



**Are trends in adult active
travel moving in the right
direction?**

KEY FINDINGS

Adult commuting patterns have changed significantly over the last 40 years. Commuting by car has increased dramatically, while bus use and pedestrian commuting have dropped. Only a small proportion of commuters (approximately 1%) cycle to work.

The increase in commuting by car is not only a result of less people walking, but also due to the growth of single person car use, reflecting higher levels of car ownership and the fact that fewer people are choosing to take lifts and more are choosing to drive.

In most local authorities there is a two to three-fold (or greater) variation in levels of active travel to work across neighbourhoods. The local authorities and neighbourhoods with the highest levels of affluence and car ownership also tend to have the lowest levels of active travel. In part, this also reflects longer commuting distances from suburban areas.

Those living in the most deprived neighbourhoods are more likely to walk or take the bus to work, and less likely to drive than those living in more affluent areas.

People from wealthier households (earning over £40,000 per year) are four times less likely to walk and two and a half times more likely to drive than those from the poorest households (earning less than £10,000 per year).

Evidence from Glasgow City Council City Centre Pedestrian and Cycle Count (GCC cordon count) suggests that cycling infrastructure and population composition are both important determinants of commuter cycling.

Our analysis of travel diary responses provided by Glasgow and Clyde Valley residents in the period 2001/06 suggests a number of concerning trends:

- Levels of walking have dropped for all types of journey and car use has risen except for trips to hospital;
- For all types of journey, distances travelled on foot, by bus or as a car passenger have reduced while distances travelled as a driver have increased;
- Overall distances travelled by walking have reduced and fewer people are walking for all types of journey. Conversely, those who are walking, appear to be walking further.

Road accidents and road casualty rates in the Glasgow and Clyde Valley region, and in Scotland, have fallen considerably over the last 20 years, despite a 20% increase in traffic volume over the period 1993 to 2008.

Despite adult road casualty rates in the region falling in nearly all deprivation deciles from 1996 to 2007, casualties remain higher in the more deprived locations.

There is no sign of an overall reduction in adult pedestrian casualties admitted to hospital in Glasgow and Clyde Valley. Rates remain three times higher in the most deprived areas compared to the least deprived areas.

INTRODUCTION

Scottish national, regional and local strategy and policy consistently highlights the importance of active, sustainable travel for individual and public health¹. However, there is evidence that transport policy has not yet been successful in delivering against sustainable development criteria or in stimulating higher levels of active, sustainable travel in the Scottish population².

In recognition of the importance of active travel and sustainable transport to public health, the Glasgow Centre for Population Health (GCPH) established a new research programme in 2008 – “Moving in the right direction?” – to build a better information base, develop knowledge and understanding and to evaluate the impact of transport policies and initiatives on active, sustainable travel in Glasgow and the Clyde Valley.

The programme has three main strands: a baseline quantitative analysis of existing data sources; qualitative research exploring travel patterns and attitudes towards active travel in and around Glasgow³; and a review of the impact of Scottish national, regional and local strategy and policy on levels of active, sustainable travel². This briefing paper summarises the main findings from the baseline quantitative analysis of adult travel and draws on a longer, more detailed report which will be made available on the GCPH website. A related briefing paper summarises the findings of an analysis of children’s travel⁴.

All reports and papers can be accessed via the GCPH site at www.gcph.co.uk/healthysustainabletransport

AIMS & PURPOSE

The overall aim of the quantitative analysis is to provide baseline data on active travel in the Glasgow and Clyde Valley region that can be updated and monitored over time. The analysis of adult travel trends is a sub-component of this work. The aim has been to present trends and illustrate patterns of travel at a local authority level and, where data allow, at a more local level.

DEFINITIONS AND GEOGRAPHIES

We have used the term, ‘active travel’, principally, to refer to walking or cycling.

The main focus of the analysis was on travel within the Glasgow and Clyde Valley area. This geographic area comprises eight local authorities: East Dunbartonshire, West Dunbartonshire, East Renfrewshire, Renfrewshire, Glasgow City, Inverclyde, North Lanarkshire, and South Lanarkshire. Most of the analysis in the report is presented for these local authorities or for the whole Glasgow and Clyde Valley area. However, we have drawn on national data to illustrate Scottish travel trends and have carried out limited analyses for smaller neighbourhoodⁱ and intermediate zoneⁱⁱ geographies.

