trial surveys in 2003 in an attempt to correlate data with existing survey methods.

3.4.11 BVPI 97 measures the percentage of Non-Principal Roads needing structural maintenance work. The indicator was introduced in 2000 for classified non-principal roads and in 2001 for unclassified roads. It is calculated using UKPMS accredited visual surveys.

3.4.12 A comparison between 2002 / 2003 data for this performance indicator with previous years is not meaningful due to changes in the UKPMS protocols. However, all districts undertook full surveys of the classified road network for BVPI 97a and overall the results are comparable with previous years. On the basis of these results it is considered that the condition of this part of the network is stabilising and continued maintenance at the current level of investment will produce an improvement in condition.

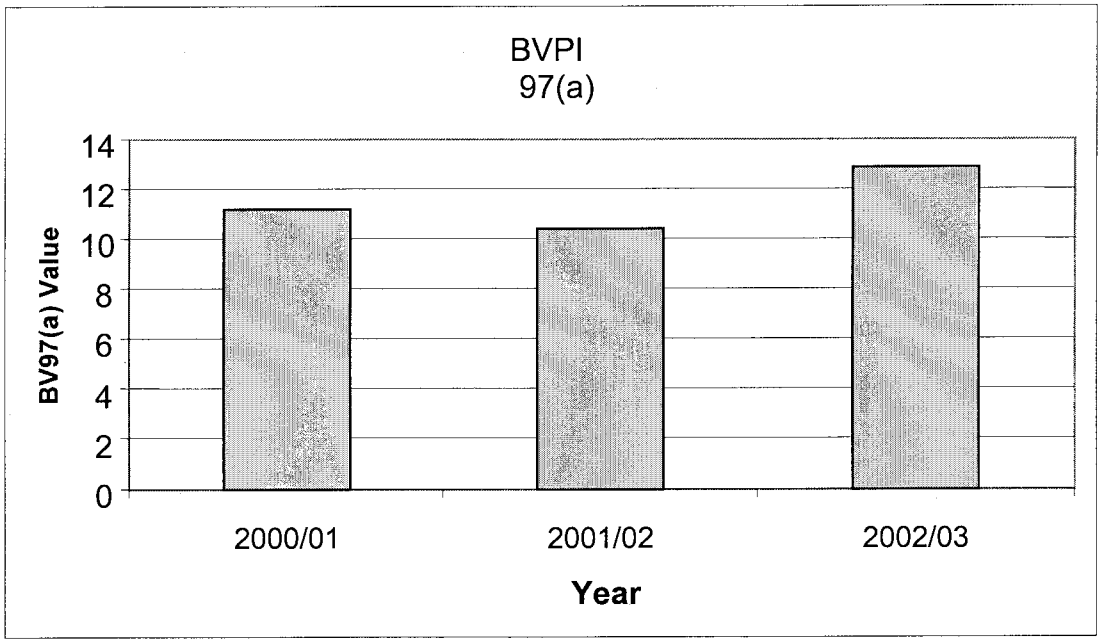

Figure 3.4.3 *BVPI 97(a) Percentage of Non-principal Classified Roads with Significant Defects (Visual Inspection).*

3.4.13 The weighted West Yorkshire average for BVPI 97(b) is 25.4% which is higher than last years value of 22.6%. There are some big differences (both up and down) in BVPI 97(b) in some districts. As the size and extent of the sample used to measure this indicator varies, it is not surprising that the data varies significantly.

3.4.14 The condition of classified roads is better than unclassified roads. The difference in the values of BVPI 97(a) & (b) reflects their relative priority of the networks hierarchy.

Background Indicator C3: Local Indicators and Bench Marks

3.4.15 To maximise the opportunity to benchmark with other authorities, local performance indicators have been selected from previous District Audit performance indicators. In addition the West Yorkshire Authorities have benchmarked the highways public liability claims procedures and are working on the production of suitable performance indicators.

3.4.16 Serviceability indicators are generally being customised by individual districts in response to their own Best Value consultations and reflect local needs unique to each district. They are therefore not appropriate for group benchmarking.

Background Indicator C3a: Repairs to Dangerous Defects

3.4.17 The percentage of repairs to roads and pavements which are carried out within 24 hours also continues to be monitored as a local PI. The weighted average value for the West Yorkshire authorities is 97.3% which is just below the National Median Value in 2001 / 2002 of 98.0%. This value has deteriorated a little from last year. However the relative difference between median level of 98% and top performers is not great and the differences are not particularly significant. The trend over the last six years can be seen in the table and chart below and the improvements over the first four years have been sustained.

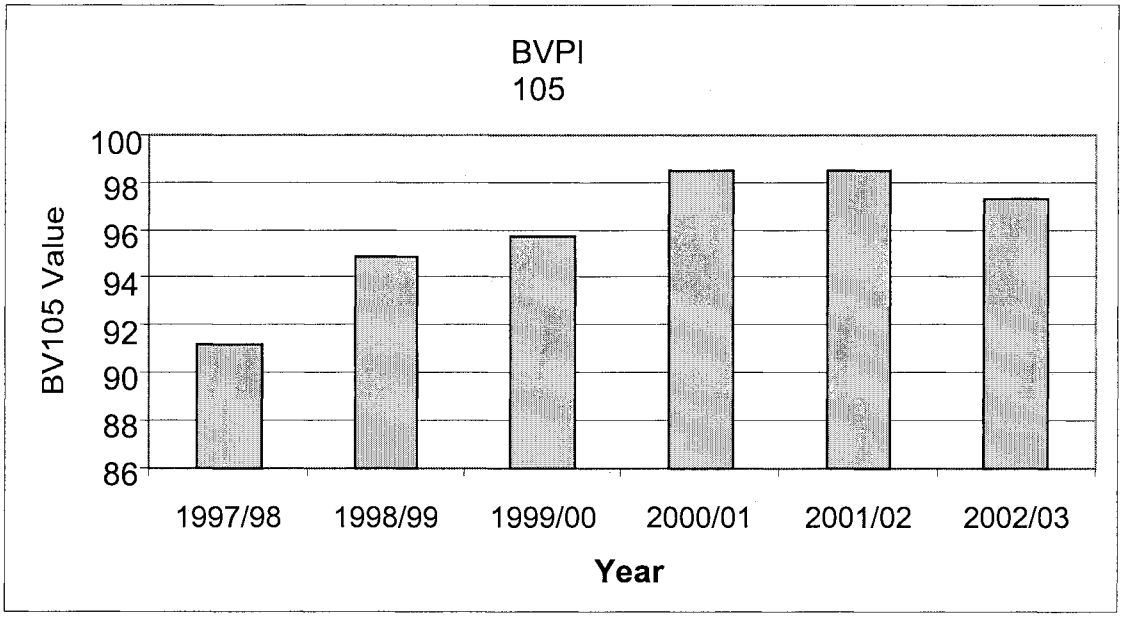

Figure 3.4.4 BVPI 105 Repairs To Dangerous Defects

Future Requirements

3.4.18 Footway condition data was collected for 50% of the prestige, primary and secondary walking routes during 2002 / 2003. These data will be used to develop a baseline against the new BVPI 187.

Performance indicators for Highway Structures

3.4.19 Although highway structures schemes affect BVPI 100, there are no National BVPIs relating directly to highway structures. Local performance indicators have therefore been formulated to measure progress on bridge assessment, strengthening, inspection and maintenance.

Background Indicator C4: Bridge Assessments Completed

3.4.20 Funding is provided through the LTP for the assessment and strengthening, where necessary of highway structures to ensure that they can safely carry vehicles up to 40 tonnes gross weight which have been allowed on roads in the UK since January 1999.

3.4.21 Key Indicator C4 shows the progress on assessment of all bridges greater than 1.5m span under ownership of Districts, Network Rail, Rail Property Ltd., British Waterways and other private organisations and includes all classes of road. The situation on 31 March 2003 compared to the base year of March 1999 for each District is set out in Table 3.4.1. The accompanying chart, Figure 3.4.5 shows results for each of the last 5 years. The aim to complete the assessment programme by March 2004 is a realistic target.

	Bradford		Calderdale		Kirklees		Leeds		Wakefield		West Yorks	
% Bridge (>1.5m span) assessments Complete	To March 1999	To March 2003	To March 1999	To March 2003	To March 1999	To March 2003	To March 1999	To March 2003	To March 1999	To March 2003	To March 1999	To March 2003
	69.6	**91.0**	**85.4**	**95.4**	**71.5**	**78.9**	**26.5**	**88.5**	**67.9**	**100.0**	**62.8**	**89.4**

Table 3.4.1 Bridges with Completed Assessments.

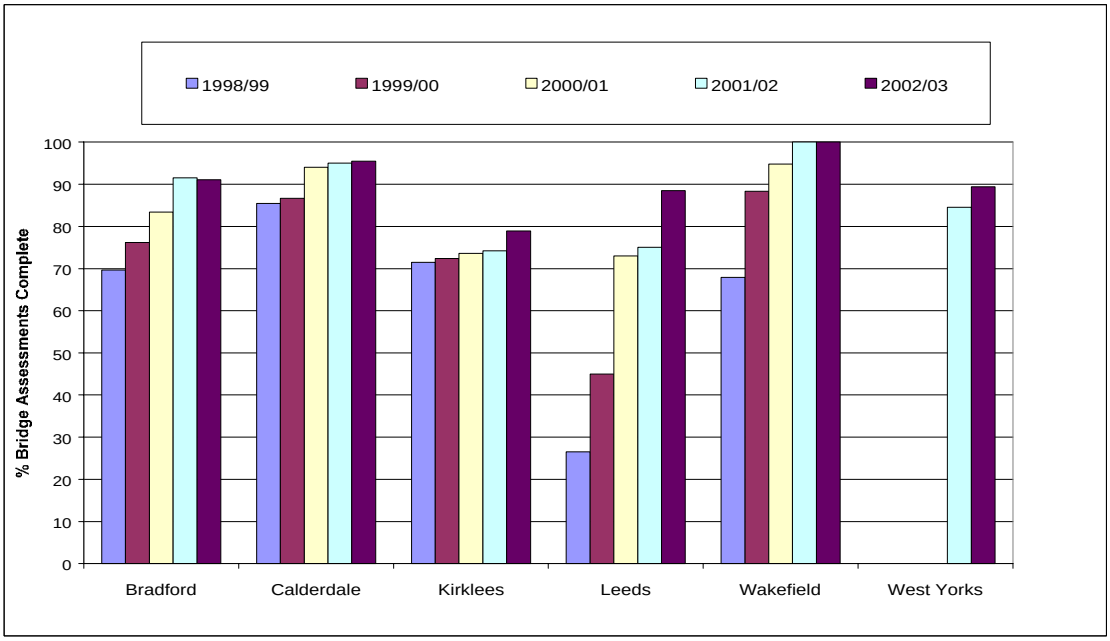

Figure 3.4.5 Bridges with Completed Assessments

Desired Movement

3.4.22 An increase in the percentage of bridges assessed shows progress towards completion of the programme . Completion of the assessment programme will identify the full extent of the required bridge strengthening and allow funding to be targeted more effectively.

Future Requirements

3.4.23 After completion of the current programme of bridge assessments, future assessments will be required whenever an inspection of the bridge shows changes in its condition that may have an adverse effect on its load-carrying capacity. However there will be no defined assessment programme and no further need for this indicator.

Background Indicator C5: Bridges Strengthened

3.4.24 Where an assessment shows that a bridge fails to meet the requirements of Department of Transport Standard BD21, interim traffic management measures or a monitoring regime are applied as necessary. The bridge is put into the programme for strengthening or a permanent weight restriction (or other traffic management measures) is implemented.

3.4.25 Table 3.4.2 includes all bridges under the ownership of Districts, Network Rail, Rail Property Ltd., British Waterways and other private owners and includes all classes of road. It is expressed as a percentage of all bridges in the assessment programme which have to date failed to reach the 40 tonne loading capacity. It includes bridges with temporary footway / verge restrictions as well as temporary carriageway restrictions and bridges which are subject to monitoring but excludes bridges where a permanent weight restriction at the level of the assessed capacity is acceptable.

3.4.26 Figure 3.4.6 shows results for the last five years and gives percentages of the total number of bridges known to be less than the required capacity at March 2003 to give an accurate illustration of the trend. It is noteworthy that although the number of bridges assessed at less than required capacity in West Yorkshire has increased during the year by 17 or 4.2%, the number of bridges strengthened has increased by 25 or 4.1%.

District	At March 2000 (Base Year)			At March 2003		
	No. of Bridges assessed at less than required capacity	No. of Bridges Strengthened	% of Bridges Strengthened	No. of Bridges assessed at less than required capacity	No. of Bridges Strengthened	% of Bridges Strengthened
Bradford	83	27	3.5	103	45	43.7
Calderdale	69	31	44.9	75	44	58.7
Kirklees	88	60	68.2	111	66	59.5
Leeds	60	16	26.7	92	34	37.0
Wakefield	39	13	33.2	43	21	48.8
West Yorks	339	147	43.4	424	210	49.5

Table 3.4.2 Percentage of Bridges Strengthened (All Roads, All Owners)

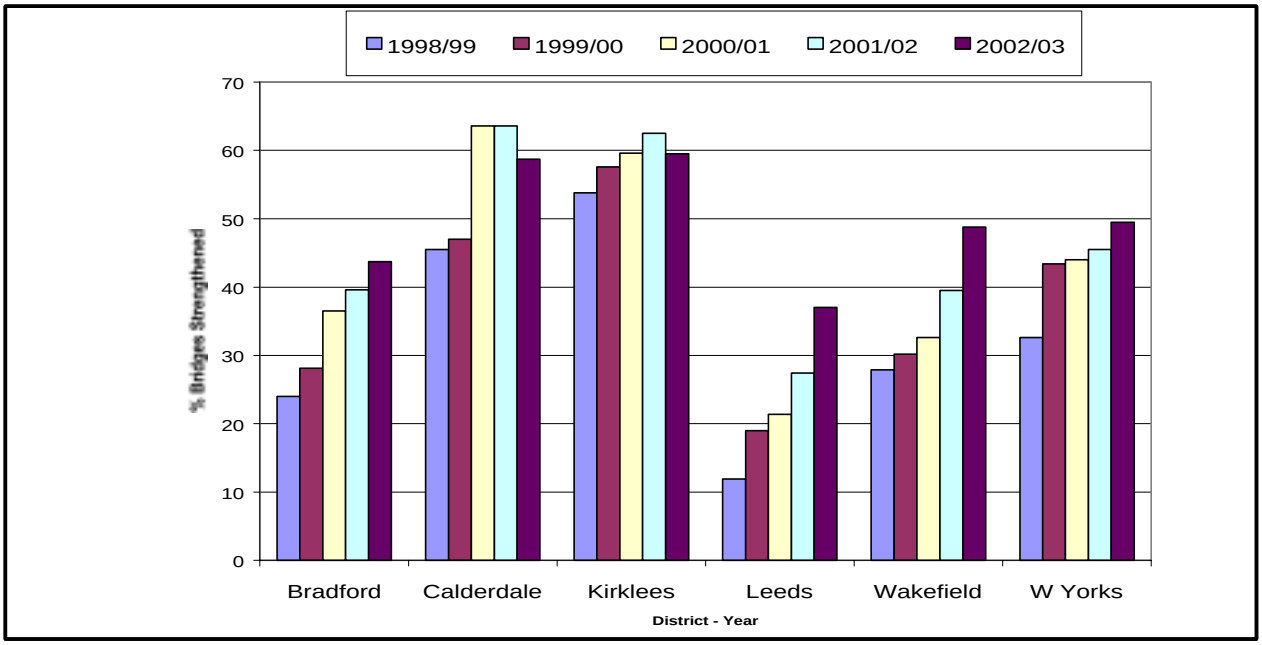

Figure 3.4.6 Percentage of Bridges Strengthened (All Roads All Owners)

Desired Movement

3.4.27 An increase in the percentage of bridges strengthened shows progress towards completion of the bridge strengthening programme and decreasing interference with the movement of goods and people. This percentage is masked by the increasing number of bridges requiring strengthening as the assessment programme progresses towards completion.

Future Requirements

3.4.28 At current levels of funding the bridge strengthening programme is expected to last another 5 or 6 years for Council-owned bridges and at least 8 years for privately-owned bridges. As the outstanding assessments are completed, newly identified weak bridges will be added to the list of bridges requiring strengthening, further increasing the timescale.

Background Indicator C6a: Bridge Inspections Completed

3.4.29 The public expects bridges to be safe to use. As bridge collapses are extremely rare, this societal expectation of safety is almost absolute.

3.4.30 To ensure the public's expectation is met, as well as carrying out the bridge assessment programmes and implementing interim measures or monitoring sub-standard structures prior to strengthening, all Districts in West Yorkshire carry out programmes of general and principal inspections based on the recommendations of BD 63 "The Inspection of Highway Structures". Background Indicator C6a measures the percentage of planned inspections carried out in the year. The number of planned inspections is based on a 6-10 year cycle for principal inspections and a two year cycle for general inspections.

3.4.31 Table 3.4.3 shows the targets and outcomes for 2002 / 2003 and indicates that 66% of planned principal inspections and 97% of planned general inspections were completed across West Yorkshire. This will form the base year for future comparisons. The shortfall in principal inspections will be addressed in the remaining years of the plan.

District	Structures Inspections, 2002 / 2003							
	Principal Inspections				General Inspections			
	Number of Structures	Target per year	No. inspected	% of target	Number of Structures	Target per year	No inspected	% of target
Bradford	385	94	74	79	605	300	264	88
Calderdale	310	42	27	64	643	330	333	100
Kirklees	483	69	80	116	570	363	363	100
Leeds	599	100	14	14	716	440	440	100
Wakefield	149	20	20	100	222	112	98	88
West Yorks	1926	325	215	66	2756	1545	1498	97

Table 3.4.3 Percentage of Structures Subject to General and Principal Inspections in 2002 / 2003

Desired Movement

3.4.32 Meeting the targets will indicate that the safety and condition of the structures stock is being monitored to allow efficient management.

Future Requirements

3.4.33 Bridge Condition Indicators are to be produced in association with the general inspection programmes which will provide a more accurate measure of the condition of the highway bridge stock.

Background Indicator C6b: Bridges With Temporary Weight or width Restrictions

3.4.34 The function of a bridge is to support the road, which in turn provides a transport facility for the user. If any part of the structure is closed or restricted for any reason, traffic will be disrupted and there will be resulting cost and inconvenience to the user. The overall functional requirement for bridge management, therefore, is to keep road user disruption to the minimum.

3.4.35 The percentage of structures with temporary weight or width restrictions is used as a simple indicator, Background Indicator C6b, to monitor performance in this area. The position at March 2002 (base year) and March 2003 is reported in Table 3.4.4. The outcome is an increase in restrictions over the year in both categories, but especially on privately owned bridges, despite the ongoing strengthening programme. As the assessment programme nears completion, this trend should be reversed. However, timing of strengthening schemes for privately owned structures is often out of the Councils' control.

