



20MPH SPEED LIMIT PILOT AREAS

MONITORING REPORT



March 2012

Executive Summary:

- (i.) The 20mph pilots in Inner South and Inner East Bristol have been funded and delivered through the Cycling City Project and the Active Bristol programme. They cover some 500 roads and 30,000 households. The aim is to encourage more walking, more cycling, and more independent mobility for children and elderly in the City, to reduce risk and severity of road casualties and to help create pleasant people-centred streets and public space.
- (ii.) Inappropriate vehicle speeds, and antisocial and illegal driving, are key threats to health especially in deprived areas. Speeding traffic is, according to the British Crime Survey, the public's top antisocial behaviour (Poulter and McKenna 2007).
- (iii.) The most up to date and robust evidence shows 31% of pedestrians are killed if hit by a vehicle travelling at 40mph, 7% are killed at 30mph – a four-fold difference, and at 20mph the rate is lower still (Richards 2010). Child pedestrian deaths in deprived neighbourhoods are five times those in affluent.
- (iv.) The Bristol pilots were designed as 'signs only 20mph' without expensive physical measures for traffic calming. The pre and post monitoring has included speed counts, injury data, walking and cycling counts, noise and air quality assessments, doorstep questionnaires, and monitoring of reliability and journey time for buses. The Inner South pilot began on 21st May 2010 and the Inner East on 22nd October 2010.
- (v.) The pilots were underpinned by a joint communications campaign delivered by Bristol City Council and NHS Bristol working in partnership with local community groups, local schools, and with support from Avon and Somerset Constabulary. The main publicity has been through leaflets, posters, articles in local newsletters and some mass media coverage. The experience of delivering the pilots suggests that clear communications, which explain the case for 20mph, dispel the many myths about 20mph, and that feature local people, are critical to building the culture change that the vast majority of local people say they want to see.
- (vi.) The overall results of the pilots show that 'signs only' 20mph has been accompanied by a small but important reduction in daytime vehicle speeds (average), an increase in walking and cycling counts especially at weekends, a strengthening of public support for 20mph, maintenance of bus journey times and reliability, and no measurable impact on air quality or noise. Data on casualties are being monitored but it is too soon to draw any statistically valid conclusions.
- (vii.) Some of the key headline findings are as follows:
 - 65% of roads saw a reduction in mean speeds
 - 18 roads no longer saw average speeds above 24mph
 - The average reduction in mean average speed across roads in the Inner South area was 1.4mph, and in the Inner East area was 0.9mph
 - The mean average speed across all roads has dropped to 23mph and under between 7am through to 7pm
 - Increase in counts for walking range from 10% increase to 36% increase according to whether one looks at South pilot or East, weekends or weekdays, and correcting (or not) for rainy days.
 - Increase in counts for cycling range from 4% increase to 37% increase, according to the same variables.
 - Support for 20mph limits amongst pilot area residents is around 82%

- Around 70% support a citywide expansion of 20mph limits in residential areas
 - Pedal cycle casualties in the Inner South area have fallen by 3 in the same period but remained constant in the Inner East
 - Pedestrian casualties have remained constant in both areas.
 - Around half of residents felt the limits were clearly signed.
 - 35% of respondents from the main roads felt roads were safer following the 20mph limits being installed.
 - 89% of residents supported 20 mph on all residential streets
 - 56% of residents supported 20mph on 'main' roads
- (viii.) Casualty and traffic monitoring data is unpredictable over short periods. The numbers are very small and the study period very short, so it is not yet possible to properly assess the impact. The number of overall casualties in the first 12 months of operation reduced by 5 in the Inner East Area and increased by 8 in the Inner South area. The data does not show significant indications to any trend either way.
- (ix.) Analysis of direct communications received during the pilot, and including letters printed in the Evening Post, showed the most common themes were;
- Support for 20mph to be rolled out to other areas
 - Request for more or better signage
 - Request for more enforcement especially where drivers were acting dangerously
 - Objections to 20mph on 'main' roads
- (x.) Conclusions and key lessons learned:
- The vast majority of people in the pilot areas want safer more pleasant streets and a favourable environment for walking and cycling for people of all ages.
 - 20mph limits, if introduced with careful community engagement, and underpinned by excellent communication and driver education, can help bring about shifts in choice of travel mode and support local aspirations
 - If the full benefits are to be achieved this will need careful partnership work involving Bristol City Council, NHS Bristol, Avon and Somerset Constabulary, local businesses, motoring organisations, cycling and walking organisations and many more
 - A key issue identified in the pilots is the need to distinguish between streets with shops, schools, and homes, where pedestrian activity is currently suppressed, versus arterial routes where speed has a less significant effect on communities.
 - There is a need to balance between communities. A road that appears as just a through route for someone driving may be a busy 'high street' for local people.

Contents

	Page
<u>Section 1 – Background and Scheme Development</u>	
1. Introduction & Aims	1
2. Background	2
3. Initial Scheme Development	3
4. Informal Consultation / Public Engagement	5
5. Scheme Design	6
6. Supporting Initiatives	7
<u>Section 2 - Results</u>	
7. Introduction	10
8. Public Opinion	10
9. Pedestrian and Pedal Cyclist Levels	18
10. Impact on Vehicle Speeds	20
11. Road Casualties	27
12. Noise and Air Quality	29
13. Bus Journey Times and Service Reliability	32
<u>Section 3 – Discussion</u>	
14. Citywide Aspirations	33

20mph Speed Limit Pilot Areas: Monitoring Report

Section 1 – Background and Scheme Development

1. Introduction & Aims

- 1.1 The speed of traffic in residential areas around the City has long been one of the main concerns expressed by local residents. Similarly the speed of traffic is often quoted as one of the main safety factors which people see as a barrier to travelling around their communities on foot or by bicycle or to letting children travel independently.
- 1.2 There is robust evidence that lower speed limits reduce the number and severity of collisions, with a 2-7% reduction in crashes for every 1mph reduction in average vehicle speeds. **The fatality rate for pedestrians hit by a car reduces from 31% at 40mph to 7% at 30 mph, a fourfold difference (Richards 2010). At 20mph the fatality rate is considerably lower still at around 2%.**
- 1.3 Two 20mph pilot areas were proposed as part of the Cycling City Project and Active Bristol, with the overall objective of contributing to a significant increase in the number of people cycling in the City, whilst reducing the risk and severity of road casualties and going some way to transforming residential streets into vibrant people centred environments.
- 1.4 This links into the National Institute for Clinical Excellence's guidance No. 8, which details that the built environment, urban congestion and traffic pollution can all affect people's physical and mental health and wellbeing and limit opportunities for physical activity, recreation and community interaction (NICE, 2008).
- 1.5 The aims of the 20mph pilot areas are to:
- Encourage more people to walk and cycle;
 - Improve road safety (in line with the City Council's Casualty Reduction targets); and to
 - Help create more pleasant and shared community space
- 1.6 By making these areas safer and more attractive, a greater number of people will be encouraged to walk, cycle and spend time in their local community. This will have far wider physical and mental health benefits.
- 1.7 This report analyses the outcome of the pilot areas. It summarises the project, outlines the approach taken and additional activities that were implemented to support the lower limits, and reviews the various strands of monitoring that have been undertaken.
- 1.8 The City Council has a policy commitment in the Joint Local Transport Plan to extend the 20mph limits across all residential areas of the City. This report therefore also considers what lessons need to be learnt if an extension is to be achieved in the most efficient and effective manner.

2. Background

- 2.1 Vehicle speed in an urban setting has a profound influence on active travel (walking, cycling), on play, and on children's independent mobility. An excellent summary of the issues is contained in 'Our Cities Ourselves: 8 Principles for Transport in Urban Life' by the Institute for Transportation and Development Policy (ITDP), 2011. Leading cities in Europe have been pioneering these approaches since the 1970s with consequent benefits for city centre economies and healthy communities.
- 2.2 Previous studies around Europe have shown that cities with extensive 20 mph limits are transformed from being noisy, polluted places into vibrant, people-centred environments. Living Streets also detail that
- 2.3 "20 mph is a speed at which drivers can have contact with other users of the street. It is the speed at which pedestrians feel more confident about crossing the road, children playing outside their homes and it is quiet enough to hold a conversation...It would also give a boost to walking and cycling" (Living Streets, 2009).
- 2.4 The former Commission for Integrated Transport also found that area wide 20 mph limits are "the one critical success factor underpinning the best practice in promoting walking, cycling, and public transport as alternatives to the private car." Traffic speeds are often cited as a deterrent to cycling and lower speeds can encourage more cycling (CfIT, 2001).
- 2.5 Portsmouth City Council was the first council to use Government Circular 1/2006, which outlined the conditions for introducing 20 mph without the need for significant traffic calming over a complete City (DfT, 2006). Whilst over half of Bristol's road casualties occur on the main road network of A and B roads, around 40% are widespread over unclassified roads in residential areas, and have varied underlying factors that are difficult and expensive to address with traditional site-specific traffic calming measures.
- 2.6 Portsmouth has residential streets that are nearly all narrow with terraced housing, and high levels of parking on the street. This helps to create streets where speeds are already low. Whilst some areas of Bristol are like this, many residential roads are not. Therefore, it was decided that two pilot areas would first be tested to see what needed to be done to ensure 20 mph limits proved as successful in Bristol as they have been in Portsmouth.
- 2.7 As a general principle the 20 mph programme is a means of creating a culture where driving too fast in residential streets is seen as unacceptable. There is already strong evidence in the National Crime Survey that speeding in residential streets is viewed as the number one antisocial behaviour (Poulter & McKenna, 2007). It is considered that by introducing a 20 mph speed limit, coupled with publicity and advocacy, it will be possible over time to alter general behaviour.