The term ‘deprivation decile’ is used to represent 10% of a population with a particular level of deprivation. Thus, the most deprived decile equates to the most deprived 10% within a population, while the least deprived decile represents the 10% of a population living in the least deprived circumstances. Similarly, the term ‘deprivation quintile’ is used to refer to 20% of a population with a particular level of deprivation.

Finally, the term ‘adult road casualties’ refers to adults injured in road traffic accidents as pedestrians, cyclists, drivers or passengers in a car or other road vehicle.

ⁱ There are 56 ‘neighbourhood’ areas within Glasgow City, ranging in population size from 1,400 to 19,500.

ⁱⁱ The intermediate zones are aggregations of data zones within local authorities and contain between 2,500 and 6,000 people.

APPROACH AND METHODS

This study has been based mainly on secondary analysis of a range of Scottish and UK data sources, including surveys, administrative data and published reports. Survey sampling methodologies and data recording processes for the majority of these data are widely reported and can be accessed via relevant web sites. Table 1 outlines the sources used and web sites or publications from which more information can be sought.

Table 1 List of data sources

Data sources	Links to publications
Scottish Household Survey	www.scotland.gov.uk/Topics/Statistics/16002
Scottish Household Survey Travel Diary	www.scotland.gov.uk/Publications/2008/04/16110121/0
2001 Census	www.gro-scotland.gov.uk/census/censushm/index.html
Scottish Transport Statistics	www.scotland.gov.uk/News/Releases/2009/12/21103917
Labour Force Survey	www.statistics.gov.uk/statbase/Source.asp?vlnk=358
Injury Road Accidents (STATS 19 police data)	www.scotland.gov.uk/Publications/2009/11/23103624/0
Hospital admissions for accidents (SMR1)	www.isdscotland.org/isd/4430.html
Local sources	
Glasgow City Council City Centre Pedestrian and Cycle Count (2007/10)	No web link – data accessed from Land and Environment Services, Glasgow City Council