West Yorkshire: Weight And Width Restricted Structures												
District	TO MARCH 2002						TO MARCH 2003					
	Structures with temporary weight or width restriction. (Council Owned)			Structures with temporary weight or width restriction. (Privately Owned)			Structures with temporary weight or width restriction. (Council Owned)			Structures with temporary weight or width restriction. (Privately Owned)		
	Total No In Prog	No Rest.	%	Total No In Prog	No Rest.	%	Total No In Prog	No Rest.	%	Total No In Prog	No Rest.	%
Bradford	237	5	2.1	74	3	4.0	237	3	1.7	74	11	14.8
Calderdale	263	0	0	66	1	1.5	263	0	0	66	1	1.5
Kirklees	292	0	0	87	3	4	293	12	4.7	87	16	18
Leeds	227	6	2.6	130	2	1.5	227	6	2.6	130	2	1.5
Wakefield	85	0	0	60	4	6.7	85	0	0	60	6	10
TOTAL	1104	11	1.0	417	13	3.1	1105	21	1.9	417	36	8.6

Table 3.4.4 Percentage of Structures with Temporary Weight or Width Restrictions

Desired Movement

3.4.36 A decrease in the percentage of structures with temporary weight or width restrictions will indicate decreasing interference with the movement of goods and people.

Future Requirements

3.4.37 Completion of the strengthening programme will allow all restrictions to be removed. Hence, for Council owned structures, the target date is the end of the second 5 year LTP in March 2011. However, continued pressure on private bridge owners is required to ensure that their weak structures are strengthened within a reasonable timescale.

Background Indicator C6c: Highway Structures Requiring Essential and Preventative Maintenance

3.4.38 Steady state maintenance is required to maintain a bridge in serviceable condition. Steady state maintenance can be split into

preventative and essential maintenance as defined in the report prepared by the CSS Bridges Group in February 2000, "Funding for Bridge Maintenance".

3.4.39 Preventative maintenance should be carried out so that the present backlog of substandard bridges will not increase in the future, which would result in further restrictions on the highway network and increased funding problems.

3.4.40 Essential maintenance must be adequately addressed to ensure the continued functionality and safety of highway structures.

3.4.41 Key Indicator C6c is the percentage of structures requiring preventative or essential maintenance. The position at March 2002 and March 2003 is shown in Table 3.4.5. The table indicates that the condition of the highway structures stock in West Yorkshire has not improved over the year.

West Yorkshire: Weight And Width Restricted Structures

District	TO MARCH 2002						TO MARCH 2003					
	Highway structures requiring preventative maintenance			Highway structures requiring essential maintenance			Highway structures requiring preventative maintenance			Highway structures requiring essential maintenance		
	All Structures	No. Req. Prev. Maint.	%	All Structures	No. Req. Prev. Maint.	%	All Structures	No. Req. Prev. Maint.	%	All Structures	No. Req. Prev. Maint.	%
Bradford	385	164	46	385	44	13	385	93	24	385	93	24
Calderdale	310	50	16	310	40	13	310	93	30	310	34	11
Kirklees	483	299	62	483	77	16	483	208	43	483	164	34
Leeds	337	222	66	337	67	20	337	205	61	337	57	17
Wakefield	146	64	46	146	13	9	149	70	47	149	11	7
TOTAL	1661	800	48	1661	241	15	1664	669	40	1664	359	22

Table 3.4.5: Percentage of Structures Requiring Preventative or Essential Maintenance

Desired Movement

3.4.42 A decrease in the percentage of structures which require either preventative or essential maintenance will result in greater confidence from the community in the overall condition of the structures stock and a reduction in the amount of maintenance required in future years.

Future Requirements

3.4.43 Preventative maintenance is seen as the most cost-effective way of keeping costs of replacement and rehabilitation of the structures stock at a

manageable and steady level. It is estimated that expenditure on preventative measures of the order of 0.35% of the Gross Replacement Cost of the structures stock will be required annually to meet the target. It is estimated at present that the required annual expenditure on essential maintenance is around 0.5% of the Gross Replacement Cost of the structures stock.

3.4.44 These percentages are broadly in line with the recommendations of the Highways Agency Paper 'Performance Objectives, Indicators and Targets for the Maintenance of Highway Structures' and the CSS Bridges Group report 'Funding for Bridge Maintenance'. These expenditure figures take no account of the existing backlog of outstanding maintenance which would require additional expenditure before the steady state approach could be taken.

3.4.45 Bridge Condition Indicators will be used to target funding, to indicate whether the overall condition of the highway structures stock is deteriorating and can be used to monitor whether adequate funding is being provided for the maintenance of highway structures.

3.5 SAFETY SECURITY AND HEALTH

Primary Objective

3.5.1 To improve safety, security and health, in particular to reduce the number and severity of road casualties.

Role of Transport

3.5.2 Danger reduction, through reducing car use and raising drivers' awareness, is seen as an important aspect of this policy, as well as the more specific safety and security measures. It is also recognised that car dependency has an adverse effect on the population's level of physical activity and directly contributes to increasing health problems.

Summary of Key Trends

- There was a significant reduction in number of people injured on the roads of the County during the year.
- The number of pedestrians injured on the roads of West Yorkshire fell significantly, and the total of 1,685 is the lowest ever recorded in the County.
- There is a strong downward trend amongst child pedestrian casualties, with this year's total being the smallest ever recorded in the County.
- The total of 452 recorded pedal cycle casualties in the County is a considerable reduction and is the lowest annual figure recorded. The number killed or seriously injured has also fallen significantly.
- The steady rise in the number of motor cycle casualties has continued into this year, with the total of 822 being a significant increase on the previous five year average. The increase can largely be attributed to a significant rise amongst riders aged 16 to 19 associated with machines less than 125cc capacity.
- There were 9,135 car occupant casualties in West Yorkshire, and this figure is virtually unchanged compared with the previous five years. Further, there was little change in the number of high severity casualties.

Key Indicator D1: Road User Casualty Trends

3.5.3 The number of people injured in road traffic accidents has been monitored for a number of years. Data is collected continuously on the numbers of fatal, serious and slight casualties throughout West Yorkshire. In 2002, 12,967 casualties were recorded on West Yorkshire's roads, a slight decrease on the total recorded in 2001 and a slight increase on the average over the years 1994 - 1998, which has been set by National Government as a target. The road casualty trends for West Yorkshire are shown in Table 3.5.1 and Figure 3.5.1. In addition to looking at the absolute

number of casualties, it is useful to compare an index of their growth to the growth in traffic as shown in Figure 3.5.2. The graph shows that the growth in the number of casualties has exceeded the growth in traffic since 1996.

Year	KSI *	Fatal	Serious	Slight	Total
1994 - 1998 average	1,484	115	1,369	11,391	12,876
1999	1,300	111	1,189	12,340	13,640
2000	1,299	120	1,179	12,426	13,725
2001	1,331	144	1,187	11,807	13,138
2002	1,319	115	1,204	11,648	12,967
% Change 2002 c.f. 1994 - 1998 average	-11%	0%	-12%	+2%	+0.7%
% Change 2002 c.f. 2001	-1%	-20%	+1%	-1.3%	-1.3%

** Killed or Seriously Injured*

Table 3.5.1 West Yorkshire Road Casualty Trends

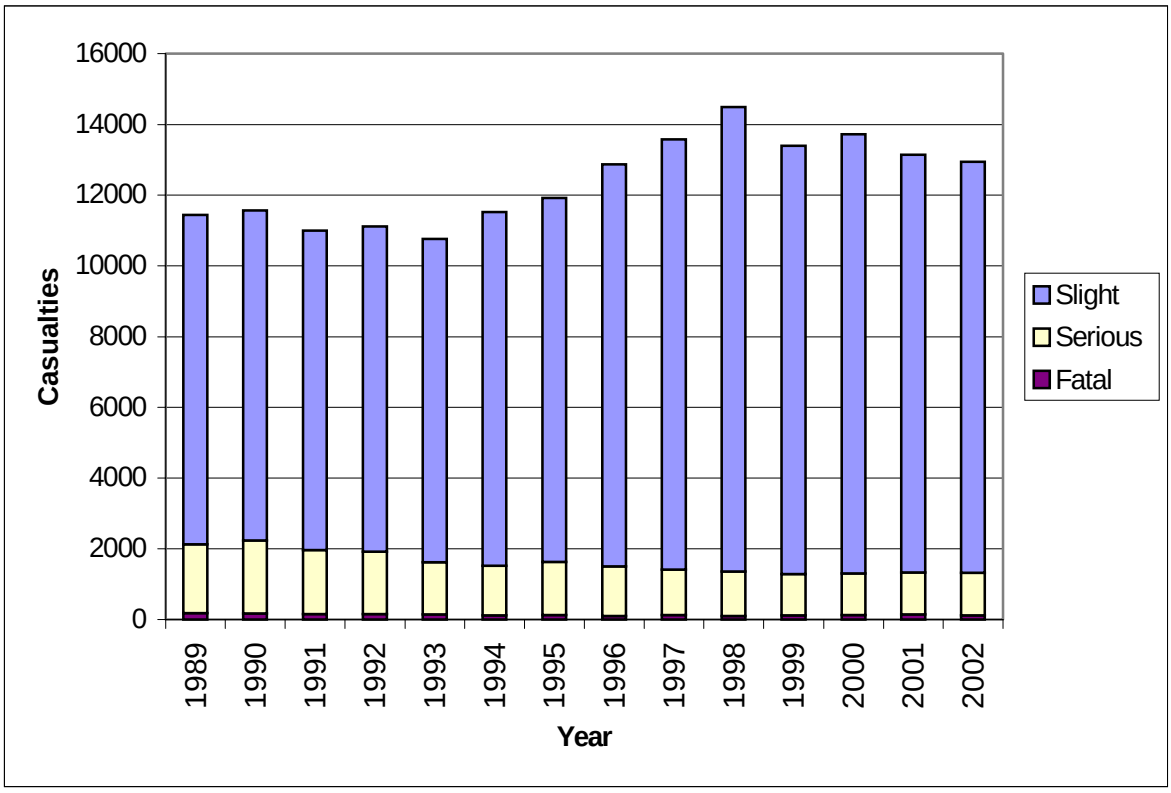

Figure 3.5.1 West Yorkshire Road Casualty Trends Since 1989

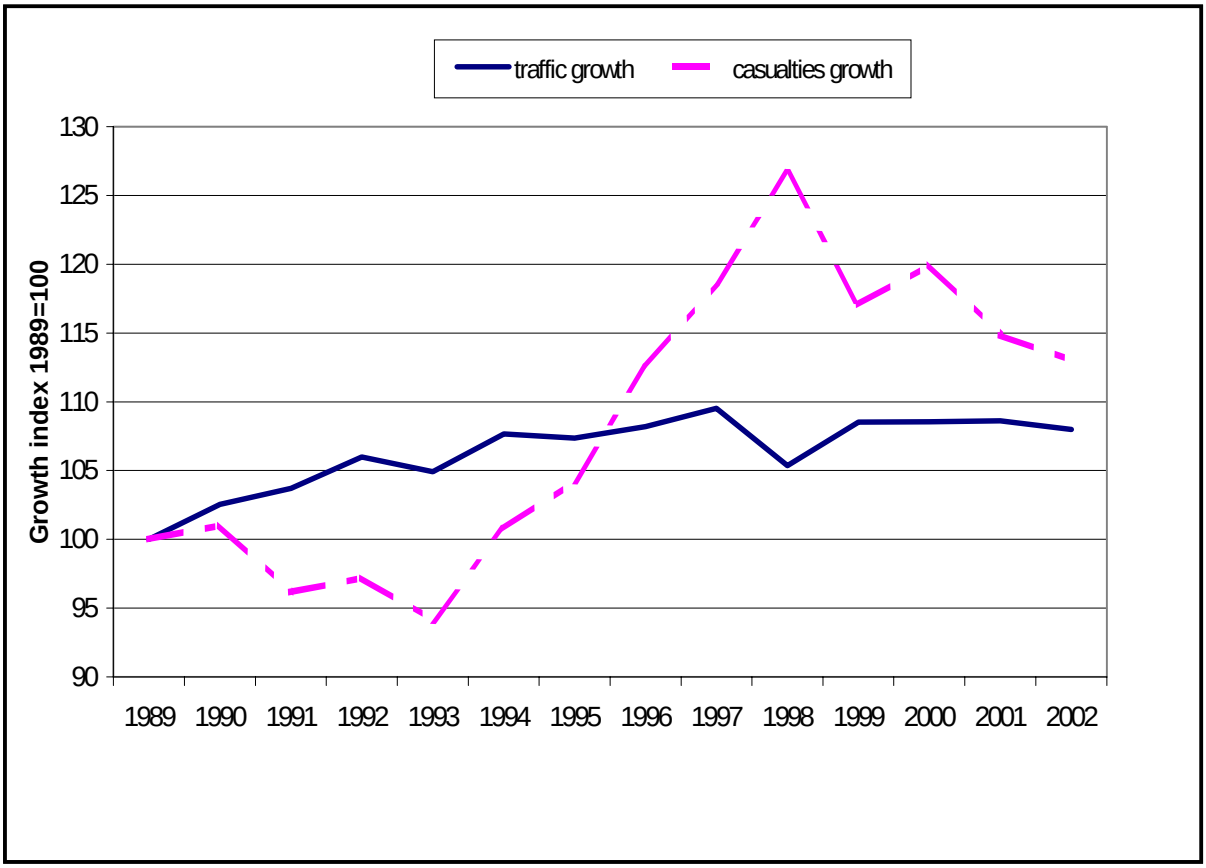

Figure 3.5.2 West Yorkshire Traffic and Accident Growth Trends

Desired Movement

3.5.4 In 1987, the Government set a target of reducing road accident casualties by one third of the 1981 - 1985 average by the year 2000. We more than achieved this target for reducing deaths and serious injuries, however, the total numbers of injuries and slight injuries have continued to increase. In 2000, the Government launched a new road safety strategy including a new set of targets to reduce road casualties further. The new national targets for 2010, compared to the average for 1994 - 1998 are:

- a 40% reduction in the number of people killed or seriously injured in road accidents;
- a 50% reduction in the number of children killed or seriously injured;
- a 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometres.

3.5.5 As shown in Table 3.5.1, compared with 1994 - 1998, the number of people killed rose sharply in 2001. This was probably due to random variation, as the accident total for 2002 has fallen to the same level as the 1994 - 1998 average. The number of serious casualties continues to fluctuate marginally and the previous downward trend has levelled off in recent years. It is not possible to present figures for the slight casualty rate as data on local vehicle kilometres is not yet available from DfT.

3.5.6 The West Yorkshire authorities will continue to target specific sites to reduce

the number of casualties and aim to reduce the overall numbers of casualties within the constraints of having to treat increasingly difficult sites which have smaller casualty savings.

Future Requirements

3.5.7 The West Yorkshire authorities will continue to monitor data on road casualties to meet the new Government targets when they have been formalised.

Key Indicator D2: Casualty Trends for Different Groups of Road User

3.5.8 The number of casualties in the different priority groups has been monitored for a number of years and will continue to be monitored continuously. The West Yorkshire trends are shown in Table 3.5.3 and Figure 3.5.4.

Year	Pedestrians	Pedal Cyclists	M/cycle Rider	M/cycle Pillion	Car Driver	Car Passenger
1994 - 1998 average	2,200	665	505	54	5,305	3,090
1999	1,933	651	628	50	6,226	3,100
2000	1,905	589	703	51	6,219	3,216
2001	1,776	499	740	60	6,049	3,035
2002	1,685	452	763	59	6,024	3,111
% Change 2002 c.f. 1994 - 1998 ave	-23%	-32%	+50%	+7%	+14%	+0.7%
% Change 2002 c.f. 2001	-5%	-9%	+3%	-3%	-0.4%	+3%

Table 3.5.2 West Yorkshire Casualty Trends for Different Road Users

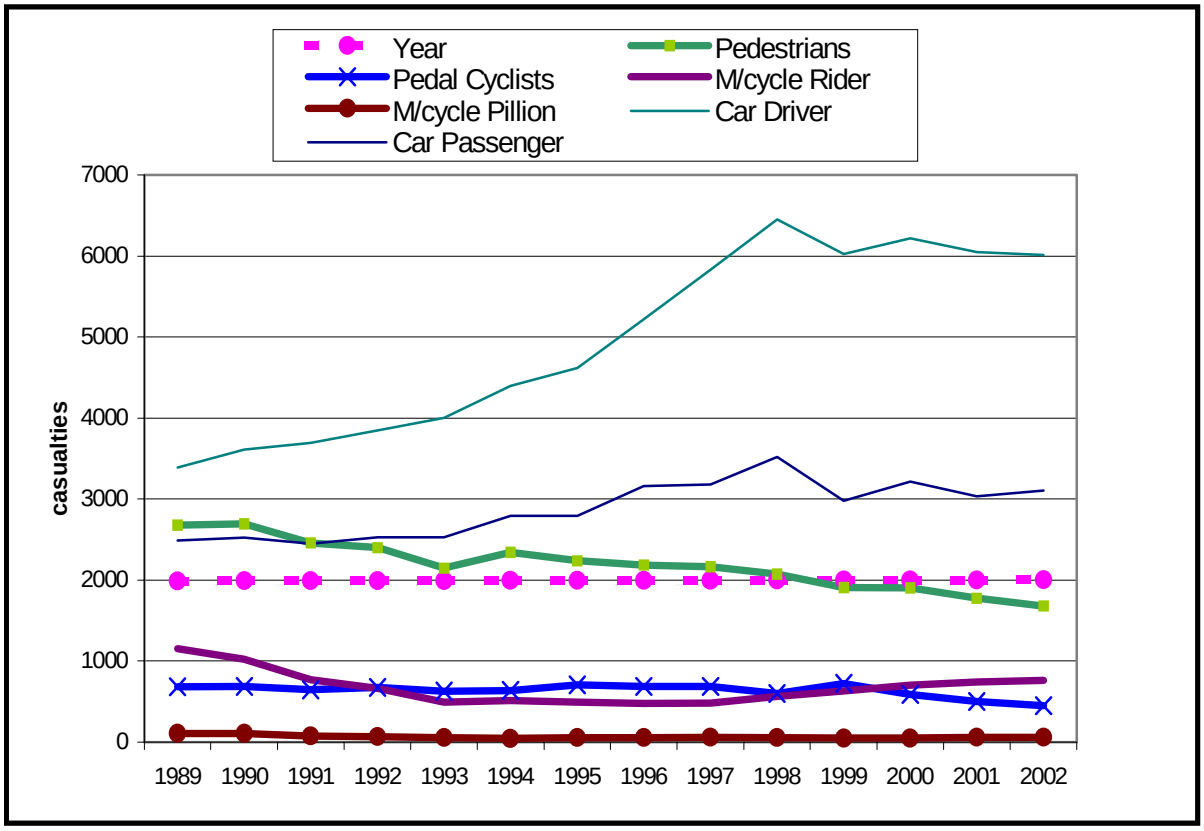

Figure 3.5.3 West Yorkshire Casualty Trends for Different Road Users Since 1989

Desired Movement

3.5.9 It is desired that the number of casualties in all groups reduces. The pedestrian casualty total for 2002 is the lowest ever recorded in West Yorkshire.