3. Initial Scheme Development

- 3.1 The Inner South Bristol 20mph pilot area covering the wards of Bedminster, Lawrence Hill, Southville and Windmill Hill became operative on 21st May 2010. The Inner East Bristol 20mph pilot area covering the wards of Ashley, Easton, Eastville, Lawrence Hill and St George West became operative on 22nd October 2010.
- 3.2 In determining which areas should be used as the pilots, an analysis of the casualty data was carried out to identify where there were high numbers of pedestrian and cycle casualties (particularly child casualties) that had no obvious pattern to them. The layout, types of streets, existing traffic volumes and speeds, presence of schools and other community facilities were also considered to help determine which areas would be more likely to benefit from the introduction of a 20 mph limit. The size of these areas also had to be deliverable within the timetable set by the Cycling City project.
- 3.3 In order to determine which roads should be initially included in the pilot schemes, the guidance offered by the Department for Transport Circular 1/2006 'Setting Local Speed Limits', was followed. This resulted in only those roads with mean speeds of 24mph or below being proposed as 20mph. The impact on journey time is very small, whilst the improvement for other road users can be significant.
- 3.4 This guidance also advises that such limits should be self-enforcing and that there should be no expectation on the Police to provide additional enforcement beyond their routine activities unless this has been explicitly agreed. As a result the City Council and Avon & Somerset Police worked together to ensure that the final design (terminal signs, repeater signs and 20 mph road markings) delivered a scheme that was legally enforceable and which people would accept and understand why they are being asked to drive at 20 mph.

Figure 1 - Inner South Bristol 20 mph pilot area

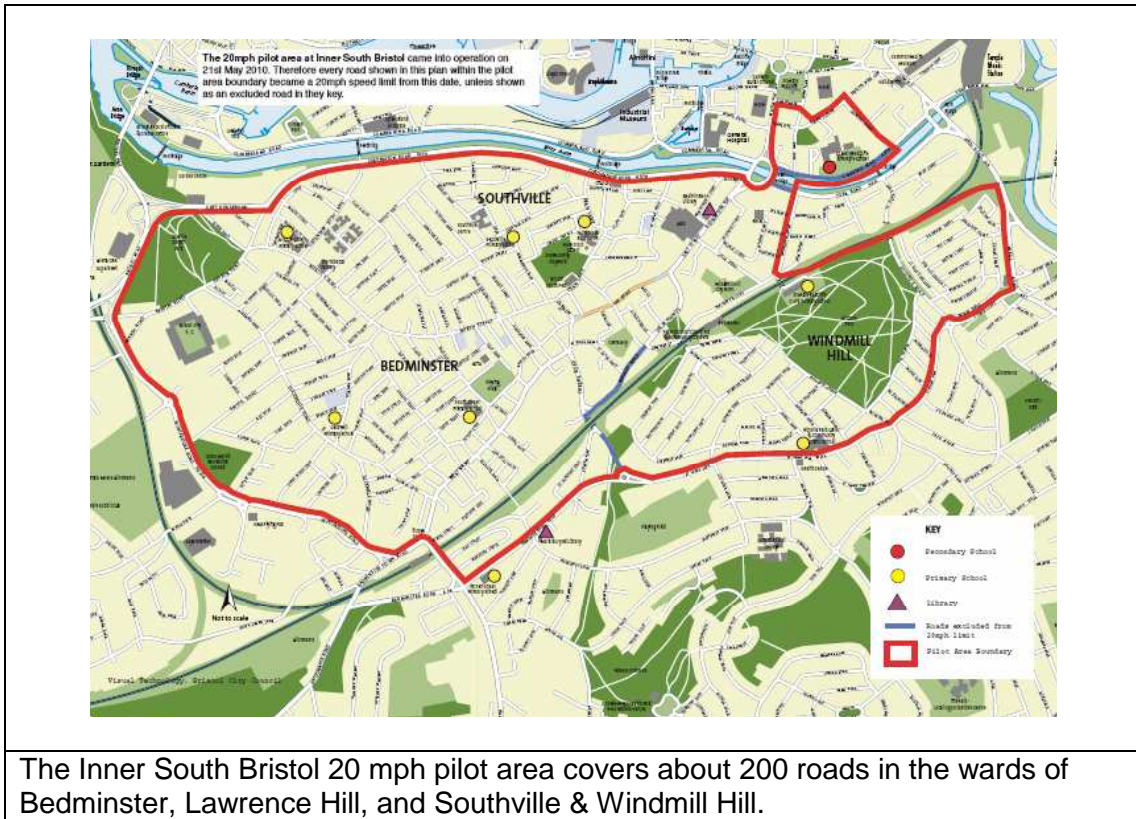
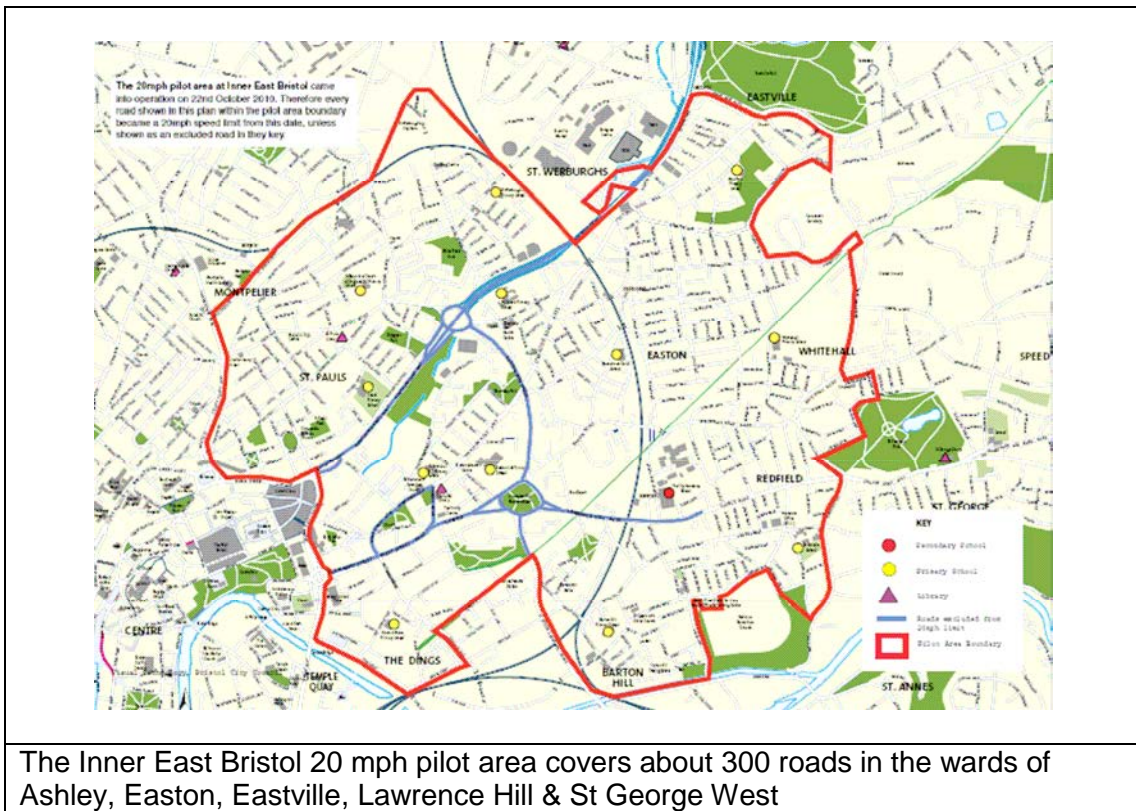


Figure 2 - Inner East Bristol 20 mph pilot area







4. Informal Consultation / Public Engagement

- 4.1 Public engagement surrounding the proposals took place throughout September 2009 for both pilot areas. Leaflets explaining the proposals and seeking local views were distributed to Schools (for staff and governors), School Travel Plan Champions, Ward Councillors, Neighbourhood Partnership co-ordinators, Libraries, Leisure Centres, local council premises, and local community and business organisations
- 4.2 The same information was also published on the City Council's 20 mph and Consultation Finder websites, whilst a discussion thread was also started on the City Council's web based Ask Bristol forum.
- 4.3 The majority of people who responded were positive about the proposals and supported the principle of 20mph in the residential areas proposed, with significant numbers of people wanting to see the scheme extended to other roads, other areas, or across the whole of Bristol. Only four letters against the proposals were received at this stage.
- 4.4 Following consideration of the results of this exercise the proposals were amended to make all roads in the pilot areas 20mph, including main roads, except for those determined to be strategic through routes. These had not previously been proposed because either their existing mean average speeds were in excess of 24mph, or they were considered to be a through-route of the area.
- 4.5 The revised proposals were subjected to statutory consultation and advertisement prior to implementation. The decision was made on 25th Feb 2010 at Cabinet to proceed with the Inner South area, and the scheme became operative on 21st May 2010. The decision was made on 30th June 2010 to proceed with the Inner East pilot area, and the scheme became operative on 22nd October 2010.