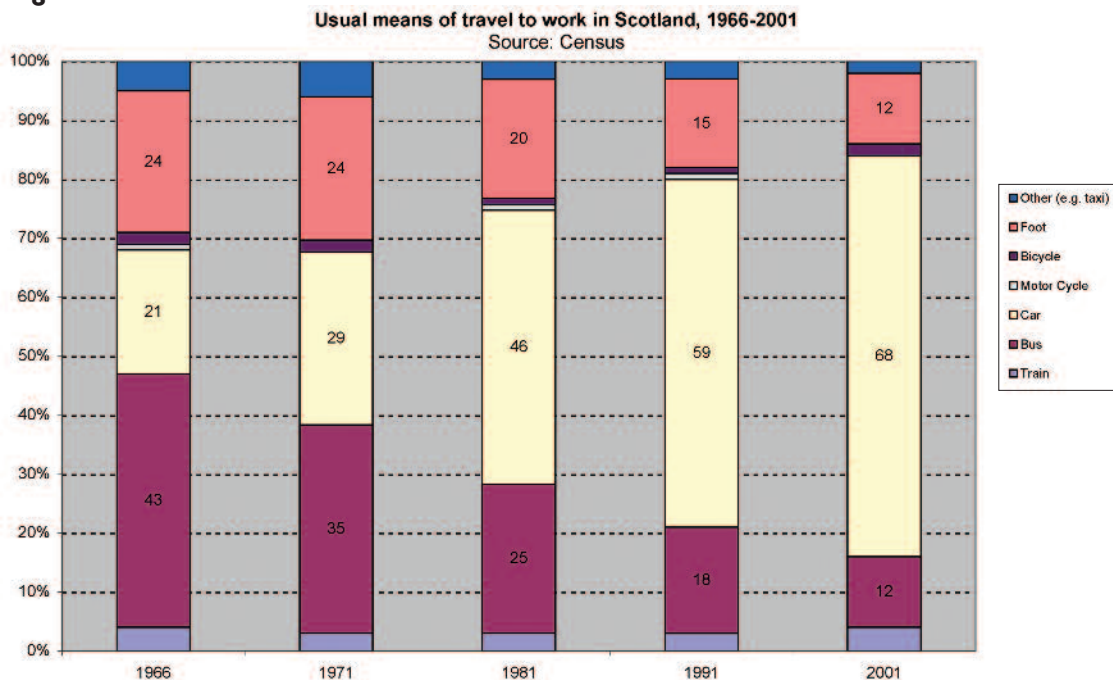
FINDINGS

- Commuting mode by geography, age, gender and deprivation/income
- Reasons for travel mode choice and barriers to change
- Analysis of journey types and mode of journey
- Trends in journeys by purpose and mode
- Cordon count data
- Adult road casualties

Commuting mode by geography, age, gender and deprivation/income

Modes of travel to work have changed significantly over the last 40 years with a marked increase in car commuting accompanied by decreases in bus and pedestrian commuting (Figure 1). The increase in driving in more recent years is not only a result of fewer people walking but also of rising levels of car ownership and the growth of single person car use: fewer people are choosing to take lifts and more are choosing to drive.

Figure 1.



Within Glasgow and Clyde Valley, Glasgow City is the local authority whose residents walk to work the most and drive the least, while, by contrast, East Renfrewshire has the lowest levels of walking and the highest levels of driving. Glasgow City also has the highest proportion of commuters using public transport.

Census data from 2001 illustrate that in most local authorities there is a two to three-fold (or greater) variation in levels of active travel to work across neighbourhood intermediate zones. The local authorities (and smaller areas) with the highest levels of affluence and car ownership also tend to have the lowest levels of active travel. In part this also reflects longer commuting distances from suburban areas.

Women are more likely to walk and take the bus to work than men, while men are more likely to drive than women. Younger adults (16-24 years) are more likely to walk and take the bus than older adults who are more likely to drive.

Those living in the most deprived neighbourhoods are more likely to walk or take the bus to work, and less likely to drive than those living in more affluent areas. This patterning is seen in Scotland as a whole, but is perhaps stronger in Glasgow and Clyde Valley: in 2005/06, in the most deprived decile, 17% of people walked to work, 31% drove and 30% took the bus, in comparison to 8% walking, 68% driving and 8% taking the bus in the least deprived decile.

The relationship between household income and mode of travel to work is similar to, but stronger than, that between area-level deprivation and commuting mode. People from wealthier households (earning over £40,000 per year) are four times less likely to walk and two and a half times more likely to drive than those from the poorest households (earning less than £10,000 per year).

Reasons for travel mode choice and barriers to change

The reasons people give for using particular modes of travel to work differ considerably between modes. The most common reasons for choosing to travel by car are because it is the most convenient method, the quickest, or a car is needed for work. Those choosing the bus or other public transport do so because it was convenient or because it was the quickest way of getting to work.

Those who walk do so because they live close to work, it is convenient or because walking is seen as good exercise. Of the very few adults who cycle to work (around 1%), half do so for fresh air or as good exercise, over a third state cycling is the quickest method, and a quarter choose to cycle because it is convenient and/or because their work is nearbyⁱⁱⁱ.

Analysis of people who changed their mode of travel in 2005/06 showed a net change towards more people driving, in line with the longer-term trends evident from other data sources. Reasons given for changing mode of travel are many and inter-related. The main reasons given by those who walked previously, but who now drive, were that they had moved home, changed jobs or that their employer had relocated. Those who were previously passengers cited different reasons for changing to driving with the majority choosing to drive because they had bought a car, passed a driving test or had a baby. Those who previously took public transport and now drive did so mainly because they had changed job or moved home, but also because they had bought a car or they had passed a driving test.

Those people who choose to drive but could have used public transport state that their main barriers to public transport were that it takes too long, is inconvenient, there is no direct route or that they use their own car. Those that drive, but stated they could not use public transport, gave similar reasons but in addition said they needed a car for work, worked unsociable hours, or stated there was no service available.

Analysis of journey types and mode of journey (based on Scottish Household Survey (SHS) Travel Diary, 2001/06)

The travel diary categorises journeys by three types: single stage journeys; journeys which have more than one stage and the journey is for one purpose; and journeys which require a 'series of calls' for example, shopping where more than one shop is visited. In 2006, the vast majority of journeys recorded (nationally) were single stage journeys (94.5%), with 4% being recorded as multiple stage journeys and 1.3% as a 'series of calls'.