3.5.10 The annual total of car occupant casualties has remained fairly stable for the past 3 years, which suggests that the trend of rising car casualties has been checked.

Future Requirements

3.5.11 The West Yorkshire authorities will continue to monitor data on road casualties. In particular, efforts will have to be expended to reduce the number of injuries to riders of Powered Two-Wheeled vehicles as there is a re-emergence of casualties in this road user group.

Key Indicator D3: Casualty Trends for Children

3.5.12 The number of children injured in road traffic accidents has been monitored for a number of years.

Year	KSI *	Fatal	Serious	Slight	Total
1994 - 1998 average	273	13	260	1,732	2,004
1999	243	10	233	1,696	1,939
2000	230	8	222	1,700	1,930
2001	227	13	214	1,550	1,777
2002	161	7	154	1,448	1,600
% Change 2002 c.f. 1994 - 1998 average	-41%	-46%	-41%	-16%	-20%
% Change 2002 c.f. 2001	-29%	-46%	-28%	-7%	-10%

** Killed or Seriously Injured*

Table 3.5.3 West Yorkshire Road Casualty Trends for Children

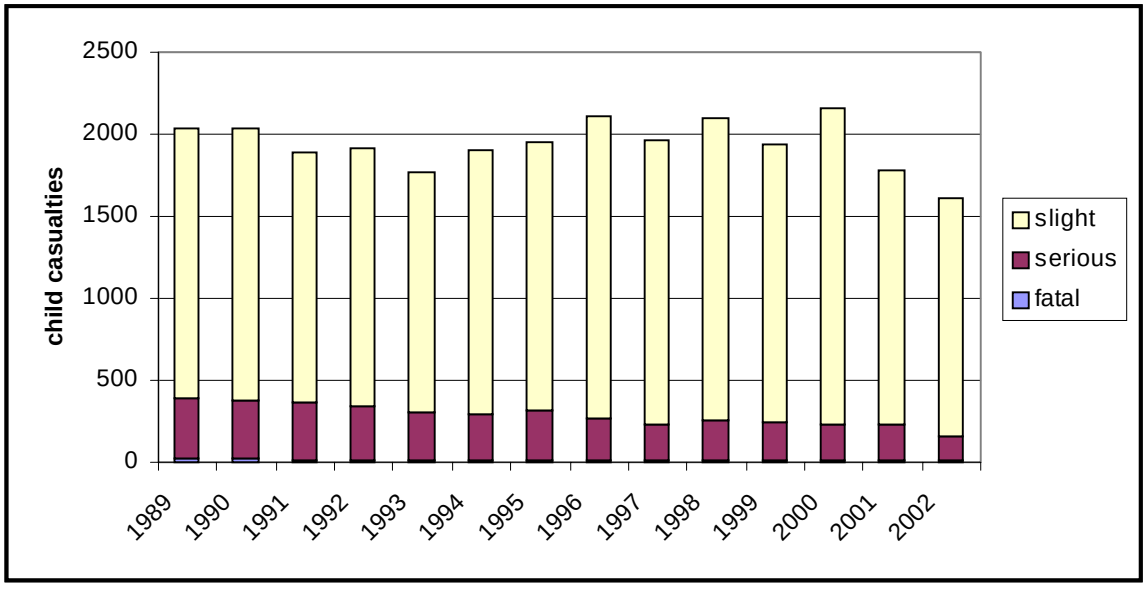

Figure 3.5.4 West Yorkshire Road Casualty Trends for Children since 1989

3.5.13 The situation for child casualties continues to show a reduction in the number seriously injured, however the number of child fatalities fell in 2002 to almost half the level of the 1994 - 1998 average (Table 3.5.2, Figure 3.5.3). The number of slight injuries has fallen to the lowest level since 1993.

Future Requirements

3.5.14 The West Yorkshire authorities will continue to monitor data on accidents involving children and will consider revising the target for those killed or seriously injured if the significant downward trend continues.

Background Indicator D4: Town Centre Car Park Spaces with CCTV Cameras

3.5.15 A comparison of the baseline data for 1996 and the latest data for the major

town and city centres in West Yorkshire is presented in Table 5.5.4. The data refers to off street council owned car park spaces only. CCTV cameras have also been introduced in car parks outside the main centres, e.g. in Dewsbury, Batley, Honley and Holmfirth in Kirklees.

	Year	Bradford	Halifax	Huddersfield	Leeds	Wakefield
No. of Spaces	1996	2,021	0	1,044	2,708	1,298
with CCTV	1998	2,021	0	2,077	2,708	1,743
	1999	2,021	393	2,077	2,708	1,743
	2000	2,021	441	1,902	2,708	1,743
	2001	856	441	2,187	2,708	1,705
	2002	1,576	441	2,667	2,708	1,266
	2003	1,576	441	2,764	2,931	1,266
No. of Spaces	1996	1,159	1,234	1,730	51	445
without CCTV	1998	1,159	1,297	677	153	0
	1999	1,159	920	677	153	0
	2000	1,159	964	925	153	0
	2001	889	964	890	153	0
	2002	124	964	1,048	153	439
	2003	124	964	1,018	140	439
% of Spaces	1996	63%	0%	38%	98%	74%
with CCTV	1998	63%	0%	75%	95%	100%
	1999	63%	30%	75%	95%	100%
	2000	63%	34%	67%	95%	100%
	2001	49%	34%	71%	95%	100%
	2002	93%	31%	72%	95%	74%
	2003	93%	31%	73%	96%	74%

Table 3.5.4 Local Authority Off - Street Car Parks with CCTV Surveillance

Desired Movement

3.5.16 It is envisaged that the number and percentage of car parking spaces with CCTV cameras will increase in the future, not just in the main centres but also in other town centres in West Yorkshire.

Background Indicator D5: CCTV Cameras at Rail Station Car Parks

3.5.17 Baseline data has been established for 1996. Since the baseline year, an additional 11 rail station car parks have had CCTV surveillance cameras installed and so now 45% of rail stations with car parks have CCTV surveillance. In 2002, the provision of a new staffed ticket office at Guiseley has improved local surveillance

and the percentage of staffed station car parks with CCTV now stands at 67%.

		Staffed Stations	Unstaffed Stations	All Stations
Station Car Parks with CCTV	1996	10	3	13
	1998	10	11	21
	1999	10	12	22
	2000	10	13	23
	2001	11	12	23
	2002	12	12	24
Total Number of Station Car Parks	1996	15	36	51
	1998	15	36	51
	1999	16	35	51
	2000	16	37	53
	2001	17	36	53
	2002	17	36	53
% of Station Car Parks with CCTV	1996	67%	8%	25%
	1998	67%	31%	41%
	1999	63%	34%	43%
	2000	63%	35%	43%
	2001	65%	33%	43%
	2002	67%	33%	45%

Table 3.5.5 Number of Rail Station Car Parks with CCTV Surveillance

Desired Movement

3.5.18 It is envisaged that the number of rail station car parks with CCTV cameras in operation will increase in the future.

Future Requirements

3.5.19 The number of rail station car parks with CCTV cameras will be monitored annually. Proposals are being developed for a countywide station CCTV system permanently monitored from a central control room, that in future could cover every rail station (including car parks) in West Yorkshire. The development of CCTV at remaining stations on the West Yorkshire Network has been the subject of a feasibility study by consultants who have now reported. This is currently being developed into a major programme due to start in 2003 - 2004.

Background Indicator D6: Security at Bus Stations

3.5.20 Data is available on security provisions at bus stations in West Yorkshire. The data has been re-based for 1997 to include large bus points such as Leeds Corn

Exchange and bus stations owned by bus operators. Keighley Bus Station was added to those bus stations monitored through the central CCTV monitoring scheme and a total of 65% of all bus stations now have audible help points linked to a central control room

	% Bus Stations with CCTV surveillance	% Staffed Bus Stations	% Bus Stations with Help Points
1997	36%	-	-
1998	42%	-	-
1999	42%	-	-
2000	78%	-	-
2001	88%	34%	65%
2002	88%	34%	65%

Table 3.5.6 Security at Bus Stations

Desired Movement

3.5.21 It is envisaged that the percentage of bus stations with CCTV surveillance will increase in the future. Further funding has been secured to extend CCTV coverage to include on-street bus points and selected bus stops.. Work has been completed to link the Metro CCTV system with local authority CCTV schemes that will create seamless CCTV coverage for crime prevention. It is envisaged that the percentage of bus stations with CCTV surveillance will increase following the planned refurbishment of older bus stations in the future..

Future Requirements

3.5.22 Metro is developing a CCTV strategy as part of their comprehensive approach to Safety and Security. This will test security surveillance at known "trouble spots" such as bus shelters experiencing vandalism and will implement CCTV at all on street bus points. Metro aims to ensure that all bus stations have either Metro or other CCTV systems and will continue to monitor the situation annually.

Background Indicator D7: Car Park Spaces with Secured Car Park Award

3.5.23 Table 5.5.7 shows the comparison of the baseline data to the latest data available for the number of off-street car parking spaces in each of the main town or city centres that have received awards. Secured Car Park Awards have also been received for car parks in other centres e.g. Dewsbury, Pontefract and Castleford.

		Bradford	Halifax	Huddersfield	Leeds	Wakefield
No. of	1996	554	0	1,777	0	0
spaces with	1998	554	0	1,777	0	0
Awards	1999	554	0	1,777	1,250	0
	2000	554	0	1,777	1,250	0
	2001	136	0	1,777	1,250	0
	2002	170	0	1,919	1,250	0
	2003	203	0	2,669	1,250	0
No. of spaces	1996	2,626	1,297	903	2,860	1,743
without	1998	2,626	1,297	877	2,860	1,743
Awards	1999	2,626	1,313	877	1,610	1,743
	2000	2,626	1,313	950	1,297	1,743
	2001	1,609	1,313	1,058	1,297	1,705
	2002	1,530	1,405	1,796	1,297	1,705
	2003	1,497	1,405	1,113	1,681	1,705
% of Spaces	1996	17%	0%	66%	0%	0%
with Awards	1998	17%	0%	67%	0%	0%
	1999	17%	0%	67%	44%	0%
	2000	17%	0%	65%	49%	0%
	2001	8%	0%	63%	49%	0%
	2002	10%	0%	52%	49%	0%
	2003	12%	0%	71%	43%	0%

Table 3.5.7 Local Authority Off-Street Parking Spaces with and without Awards

Desired Movement

3.5.24 Since 1996 there has been an increase in the number of car park spaces with awards and it is envisaged that the number will continue to increase as more security and personal safety issues are addressed within car parks. Wakefield is working towards secured status for a number of city centre car parks. Calderdale is currently developing an Action Plan aiming to achieve the Secured Car Park Award status for up to 20% of Local Authority off-street spaces by 2007. A bid for funding has received Council support and negotiations with potential partners is ongoing.

Background Indicator D8: Town and City Centre Streets covered by CCTV Security Cameras

3.5.25 Table 5.5.8 shows the changes in CCTV coverage in the major town and city centres since the baseline of 1998 through the percentage of streets covered by cameras. In addition a number of the smaller towns have good CCTV coverage, e.g. Dewsbury.

	Bradford	Halifax	Huddersfield	Leeds	Wakefield
1998	40%	0	90%	60%	93%
1999	40%	5%	90%	60%	93%
2000	40%	15%	90%	70%	93%
2001	40%	30%	94%	70%	93%
2002	55%	40%	94%	73%	93%
2003	60%	40%	95%	80%	93%

Table 3.5.8 Percentage of City Centre Streets Covered by CCTV

Desired Movement

3.5.26 It is envisaged that the percentage of streets covered by CCTV in Bradford, Halifax and Leeds will continue to increase, but Huddersfield and Wakefield are probably close to their realistic maximum. It is also expected that more of the smaller towns will be covered by CCTV in the future.

3.6 EQUAL OPPORTUNITIES

Primary Objectives

To promote equal opportunities for access to transport

Role of Transport

3.6.1 This objective embraces the need to provide access for disabled people but also recognises the need to address other inequalities in the transport system, particularly between those with and without access to cars.

Summary of Key Trends

- Excellent progress continues to be made in improving accessibility to transport for people travelling within West Yorkshire;
- 31% of buses are low floor, compared to 10% in 1999;
- In 1999, only 7% of low floor buses were also equipped with a ramp as opposed to 25% in 2003;
- All rail stations in West Yorkshire now have public address systems;
- 334 controlled crossings are now equipped with dropped kerbs, tactile paving and tactile indicators compared with 246 in 2000;
- AccessBus patronage figures fell by 4% compared to 1999 figures;
- The number of Disability Discrimination Act (DDA) compliant bus stops has increased by 335 since 2000;
- 50 rail stations have level/ramped access to both platforms compared to 39 in 1997

Background indicator E1: AccessBus patronage

3.6.2 AccessBus patronage data relates to the use of the specialised door-to-door service for people unable to use conventional public transport, operating under contract to Metro in all districts. Current data collection includes the number of passenger trips made annually. The base line year is 1995, when 320,000 passenger trips were made.

Desired Movement

3.6.3 Metro is implementing a strategy for improved access to mainstream public transport services. The door-to-door nature of the AccessBus service and the extra assistance given by drivers, particularly in relation to shopping activities, means that demand for the service increased with a 40% increase in patronage between 1995 and 2001. Last year however there was a decrease, partly due to the new booking system which logged cancellations more accurately. This represents a decrease of 3.8% over the baseline (1999 / 2000).

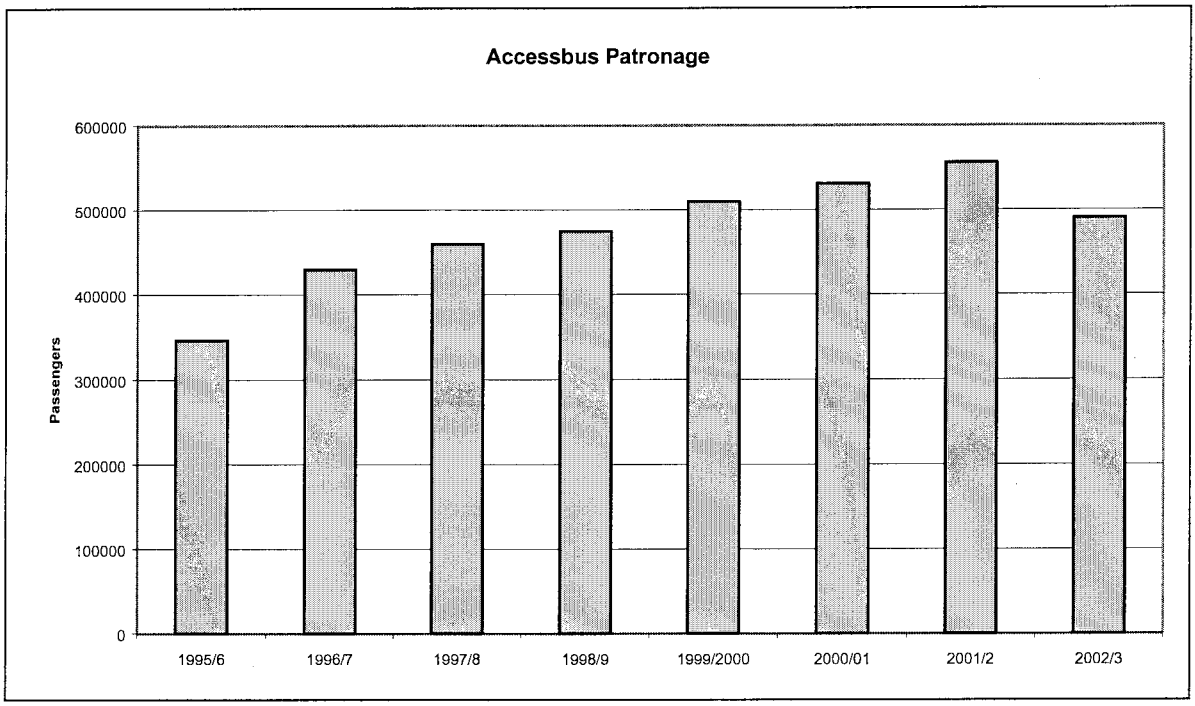

Figure 3.6.1 AccessBus Patronage Trends

3.6.4 The major development for AccessBus during the year has been the introduction of the new booking system incorporating the latest Computer Telephony Intergration (CTI) technology. This started to come on line during the year and will need a good deal of development work, but once the system is fully operational it will:

- Allow more efficient use of vehicles;
- Cut down on the need for the use of taxis;
- Make booking procedures more efficient.

Future Requirements

3.6.5 11 of the 16 remaining tail-lift AccessBus vehicles with front end ramped access vehicles will be replaced during the lifetime of the current LTP. This will bring the total number of ramped access vehicles in operation to 30, significantly improving the safety and quality of the AccessBus service.

Background Indicator E2: Accessibility of Bus Fleets

3.6.6 The total percentage of buses in West Yorkshire compliant with the requirements of Disabled Persons Transport Advisory Committee (DPTAC) 2003 is 31% compared to 10% in 1999.

3.6.7 The percentage of DDA compliant buses i.e. low floor with a ramp fitted, was 7% in 1999, increasing to 23% in 2003. The average age of the West Yorkshire bus fleet in 2003 is 9.2 years against the national target of 8 years. It should be noted that these figures are based on returns from bus operators, a small number of whom have not supplied statistics.

Key Indicator E3: Accessibility of Rail Stations

3.6.8 The accessibility of rail stations in West Yorkshire, with particular reference to the facilities available to assist disabled persons, is reported below. Progress made since 1997 is shown in Table 3.6.1. In 2002, all remaining stations in West Yorkshire were equipped with a full public address system.

Station Facility	**No of Stations with Facilities**		**% of stations**	
	1997	**2002**	**1997**	**2002**
Staffed (17 Stations)				
Level/ramped access to all platforms	9	13	56	77
Level/ramped access to some platforms	3	5	19	29
Information Screens	10	13	63	77
Full public address	10	17	63	100
Unstaffed (48 Stations)				
Level/ramped access to all platforms	30	37	63	77
Level/ramped access to some platforms	11	10	23	21
Information Screens	0	8	0	16
Full public address	21	48	44	100

Table 3.6.1 Station Facilities within West Yorkshire

Desired Movement

3.6.9 Continued investment in rail station infrastructure will be targeted such that a greater proportion of rail stations will become more accessible.