5. Scheme Design

5.1 The 20 mph speed limits were installed using the following elements:

<p>Terminal / Entry points:</p> <p>20 mph road markings (carriageway roundels) and large (600mm/24 inch diameter) traffic signs were installed at the junctions where the speed limit changes. These alert drivers to the change in speed limit.</p>	
<p>Repeater signs:</p> <p>Smaller (300mm/12 inch diameter) 20 mph repeater signs were also placed at regular intervals on either side of the road around the areas to remind drivers and riders that the speed limit is 20 mph.</p>	
<p>Vehicle Activated Signs:</p> <p>Several 20 mph flashing Vehicle Activated Signs (VAS) were installed at some of the higher speed roads / major roads within the pilot areas to remind drivers to keep to the lower speed limit.</p>	
<p>Additional 20 mph carriageway roundels:</p> <p>In order to increase the prominence of the 20 mph scheme, additional 20 mph carriageway roundels were installed at several of the higher speed / major roads, throughout January and February 2011. These road markings have been installed alongside 20 mph VAS or a 20 mph repeater sign.</p>	

- 5.2 The schemes were designed to minimise the number of signs and street clutter wherever possible, whilst ensuring the design remained in accordance with DfT guidance and the Traffic Signs, Regulations and General Directions (2002). Repeater signs were placed at the maximum spacing permitted, except in areas around schools where a higher concentration of signs was felt necessary to reinforce the need for slower speeds.
- 5.3 Where possible all signs were mounted on existing lamp columns. At entry/exit locations, where there would potentially be a high amount of signage, redundant signs were removed to avoid further street clutter, minimise visual intrusion and avoid information overload to all road users.
- 5.4 In order to address concerns raised by Avon & Somerset Police over the inclusion of certain roads in the pilot area, a commitment was made to install additional traffic management measures at several of the roads where mean average speeds were above 24mph.
- 5.5 Therefore 8 solar-powered 20 mph Vehicle Activated Signs (VAS) were purchased and were rotated (every 3 months) around 8 roads within Inner South Bristol and 7 roads within Inner East Bristol, as follows:
- Inner South Bristol:
Greenway Bush Lane, Whitehouse Lane, St Luke's Rd, Duckmoor Rd, Ashton Rd, Luckwell Rd, Smyth Rd and Raleigh Rd.
 - Inner East Bristol:
Chalks Rd, Whitehall Rd, James St, Midland Rd, Stapleton Rd, Pennywell Rd and St Andrews Rd.
- 5.6 These were rotated around the various locations every 3 months to ensure that drivers did not become too familiar with their presence, and so they had a speed reducing effect over a greater number of roads in total.

6. Supporting Initiatives

- 6.1 A range of supporting initiatives have taken place in conjunction with the 20mph speed limits, with the aim of raising awareness of the pilot areas and encouraging residents to support the campaign, including:
- A communication campaign developed between NHS Bristol and Bristol City Council was launched in January 2011, which included an Active Bristol Information Pack, including 20mph car stickers and key rings etc. Active Bristol also supported the 'Playing Out' project and 'Bike It'.
 - The City Council encouraged professional drivers to adhere to the 20mph limits by writing to internal fleet services, taxi licensing teams and public transport providers, to advise of the new limits and stressing the need to keep to them.
 - All City Council pool cars at two of its main offices (Brunel and Wilder House) had 20mph key rings attached to the keys, whilst an email was sent to all staff with access to these vehicles stressing the need to observe the 20mph limits.
 - Road Safety Week, co-ordinated by Brake, took place in November 2010, whereby specific 20mph themed banners were displayed near several of the Primary Schools within the pilot areas, with the message "Kids say Slow Down".

- A map of the Inner South 20mph pilot area featured in the Bristol City Football programme at several games held at Ashton Gate, to raise awareness of the speed limit with those attending the game.
- A 20mph pilot area presentation was given to Bristol's Green Commuter Club in February 2011, attended by a network of employers committed to the promotion of sustainable transport, to encourage attendees to cascade the 20mph message to their staff.
- Work also took place with local community groups. Greater Bedminster Community Partnership has played an active role in promoting the 20mph speed limit in their local area, and the Partnership's Chair regularly attended 20mph meetings with Active Bristol and Bristol City Council.
- Regular articles were also been published in neighbourhood newsletters explaining the benefits of 20 mph speed limits, as well as providing short case studies of residents who support the campaign in South and East Bristol.

20 mph as one element of the Active Bristol strategy

6.2 Physical inactivity is directly responsible for many serious illnesses, and premature deaths. Only 1 in 4 men and 1 in 3 women over 16 years are achieving current recommended amounts of activity (2008 Health Survey of England).

6.3 Estimates for Bristol, based on the cost to the NHS of treating diseases associated with inactivity, are £6.2 million per year (Department of Health, 2009).

6.4 The vision for Active Bristol is to promote physical activity which is inclusive and accessible, free or low-cost, sociable, part of everyday life, sustainable and environmentally beneficial.

6.5 Evidence shows us that:

For most people, the easiest and most acceptable forms of physical activity are those that can be incorporated into everyday life. Examples include walking or cycling instead of driving... (Chief Medical Officer 2004)

6.6 In line with the vision and the strong evidence base for physical activity benefits for health, Active Bristol has supported a number of projects which link with the 20 mph speed limits. Two examples are outlined below.

Bike It

6.7 This programme is delivered by Sustrans. Bike It officers work with primary and secondary schools to create a whole-school approach to cycling. They deliver a range of initiatives directed by the school to increase cycling levels for journeys to school. These include cycle training, Dr Bike sessions and bike maintenance, family bike rides, competitions, curriculum and assembly input. Some of the schools benefiting from this programme are located within the two 20 mph pilot areas.

Playing Out

6.8 “A community where children can safely play outside is a healthy community!”

Figure 3



‘Playing Out’ project (June 2010). Photo by Kamina Walton

6.9 In June 2010 Active Bristol supported the Playing Out project to facilitate, support and document six ‘Playing Out’ events on streets around Greater Bedminster. This was in the month following the introduction of the 20 mph speed limit.

6.10 In order to disseminate the learning from these events, a printed report and web-based materials www.playingout.net were produced by the project team. The project attracted 300 children who benefited from 2 hours of free, active play after school, and 100 parents who were engaged in issues around street play. The project utilised over 440 hours of volunteer time.

6.11 The Playing Out model is not intended as a permanent solution, but to act as a bridge between the current situation and the long-term goal of shared streets, calmer vehicle movement and for street play to be a normal, safe and positive part of urban life.

Section 2 - Results

7. Introduction

7.1 Following the introduction 20mph pilot areas, extensive monitoring was carried out in order to assess their impact on:

- Public Opinion
- Pedestrian and Pedal Cyclist Levels
- Traffic Speeds
- Road Casualties
- Noise and Air Quality
- Bus Journey Times and Service Reliability

8. Public Opinion

Summary

- Support for 20mph limits amongst residents is around 82%
- Residents support for 20 mph on all residential streets is around 89%.
- Residents support for 20mph on main roads is around 56%
- Only around half of all residents felt the limits were clearly signed.
- Around 70% of residents supported a citywide expansion of 20mph limits in residential areas.
- 35% of respondents from the main roads felt it was safer following the 20mph limits being installed.

Pre and Post Scheme Questionnaires

8.1 In order to assess the success of the 20 mph pilot areas in meeting the aims and objectives of the project, a before and after residents survey was conducted to monitor changes in attitudes and perceptions in relation to:

- Walking and cycling activities in the area;
- The impact on vehicle speeds and traffic volumes;
- Road safety in the local area; and
- Community severance and quality of life.

8.2 The after surveys for the inner south area were completed first (as the scheme was the first to be operational) hence this report quotes the results from this area first with the results from the inner east area in brackets. The results from the inner east area have only been discussed directly if these differ to any significant extent from those in the inner south area.

8.3 The same households in the before survey were approached again after the introduction of the 20 mph speed limit and asked the same questions. In the inner south area a total of 403 responses were collected to the before-survey and 254 responses to the after-survey. In the inner east a total of 807 responses were collected to the before-survey and 374 responses to the after-survey. Several repeat visits were made to households in the after-survey to ensure that as many as possible of the original respondents also took part in the after-survey.

- 8.4 When asked if they were in favour of the introduction of the 20mph speed limits, 75% (82%) in the after-survey answered 'Yes', indicating strong support for the concept of 20 mph speed limits generally.
- 8.5 When asked if they/other drivers obey the 20mph limits there was a clear view with 64% (54%) agreeing/strongly agreeing that they obey the speed limit and 79% (68%) disagree/strongly disagree that other drivers do likewise.
- 8.6 A high percentage of residents agreed that on their street and local residential streets the speed of traffic has reduced since the introduction of the 20mph limits, 47% and 42% (34% and 33%) respectively. In contrast 61% (41%) disagreed that traffic speeds have reduced on local main roads whilst 16% (29%) felt that speeds have reduced. This suggests that the impact has been greater in the Inner East 20mph pilot than the Inner South 20mph pilot.
- 8.7 When asked if the 20mph speed limits were clear to all drivers, 55% (47%) of respondents agreed that it was clear in their street, 49% (47%) agreed that it was clear on local residential streets and 34% (48%) agreed that it was clear on the main through routes.
- 8.8 The majority of residents agreed with the expansion of 20 mph across the city's residential streets at 70% (68%). However, this dropped to 64% (52%) when asked if they supported 20 mph across the city if this was not to include the local main roads. It should be noted that what constitutes a local main road was not defined in the surveys.
- 8.9 With regard to local residential streets, a majority of residents, 77% (70%), disagreed with the statement that the lower 20mph speed limits did not work. With regard to the local main roads, only 51% (56%) disagreed with this statement.
- 8.10 The majority of residents, 76% (57%), agreed that 20mph is a good idea but that the speeds in the pilot areas should be controlled first before expanding this city-wide. This highlights residents' frustration with drivers' non-compliance of the new speed limit. This may imply that enforcement of the speed limit on local main roads is an important factor in eliciting residents' support for a citywide 20 mph speed limit.
- 8.11 There was general disagreement that 20 mph speed limits should only apply in certain circumstances with 20% (30%) agreeing that it should only be around schools, 17% (29%) agreeing that it should only be around parks and 16% (27%) that it should only be around shops.
- 8.12 When asked, 57% (54%) of respondents believed that the 20mph limits do not work as people still drive above the speed limit.

Walking and Cycling Levels

- 8.13 Overall, the number of people that said that they never cycle has remained constant at around 66% (60%).
- 8.14 In the before survey, a very high number of residents said that they walk around their local area on most days, 87% (80%). Whilst this reduced by 12% to 75% in the inner south, this was offset by a rise of 8% in residents who said that they now walk every week. In the inner east area, this increased by 5% to 85%.

8.15 As the manual counts and results from other survey questions indicate that an increase in cycling and walking has taken place, this might indicate that this increase has come from non residents, or from people who already cycle increasing their number of trips.