Nationally, journeys to work or education were the most common type of journey reported, representing 38.6% of all journeys. Just under a quarter of journeys were made for leisure reasons and a high percentage of journeys were made for shopping (22.1%).

ⁱⁱⁱThis was a multiple choice question and respondents could provide more than one reason.

Nationally, average lengths of journeys to work (12.8 km) or for leisure (11.1 km) were longer than journeys made to hospital (9.8 km), for shopping (7.5 km) or for other purposes (7.7 km). People in Glasgow were more likely to walk longer and drive shorter distances than in other local authorities in the Glasgow and Clyde Valley area, partly reflecting its central position for work and many other services.

Over 50% of all journeys from any local authority in the Glasgow Clyde Valley area were undertaken solely within the authority. Most shopping journeys also tended to be made within an authority but travel to Glasgow for shopping was high in a number of neighbouring local authorities e.g. 51% of shopping journeys from East Renfrewshire and 29% from East Dunbartonshire were to Glasgow.

Multi-stage journeys represented only a small percentage of overall journeys (5.6%) in the Glasgow and Clyde Valley region and only a small proportion of these were multi-modal, usually involving a car at some stage. Very few people walked or cycled as part of a multimodal journey.

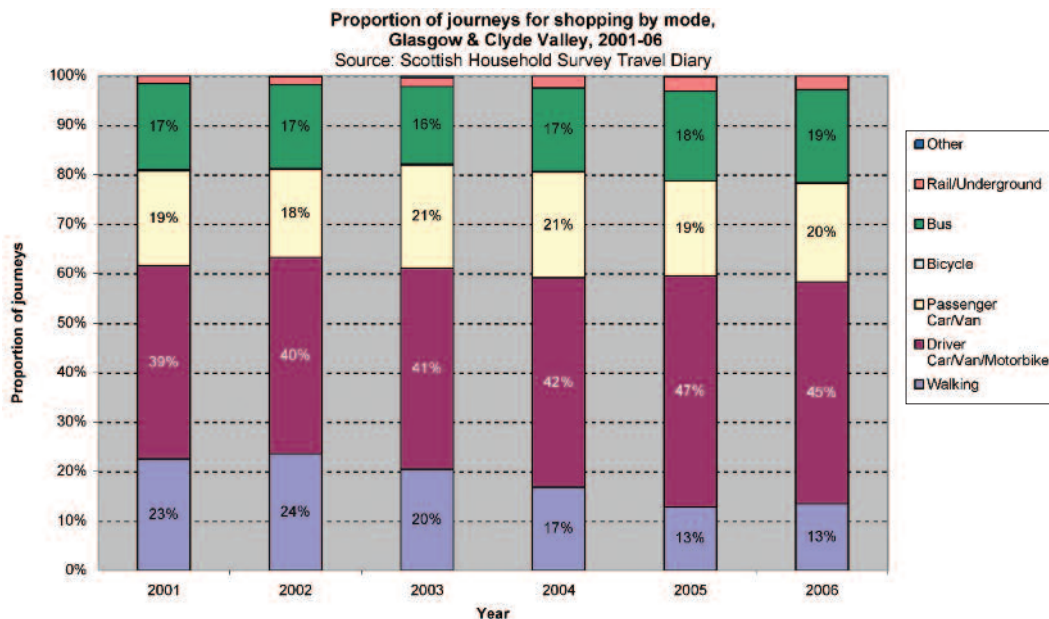
Analysis of trends in journeys by purpose and mode (based on SHS Travel Diary, 2001/06)

The following findings are based on analysis of travel diary responses provided by residents of Glasgow and Clyde Valley in the period 2001/06.

Journeys to *work or education* were dominated by car use: 65% of these journeys were made as a driver or passenger in 2001 and this increased over the period to 71% in 2006. The main component of the increase was in people driving rather than travelling as a passenger.

The majority of *shopping* trips were undertaken by car and this also rose, with the main component of the increase again being people driving rather than travelling as a passenger. Over the same period, travelling to shops on foot dropped from 23% in 2001 to 13% in 2006.