Future Requirements

3.6.10 The database is continually updated and will therefore allow future monitoring and reporting to be carried out efficiently.

Background Indicator E4: Accessibility of Bus Stations

3.6.11 During 2002 - 2003, an audit of bus station accessibility was carried out. This was based on eight criteria which, if met, would make the bus stations fully accessible to disabled users. Seven of the West Yorkshire bus stations (26% of the total) were found to be fully accessible. A further twelve (44%) were 87% accessible and eight (33%) were 75% accessible.

Desired Movement

3.6.12 The eight bus stations which were found to be only 75% accessible are all the subject of forthcoming major refurbishment or DDA works. Batley, Cleckheaton, Ossett, Brighouse, Todmorden are programmed for 2003 - 2005 and Leeds, Otley and Shipley Market Place during the life of the current LTP. The majority of those which are 87% accessible will also have refurbishment / DDA works during the current LTP period.

Future Requirements

3.6.13 Audits will be carried out regularly to monitor progress towards full accessibility at all bus stations.

Background indicator E5: Accessibility of bus stops

3.6.14 Metro is working on a number of corridors throughout West Yorkshire, improving accessibility of stops. These include such factors as raised curbs, tactile paving and improved lighting. Routes with accessible stops, such as the bus guideways, are operated exclusively by low floor buses, thus giving a fully accessible service. In 2000, there were 338 accessible bus stops; in 2003 there were 448, an increase of 33%.

Desired Movement

3.6.15 The vast majority of bus stops require expenditure in order to bring them up to a minimum required accessibility standard. The accessibility of bus stops and their environment is the prime focus of the strategy to improve access to public transport. It is proposed that the accessibility of bus stops be improved through targeted investment on corridors, city and town centres and as part of the Interchange Strategy and that minimum standards are applied to all bus stops with additional expenditure on 'advanced' features being targeted at corridors and town centres on a prioritised basis

Future Requirements

3.6.16 Metro is continuing to develop criteria of accessibility for bus stops in order to improve reporting on this indicator.

Background Indicator E6: Provision at Controlled Pedestrian Crossings

3.6.17 Baseline data reported in 1996 specified the number of zebra crossings, pelican crossings and signalled junctions (with pedestrian facilities) that have dropped kerbs and tactile paving. Data for 1997 had the additional category of controlled crossings with tactile buttons. From 2003 BV165 has been adopted as the standard against which to monitor progress in the

provision of accessible pedestrian crossing facilities and will be reported in future monitoring reports. Progress made in improving facilities at crossings 1997 - 2002 is shown below.

Type	Bradford							
	With dropped kerbs and tactile paving				With tactile buttons			
	1997		2002		1997		2002	
	No	%	No	%	No	%	No	%
Zebra	36	53	70	100	-	-	-	-
Pelican	58	57	127	98	24	24	78	60
Signal Control	30	68	73	99	16	36	66	90

Type	Calderdale							
	With dropped kerbs and tactile paving				With tactile buttons			
	1997		2002		1997		2002	
	No	%	No	%	No	%	No	%
Zebra	9	35	16	64	-	-	-	-
Pelican	22	65	25	86	7	21	16	57
Signal Control	21	72	23	76	11	37	16	50

Type	Kirklees							
	With dropped kerbs and tactile paving				With tactile buttons			
	1997		2002		1997		2002	
	No	%	No	%	No	%	No	%
Zebra	13	42	22	65	-	-	-	-
Pelican	29	36	43	86	7	15	24	48
Signal Control	38	79	47	85	22	52	42	76

Type	Leeds							
	With dropped kerbs and tactile paving				With tactile buttons			
	1997		2002		1997		2002	
	No	%	No	%	No	%	No	%
Zebra	25	45	53	100	-	-	-	-
Pelican	117	62	158	79	59	31	98	49
Signal Control	150	64	229	86	101	42	151	57

Type	Wakefield							
	With dropped kerbs and tactile paving				With tactile buttons			
	1997		2002		1997		2002	
	No	%	No	%	No	%	No	%
Zebra	9	53	14	70	-	-	-	-
Pelican	58	74	76	96	25	31	63	80
Signal Control	34	49	43	59	16	22	31	42

Table 3.6.2 Provision at Controlled Crossings.

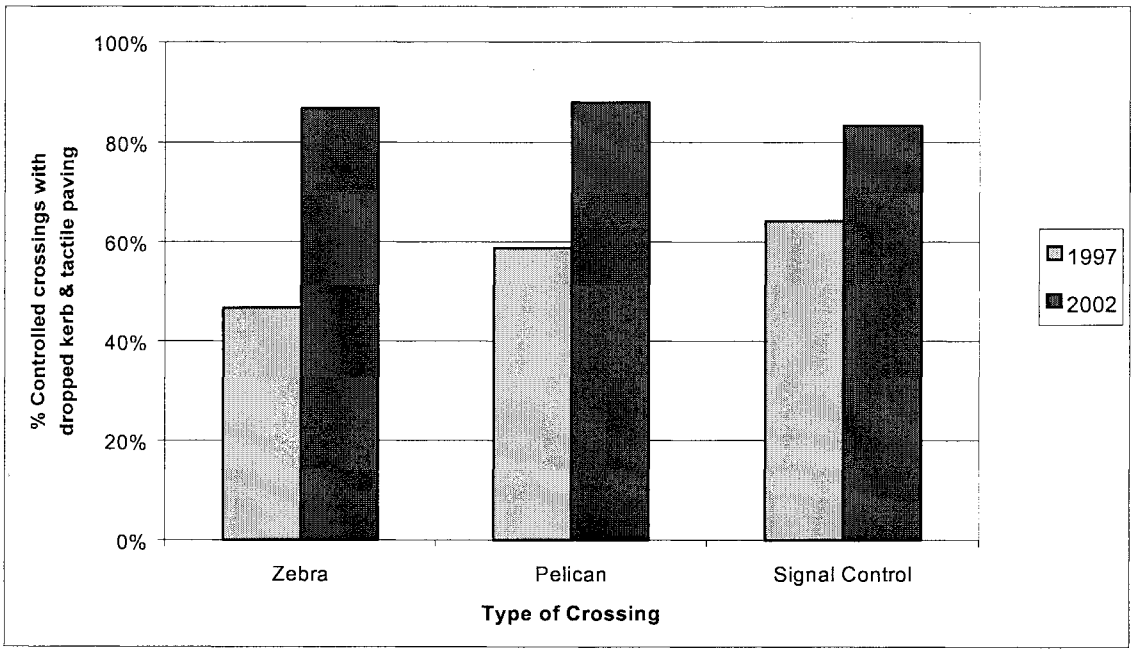

Figure 3.6.2 Controlled Crossings in West Yorkshire with Accessible Features

Desired Movement

3.6.19 Excellent progress had been made between 1996 –2002 in improving the accessibility of pedestrian crossing facilities in West Yorkshire. Controlled crossings will become more accessible as a result of the adoption of BV165 as the indicator for measuring future improvements in accessibility. The higher design standards and future investment means the percentage of fully accessible facilities will continue to increase.

Future Requirements

3.6.20 The progress of upgrading of controlled crossings and installation of new crossings against the new BV165 standard will be reported in future monitoring reports.

3.7 ENVIRONMENTAL QUALITY

Primary Objectives

3.7.1 To improve environmental quality and reduce the impact of transport on air quality and noise.

Role of Transport

3.7.2 To reduce transport noise and air pollution by controlling traffic growth, reducing congestion and removing traffic from sensitive areas.

Summary of Key Trends

- All Districts have completed the first round of the Air Quality Review and Assessment process.
- A long term (5 year) trend of improved air quality has been monitored for NO_2 and PM_{10}. All relevant air quality standards were met.
- Leeds has submitted a draft Air Quality Action Plan for consultation. Wakefield has started to prepare a similar Action Plan. Both plans will aid mitigation of traffic related Air Quality Management Areas (AQMA).
- Since the year 2000, road transport emissions of NOx and PM_{10} within West Yorkshire have fallen by 15% and 16% respectively. (No change for CO_2).
- A West Yorkshire Noise Mapping Project Board has been set up to coordinate the requirements of the proposed National Ambient Noise Strategy.
- Leeds and Kirklees have achieved EMAS accreditation. Bradford is working towards EMAS accreditation by September 2005.
- A partnership has been set up between Leeds City Council and Leeds University, to exchange expertise / resources in transport related air quality and noise management.

Key Indicator F1: Air Quality Monitoring in Town and City Centres

Transport Emissions

3.7.3 Road transport emissions remain the most significant source of air pollution in urban areas. High levels of exhaust emissions can result from the effects of traffic congestion, which is most common during peak periods.

3.7.4 Road transport emissions of nitrogen dioxide (NO_2) and particulates (PM_{10}) contribute in the region of 75% and 50% respectively, towards total urban emissions. NO_2 and PM_{10} represent the two major transport pollutants of concern.

Nitrogen Dioxide Monitoring

3.7.5 Figure 3.7.1 illustrates the results of the annual average NO_2 monitoring at 5 sites. During the year 2002, all sites complied with the annual average standard of 40 µg/m^3. Over the 5 year period, there is a clear trend of improving air quality, with respect to background levels of NO_2. This provides a good indication that road transport emissions of NO_2 are declining.

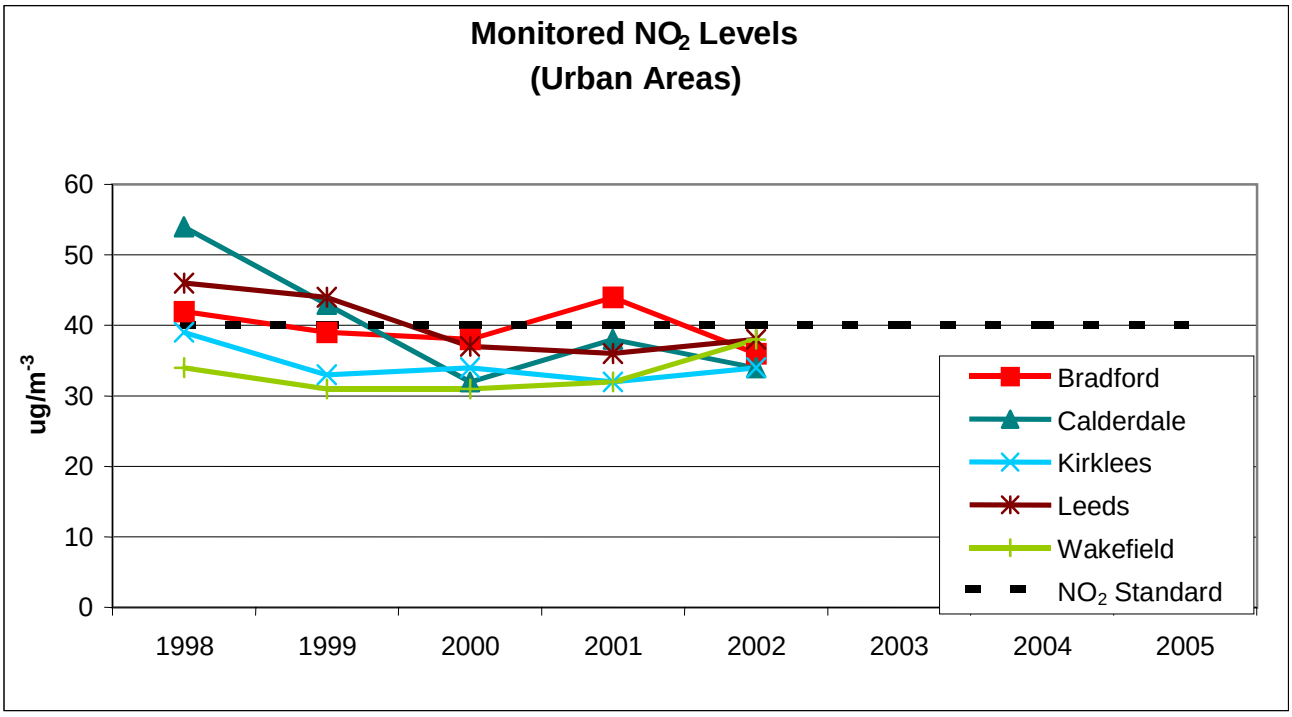

Figure:3.7.1 West Yorkshire Annual Average NO_2 Monitoring – Summary Data

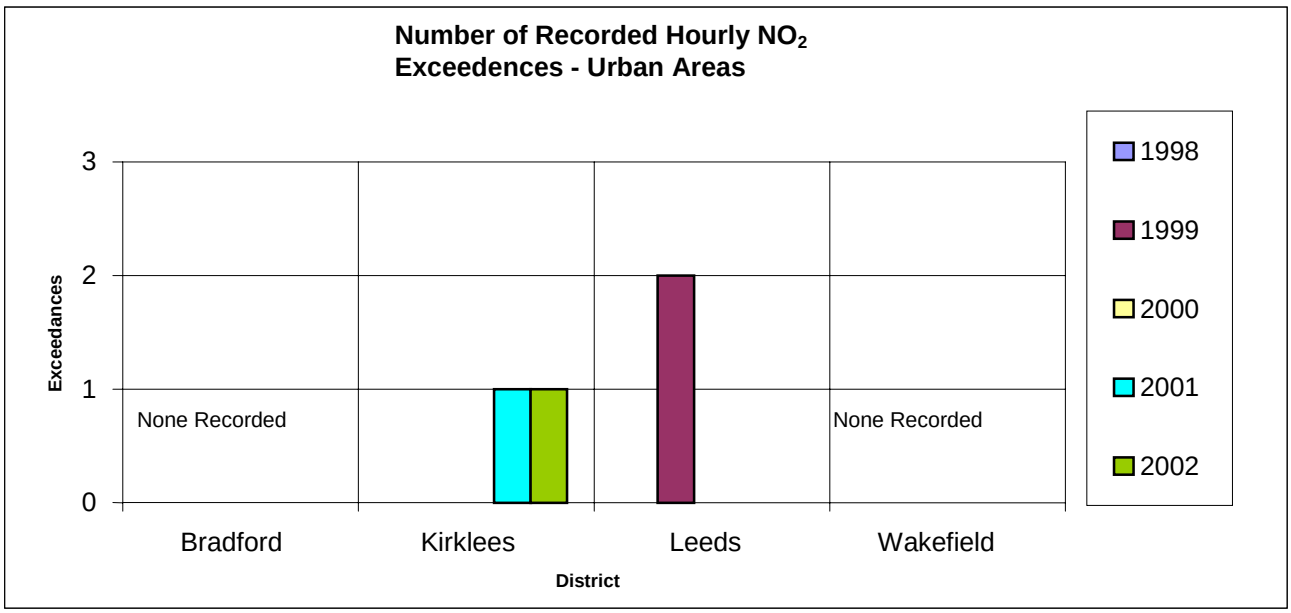

Figure 3.7.2 Total Number of Hourly NO_2 Exceedances

3.7.6 Figure 3.7.2 illustrates the number of exceedances of the hourly NO_2 standard of 200 µg/m^3. (This standard allows up to 18 exceedances per year). Since monitoring began in 1998, there have been only 4 exceedances recorded at these West Yorkshire sites. During the year 2002, a single exceedance was reported at the Kirklees site. All Districts complied easily with the relevant air quality standard. No hourly NO_2 data was available for Calderdale.

Particulates (PM_{10}) Monitoring

3.7.7 The urban monitoring network for PM_{10} throughout West Yorkshire has improved since 1998. There is now a clear long term trend towards improvements in the PM_{10} annual mean concentrations. Figure 3.7.3 indicates that all Districts reported a continued improvement in background PM_{10}, during the year 2002. The annual mean PM_{10} standard of 40 µg/m^3 was easily accomplished by all Districts.

3.7.8 Figure 3.7.4 indicates the number of daily PM_{10} exceedances within the urban monitoring network of 5 sites. (This standard allows 35 daily exceedances greater than 50 µg/m^3). Again, all Districts complied with ease. Leeds reported the highest number of exceedances, on just 13 occasions.