Vehicle Speed and Traffic Volumes

8.16 It appears that speeding still occurs at all times of the day with the number of people claiming this happens all the time increasing from 45% to 57% (45% to 52%) and the proportion of people who said that they never see or hear people exceeding the speed limit dropped from 31% to 20% (17% to 15%). However, when asked how often residents heard or saw someone exceeding the speed limit on their street, there was little change across the options of “most days”, “every week”, or “every month”. This is understandable because the speed limit to break is now 10 mph lower than when the respondents were first consulted

8.17 Support for 20mph has increased significantly since the pilots were introduced. Residents’ support for a maximum speed limit on their **own street** of 20 mph or less rose after implementation from 73% to 88% (70% to 92%). In the after-survey, residents’ support for a maximum speed limit of 20 mph or less on all **residential streets** rose from 67% to 83% (65% to 89%). Support for a speed limit of below 30mph on **main roads** also increased from 19% to 36% (19% to 56%).

8.18 In the after-survey, residents who disagreed that ‘there is a problem in my local area of vehicles driving too fast’ rose from 15% to 25% (14% to 16%), despite the reduction in speed limit to 20 mph.

8.19 The view of residents that speeding on residential streets is always anti-social increased appreciably in the after-survey from 68% to 86% (72% to 78%). Similarly, respondents’ who felt that it is always anti-social to drive over the speed limit on main roads increased from 62% to 75% (63% to 71%). It should be noted that there is no indication of by how much over the speed limit respondents thought was acceptable.

8.20 The number of residents that felt there are never times when speeding on residential streets is acceptable decreased in the after-survey from 91% to 83% (81% to 75%), although this is remains very high. Similarly, the number of respondents stating that there are never times when driving over the speed limit on main roads is acceptable decreased from 70% to 56% (69% to 66%).

8.21 Whilst these are both very encouraging responses, the number of people who still believe that it is acceptable to exceed the speed limit remains a concern.

Road Safety

8.22 There was little change in the number of people who thought it was unsafe or very unsafe to cross the road in their area with 23% (35%) before the 20mph limits were installed against 20% (37%) after.

- 8.23 In the Inner South 20mph pilot area 70% of respondents in the after survey considered it was unsafe for children (7 to 11 yrs) to play in the street on their own. This has increased from 41% in the before-survey. A different view was obtained from the Inner East 20mph pilot area, where it has remained fairly consistent 61% compared to 63% (before). It is not possible to state whether the Inner South result is because residents felt it had become less safe or if they were now more aware of the safety concerns following the publicity surrounding the lower speed limits and the play streets that were run in the Inner South Bristol 20mph pilot area.
- 8.24 With regards to how safe it is to cycle in the areas, 20% (32%) of respondents said it was unsafe or very unsafe in the after survey down from 25% (36%) before the 20 mph speed limit was introduced.

Community Severance and Quality of Life Impacts

- 8.25 There was very little change in how often people said that they are speaking to their neighbours or how many friends or acquaintances people have locally.
- 8.26 Residents' perception of the level of traffic noise in their local area changed considerably in the after-survey when 50% (34%) of the respondents felt that it was quiet/good, against 30% (26%) in the before-survey. The proportion of respondents who felt that traffic noise was noisy/bad declined from 37% (48%) to 29% (42%).
- 8.27 Residents' perception of the level of traffic pollution in the Inner South 20mph pilot area changed in the after-survey when 46% of the respondents felt that it was high/bad, up from 35% in the before-survey. Inner East 20mph pilot showed a reduction from 49% to 46%.
- 8.28 The proportion of respondents who felt that traffic pollution was low/good increased from 20% (16%) to 22% (22%).

Evaluation Survey

- 8.29 At the same time as the household after survey were being carried out further separate surveys were undertaken to evaluate the scheme from the perspective of those people who live and work on the busier main roads that pass through the pilot areas.
- 8.30 There were between 215 and 220 responses to each question in the Inner South pilot area, and 181 in the Inner East pilot area.
- 8.31 When asked if they were generally in favour of the introduction of the 20mph speed limits 63% (60%) of respondents were and 14% (13%) were not.
- 8.32 Although 68% (79%) of respondents were in favour of 20 mph on their street, only 53% (57%) were in favour of 20 mph on local main roads. Conversely, 86% (85%) of respondents supported 20 mph on residential streets.
- 8.33 When asked if since the new 20 mph speed limit was introduced their street/nearby streets feel more pleasant/relaxed, 17% (27%) (my street) and 16% (34%) (nearby streets) of respondents agreed with this view.

- 8.34 A not insignificant 6% (18%) of respondents agreed that since the 20mph limits had been introduced neighbours/residents spend more time in the street, whilst 3% (11%) of respondents agreed that since the 20 mph limits children spend more time playing/meeting friends in the street. It is interesting that this suggests that the Inner East 20mph pilot area has seen a greater increase in these activities than the Inner South area.
- 8.35 Around 5% (13%) of respondents agreed that there is less traffic pollution since the 20mph limits were introduced, whilst 10% (16%) agreed that there was less traffic noise.
- 8.36 Around 8% (18%) of respondents said that they walk more since the new speed limit was introduced, and 10% (14%) felt that other people were walking more since the new speed limit was introduced.
- 8.37 Approximately 16% (11%) of respondents said that they cycle more since the new speed limit was introduced. 20% (23%) of respondents said that other people cycle more since the new speed limit was introduced.
- 8.38 Around 22% (35%), 17% (29%) and 5% (12%) respectively agreed that it was safer to cross the road, cycle or for children to play in the streets since the 20mph limits, this indicates that the new speed limit has had a positive effect on resident's view of their local area. The higher levels for Inner East 20mph pilot suggest it may have made a bigger impact than the Inner South 20mph pilot area. Whilst 59% (53%), 46% (36%) and 76% (75%) respectively disagreed with these statements they were not asked whether it had become less safe for these activities to take place.
- 8.39 The response to whether 20 mph was a good idea and should be expanded across the city was less positive than in the household survey with 47% (61%) of respondents in this survey agreeing, compared with 70% (68%). This difference may reflect their personal experience of the impact of the new 20 mph speed limit on the busier roads on which they live and work.
- 8.40 The response to the question about whether the 20mph limits work on residential roads was less positive than in the household survey with only 50% (63%) of respondents replying positively, compared to 77% (70%). The same question when related to local main roads, showed that 45% (48%) of respondents disagreed with the statement that 20 mph does not work, compared with 51% (56%) in the before and after survey.
- 8.41 The response to the question about whether 20 mph speed limits should only be around...schools, parks and shops was higher than in the before and after survey. Around 67% (62%) (only around schools), 66% (58%) (only around parks) and 60% (50%) (only around shops) of respondents agreed that 20 mph speed limits should only be at specific locations, compared with 20%, 17% and 16% respectively in the before and after survey.
- 8.42 It is clear from these results that before seeking to expand the 20mph speed limit across the City that it is important to consider how to gain support for installing 20 mph on busier roads.

Bristol Citizens' Panel – Spring 2011

- 8.43 The Citizens' Panel includes people from all backgrounds and all areas of the city, and the complete panel is designed to be representative of the city as a whole. The Spring 2011 questionnaire was sent out to 2091 Panel members of which 1066 (51%) responded to the section called Your Street. The questions in the Your Street section were similar to those in the before and after household surveys of the 20 mph pilot areas.
- 8.44 In terms of moving forward with a roll out of 20 mph limits across the city, some of the results of this survey include:
- 68% supported a speed limit on their street that was below 30 mph
 - 65% supported a speed limit on local residential streets that was below 30 mph
 - 65% did not want the speed limit on local major roads to change from 30 mph (a definition for local major road was not given to respondents)
 - 52% would like to see the speed limit in their street reduced
 - 44% would like to see the speed limit in the local area reduced
 - 70% agreed that in their local area, motor vehicles drive too fast
 - 87% agreed that streets are for everyone
 - 1 in 5 thought that driving over the speed limit in residential streets is sometimes or never antisocial
 - 2 in 5 thought that driving over the speed limit in main roads is sometimes or never antisocial
 - almost 1 in 3 thought that there are circumstances when speeding on residential streets is acceptable
 - almost 1 in 2 thought that there are circumstances when speeding on main roads is acceptable
- 8.45 The level of support amongst the city's wards for 20mph limits is varied, and this will help in determining how any future roll out across the city might be designed and managed.

Conclusions

- 8.46 These results appear to show that local residents in the Inner East pilot area have perceived a greater positive impact on the community than in the Inner South. The same approach was taken with both areas, and so it is difficult to determine the reasons for the different outcome. The two areas are distinct communities and have different road layouts and levels of local and through traffic, so this is likely to have played a part.
- 8.47 Residents' support for a maximum speed limit on their own street of 20 mph or less has increased since the new lower speed limit was introduced, whilst there is massive support for a speed limit of less than 30mph on residential streets. Similarly, residents' support for a maximum speed limit on local residential streets of 20 mph or less has increased since the new lower speed limit. These views were generally supported by the results of the recent citywide Citizens' Panel survey.

- 8.48 A significant number of residents do not think that the scheme is sufficiently visible to motorists. This viewpoint is amplified in relation to the busier roads but differs to some degree across the pilot areas. This suggests that residents do not consider the small speed limit repeater signs as being too intrusive and would be willing to have more of them. Since the introduction of the schemes, increased signing has been installed along the busier roads within the pilot areas whilst additional 20 mph carriageway markings have been laid at key intervals along these busier roads.
- 8.49 There was a mixed response from residents in terms of whether 20 mph should be expanded across the city to all residential streets. In the after-survey evaluation questions the majority of respondents supported this proposal, however, in the 'main road' evaluation survey support for a citywide 20 mph speed limit was lower. This difference in opinion is most likely to be because the evaluation survey was targeted at those who live or work on the busier roads within the pilot area and this reflects their experience of how the lower speed limit is or is not working on this type of road. These views were generally supported by the results of the recent citywide Citizens' Panel survey.
- 8.50 There would appear to be frustration amongst residents with the level of speed enforcement that is taking place, in particular on the busier roads within the pilot area. This is encouraging as it reflects the enthusiasm amongst residents for lower speed limits on their streets but it is something that must be discussed with Avon and Somerset Police if we are to move forward with a citywide roll out of a scheme that is fully supported by residents.