Figure 2.



Approximately 70% of journeys to *leisure* were made by car and the proportion of such journeys made by car increased slightly over the period, with more people driving. Walking to leisure dropped slightly from 19% to 15%.

The proportion of hospital journeys by car remained relatively stable at 70%, but levels of walking reduced from 17% in 2001 to 10% in 2006 and the proportion of bus journeys to hospitals (although fluctuating from year to year) rose.

The overall pattern for all journey purposes is of levels of walking *reducing* and car use *rising*, except to hospital. Cycle use for all purposes of journey remains extremely low.

Distances travelled by each mode for different journey purposes have also changed. For all journey purposes, distances travelled on foot or by bus have reduced, distances travelled as a passenger have also reduced, while distances travelled as a driver have increased. While overall distances travelled by walking have reduced and fewer people walk for all types of journey purposes, those who walk, actually walk further.

Cordon count data

This analysis makes use of data from four annual cordon counts (2007-2010) of cyclists and pedestrians entering and leaving Glasgow city centre. Over this period there has been an apparent rise in cycling commuting. In 2010, over 2,500 cyclists were recorded as entering and leaving the city daily, a rise of approximately 50% on 2007 – although there are caveats in relation to this apparent rise ^{iv}.

The survey data show that the greatest number of cyclists per capita come into the city from the West, which is the least deprived sector of the city with access to the most off-road cycle routes and the second greatest length of on-road cycle routes. This suggests that infrastructure and population composition are both important determinants of commuter cycling. Figure 3 illustrates commuting sectors and cycle routes into Glasgow.

Adult road casualties

STATS 19 police data

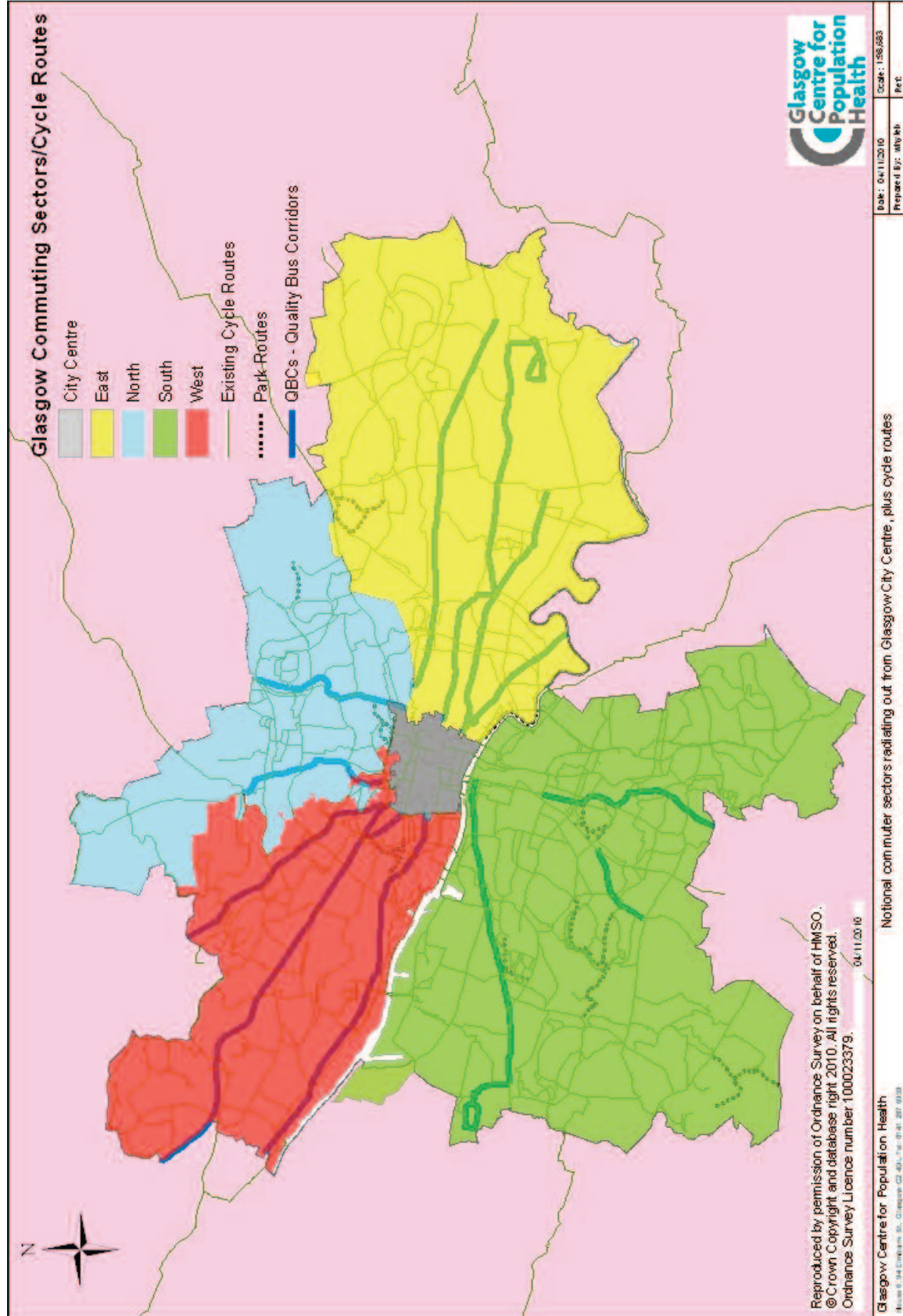
Road accident rates in the Glasgow and Clyde Valley region, and in Scotland, have fallen considerably over the last 20 years. This is despite a 20% increase in the volume of traffic (nationally) over the period 1993 to 2008.