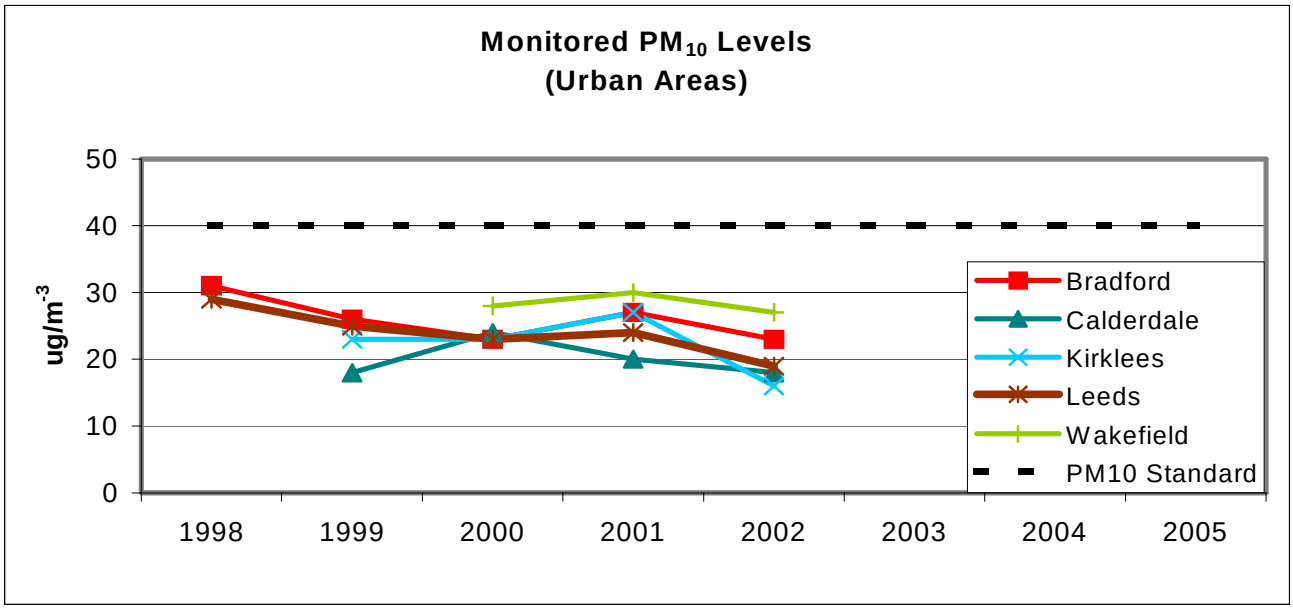

Figure 3.7.3 West Yorkshire Annual average PM_{10} Monitoring – Summary Data

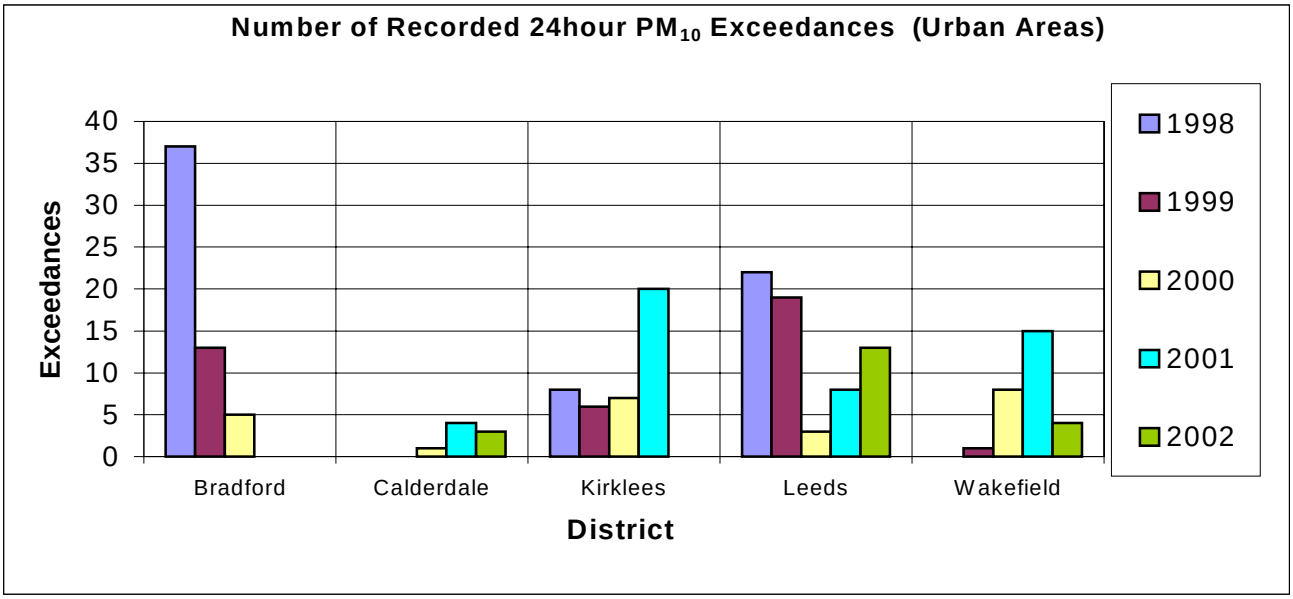

Figure 3.7.4 Total Number of Daily Exceedances - Summary Data

Road Transport Emission Trends in West Yorkshire

3.7.9 Road transport emissions of oxides of nitrogen (NOx) which contains a mixture of nitric oxide (NO) and nitrogen dioxide (NO_2), PM_{10} and carbon dioxide (CO_2), the primary "greenhouse gas" have been predicted for the West Yorkshire trunk / principal road network. Annual emission rates were predicted for NOx and PM_{10} using the new DETR / DEFRA approved vehicle emission factors (published in 2002 by Casella Stanger and AEA Technology). The DMRB vehicle emission factors published in 1999, were used to predict emissions of CO_2.

3.7.10 All calculated emission rates took account of the observed annual traffic growth for all road types in each District. Appropriate vehicle speeds and percentage HGV's were assigned for the whole of the West Yorkshire trunk / principal road network, including motorways.

3.7.11 Table 3.7.1 provides a summary of predicted road transport emissions for the West Yorkshire trunk / principal road network. Approximately 21,000 tonnes, 600 tonnes and 2.8 million tonnes / year of NOx, PM_{10} and CO_2 emissions respectively, have been predicted. These values represent a significant reduction of 15% and 16% for NOx and PM_{10}, compared to the base year of 2000. There will be little change regarding emission rates for CO_2.

Year	**2000**		**2001**		**2002**	
Pollutant	**Tonnes / yr**	**Percentage Change**	**Tonnes / yr**	**Percentage Change**	**Tonnes / yr**	**Percentage Change**
NOx	24,459	N/A	22,500	- 8.0%	20,850	- 14.8
PM_{10}	724	N/A	658	- 9.1%	605	- 16.4
CO_2	$2.787*10^{-6}$	N/A	$2.780*10^{-6}$	+ 0.25%	$2.791*10^{-6}$	+ 0.1

Table 3.7.1 Summary of Road Transport Emissions

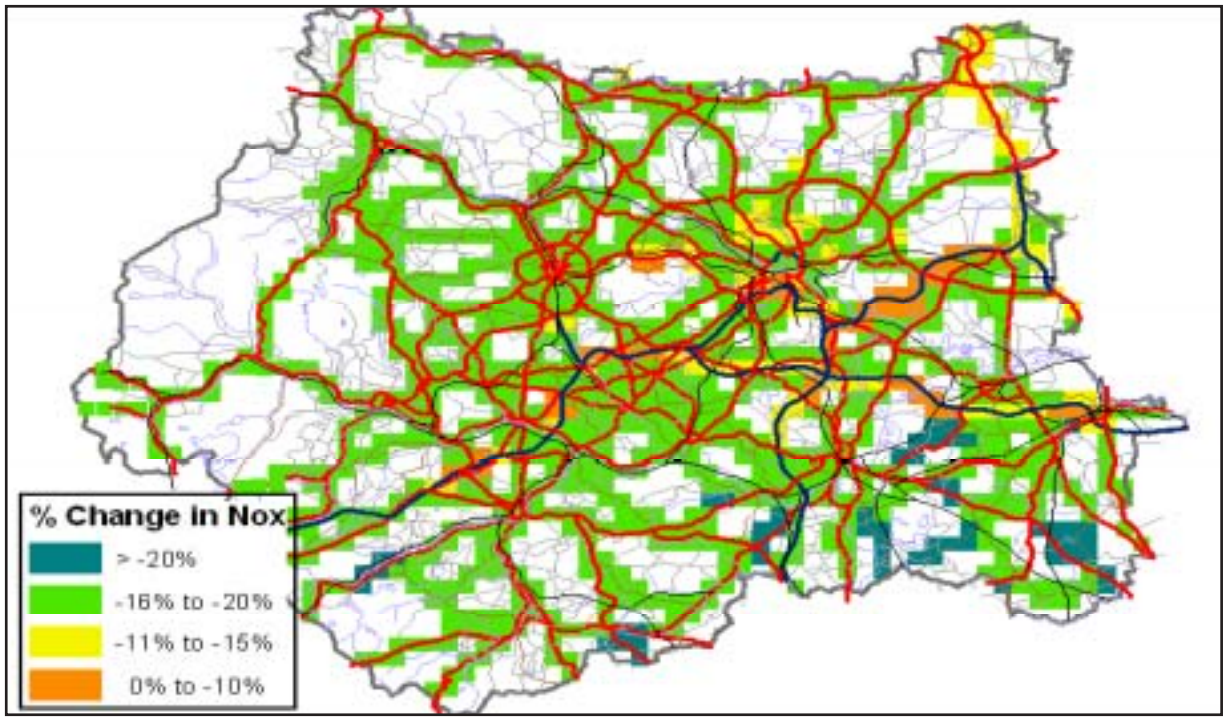

Figure 3.7.5 Changes in emissions of NOx 2000 –2002

3.7.12 Figure 3.7.5 contains a NOx emission map for the West Yorkshire trunk / principal road network. This emission map highlights categories of percentage reduction in predicted annual emission rates, between the base year 2000, and the year 2002. Most of the areas bordering the trunk / principal road network, experienced a 16 to 20% reduction in NOx emissions. Further reductions exceeding 20% NOx emissions were found in some areas of Wakefield where recent traffic growth was very low. However, in areas bordering the motorway network, there were smaller reductions in NOx emissions between 0 to 10% and 10 to 15%. This has been caused by a combination of higher vehicle speeds and percentage of HGV's.

3.7.13 The general reduction in emissions for NOx and PM_{10} have mainly resulted from the 'cleaning up' of the national vehicle fleet in response to the EU Auto-Oil Programme. This has involved a progressive tightening of emission standards for new vehicles and improvements in fuel quality. These measures have less effect on reducing carbon dioxide emissions. For example, modern oxidation / catalytic converters significantly reduce regulated emissions (e.g. oxides of nitrogen, hydrocarbons and carbon monoxide) but contribute towards an increase in carbon dioxide.

3.7.14 Future strategies to reduce carbon dioxide emissions will rely on improved engine technology / efficiency to reduce fuel consumption, promotion of non-aggressive driving, and targeting initiatives to reduce vehicle use.

National Air Quality Strategy

3.7.15 The National Air Quality Strategy (NAQS) 2000 requires all Districts within West Yorkshire, to review and assess their local air quality. This audit process involves a combination of air quality monitoring and modelling, against a series of health based

combination of air quality monitoring and modelling, against a series of health based standards / objectives. These air quality standards contained within the Air Quality Regulations 2000, remain as summarised in the previous 2001 / 2002 APR report. It is likely that a more stringent standard for PM_{10} maybe introduced in the near future.

3.7.16 All Districts have effectively completed the first round of the Air Quality Review and Assessment process. A summary of the findings has been tabulated in Table 3.7.2. Bradford, Calderdale, and Kirklees indicate compliance with all relevant air quality standards/ objectives and do not need to progress beyond Stage 3 of this process.

District	Stage 1	Stage 2	Stage 3	Stage 4	AQMA's Identified	Action Plans
Bradford	✓	✓	✓	**N/A**	**N/A**	**N/A**
Calderdale	✓	✓	✓	**N/A**	**N/A**	**N/A**
Kirklees	✓	✓	✓	**N/A**	**N/A**	**N/A**
Leeds	✓	✓	✓	✓	**7** NO_2 1 PM_{10}	**Draft Plan in Consultation**
Wakefield	✓	✓	✓	**On Going**	**2** NO_2 **(Proposed)**	**Draft Plan Started**

Table 3.7.2 Summary of First Round Air Quality Review And Assessment Progress.

3.7.17 Last year Leeds declared 7 small traffic related NO_2 Air Quality Management Areas (AQMA's) and 1 Non traffic related PM_{10} AQMA. After completion of the Stage 4 Review, these AQMA's still remain as identified in the previous 2001 / 2002 APR.

3.7.18 An appropriate draft Action Plan, predominately transportation based, has been developed District wide to help reduce traffic emissions. This corporate draft Action Plan is currently out for consultation with all statutory consultees, relevant bodies / organisations and community involvement teams within Leeds City Council.

3.7.19 Wakefield has recently proposed 2 traffic related NO_2 (Annual average) AQMA's. Official declaration and identification of the AQMA boundaries has not yet been confirmed. The proposed AQMA's, however, include a narrow strip of land adjacent to the M1 alignment, across the District, and a section of land adjacent to the A1 at West Park cottages.

Air Quality Monitoring / Modelling

3.7.20 All Districts within West Yorkshire have maintained, or slightly improved their air quality auditing capability. Each District employs a combination of "real-time" and passive (diffusion tube) monitoring to assess existing air quality and past trends. Whilst, dispersion modelling techniques are used to predict future air quality against relevant standards / objectives dates.

3.7.21 Both Leeds and Wakefield Districts have purchased an additional NOx analyser. These analysers will both be used to monitor NO_2 within traffic related AQMA's.

Air Quality / Transport Action Plans

3.7.22 Regional and District air quality management groups have been set up to co-ordinate the National Air Quality Strategy process and implement appropriate actions. A draft Air Quality Action Plan has been developed by Leeds, to help improve local air quality and mitigate traffic related AQMA's. This Action Plan is predominantly transport based, with a wide range of transport initiatives / measures.

3.7.23 Wakefield is close to the declaration of 2 traffic related AQMA's. Preparations have begun towards developing an Air Quality Action Plan, containing appropriate transport initiatives.

Desired Movement

3.7.24 The West Yorkshire LTP contains a co-ordinated mix of transport measures / action plans and travelwise initiatives. A flow chart summarising the main transport action plans was contained in the 2001 / 2002 APR. These action plans can be split into 3 general themes, including:

- demand management measures;
- measures to encourage modal change or reduce the need to travel ;
- actions to reduce / clean up vehicle emissions.

3.7.25 Progressive implementation of these transport action plans will contribute to an overall reduction in vehicle emissions and subsequent improvement in local air quality.

Future Requirements

3.7.26 Air quality modelling and emission mapping techniques will continue to be developed and refined. The impact of the LTP strategy, and in particular the effectiveness of transport action plans in improving local and regional air quality will be monitored and the results reported in future Annual Progress Reports. This process is of particular importance to the Districts of Leeds and Wakefield, who have developed, or starting to prepare Air Quality Action Plans, as a direct response to mitigate traffic related AQMA's.

Background Indicator F2: Noise Mapping

Transportation Noise

3.7.27 Transport noise currently affects around two thirds of the population in the UK with road traffic noise being the most extensive source of environmental noise pollution. The level of disturbance generated by road traffic depends on the actual noise level, it's variability, time of occurrence, and the sensitivity of the site.

Proposed Directive for Environmental Noise

3.7.28 An EU Directive (2002/49/EC) has been proposed for the Assessment and Management of Environmental Noise. It is proposed to introduce two noise indicators based on period average noise levels. 'Annoyance' will be indicated by the noise level covering the day, evening and night (LDEN). 'Sleep Disturbance' will be characterised by an LNIGHT indicator. Each member state will be required to publish their limit values in terms of LDEN and LNIGHT, for road traffic noise, rail noise, aircraft noise around airports

and industrial noise.

3.7.29 Included in the proposal is the technique of noise mapping. This process will audit existing levels of environmental noise against proposed limit values. Noise mapping will form the basis for the development of Action Plans and strategies at a local, national and EU level to combat the increasing problem of noise pollution.

3.7.30 Each member state must identify all major roads, railways and airports and agglomerations with more than 250,000 inhabitants. By 31 December 2004, noise maps for the preceding calendar year must have been completed and approved. However, recent developments indicate the timescale for this proposed Directive is under review.

The West Yorkshire Noise Mapping Project Board

3.7.31 DEFRA have appointed the consultants Schal, to identify relevant stakeholders within West Yorkshire, to prepare the way forward regarding the process of Noise mapping. A regional Project Board has recently been set up to help coordinate the proposed Noise Mapping audit . This group will contribute towards the development of the National Ambient Noise Strategy and help prepare for the implementation of the EU Environmental Noise Directive.

3.7.32 A comprehensive Noise Mapping model will be developed for the whole of West Yorkshire region. This process will highlight sensitive areas exposed to high ambient noise levels. The Regional Project Board will review the findings and develop appropriate mitigation measures, targeted at the worst effected areas.

Mitigation Measures

3.7.33 The Town and Country Planning (Environmental Impact Assessment)(England and Wales) Regulations 1999, ensure the Environmental Impact Assessment (EIA) process will aid major scheme design. This process will help indicate where appropriate realignment of the carriageway, or the design of purpose built earthmounds / roadside noise barriers are necessary to protect sensitive locations.

3.7.34 There is no statutory EIA process to deal with small transportation schemes, e.g. traffic management or traffic calming schemes. The Development Department of Leeds City Council are currently investigating this issue. An EIA 'screening model' has been developed and incorporated within a sustainability model which has just started a pilot exercise. When more information is available, it is hoped the findings will be disseminated to the West Yorkshire Districts.

3.7.35 Table 3.7.3 provides a summary of the noise insulation carried out under the Noise Insulation Regulations, 1988. A total of 375 eligible residential properties were offered insulation against traffic noise during 2002. Of those properties offered insulation, 223 have so far accepted the offer. The majority of the noise insulation has been conducted within the Districts of Leeds and Bradford.

Year / District	2000		2001		2002	
	Offered	Accepted	Offered	Accepted	Offered	Accepted
Bradford	100	70	324	180	155	114
Calderdale	0	0	0	0	0	0
Kirklees	4	4	0	0	0	0
Leeds	649 (1)	387 (2)	149	75	220	109
Wakefield	0	0	0	0	6	0

Table 3.7.3: Summary of Noise Insulation

(1) Includes 149 properties eligible due to the A1-M1 Link (2) Includes 60 properties eligible due to the A1-M1 Link

Background Indicator F3: Use of Low Noise Road Surfacing

3.7.36 Figure 3.7.6 shows the approximate lengths of trunk / principal roads that have been re-surfaced with 'low noise' asphalt over the previous three years. There have been approximately 200km of 'low noise' asphalt laid within West Yorkshire during the three years 2000 - 2002. There has also been a steady annual increase in the amount of low noise asphalt used, rising from 42km during the year 2000 to 86km during the year 2002.

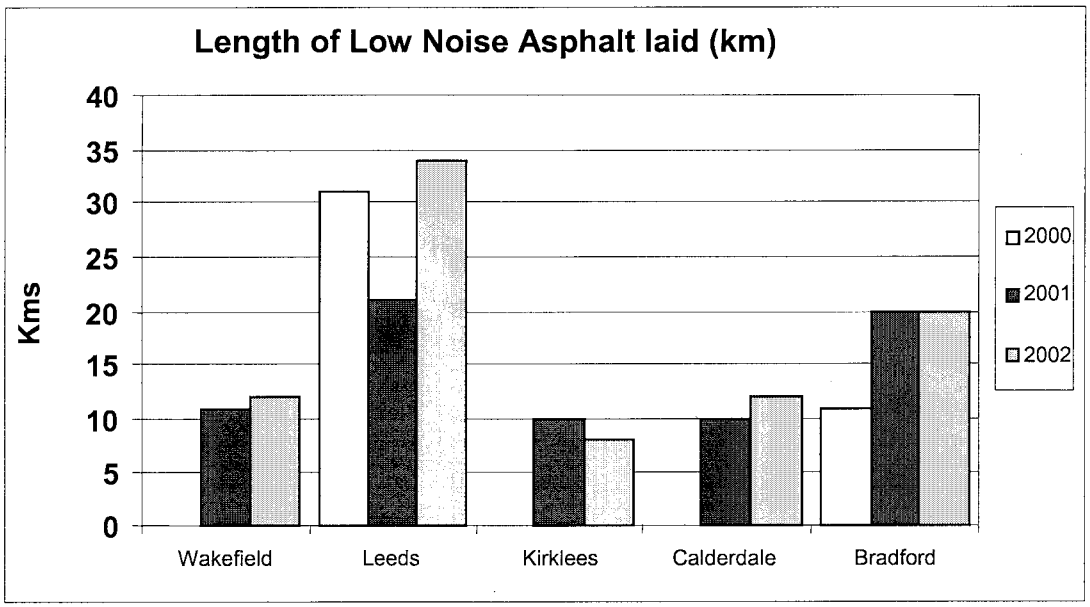

Figure 3.7.6 Length of Low Noise Asphalt Laid

3.7.37 Figure 3.7.7 compares the actual lengths of 'low noise' asphalt laid within West Yorkshire, to an approximate percentage coverage of the trunk / principal road network within each district. Taken as a whole, there is now approximately 16% of the trunk / principal road network within West Yorkshire surfaced with low noise asphalt. Motorways have not been included, as full details of low noise asphalt coverage were not obtained.