Summary of correspondence to date

Summary

- Most commonly raised issues, are support for other areas to be 20mph, request for Vehicle Activated Signs and more repeater signs, request for enforcement of speed limit, objection to 20mph on mains roads.

- 8.51 To assist the communications campaign a thematic analysis of comments about the scheme from members of the public was carried out by colleagues in the Public Health team.
- 8.52 The analysis was based on correspondence received by the 20 mph team via phone, email or letter during an 8-month period between the start of May 2010 and end of December 2010.
- 8.53 The five most commonly raised issues were:
- Support for other areas of Bristol to be 20 mph (10)
 - Requests for Vehicle Activated Signs (9)
 - Requests for enforcement of the speed limit (8)
 - Objections to 20 mph on 'main' roads (10)
 - Requests for more repeater signs to help with compliance (9)

8.54 Overall, the comments are supportive and largely reflect concerns about implementation details, and about enforcement.

8.55 The partners and advocates who we will need to help us move forward with a roll out of citywide 20 mph limits will include:

- Youth workers
- NHS communications
- BCC communications
- BCC fleet staff
- Police officers/PCSO
- Local residents
- Local schools
- NHS staff
- Taxi licensing
- ANDISP speed courses
- Driving Instructors and Advanced Motorists
- Motorbike organisations
- Small local businesses

9. Pedestrian and Pedal Cyclist Levels

Summary

- Pedestrian activity increased by 1% on a weekday and 12% on the weekend in the Inner South area
- Cycling levels increased by 4% on a weekday and 12% on a weekend in the Inner South Area
- Pedestrian activity increased by between 10% (rain affected) and 15% on a weekday and between 21% (rain affected) and 36% on the weekend in the Inner East Area
- The inner east area saw a total increase in weekday cycling levels of between 8% (rain affected) and 23% and weekend cycling by between 22% (rain affected) and 37%

9.1 Manual counts of pedestrian and cycling levels in each of the 20mph pilot areas were conducted in August 2009 prior to implementation, and were repeated at the same locations in August 2010 for the inner south area (after 2 months of operation), and in August 2011 for the inner east area (after 10 months of operation). Counts were taken on both a weekday and weekend.

9.2 Some of the surveys dates and locations were affected by rain which may have had an impact on the numbers of pedestrians and cyclists recorded. Therefore, where rain affected the before survey but not the after survey, a second range of 'rain affected' results have been calculated by reducing after counts to match the before levels. This should minimise any impact the weather had on the after survey.

9.3 Table 1 below shows that:

- In the **inner south** area, pedestrian activity increased by 1% on a weekday and 12% on the weekend.
- The **inner south** area saw a total increase in weekday cycling levels of 4% and weekend cycling by 12%
- In the **inner east** area, pedestrian activity increased by between 10% (rain affected) and 15% on a weekday and between 21% (rain affected) and 36% on the weekend.
- The **inner east** area saw a total increase in weekday cycling levels of between 8% (rain affected) and 23% and weekend cycling by between 22% (rain affected) and 37%.

Conclusions

9.4 Early indications are that overall levels of walking and cycling activity across the pilot area have increased both at weekends and on weekdays. However, it is not possible to confidently state that these changes were due solely to the introduction of the new lower speed limit. However, there were no recorded incidents or special activities taking place when the surveys were undertaken which would have affected the levels recorded.

9.5 The observed increases in pedestrian activity are reflected to some extent in the results of the post scheme evaluation survey (section 9.38) where 8% of respondents from the inner south pilot area (ISB) and 18% from the inner east area (IEB) said that they walk more since the new speed limit was introduced.

9.6 The observed increases in cyclist activity are also reflected to some extent in the results of the evaluation survey (section 9.39) with 16% of ISB respondents and 11% of IEB respondents believing that they cycle more since the new speed limit was introduced.

9.7 The after surveys were undertaken very early after the lower limits became operational and it will take longer for the full benefits to be realised.

Table 1 - Percentage Change in Pedestrian and Cycling Levels

	PEDESTRIAN COUNT		PEDAL CYCLIST COUNT	
Study Site	WEEKDAY CHANGE	WEEKEND CHANGE	WEEKDAY CHANGE	WEEKEND CHANGE
Inner South Pilot Area				
Survey Results	1.1%	11.6%	3.9%	11.8%
Surveys factored for rain affects	1.1%	11.6%	3.9%	11.8%
Inner East Pilot Area				
Survey Results	14.6%	35.6%	23.0%	36.6%
Surveys factored for rain affects	9.7%	20.7%	8.2%	21.9%

10. Impact on Vehicle Speeds

Summary

- 65% of roads saw a reduction in mean speeds
- 18 roads no longer saw average speeds above 24mph
- The average reduction in mean average speed across roads in the Inner South area was 1.4mph, and 0.9mph in the Inner East area.
- The overall reduction in mean average speed across the Inner South area was 0.9mph, with a 0.4mph reduction on residential roads and 1.3mph on main roads
- The overall reduction in mean average speed across the Inner East area was 0.5mph, with 0.4mph on residential streets and 1.7mph on main roads
- The mean average speed across all roads has dropped to 23mph and under between 7am through to 7pm

10.1 Automatic traffic counts were carried out at 1 in 10 roads within the pilot areas to assess traffic speeds and volumes prior to the schemes being introduced. These counts were repeated after the new limits had been installed, to assess the impact that these had had. The results are summarised in the tables below.

Table 2 – Changes in Mean Speed (speeds in fastest direction only)

Average Speed	Number of Roads Before 20mph Installed	Number of Roads After 20mph Installed
<20 mph	26	42
21 to 24mph	29	31
>24mph	47	29
TOTAL	102	102

10.2 The overall picture of the results show is a dampening down of speeds with the largest reduction in roads that had speeds in excess of 24mph with 18 roads no longer experiencing average speeds above 24mph.

10.3 Whilst there has been a slight increase in middle banding of 21 to 24mph there is a significant increase of roads with average speeds less than 20 mph.

10.4 Of the 98 roads surveyed, the mean average speeds decreased on 72 of the roads (73%). 26 of the roads (27%) experienced an increase but 10 of these remain under 20 mph with only 7 exceeding 24mph

10.5 The average reduction in speeds on all of the 20mph roads across the 20mph pilot areas was 1.4mph in the Inner South area and 0.9mph in the Inner East area. Across the pilot areas in total (taking account of traffic volumes on all roads) the mean average speeds across all 20mph roads have reduced by 0.9mph in the Inner South area and 0.5mph in the Inner East.

Changes in Speed by Type of Road

Inner South Bristol

10.6 Table 3 **below** indicates that:

- The reduction in mean average speed across the Inner South area was 0.9mph from 23.6mph down to 22.7mph.
- The residential roads in the area saw a 0.4mph reduction in mean average speed from 22.3mph to 21.9mph
- The local main roads experienced an average reduction in mean average speeds of 1.3mph from 26.6mph to 25.3mph
- The largest reduction has been on Greville Rd, where mean average speeds have reduced from 23.5mph down to 18.2mph, a reduction of 5.3mph.

Table 3 - Changes in Mean Average Speed Across ISB by Road Type

Road Type	PRE Mean average (mph)	POST Mean average (mph)	Mean average (mph) Change
All 20 mph roads (Main & Residential)	23.6	22.7	-0.9
Just 20 mph local residential roads	22.3	21.9	-0.4
Just 20 mph local main roads	26.6	25.3	-1.3
30mph excluded roads (WITHIN 20 mph area)	27.7	26.7	-1.0
30mph roads (OUTSIDE 20 mph area)	27.9	26.8	-1.1

Inner East Bristol

10.7 Table 4 **below** shows:

- The reduction in mean average speed across the Inner East area was 0.5mph from 23.4mph down to 22.9mph.
- The residential roads in the area saw a 0.4mph reduction in mean average speed from 21.6mph to 21.2mph
- The local main roads experienced an average reduction in mean average speeds of 1.7mph from 24.8mph to 23.1mph
- The largest reduction was recorded on Kingsland Road, where average speeds have reduced by 14.3mph.

Table 4 - Changes in Mean Average Speed Across IEB by Road Type

Road Type	PRE Mean average (mph)	POST Mean average (mph)	Mean average (mph) Change
All 20 mph roads (Main & Residential)	23.4	22.9	-0.5
Just 20 mph local residential roads	21.6	21.2	-0.4
Just 20 mph local main roads	24.8	23.1	-1.7
30mph excluded roads (WITHIN 20 mph area)	37.2	28.0	-9.2

10.8 Overall with regards to the 20 mph local residential roads:

- Of the 69 local residential roads surveyed, mean average speeds have decreased on 48 of the roads (70%)
- Of the 69 local residential roads surveyed, mean average speeds have increased at 21 of the roads (30%) but as stated 10 remain under 20mph and only 5 exceeded 24mph.

Changes in Mean Average Speeds by Time of Day

10.9 Figures 4 & 6 indicate how the mean average speeds across all roads in the Inner South 20mph area have changed by time of day. Figures 8 & 10 provide the same data but for just the local main roads where speeds were higher prior to the 20mph limits. The corresponding data for the Inner East area is contained in figures 5 & 7 and to 9 & 11.

10.10 These figures show that the overall average mean speeds are lower and the reduction in average mean speeds by hour are greater during the main working day (7am and 6pm) than during the evening and night time periods.