Adult road casualty rates have also reduced steadily. The greatest decline in casualties has been in those travelling in cars but the number of pedestrian and cycle casualties have also fallen. Casualties involving motor cyclists are largely unchanged.

Over the period 1996-2007, most adult casualties (80%) in Glasgow and Clyde Valley were either vehicle drivers or passengers, while only 19% of casualties were pedestrians. While adult casualty rates in the Glasgow and Clyde Valley region fell in nearly all deprivation deciles between 1996 and 2007, the changes have been less pronounced in the most deprived two deciles (Figure 4). There is a general pattern of higher rates of casualties in more deprived locations, but the most deprived decile does not always have the highest rates of casualties.

^{iv} The main caveat in relation to the Cordon Count survey data is that the counts are undertaken over a two day period and therefore only represent a snapshot. In addition, the surveys in 2007 and 2008 were conducted in June while those in 2009 and 2010 were undertaken in September and so, although weather conditions appear to have been similar, other seasonal factors may account for the different levels of cycling observed.

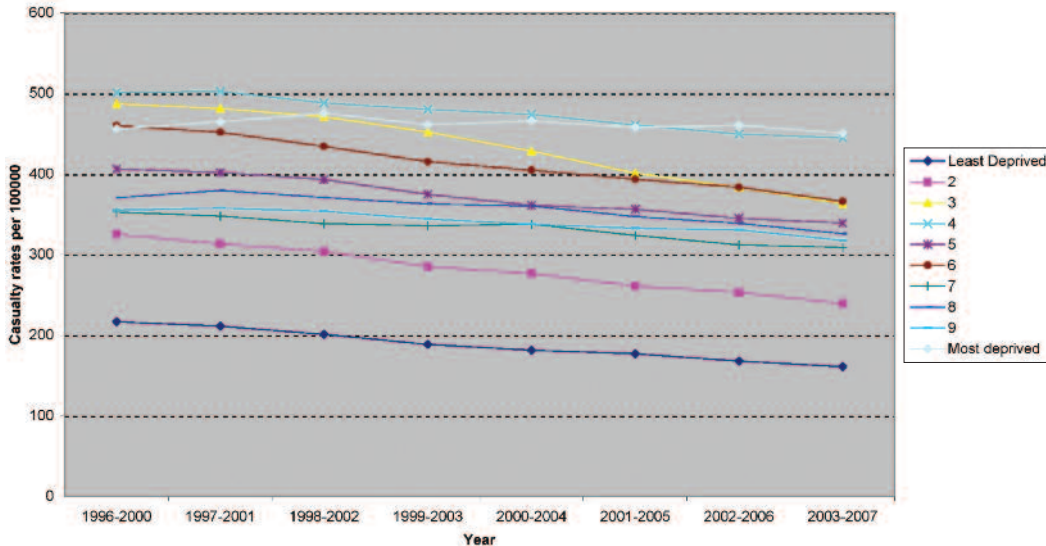
Figure 3. Commuting Sectors and Cycle Routes in Glasgow



Are trends in adult active travel moving in the right direction?