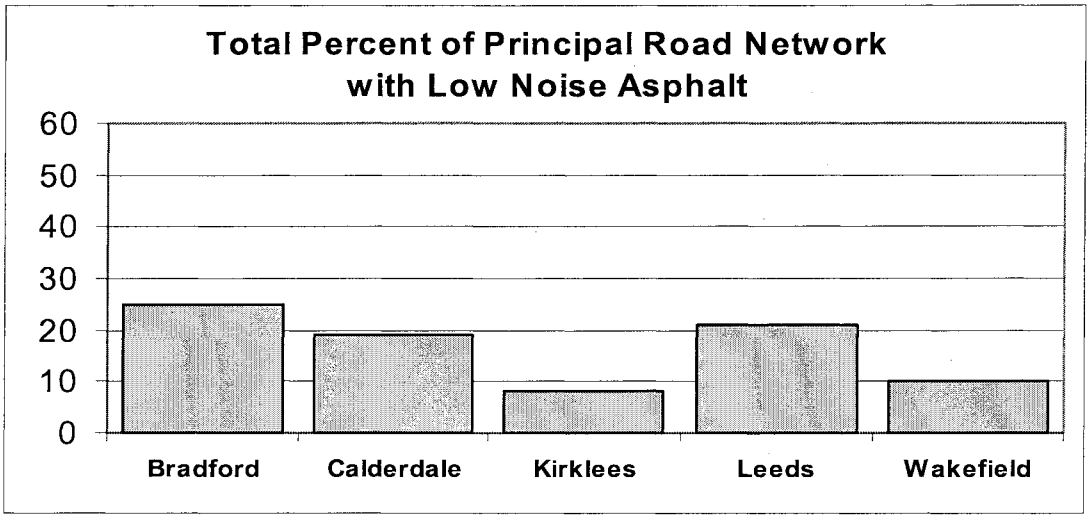

Figure 3.7.7 Percentage of Principal Road Network with Low Noise Asphalt

Strategic Environmental Assessment

3.7.38 The EU Strategic Environmental Assessment (SEA) Directive 2002/42/EC, will become UK law by July 2004. This Directive should ensure a high level of environmental protection and will integrate environmental considerations during the preparations and adoption of complete plans / programmes (eg. UDP / LTP), with a view to promoting sustainable development.

3.7.39 The SEA Directive will follow a similar process to that of the existing EIA Directive. However, the SEA process will require earlier consultation with all consultees, including the general public. SEA will consider the cumulative and transboundary environmental effects of a plan / programme, rather than separate EIA's for individual schemes / developments.

3.7.40 The SEA process will consider all relevant environmental effects, including air quality, noise and "greenhouse gas " emissions. The LTP 2 must comply with the requirements of the SEA Directive. At present, the SEA methodology has not been completed. DEFRA will need to produce relevant UK legislation and appropriate Technical Guidance, in order to adopt the SEA Directive.

Desired Movement

3.7.41 The West Yorkshire LTP will help co-ordinate a range of transportation schemes and initiatives aimed at reducing transportation noise and their effects in sensitive areas.

Future Requirements

3.7.42 Noise mapping techniques will be developed to identify sensitive areas exposed to high ambient noise levels. Improved scheme design and the use of appropriate mitigation measures and materials will be targeted towards noise sensitive areas.

The Eco-Management & Audit System (EMAS)

3.7.43 Both Leeds and Kirklees have become the two of the largest UK Local Authorities to become EMAS accredited. Bradford has made a commitment to become EMAS accredited by September 2005. EMAS provides a mechanism to address corporate environmental

policies / plans, such as the LTP and the UDP and provide continual environmental improvements. This environmental auditing system highlights the most significant environmental impacts and then instigates an appropriate Environmental Management Programme (EMP).

3.7.44 The EMP incorporates many transport related environmental impacts, including air quality, noise, EIA and "greenhouse gas" emissions. EMAS requires that the annual environmental performance of the EMP is made publicly available in the form of an environmental statement. The EMAS process helps to identify the most significant transport related environmental impacts and reinforce the mix of action plans incorporated within the West Yorkshire LTP.

3.7.45 Examples of EMAS action plan measures included in Kirklees are:

- target set to reduce annual staff mileage by 3% for 5 years;
- replacement of end of life Council fleet with LPG vehicles;
- green driver training courses for fleet vehicle drivers and essential car users;
- introduction of car sharing scheme;
- "1 in 5" initiative to encourage staff not to use car for 1 day / week.

3.7.46 Further transport related examples in Leeds are:

- initiatives to promote Public Transport and reduce car dependency incorporated within the draft Air Quality Action Plan (eg. Supertram, Quality Bus schemes, High Occupancy vehicle lane) have been included in the EMAS action plans;
- 42 school travel plans / initiatives, 5 workplace travel plans and 34 workplace travel plans evaluated / developed during year 2002 / 2003;
- Contract set up to remove end of life / abandoned vehicles and re-cycle, 2158 vehicles re-cycled in 2002 / 2003.

Research Projects

3.7.47 A partnership between Leeds City Council and Leeds University has been set up to exchange expertise and resources, in the field of transport related air quality and noise management. Leeds University is currently co-ordinating a major research project called LANTERN, (Leeds health, Air pollution, Noise, Traffic, Emissions, Research, Network) this has been funded by a £4.2 million Joint Infrastructure Fund from the Engineering and Physical Sciences Research Council (EPSRC).

3.7.48 Stakeholder participation from Leeds has played an important role, identifying Local Authority requirements and end-user benefits for LANTERN research.

LANTERN research projects include:

- traffic congestion modelling;
- instrumented vehicle emissions modelling;
- enhanced street canyon modelling;
- vehicle profile monitoring of ultra fine particulates;

- development of "microscopic" (Individual vehicle) noise prediction model;
- links with FUTURES (Future Urban Technologies, Research to Enhance Sustainability) project. Proposed research includes many aspects of transportation noise, for example, tyre interface noise / low noise surfacing, effective traffic calming / auto vehicle speed control.

Commentary

3.7.49 All West Yorkshire Districts have completed the first round of the Air Quality Review & Assessment process. Leeds has submitted a draft Air Quality Action Plan, whilst Wakefield has started to prepare a similar Action Plan. Both plans aim to mitigate traffic related Air Quality Management Area's.

3.7.50 Urban monitoring of NO_2 and PM_{10} within all West Yorkshire Districts between 1998 - 2002, indicate clear air quality improvements and compliance with all relevant air quality standards.

3.7.51 Predicted emissions of NOx and PM_{10} from the West Yorkshire trunk/ principal road network between 2000 - 2002, have fallen 15% and 16%, respectively. (Little change for CO_2).

3.7.52 A West Yorkshire Noise Mapping Project Board has been set up to coordinate the requirements of the proposed National Ambient Noise Strategy, and the development of a District wide Noise Mapping model.

3.8 REDUCE TRANSPORT CONTRIBUTION TO GREENHOUSE GAS

Primary Objective

3.8.1 To contribute to national and international efforts to reduce the contribution of transport to overall greenhouse gas emissions.

Summary of Key Trends

- Countywide daily traffic growth was 2.1% between 1992 and 2002 which shows that the provisional Plan target of no more than a 7.5% growth between 1991 and 2001 has been met.
- Countywide daily traffic growth between 1999 and 2002 was -2.0%. Trends indicate the Plan target of less than 5.0% growth between 1999 and 2006 is likely to be met.
- Predicted CO_2 emissions for the trunk/ principal road network in West Yorkshire have fallen by 3% from 2.88 million tonnes in 1999 to 2.79 million tonnes in 2002.
- Local CO_2 targets will be developed for the next APR.

Role of Transport

3.8.2 The contribution of transport to greenhouse gas emissions is widely recognised and there is increasing concern over the levels of carbon dioxide emissions by road traffic. The encouragement of modal shift to public transport away from the private car should help to reduce emissions of greenhouse gas.

Key Indicator G1: Daily Traffic Flow

3.8.3 Traffic flows throughout West Yorkshire have been monitored using automatic traffic counters since 1979. This long term monitoring programme is organised on a four year rolling programme and concentrates on screenlines and cordons in the main urban areas. In addition approximately 100 sites, selected to give a statistically valid sample across all districts and road types, are counted annually to monitor traffic growth countywide. These data are presented in Figure 3.8.1.

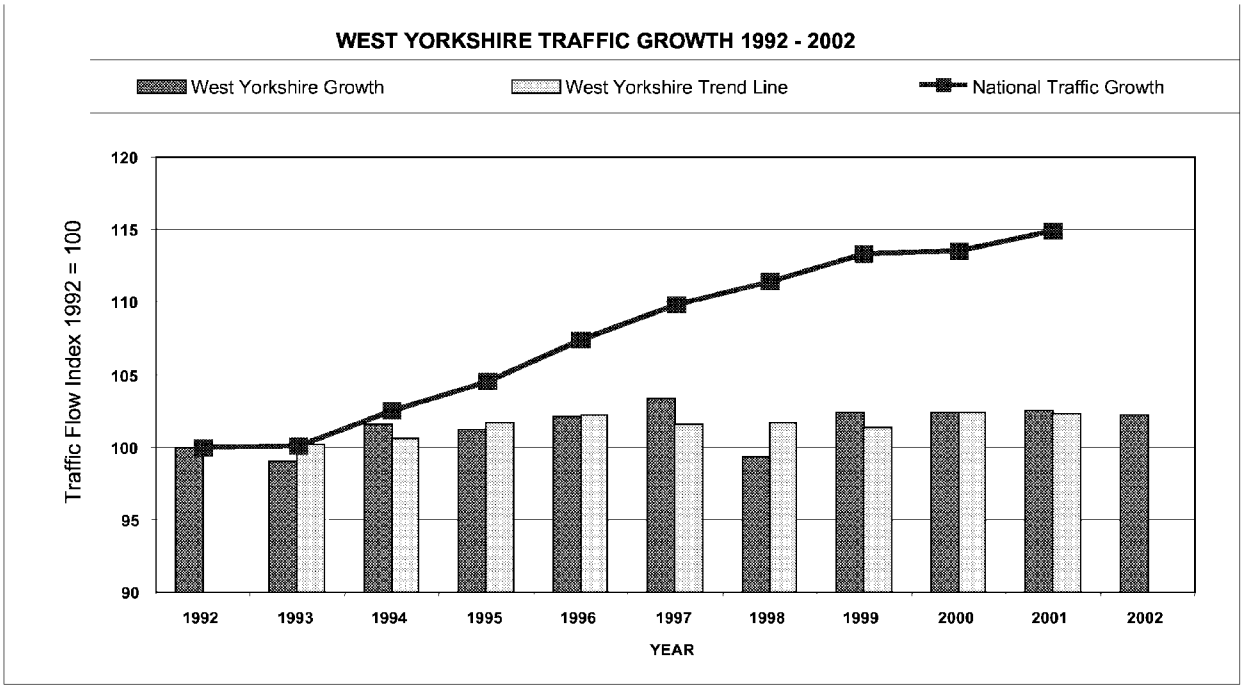

Figure 3.8.1: West Yorkshire Traffic Growth Trend 1992 - 2002

Note: West Yorkshire trend line shown on the graph represents the three year moving average

Desired Movement

3.8.4 For the third year in a row countywide traffic flows have shown little change. It is anticipated that the combined effect of the strategy measures will continue to constrain traffic flows and that the Plan target of less than 5% daily traffic growth will be met.

Future Requirements

3.8.5 The long term monitoring programme will continue to monitor traffic countywide. In the future consideration will be given to continuous monitoring of traffic flows and automatic vehicle classification.

Key Indicator G4: Carbon Dioxide Emissions

3.8.6 Predicted CO_2 emissions for the trunk/ principal road network in West Yorkshire have fallen by 3% from 2.88 million tonnes in 1999 to 2.79 million tonnes in 2002. Since the year 2000, CO_2 emission rates have remained constant.

3.8.7 The West Yorkshire Districts are in the process of setting up working groups to audit CO_2 emissions from road transport. Road transport currently contributes 21% of total UK CO_2 emissions. These groups will incorporate Local Agenda 21 and EMAS related issues and appropriate Action Plans to identify the transport CO_2 burden. It is proposed that local CO_2 targets will be developed for the next APR.

3.9 SUBSIDIARY OBJECTIVES

Summary of Key Trends

- Council controlled all day parking charges have been raised above the rate of inflation, on average by 30% between 1997 - 2002;
- A methodology for monitoring changes in cycle flows has been developed from existing data sources (National Traffic Census);
- Recent trends indicate significant increases in peak hour traffic in Leeds and Wakefield although the long term trends still remain low;
- Good progress is being made towards increasing the modal share of public transport in the peak periods. Rail patronage has returned to 1998 levels and bus patronage continues to increase.

Subsidiary Objective - Reduction in Traffic Growth

3.9.1 To reduce the general rate of growth in road traffic and, where feasible, to reduce absolute traffic levels.

Key Indicator H1: Traffic Flow

3.9.2 Traffic flows throughout West Yorkshire have been monitored as part of the long term monitoring programme since 1979. Automatic traffic counters have been used to collect data on screenlines and cordons in the main urban areas on a four year rolling programme. A reduction in the growth of traffic in all main centres is considered essential if the primary objectives are to be achieved. Data are presented for the am peak hour and am peak period in Tables 3.9.1 to 3.9.5 and show the changes in traffic flow measured against the 1990 baseline. Flows can change markedly from year to year as a result of network changes, new developments and the method of data collection, hence the 5 year average is a more robust indicator of the underlying trend.

Year	Peak Hour (0800 to 0900)	Peak Hour Index (1990=100)	Peak Period (0700 to 1000)	Peak Period Index (1990=100)
1990	18,180	100	43,660	100
1993	19,120	105	45,450	104
1995	18,860	104	45,340	104
1997	18,750	103	45,800	105
1999	18,550	102	45,600	104
2001	18,690	102	46,790	107
% Changes 1991 – 2001 (annual average change)				
	Am peak hour (0800 to 0900)		Am peak period (0700-1000)	
% Growth 1991 - 1996	1.7 (0.3)		3.0 (0.6)	
% Growth 1996 - 2001	-0.6 (-0.1)		2.7 (0.5)	
% Growth 1991 - 2001	1.1 (0.1)		5.7 (0.6)	

Table 3.9.1 Bradford Central Cordon - AM Peak Period Inbound Traffic Flows

Year	Peak Hour (0800 to 0900)	Peak Hour Index (1990=100)	Peak Period (0700 to 1000)	Peak Period Index (1990=100)
1990	8,550	100	19,810	100
1993	8,940	105	21,370	108
1995	9,480	111	22,530	114
1997	9,120	107	22,590	114
1999	9,360	109	22,890	115
2001	8,970	105	22,090	112
% Changes 1991 - 2001 (annual average change)				
	Am peak hour (0800-0900)		Am peak period (0700-1000)	
% Growth 1991 - 1996	7.1 (1.4)		11.0 (2.1)	
% Growth 1996 - 2001	-3.5 (-0.7)		-2.1 (-0.4)	
% Growth 1991 - 2001	3.3 (0.3)		8.7 (0.8)	

Table 3.9.2 Halifax Central Cordon - AM Peak Period Inbound Traffic Flows

Year	Peak Hour (0800 to 0900)	Peak Hour Index (1990=100)	Peak Period (0700 to 1000)	Peak Period Index (1990=100)
1990	11,340	100	28,570	100
1993	11,500	101	28,430	100
1995	12,150	107	30,680	107
1997	12,324	109	31,360	110
1999	11,183	99	28,730	101
2001	11,370	100	29,290	103
% Changes 1991 – 2001 (annual average change)				
	Am peak hour		Am peak period	
% Growth 1991 - 1996	7.4 (1.4)		8.8 (1.7)	
% Growth 1996 - 2001	-7.1 (-1.5)		-5.6 (-1.1)	
% Growth 1991 - 2001	-0.2 (0)		2.7 (0.3)	

Table 3.9.3 Huddersfield Central Cordon – AM Peak Period Inbound Traffic Flows

Year	Peak Hour (0800 to 0900)	Peak Hour Index (1990=100)	Peak Period (0700 to 1000)	Peak Period Index (1990=100)
1990	35,596	100	87,180	100
1992	38,144	107	94,877	109
1994	34,631	97	88,423	101
1996	33,892	95	88,883	102
1998	34,380	97	92,330	106
2000	35,785	101	93,536	107
2002	36,838	103	96,988	111
% Changes 1991 – 2001 (annual average change)				
	Am peak hour		Am peak period	
% Growth 1991 - 1996	-8.1 (-1.7)		-2.4 (-0.5)	
% Growth 1996 – 2002	7.7 (1.5)		5.9 (1.2)	
% Growth 1991 - 2002	-1.0 (-0.1)		3.4 (0.3)	

Table 3.9.4 Leeds Central Cordon – AM Peak Period Inbound Traffic Flows

Year	Peak Hour (0800 to 0900)	Peak Hour Index (1990=100)	Peak Period (0700 to 1000)	Peak Period Index (1990=100)
1990	10,110	100	24,940	100
1992	9,710	96	24,300	97
1994	9,970	99	24,140	97
1996	9,850	97	24,360	98
1998	9,712	96	24,734	99
2000	10,379	103	26,344	106
2002	11,749	116	29,577	118
% Changes 1991 – 2001 (annual average change)				
	Am peak hour		Am peak period	
% Growth 1991 - 1996	-0.6 (-0.1)		-1.1 (-0.2)	
% Growth 1996 – 2002	12.6 (2.4)		14.8 (2.8)	
% Growth 1991 - 2002	11.9 (1.1)		13.6 (1.3)	

Table 3.9.5 Wakefield Central Cordon – AM Peak Period Inbound Traffic Flows

Desired Movement

3.9.3 It is anticipated that the combined effect of the strategy measures will lead to a stabilisation or reduction in traffic flows, particularly at peak times. The data presented above generally indicate that in most centres traffic growth in the peak hour has stabilised at around the 1990 level. Data for Wakefield in 2002 shows a large increase both in peak hour and peak period traffic levels, mainly attributable to one site. It is therefore too early to determine whether this is a genuine increase in flows. Leeds has seen an upward trend in peak period traffic possibly as a result of peak spreading.

Future Requirements

3.9.4. The introduction of selective continuous monitoring of traffic flows and automatic vehicle classification will be considered.

Subsidiary Objective - Alternative Modes

3.9.5 To encourage a greater proportion of journeys to be made by public transport, cycling and walking as alternative modes to the private car.