10.11 Figure 4 shows that the mean average speed across all roads has dropped to 23mph and under between 7am through to 7pm the Inner South area since the 20mph have been installed. Whilst Figure 8 shows that the speeds on the local main roads have also dropped across this period of the day mean average speeds have remained around 25mph. The same pattern exists for the Inner East area (Figures 5 and 9) where speeds during this period remain below 23mph on all roads and 23mph on the main roads.

10.12 These figures also indicate that the mean average speeds increase during the evening and are significantly higher between midnight and 6am.

10.13 In addition, these figures indicate that the greatest reduction in mean average speeds generally occurred from 8am through to 8pm.

10.14 As the mean average speeds are now lower when the greater number of people are moving around the area, this reduces the potential collisions and severity of injury at a time when exposure to this risk is greatest.

Figure 4 - Mean Average Speeds by Time of Day All 20mph Roads In Inner South Bristol

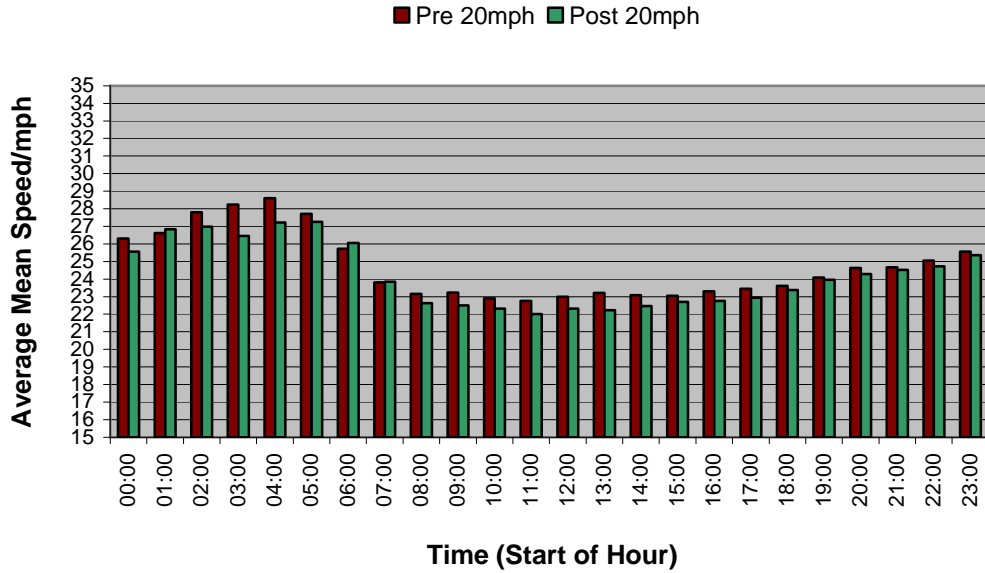


Figure 5 - Mean Average Speeds by Time of Day All 20mph Roads Inner East Bristol

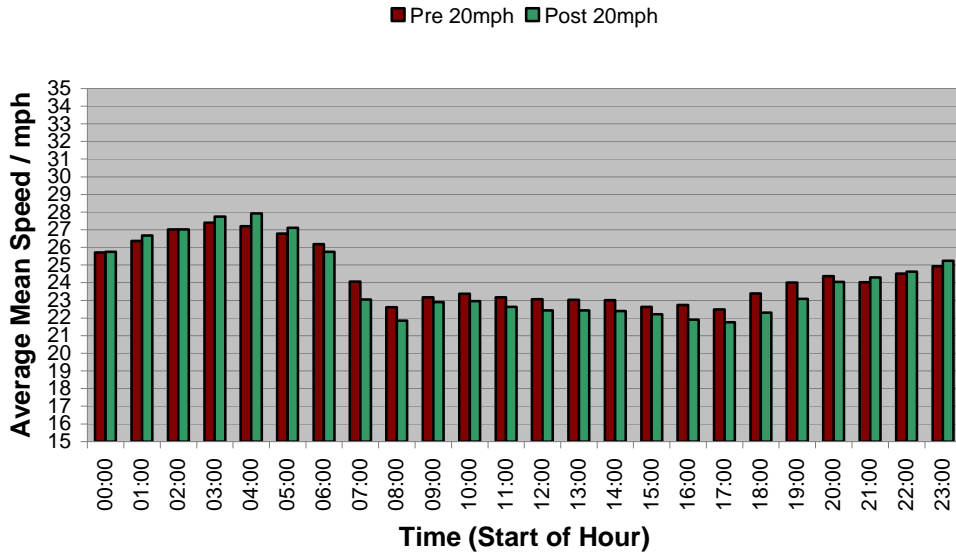


Figure 6 - Change in Mean Average Speed by Hour on All 20mph Roads in Inner South Bristol

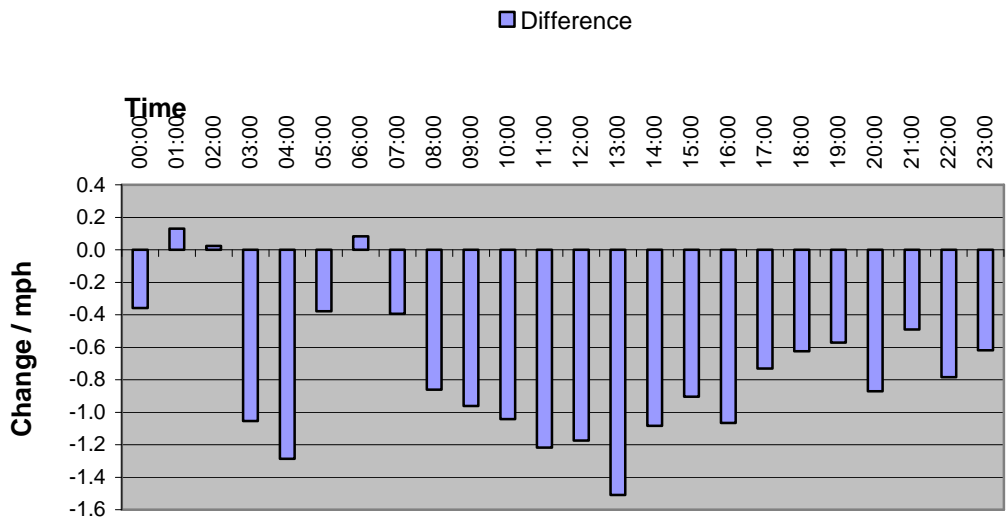


Figure 7 - Change in Mean Average Speed by Time of Day All 20mph Roads In Inner East Bristol

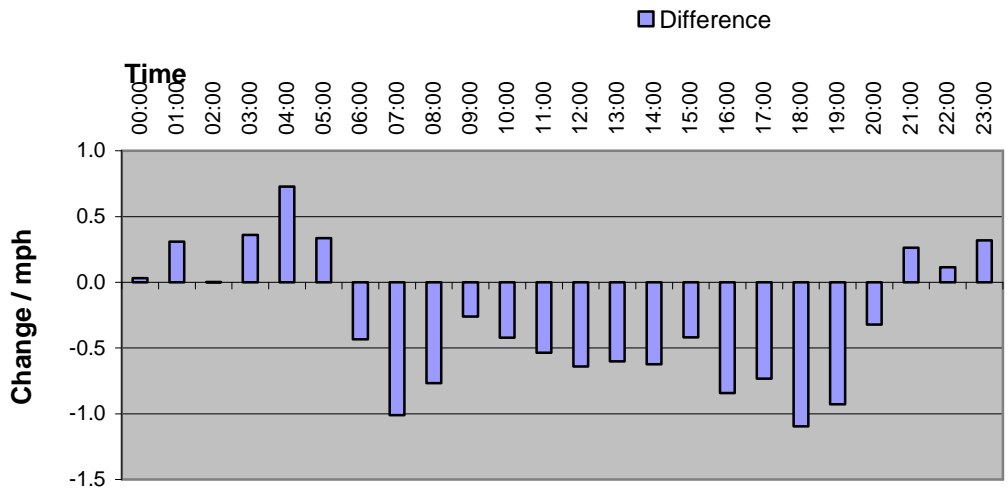


Figure 8 - Mean Average Speeds by Time of Day on 20mph Local Main Roads in Inner South Bristol

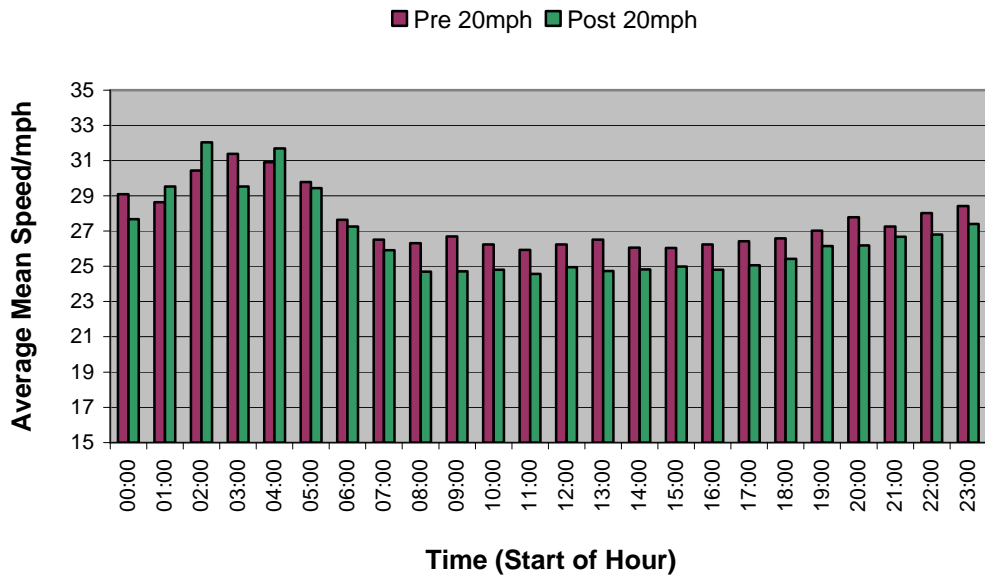


Figure 9 - Mean Average Speeds by Time of Day on 20mph Local Main Roads Inner East Bristol