Figure 4.

Rates of adult (16+) road traffic casualties by deprivation, Glasgow and Clyde Valley, 1996-2007
Source: Police Statistics 19



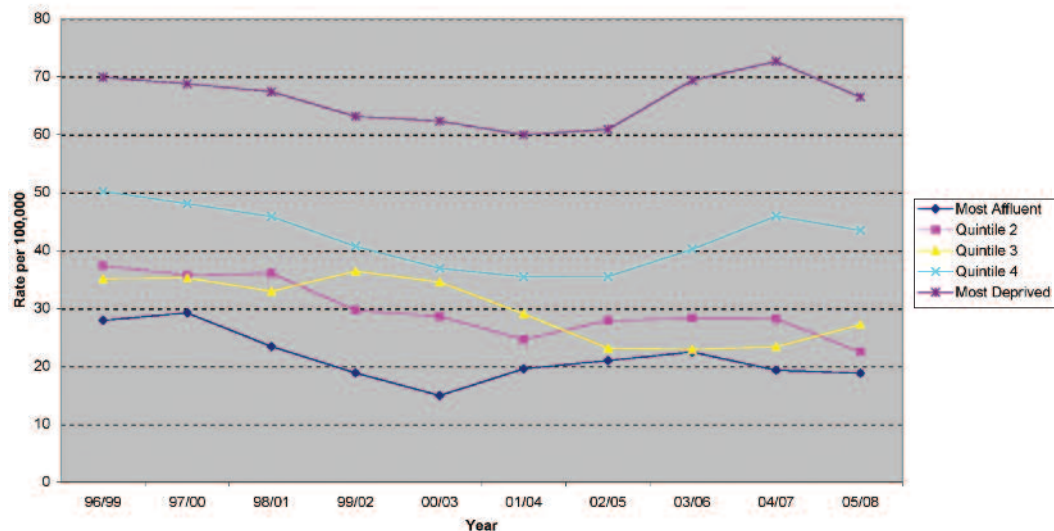
There are higher levels of pedestrian casualties in the most deprived decile compared to other deciles and the most affluent decile has the lowest rates of pedestrian casualties. However, there is not a linear association between deprivation decile and pedestrian casualty rates.

Casualties admitted to hospital (SMR01)

Nationally, admission rates to hospital for pedestrian casualties following road accidents are highest in the most deprived quintile, with a definite pattern of lower casualty admission rates with decreasing deprivation. While, nationally over the period 1996/99 to 2005/08, adult pedestrian casualty admission rates reduced, there is no sign of a reduction in adult pedestrian casualties in Glasgow and Clyde Valley and rates in the most deprived areas remain three times higher than those in the least deprived areas.

Figure 5.

Admissions to hospital following RTAs among adult (15+) pedestrians by deprivation quintiles, Glasgow and Clyde Valley, 1996/99 - 2005/08, Rolling 3 year totals shown as rates per 100,000 pop'n.
Source: SMR01, ISD Scotland



CONCLUSION

Adult commuting trends have followed a clear long-term trajectory over the last forty years with a marked increase in car use as bus travel and walking fall. There is also greater single person car use, reflecting higher levels of car ownership and the fact that fewer people are choosing to take lifts and more are choosing to drive.

Distance, levels of affluence, and car ownership all clearly influence whether people drive, walk or use public transport in their commute. Drivers and users of public transport also list 'convenience' and being 'the quickest way to get to work' as some of the main reasons for their choice of transport. Walkers, and the relatively few cyclists, list similar reasons but, additionally, are much more likely to mention they walk or cycle for exercise or for fresh air. These findings resonate with those of the qualitative research study commissioned by GCPH in 2009 which found that car travel was seen as the most convenient mode of travel and the most commonly used despite the fact that health benefits of leaving the car at home were widely recognised³. More recent research exploring why some people do not use buses, published by the Scottish Government, concluded that more work was needed to highlight the personal and environmental advantages of bus travel over the disadvantages particularly in relation to journey time, reliability and accessibility of information regarding times, fares and routes⁵.