Key Indicator I1: Modal Split

3.9.6 In addition to absolute volumes, modal split is recognised as a key indicator of the impact of the Transport Plan measures. Previously the main source of this data was the

national census which, with a ten-year cycle, is useful for assessing long-term trends. To further refine the monitoring of mode choice, and to establish a robust baseline against which future changes could be measured, local modal split surveys were carried out in major centres during 1998 and further surveys undertaken in 1999 at a number of other district centres.

3.9.7 The surveys recorded persons travelling in private vehicles, on foot and by bicycle and also those travelling by bus. Rail patronage data were obtained from the Metro continuous ticketing survey. The survey points, which coincide with those used for the central cordon automatic traffic count programme reported in 3.9.2 Key Indicator H1: Traffic Flow, thus persons walking or cycling on off-road routes were not counted.

3.9.8 As a result of the rail disruption expected from the major redevelopment of Leeds railway station, (Leeds 1st), the first repeat modal split survey, scheduled to be undertaken in 2001 to coincide with the National Census, was carried out in 2000 and repeated again in 2002 for all the major district centres.

Modal Targets and Forecasts

3.9.9 Targets relating to changes in the use of the three principal modes (cars, buses and trains) have been set based on modelling work undertaken using a Strategic Transport Model prepared for the West Yorkshire Authorities by consultants.

3.9.10 The model is capable of testing a wide range of policy options, including parking policies; changes in bus and rail speeds, capacity, frequency, quality and fares; new rail stations; Leeds Supertram; cordon pricing and workplace parking charges. The model also includes the effect of the fuel price escalator, however, in the absence of any indications to the contrary this has been set to reflect only those changes which have already occurred, i.e. the 6% increase in the 1999 budget.

3.9.11 This model has been used to assist in setting targets for percentage changes in car volumes and forecast bus and rail passenger levels for the morning peak at the 5 main urban centres for the year 2006, relative to a 1998 base.

Location	Car	Bus	Train
Leeds cordon *	<0%	-3%	+45%
Bradford cordon	<3%	+5%	+50%
Halifax cordon	<3%	+2%	+35%
Huddersfield cordon	<3%	+2%	+35%
Wakefield cordon	<3%	+2%	+40%

* includes the introduction of Leeds Supertram which is likely to account for 7% of all passenger journeys entering Leeds in the morning peak.

Table 3.9.6: Urban centre targets for people entering the city centres by mode in the morning peak for 2006

3.9.12 Progress towards each of these targets is shown in Tables 3.9.7 to 3.9.9 which show the modal split for each of the main centres for 2002. Changes in modal share since 1998 are illustrated in Figures 3.9.1 to 3.9.3.

Centre	Total persons crossing cordon	% Modal Split					
		Walk	Cycle	Motorcycle	Car	Bus	Train
Bradford	50,914	4.1	0.2	0.4	74.0	16.9	4.5
Halifax	25,525	3.4	0.1	0.3	72.5	19.9	3.7
Huddersfield	33,575	5.9	0.3	0.5	68.0	20.8	4.5
Leeds	107,746	2.6	0.4	0.5	60.9	26.4	9.2
Wakefield	35,224	2.3	0.4	0.7	75.7	12.7	8.2
*Keighley**	14,905	8.9	0.2	0.4	74.0	11.4	5.2
*Dewsbury**	17,032	4.1	0.2	0.4	69.8	13.7	11.7

*1999

Table 3.9.7 Modal Split – AM Peak (0730-0930) 2002 Inbound to Centres

Centre	Total persons crossing cordon	% Modal Split					
		Walk	Cycle	Motorcycle	Car	Bus	Train
Bradford	19,941	4.7	0.1	0.3	75.1	17.2	2.6
Halifax	9,585	2.0	0.0	0.2	72.8	22.8	2.2
Huddersfield	13,616	4.1	0.1	0.4	67.8	23.3	4.2
Leeds	33,183	2.6	0.3	0.5	67.5	23.2	5.9
Wakefield	11,922	2.8	0.4	0.7	73.7	14.3	8.1
*Keighley**	6,382	7..5	0.1	0.2	71.5	15.7	5.1
*Dewsbury**	7,738	2.5	0.2	0.6	70.3	19.0	7.5

*1999

Table 3.9.8 Modal Split - Inter Peak (1400-1500) 2002 Outbound from Centres

Centre	Total persons crossing cordon	% Modal Split					
		Walk	Cycle	Motorcycle	Car	Bus	Train
Bradford	59,506	3.7	0.3	0.5	76.1	15.3	4.2
Halifax	27,440	2.3	0.1	0.4	73.0	20.1	4.0
Huddersfield	37,693	4.9	0.3	0.6	69.6	20.3	4.3
Leeds	115,704	2.4	0.4	0.6	61.0	25.9	9.7
Wakefield	34,942	2.1	0.6	0.8	77.5	11.1	7.9
*Keighley**	17,122	8.2	0.3	0.4	71.9	14.6	5.1
*Dewsbury**	21,312	2.7	0.2	0.4	73.0	13.0	10.6

*1999

Table 3.9.9 Modal Split - PM Peak (1600 - 1800) 2002 Outbound from Centres

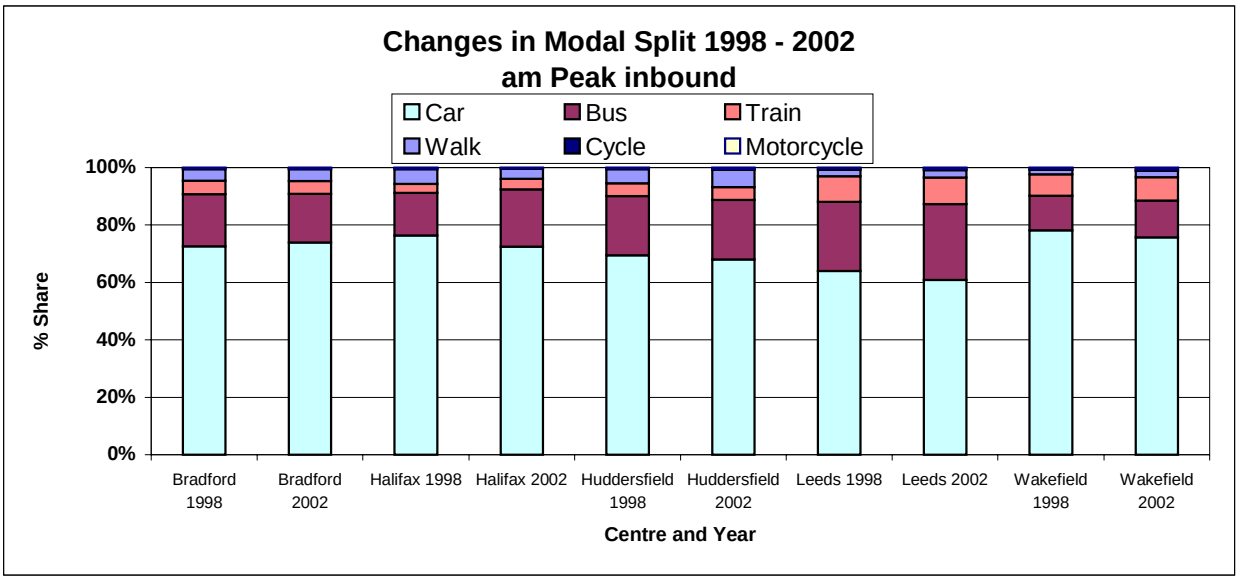

Figure 3.9.1 Changes in Modal Share AM Peak 1998 - 2002

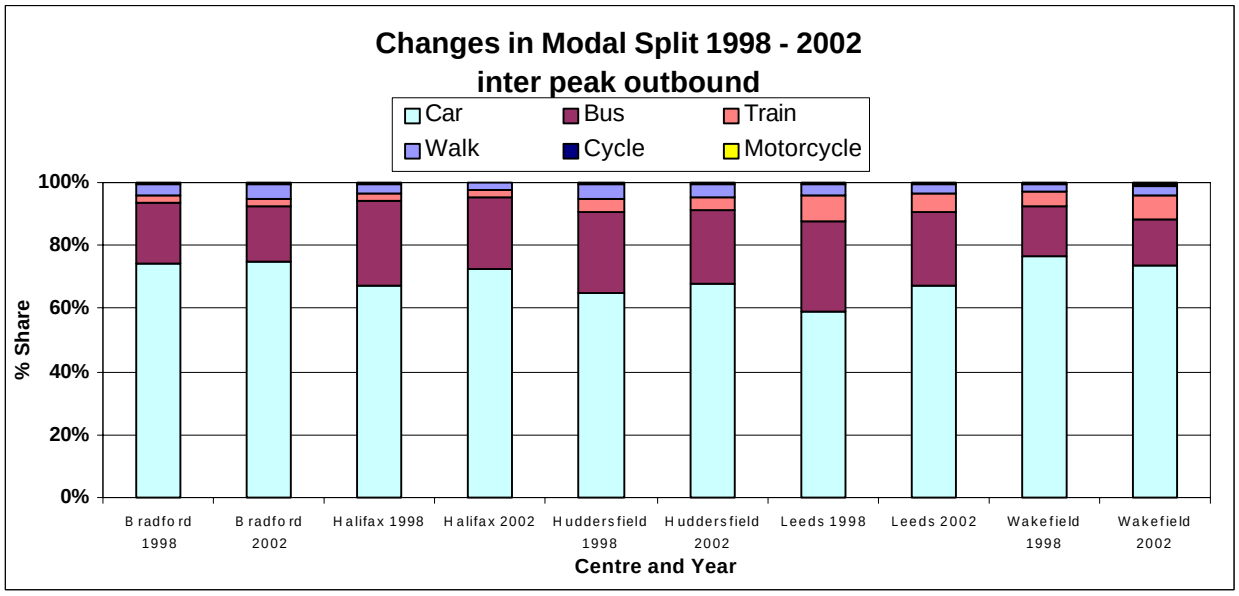

Figure 3.9.2 Changes in Modal Share Inter peak 1998 – 2002

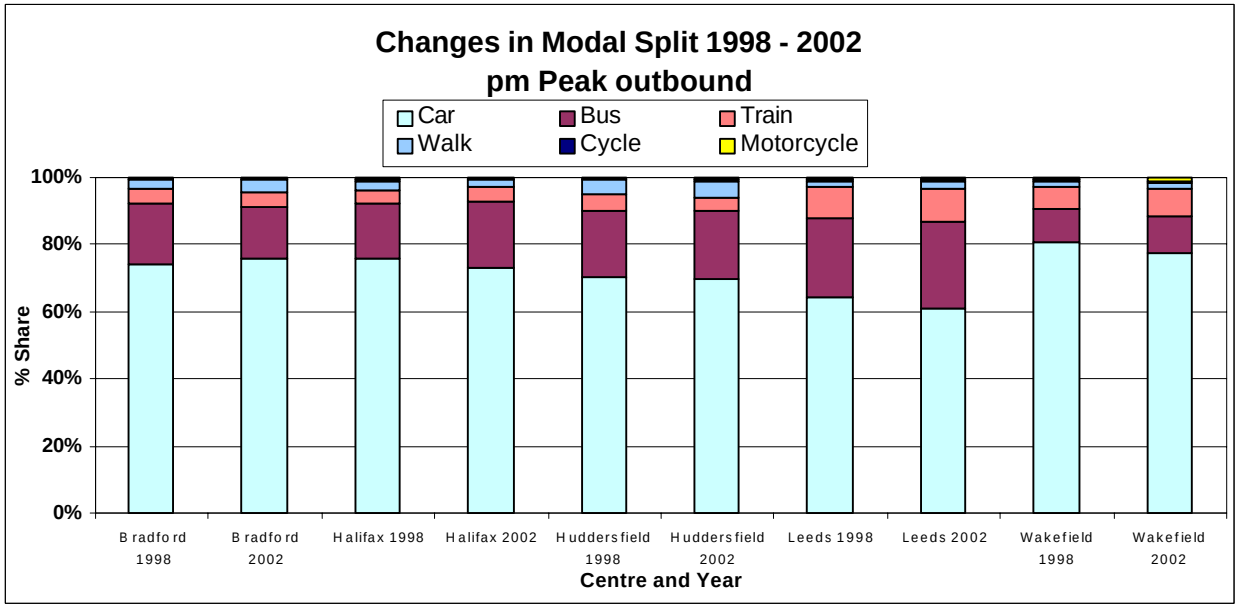

Figure 3.9.3 Changes in Modal Share PM Peak 1998 – 2002

3.9.13 The opportunity was also taken to record the occupancy of cars and taxis crossing the cordons which will allow trends in vehicle occupancy to be observed in future years. The results of the 2002 occupancy surveys are presented in Table 3.9.10. Figures 3.9.4 to 3.9.6 show the changes in car occupancy for the major centres since 1998.

Centre	Time Period	Direction	% of Cars with One occupant	Average car occupancy
Bradford	am peak	Inbound	76.3	1.29
	inter peak	Outbound	66.0	1.51
	pm peak	Outbound	69.0	1.42
Halifax	am peak	Inbound	77.6	1.28
	inter peak	Outbound	68.2	1.38
	pm peak	Outbound	71.6	1.35
Huddersfield	am peak	Inbound	77.2	1.27
	inter peak	Outbound	66.4	1.41
	pm peak	Outbound	69.4	1.38
Leeds	am peak	Inbound	79.9	1.23
	inter peak	Outbound	73.5	1.32
	pm peak	Outbound	75.9	1.29
Wakefield	am peak	Inbound	73.7	1.31
	inter peak	Outbound	65.5	1.42
	pm peak	Outbound	67.0	1.42

Table 3.9.10 Car Occupancy 2002

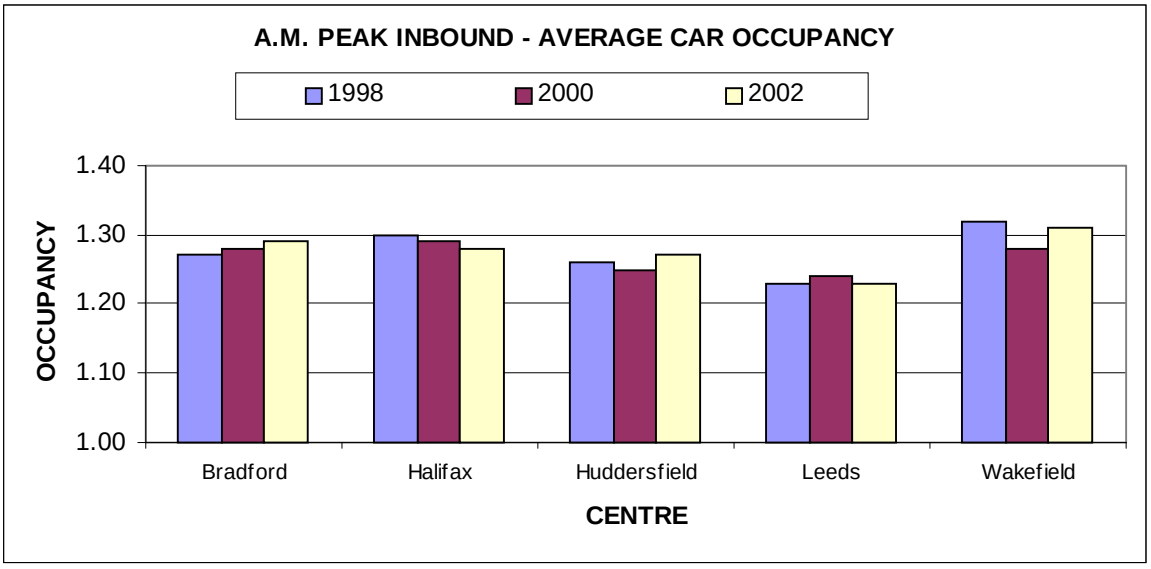

Figure 3.9.4 Changes in Car Occupancy AM Peak 1998 - 2002

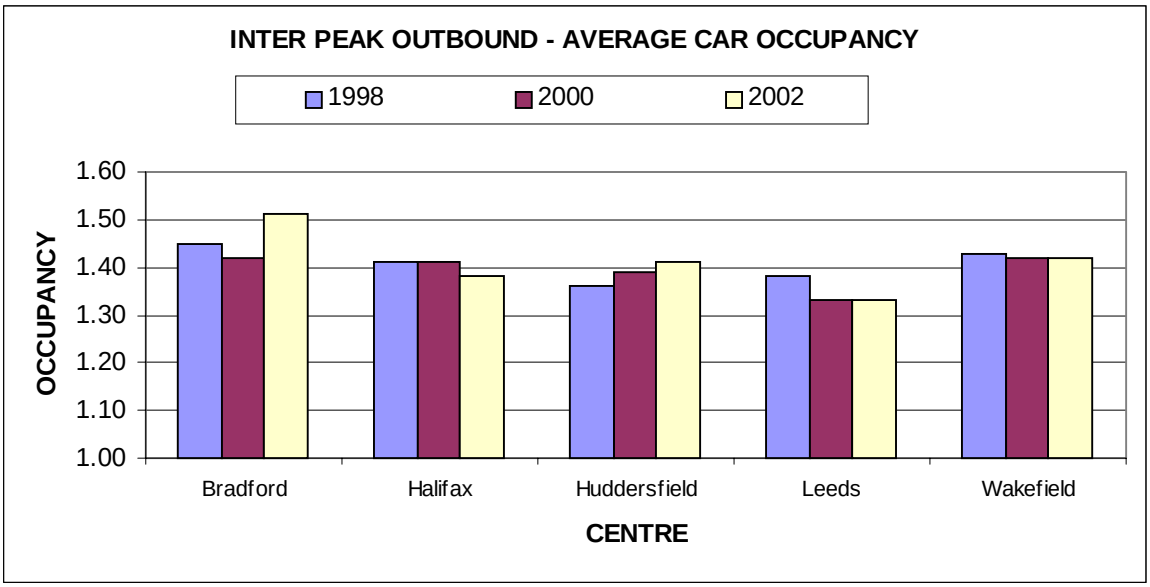

Figure 3.9.5 Changes in Car Occupancy Inter Peak 1998 - 2002

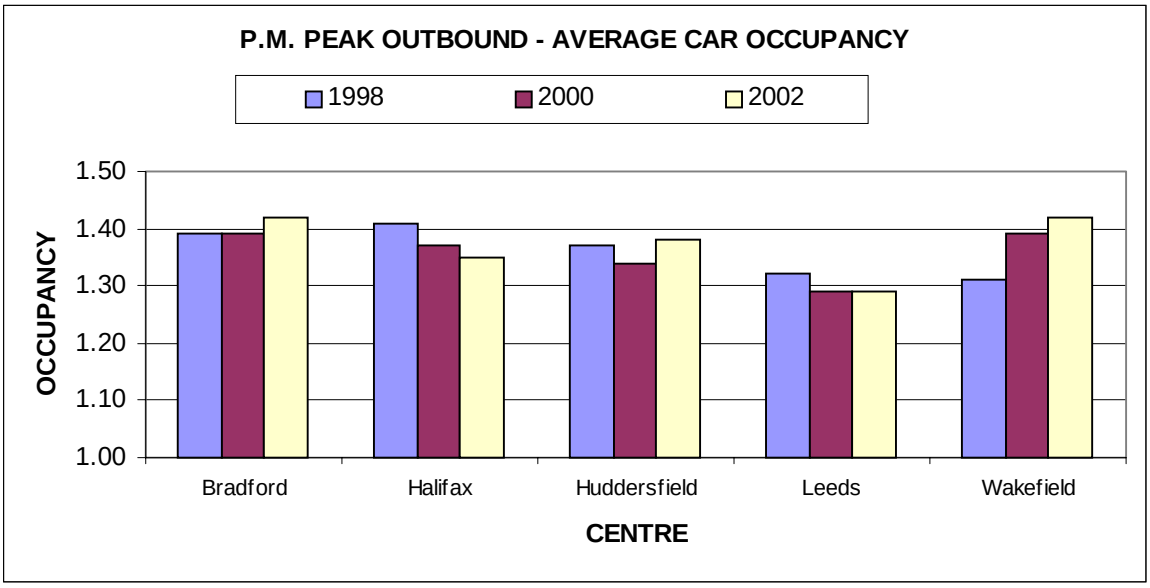

Figure 3.9.6 Changes in Car Occupancy PM Peak 1998 - 2002

Desired Movement

3.9.14 It is anticipated that the combined effect of the Plan measures will lead to a reduction in car usage and an increase in the use of other modes. The data presented above clearly show the progress made in reducing the use of the private car, particularly in the peak periods. Significant increases in public transport patronage have been recorded in all centres. This is especially encouraging when the total number of people accessing the main centres is on the increase, reflecting the increasing attractiveness of the centres.