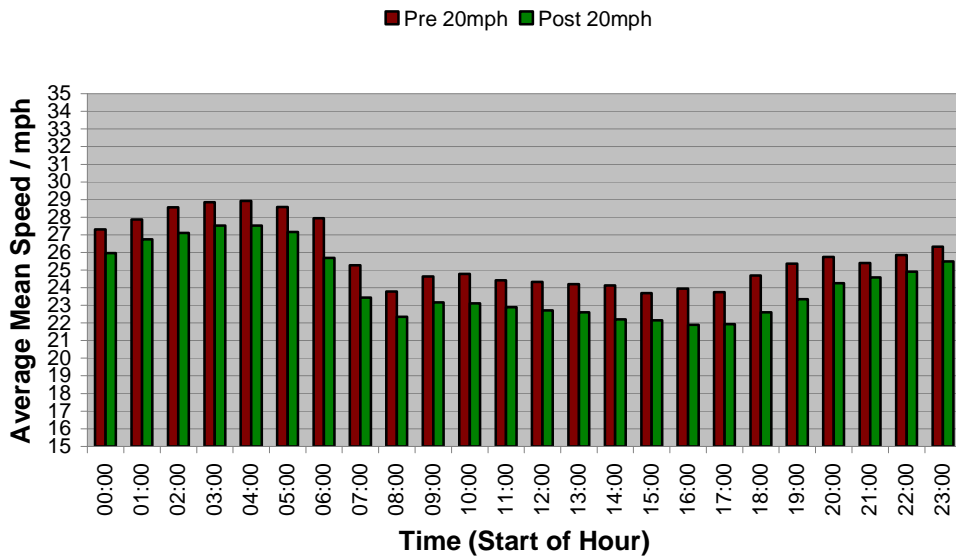


Figure 10 - Change in Mean Average Speed by Hour on 20mph Local Main Roads in Inner South Bristol

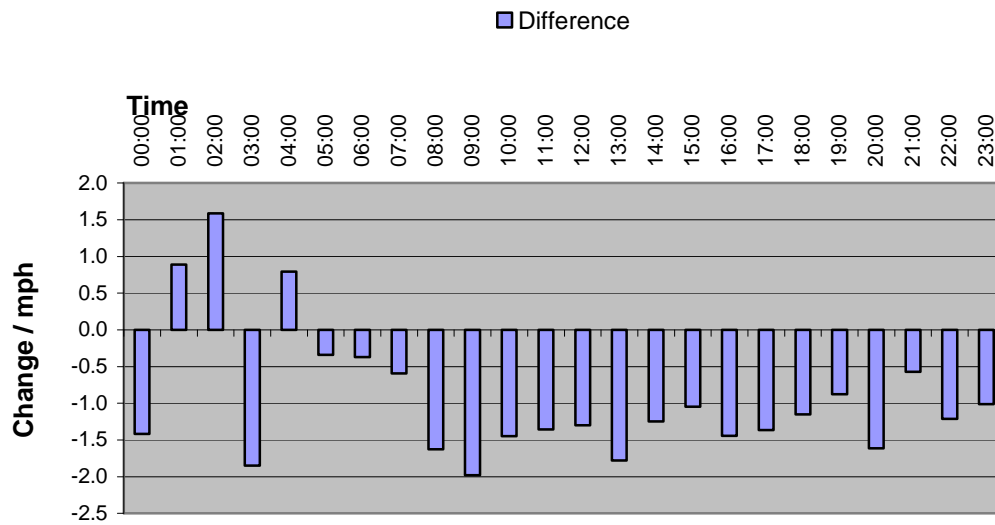
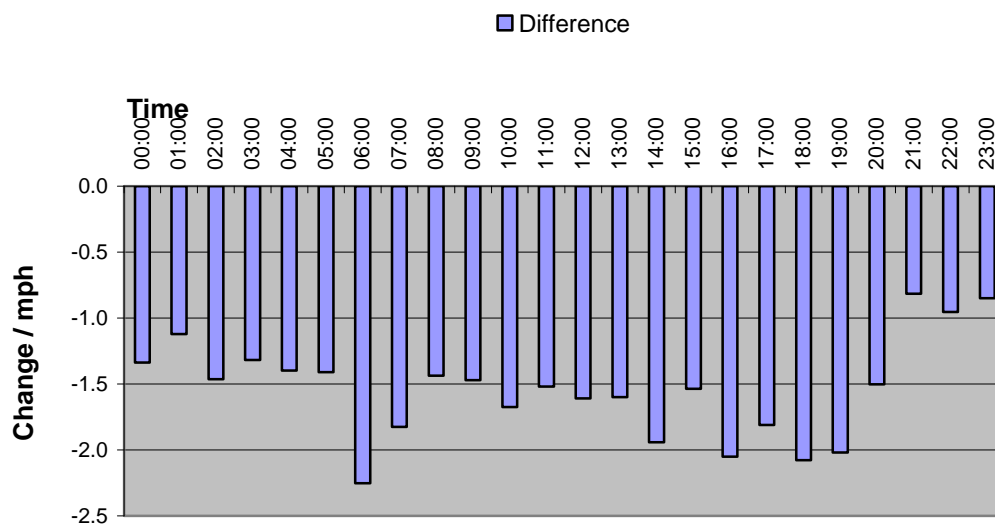


Figure 11 - Change in Mean Average Speed by Hour on Local Main Roads in Inner East Bristol



Impact of 20mph Vehicle Activated Signs

10.15 When the vehicle activated signs were in operation on the various roads in the pilot areas, a further reduction in speeds were recorded.

10.16 In the Inner South area, the average speeds on those roads where these signs were in place reduced from 27.2mph to 25.0mph (2.2mph), with the largest reduction being on Smyth Road where a 3.4mph reduction resulted.

10.17 In the Inner East area, a similar average reduction of 2.5mph was achieved, this time with the largest impact being on Whitehall Road where speeds dropped by 6.3mph.

10.18 The impact that these signs had did vary over time across the various sites, with some achieving a higher reduction when they were first installed which reduced the longer they were in place, whilst others saw a greater impact when then were brought back for a second time. This has shown that moving these signs around a number of different sites on regular intervals, can help to maximise their speed reducing potential.

Conclusions

- A reduction in mean average speeds of 0.9mph has been achieved in the Inner South area and 0.5mph in the Inner East area.
- The residential roads in the areas saw a 0.4mph reduction in mean average speed.
- The local main roads experienced an average reduction in mean average speeds of 1.3mph (ISB) and 1.7mph (IEB).
- The top speeds recorded have decreased on 50% of the roads
- Mean Average Speeds are significantly lower between 7am and 7pm although during the evening and night time average mean speeds remain high.

11. Road Casualties

Summary

- Casualty and traffic monitoring data is unpredictable over short periods. The numbers are very small and the study period very short, so it is not yet possible to properly assess the impact.
- The number of overall casualties in the first 12 months of operation reduced by 5 in the Inner East Area and increased by 8 in the Inner South area.
- The data does not show significant indications to any trend either way. It is therefore not possible to draw any firm conclusions until longer-term data have been collected.

11.1 This section sets out preliminary road traffic injury accidents and casualties within the two pilot areas.

11.2 It should be noted that, on the whole, the changes that have been monitored are very small in absolute numbers and therefore it would not be possible to attribute these changes to the introduction of the 20mph scheme.

11.3 It is normal to monitor trends against a three years average. In this instance only 12 months of data is available since the pilot areas were installed, so a further 2 years of data is required before a robust conclusion can be completed.

11.4 Given the small changes in numbers within this report we will continue to monitor and review changes in trends as we go forwards.

11.5 A plot of the accidents occurring within the pilot areas, 3 years before commencement and 12 months after, does not show any obvious difference in where these accidents have occurred, with the majority occurring on the main roads through the areas.

Inner East

- 11.6 The number of accidents in the pilot area averaged 148 per year in the three years preceding 20mph and was 143 per year since the 20mph limits have been installed.
- 11.7 The number of casualties in the pilot area was 177 per year on average before 20mph and were 170 per year in the 12 months since the 20mph limits became operational.
- 11.8 The number of people killed or seriously injured (KSI) in the pilot area was 14 per year (7.7% of all casualties) before, and was 10 per year (5.8% of all casualties) in the 12 months after.
- 11.9 The number of children seriously injured in the pilot area was 2 per year (0.91% of all casualties) before and was 1 per year (0.75% of all casualties) since introduction.
- 11.10 Pedestrian casualties in the pilot area were 37 per year before and 36 per year in the 12 months after. The number of killed or seriously injured pedestrian casualties was 4 per year (11.7% of all pedestrian casualties) and 6 per year (18% of all pedestrian casualties) in the 12 months after.
- 11.11 Pedal Cyclist casualties in the pilot area were 37 per year before and 36 per year after. The number of seriously injured pedal cyclist casualties was 4 per year before and 2 after.
- 11.12 Powered two-wheeler casualties in the pilot area were 18 per year before and 12 per year after. The number of these casualties who were seriously injured was 4 per year before and 1 after.

Inner South

- 11.13 The number of road traffic personal injury accidents in the Inner South pilot area prior to the pilot was 34 per year before and 42 per year in the 12 months after implementation.
- 11.14 The number of casualties in the pilot area was 40 per year before and 49 per year in the 12 months after the 20mph limits became operational.
- 11.15 The number of people seriously injured in the pilot area was 3 per year (7.5% of all casualties) preceding the pilot and 8 per year (16.3% of all casualties) in the 12 months after.
- 11.16 The number of children seriously injured in the pilot area was 1 per year (1.7% of all casualties) in the preceding period and none since the pilot began.
- 11.17 Pedestrian casualties in the Inner South pilot area were 9 per year before the pilot and 9 in the year after. The number of serious pedestrian casualties was 2 per year before and 2 per year after.
- 11.18 Pedal Cyclist casualties in the pilot area were 10 per year before and 7 per year after. The number of serious injuries to pedal cyclists was 1 per year before and 2. In the year after

11.19 Powered two-wheeler rider casualties in the pilot area were 4 per year before, and 4 in the year after. The number of these casualties who were seriously injured was 1 per year before and 2 in the year after.