3.9.15 It is also hoped that there will be a trend towards a greater number of occupants per car, showing evidence of ride sharing rather than individuals driving alone. It is unlikely that any significant change will occur in the short term but the impact of Travel Plans and travel awareness initiatives should lead to an increase in car sharing in the future.

Future Requirements

3.9.We have established a biennial survey cycle for these indicators.

Key Indicator I2: Journey Times

3.9.17 This section is now reported under Key Indicator B1: Journey Times

Background Indicator I3: All Day Commuter Parking Provision and Cost

3.9.18 It is widely accepted that control of all day commuter parking is a powerful demand management tool. In past years, there has been no common definition, which has made it difficult to assess the relative effectiveness of measures in the different centres. For consistency, the following definition has been agreed for monitoring purposes and is used for all centres.

> *All day commuter spaces are defined as those where the maximum stay is greater than 8 hours, or where the cost of parking for more than 8 hours is less than 1.5 times the average cost of council off street long stay parking for an equal duration.*

3.9.19 Parking inventories have been conducted in all major centres in the region to provide baseline data against which future changes can be measured. Table 3.9.11 shows the relative size of the parking study areas for each Centre, whilst inventory data are presented in Table 3.9.12.

Centre	**Approximate radius of parking survey area (Metres)**
Bradford	1150
Halifax	500
Huddersfield	900
Dewsbury	500
Leeds	700
Wakefield	750

Table 3.9.11 Size of Parking Survey Areas

Parking	Type	Bradford	Halifax	Huddersfield	Dewsbury	Leeds	Wakefield
Public	Council	1681	1598	2843	904	2123	807
Short Stay	Private	2510	484	1438	934	4315	80
	Total	4191	2082	4281	1838	6438	887
	Council Free	5651	344	790	501	78	61
Public	Council Pay	999	976	1946	466	1979	1537
All Day	Private	1668	629	150	0	3554	1949
Commuter	**Total**	8318	1949	2886	967	5611	3547
	Customer	3903	3194	1953	1312	1507	3642
Other	PNR	11503	2825	6925	1107	10415	3603
	Permit	2063	1176	1241	174	630	1407
Total		29978	11226	17286	5398	24601	13086

Table 3.9.12 Parking Inventory 2003

3.9.20 The progress made by the districts in raising parking charges is shown below in Table 3.9.13. This shows the average cost of council controlled all day commuter parking, where charges are levied, and the % change in parking charges 1997 - 2003.

Centre	**Cost for stay of > 8 hrs - 2003**	**% change in council controlled all day parking charges (for stay of > 8hrs) 1997 - 2003**
Bradford	£1.87	0%
Halifax	£2.00	27%
Huddersfield	£2.20	29%
Dewsbury	£2.20	29%
Leeds	£4.94	40%
Wakefield	£3.00	25%

Table 3.9.13 Average Cost Of Council Controlled All Day Parking And Changes In Parking Charges 1997 – 2003. (Where Charges Apply)

Note: Parking charges in Bradford were increased from £1.50 in July 1997 by 33% just prior to the survey period.

Desired Movement

3.9.21 If commuters are to be encouraged to use alternative modes to the car then the number of commuter parking spaces in centres should not increase. Charges for all day parking should continue to increase at greater than the rate of inflation.

3.9.22 It must be recognised that the effect of any increases in long stay parking charges will be limited by the influence of both Private, Non Residential (PNR) parking and, to a lesser extent, by privately operated publicly available long stay parking. This is clearly illustrated in Table 3.9.14 which shows the percentage of total all day parking provision in the main centres actually under council control. It also compares the average cost of council controlled all day parking with a weighted average cost of all day parking, calculated from consideration of all available long stay spaces, including PNR.

Centre	% of all day parking under council control*	Average cost of council controlled all day parking	Weighted average cost of all day parking
Bradford	34%	£1.87	£0.32
Halifax	28%	£2.00	£0.41
Huddersfield	28%	£2.20	£0.47
Dewsbury	47%	£2.20	£0.49
Leeds	13%	£4.94	£2.07
Wakefield	22%	£3.00	£1.22

Table 3.9.14 Percentage of Total All Day Parking under Direct Council Control and the Weighted Average Cost of All Day Parking

* Spaces under council control are defined as public on street / off street spaces over which the council has regulatory authority.

Future Requirements

3.9.23 Given the importance of parking control as a demand management tool comprehensive inventories of all parking spaces will be undertaken every 5 years and changes in parking charges will be reported annually for the main centres.

Key Indicator I4: Cycle Monitoring

3.9.24 The West Yorkshire authorities are committed to encouraging cycling, for both commuting and leisure trips, through the provision of a high quality cycle network and through the inclusion of improvements for cyclists in the integrated corridor schemes.

3.9.25 In response to the challenge of a national cycling target a methodology for measuring cycle flows throughout the area has been developed using National Traffic Census data. This survey is considered to be more indicative of wider cycle use than central area cordon counts and includes counts on all principal roads and a sample of

minor roads counted for a 12 hour weekday over a 3 year cycle. (Cycle flows are routinely collected as part of the modal split surveys in the district centres and changes in these flows are reported under Key Indicator I1).

3.9.26 To establish the level of cycling within West Yorkshire use was made of the database of 12 hour manual classified counts. Each site is typically counted at least once every three years, although from time to time the list of sites changes slightly and some sites are counted more frequently.

3.9.27 This same dataset was used to estimate the trends in cycle use within the Leeds District in the previous APR. Here the methodology has been extended to the whole of West Yorkshire. Once again, only the sites which have at least one count during all of the three year periods is included in the statistic. This ensures that the dataset is a consistent set in terms of its constitution for the entire reporting period.

3.9.28 Table 3.9.15 shows the average number of cyclists observed across all 195 survey sites. On average, between 39 and 44 cyclists were observed. The index shows the change in the level of cycling through a nine year period, relative to a base year finishing in 1996. The data clearly shows fluctuations in the level of cycling, with a downward trend being apparent in the last five year reporting period.

	1994-1996	1995-1997	1996-1998	1997-1999	1998-2000	1999-2001	2000-2002
Mean	42.9	43.7	41.2	42.9	41.8	41.0	39.6
% base	100%	102%	96%	100%	97%	96%	92%

Table 3.9.15: Volume of Bicycle Counts Across West Yorkshire 1994 - 2002.

3.9.29 As reported in the previous APR the approach adopted here is not ideal but is perhaps the best which is currently available. There is a recognition nationally that in authorities with low levels of cycling the robust monitoring of cycle use is problematic.

3.9.30 The West Yorkshire authorities are also following the development of automatic cycle counting equipment and recognise the benefits to cycle monitoring this technology would provide, particularly in establishing robust seasonal trends. However, we are not yet convinced of the reliability of these systems, either in mixed traffic or away from segregated cycle facilities.

Desired Movement

3.9.31 Provision of a high quality cycle network and improvements for cyclists through the integrated corridor schemes should lead to an overall increase in the numbers of people cycling.

Future Requirements

3.9.32 Changes in cycle flows for West Yorkshire will be updated annually in future annual progress reports. Progress on the development of robust cycle monitoring

techniques will be reported in future progress reports.

Key Indicator I6: Local Bus Services (Vehicle Kilometres and Passenger Journeys per year) (SV1a/BVPI102)

3.9.33 Formerly reported as BVPI 101, bus vehicle km operated each year is now reported as a local indicator in Metro's Best Value Performance Plan (SV1a). The target for 2002 /2003 was 107million vehicle kilometres. Bus vehicle kilometres operated is not reported annually and will next be measured in 2003/04.

3.9.34 Bus passenger journeys (BVPI 102) are increasing. Due to a review of the data from Metro's survey system and current discussions between PTE's and DfT to establish a common methodology, caution is required when interpreting patronage trend data. Data is not yet available for 2002 / 2003. Increases in patronage due to improvements to infrastructure and quality bus partnerships have contributed to growth. At the current rate of growth, the LTP target of 3% growth will be met before 2006. A revised target of 5% will be reported against in future APR's.

	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003
Million Vehicle km per year	108	107	107	107	No new data
Passenger journeys per year (millions)	203.0	199.4	201.6	202.0	203.6*

*Passenger journeys in 2002

Table 3.9.16 Local Bus Service Kilometres Operated and Number of Passenger Journeys

Desired Movement

3.9.35 The West Yorkshire authorities are pleased to report that the growth in bus journeys recorded last year has been sustained.

Future Requirements

3.9.36 Changes in vehicle kilometres and bus passenger numbers will continue to be monitored.

Key Indicator I6a: Rail Patronage

3.9.37 Patronage of rail services in West Yorkshire is monitored by Metro through use of a continuous on board survey. This data is extrapolated to provide annual figures for countywide rail patronage as presented in Figure 3.9.7. The data shown is for West Yorkshire internal journeys.

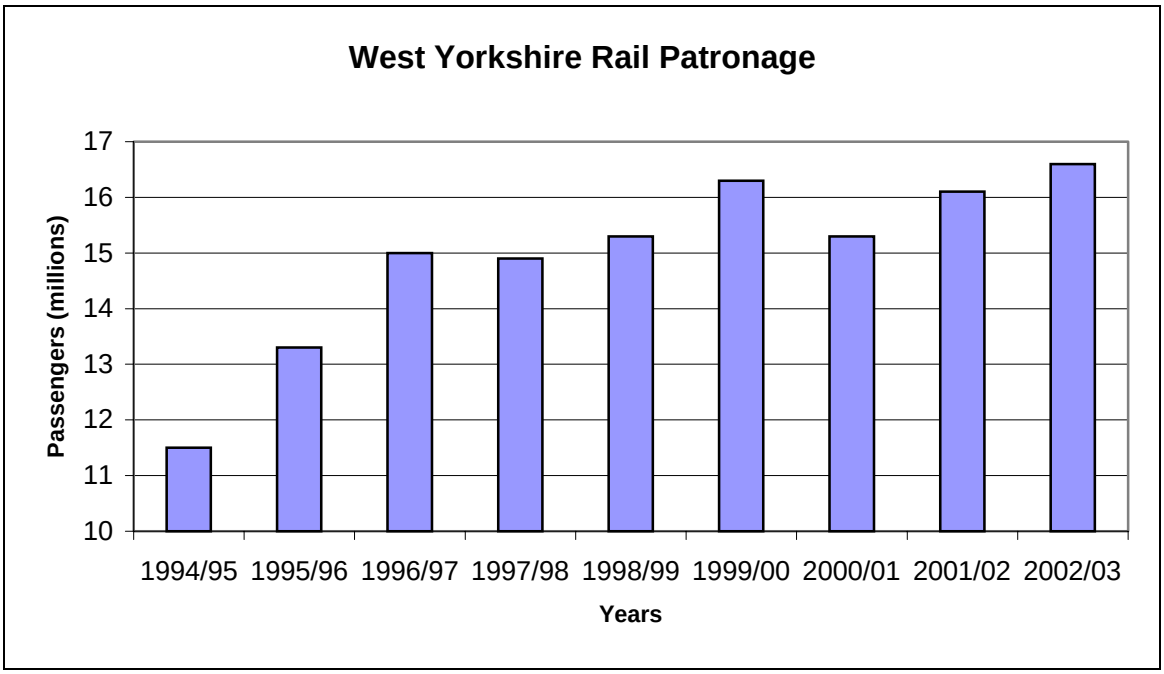

Figure 3.9.7 West Yorkshire Rail Patronage (Million Passengers per Year)

Desired Movement

3.9.38 Rail passenger journeys are increasing after a decline at the start of the LTP period. A fall in rail patronage after the target was set was caused by:

- service unreliability during the rebuilding of Leeds railway station;
- the Hatfield derailment;
- driver shortages at Arriva Trains Northern;
- strike action.

3.9.39 Strike action is estimated to account for the loss of 700,000 passengers in 2002. Despite this, rail passenger journeys are now increasing markedly. New rail stations along with additional rolling stock will generate additional patronage. Given the latest patronage increases and successful completion of the programme of new rail stations within the plan period, the local LTP target of 40% growth by 2005/6 may be achievable, subject to increased on-train capacity being provided.

Future Requirements

3.9.40 The continuous on board survey will be used to assess changes in countywide

rail patronage.

Background Indicator I7: % of Users Satisfied With Local Provision of Public Transport Information (BVPI103)

3.9.41 It is recognised that the provision of accurate, reliable and up to date travel information can help encourage new passengers and improve the ease of travel for existing users. During the 2002 calendar year, Metroline accepted 679,318 calls and answered 565,934 thus achieving a response level of 83%.

3.9.42 A key requirement of Best Value is to provide user satisfaction performance indicators and as a result each District Council conducted a user satisfaction survey, using a questionnaire produced to the format directed by the former Department of Environment, Transport and the Regions (DETR).

3.9.43 All the Districts asked the public to indicate whether they were satisfied or dissatisfied with the provision of transport information. The results are largely positive, with 56% indicating that they were happy with the provision of transport information. This figure provides the baseline against which future progress will be monitored.

3.9.44 Further efforts will be made to improve satisfaction levels by working closely with operators to review and improve standards relating to passenger information. A target has been set for 70% of users to be satisfied with the local provision of public transport information by 2004 / 2005.

BVPI 103	**2000/2001**	**2002/2003**	**Target : 2004/2005**
Percentage of users satisfied with local provision of public transport information	56%	Next data Autumn 2003	70%

Table 3.9.17: (BVPI103) Percentage of Users Satisfied with Local Provision of Public Transport Information

Desired Movement

3.9.45 It is anticipated that continually improving standards relating to the scope and provision of passenger information will result in movement towards the BVPI target.

Future Requirements

3.9.46 The next survey for BVPI 103 is due to is undertaken in Autumn 2003 and published in 2004. Changes in user satisfaction with public transport information will continue to be monitored.

Background Indicator I8: Percentage of Users Satisfied with Local Bus Services (BVPI 104)

3.9.47 All the Districts also asked the public to indicate whether they were satisfied or dissatisfied with the provision of bus services overall. The results indicate that 54% were happy with bus services overall. This figure provides the baseline against which future progress will be monitored. A target has been set for 70% users to be satisfied with local bus services by 2004 / 2005.

BVPI 104	2000 / 2001	2002 / 2003	Target : 2004 / 2005
Percentage of users satisfied with local bus services	54%	Next Data Autumn 2003	70%

Table 3.9.18: (BVPI104) Percentage of Users Satisfied with Local Bus Services

Desired Movement

3.9.48 The introduction of new, accessible vehicles, quality bus corridors and bus guideways is anticipated to result in increased levels of satisfaction relative to the 2000 / 2001 baseline of 54%.

Future Requirements

3.9.49 Further work will continue with the bus operators to raise satisfaction levels and commercial services will also be closely monitored for compliance with the West Yorkshire Bus Strategy. The next survey will be undertaken during 2002 / 2003.

Background Indicator I9: Percentage of Users Satisfied with Local Rail Services

3.9.50 The West Yorkshire authorities recognise the importance of high quality rail services in encouraging new passengers and passenger satisfaction is a high priority. The Strategic Rail Authority (SRA) carry out a national customer satisfaction survey twice a year based on individual train operating companies. A minimum of 500 respondents commencing their journey at a rail station in West Yorkshire are interviewed. Only those completing their journey in the County are included in these statistics. Targets of 75% satisfaction level for all users and 70% by 2005 / 2006 for regular users have been set and progress towards this target from the 2001 / 2002 base is shown below.

	Spring 1999	Spring 2000	Spring 2001	Autumn 2001	Autumn 2002
Vehicle km per year (m)	-	-	61% Baseline	67%	77%

Table 3.9.19 Percentage of Users Satisfied with Local Rail Services

Desired Movement

3.9.51The target has been exceeded reflecting reliability and punctuality improvements on the local network, along with continued enhancements to stations and rolling stock.

Future Requirements

3.9.52 The West Yorkshire authorities will continue to monitor user satisfaction with local rail services.

Key Indicator I10: Percentage of rural households within 13 minutes walk of an hourly better bus services

3.9.53 A provisional baseline figure for the number of rural households in West Yorkshire within approximately 800m walk of an hourly bus service has been established. 56% of rural households fell within this category in March 2003. The national target (N6) seeks to improve on this figure by a further one third by 2010. A local target will be set when 2001 census data is available and the impact of demand responsive rural bus services can be taken into account. Progress will be reported in the next APR.

Key Indicator I11: Bus punctuality and reliability

3.9.54 These new indicators will enable progress towards new LTP targets, taken from the West Yorkshire Bus Strategy, for bus punctuality and reliability to be monitored. In turn, these will assist in measuring progress towards national target N2.

These operational targets are as follows and progress will be measured against a baseline of 2002/03:

- At least 95% of services to run no more than 6 minutes late and none to run early;
- No more than 0.5% of services to be cancelled.

	2002/2003
Bus punctuality	94% Baseline
Bus reliability	89% Baseline

Table 3.9.20: Bus Punctuality and Reliability