Conclusions

11.20 It is not possible to draw any conclusions yet about potential impact of the 20mph on injury rates.

11.21 The description of each incident provided by the Police within their Collision Reports have been reviewed to see if any particular causes have been recorded. This has determined that the incidents were varied and no reference was made in any of the reports to any activity or confusion related to the presence of the 20mph limit, e.g. overtaking slower vehicles or aggressive driving.

11.22 The number of casualties will continue to be monitored over the coming years.

11.23 The total number of accidents in the two pilot areas prior to the implementation of the 20mph pilot areas was 182. This is 12% of the total number of accidents in Bristol (1459) during this time. The number of people killed or seriously injured in the areas total 17, which was again 12% of the total across Bristol.

11.24 The background rates across the City show a 17% reduction in incidents overall. There has been a 3% increase in 'killed and seriously injured (KSI). Pedestrian KSI's have increased by 22%, and cycle KSIs have increased by 24%.

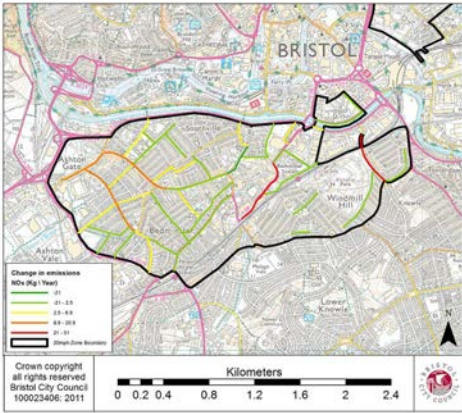
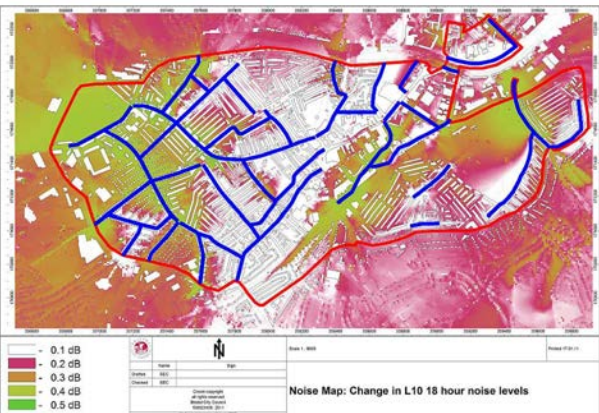
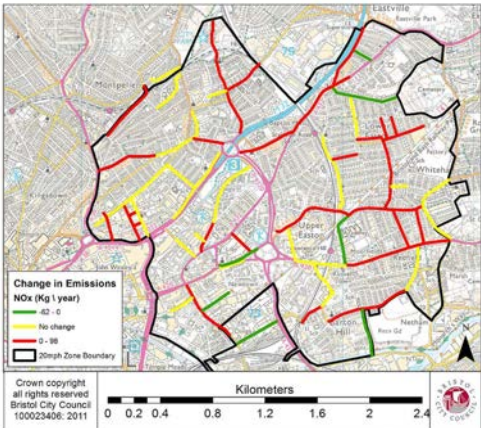

12. Noise and Air Quality

Summary

- The introduction of 20 mph limit areas has had a negligible effect on traffic noise; and
- The effect on air quality is too small to be measurable.

12.1 The impact of the scheme on Noise and Air Quality at both the Inner South and Inner East Bristol 20 mph pilot area have been assessed using modelling techniques.

Table 5

<p style="text-align: center;">A - Inner South Bristol</p> 	<p style="text-align: center;">C - Inner South Bristol</p> 
<p style="text-align: center;">B - Inner East Bristol</p> 	<p style="text-align: center;">D - Inner East Bristol</p> 
<p>Figures A & B: Taken from the Air Quality Assessment by the Air Environment Team - showing changes in NOx emissions when flows are kept constant and only speed changes.</p>	<p>Figures C & D: Taken from the Noise Assessment by the Air Environment Team - showing the relative difference in predicted noise levels.</p>

Noise

12.2 This report finds that the introduction of the 20 mph limit area results in a small reduction in road traffic noise in the pilot areas. This change is likely to be imperceptible by residents and can be described as of negligible effect at all modelled receptors. The small reduction in noise reflects the small changes in traffic speed that are observed from traffic counts taken before and after the introduction of the scheme.

- 12.3 The predictions are based on traffic counts taken relatively soon after the introduction of the scheme, so the full benefit in terms of speed reduction, and hence noise reduction may not be fully reflected in this analysis as speeds may continue to decline over time. The model may also not capture the full benefit of the scheme in terms of noise reduction as it is not sophisticated enough to capture the effect of smoother driving behaviour which may result from the scheme.
- 12.4 The results of the evaluation survey reflect the conclusions of the Noise Assessment with 10% of respondents who perceived that since the new 20 mph speed limit was introduced there has been less traffic noise. The perception among residents that traffic noise had lessened was more pronounced in the before and after household survey with 50% in the after survey who thought that traffic noise was quiet/good, against only 30% in the before survey. The proportion of residents who perceived that traffic noise was noisy/bad declined from 37% to 29%.
- 12.5 It can be concluded that the introduction of 20 mph limit areas has a negligible effect on traffic noise in areas where speed is already controlled at or below 30 mph.

Air Quality

- 12.6 The report concludes that the introduction of the Inner South and Inner East 20mph area are associated with negligible changes in emissions.
- 12.7 As one of the aims of the 20 mph limit areas is to increase the subjective safety of roads and encourage cycling and walking, a positive impact on air quality may be seen over time as increasing numbers of people switch from driving to more sustainable modes.
- 12.8 Considerable uncertainties exist within the processes of emissions estimation and dispersion modelling, so the conclusions of this study should not be taken as a precise representation of the impact of the scheme. It is however, the best estimate possible with the tools and knowledge available.
- 12.9 The results of the before and after household survey reflect the conclusions of the Air Assessment. The proportion of respondents in the after survey who perceived that the level of traffic pollution was high/bad increased to 46% compared to 35% in the before survey. Similarly, the majority of respondents in the separate evaluation survey did not perceive that traffic pollution had lessened since the new 20 mph speed limit was introduced with only 5% who agreed with this suggestion.

13. Bus Journey Times and Service Reliability

Summary

- 20mph scheme has not had any impact on bus journey time reliability

13.1 First Bus raised an objection to the Traffic Regulation Order (TRO) at the Statutory Consultation stage to the 20 mph speed limit on several of the major roads. Following discussions with First Bus, their objections were removed subject to extensive monitoring being carried out at the pilot areas in relation to both Bus Journey Times and Service Reliability.

13.2 Therefore meetings took place with First Bus, the council's Road Safety Engineering team and also the Public Transport team in order for the monitoring to be established.

13.3 First Bus has reported that the 20 mph pilot at Inner South Bristol has not adversely affected Bus Journey Times or Service Reliability. They will continue to monitor services in relation to both Bus Journey Times and Service Reliability throughout the pilot areas.

Section 3 – Discussion

14. Citywide Aspirations

- 14.1 The City Council is committed through the Joint Local Transport Plan to extend 20mph speed limits across the City (West of England Partnership, 2011).
- 14.2 The pilots have confirmed that there is very significant support for extending 20 mph speed limits further across the City. There is strong support for 20mph near schools, shops and homes. There is also support for including ‘main’ roads, though this is less strong than for residential roads. This will need to be carefully considered when developing any strategy to go citywide in terms of which roads should be considered and how these should be treated in terms of traffic management or enforcement measures.
- 14.3 It is possible to create a culture where it is seen as normal for vehicles in the city to travel calmly and courteously at speeds of 20 mph. A range of measures are needed, some of which are physical - to do with the layout of spaces and the cues that influence drivers, and some are cultural – to do with building public knowledge and understanding of why speed is important and of how the city will be better with liveable streets.
- 14.4 The British Crime Survey shows that most people regard speeding in streets where they live as the number one antisocial behaviour (Poulter & McKenna, 2007). Yet most don’t realise that everyone else thinks this too. By working on local and national advocacy we can enable the support for calmer speeds to come to the forefront, and we can create public confidence in the fact that the strategies we are pursuing have worked elsewhere and will work in Bristol.
- 14.5 The involvement of local communities directly in the 20 mph limits, but also indirectly through schemes and measures that help to generate local support for 20 mph limits will be vital to any roll out of 20 mph citywide.

References

National Institute for Health and Clinical Excellence (NICE), public health guidance no.8 'Promoting and creating built or natural environments that encourage and support physical activity', 2008

West of England Partnership, Joint Local Transport Plan 3 (2011-2026), March 2011

Living Streets, Response from Living Streets to the A Safer Way: Consultation on Making Britain's Roads the Safest in the World, July 2009

Commission for Integrated Transport (CfIT), Study of European Best Practice in the Delivery of Integrated Transport: key findings, 2001

Department for Transport (DfT), Circular 01/2006, 'Setting Local Speed Limits', August 2006

Poulter, D.R. & McKenna, F.P., 'Is speeding a "real" antisocial behaviour? A comparison with other antisocial behaviours', Accident Analysis & Prevention, Volume 39, Issue 2, pp. 384-389, March 2007

Richards, D .C., Department for Transport, Road Safety Web Publication No 16, Relationship between Speed and Risk of Fatal Injury: Pedestrians and Car Occupants, 2010