Our analysis of different journeys (for shopping, work, leisure or hospital) undertaken by Glasgow and Clyde Valley residents, suggests that the trend toward greater car use is continuing with levels of walking dropping for all types of journey and car use rising (except for journeys to hospital). In addition, overall journey distances travelled on foot, by bus or as a car passenger have reduced, while distances travelled as a driver have increased. Conversely, although overall distances walked have reduced and fewer people are walking for all journey purposes, those who do walk actually walked further.

It is plausible to suggest – but not proven from this analysis – that these apparently contradictory trends can be explained partly by the fact that many shops, offices, gyms/leisure centres and hospitals have become increasingly distant from where people live, often situated in out-of-town/edge of town locations, and are difficult to access other than by car.

Information on active travel is relatively scarce, particularly for local areas. Given this, the relatively recent cycle and pedestrian cordon counts in Glasgow are a valuable new resource. For example, although we know that relatively few people cycle to work, the evidence from our analysis of Glasgow's cordon count data is that infrastructure and population composition are both important determinants of commuter cycling.

The reductions in road accident and casualty rates over time are encouraging, but there are still relatively higher rates of adult road traffic casualties occurring in the more deprived locations.

 POLICY IMPLICATIONS

These analyses emphasise the continuing shift towards greater car use – and single occupancy – alongside diminishing levels of walking and bus use. Cycling continues to represent a tiny proportion of commuting journeys, despite some evidence of an apparent rise in cycling commuting in Glasgow.

Reversing these trends will require political commitment to make active travel and public transport attractive, safe and convenient alternatives to car travel. However, promotion of active travel with all its potential health and environmental benefits, and linked-up strategies that say the right things (but do not deliver practical change), are simply not sufficient. Recognition of our proximity to a ‘peak oil’ situation globally, the end of cheap fuel and the likelihood of having to manage in a low carbon economy that is not dependent on petro-chemicals, could be one catalyst for a shift toward more active modes of travel⁶.

Whatever the levers, to achieve a ‘step change’ in the way we travel at a population level will require significant changes to the way national and local transport budgets are spent, away from road building and towards infrastructure and services that effectively support active, sustainable travel. Without such commitment the disappointing trends we have highlighted in this report will not be reversed and the great gains to be made from having a more active, less polluting population will not be achieved. Even with such a commitment, the evidence from other countries is that such change will take sustained commitment and investment over a long period⁷.

Further analysis and monitoring of travel trends and road casualty rates is important. Road casualty rates have been reducing but inequalities persist between affluent and deprived areas as well as between different population groups. If strategies and policies to promote active, sustainable travel are successful and walking and cycling levels do increase it will be even more important to monitor trends in pedestrian and cyclist casualty rates. Given the increasing prominence of active, sustainable travel for individual and public health and its potential to combat climate change, a better information-base is crucial.



FURTHER WORK

We have been examining the impact of infrastructure and deprivation on the patterns and trends in active commuting into Glasgow city centre using Census and the GCC cordon count. This work aims to show how levels of commuting by bicycle and on foot vary in different sectors of the city and to investigate the extent to which apparent differences in active commuting are influenced by infrastructure and population composition. We are also using the cordon count data to evaluate the impact of a new bridge across the Clyde.

We intend to test a newly developed World Health Organisation (WHO) health economic assessment tool (HEAT) for cycling, which provides an estimate of the health benefits of cycling in an area⁸. Applying this tool to cycling data for Glasgow will help to assess its usefulness and practical applicability.

GCPH and Glasgow City Council's Land and Environment Services are collaborating to develop an evaluation of the impact of the conversion of twenty traffic calmed areas across Glasgow to mandatory 20mph zones. The aim of the evaluation is to assess the impact of creating these new zones on vehicular speed, pedestrian casualties and cyclist casualties.

ACKNOWLEDGEMENTS

Much of the data we have used has come from Scottish Government surveys and sources. We would also like to thank members of the Active Travel advisory group for their contributions to this work in terms of advice and data.

FURTHER INFORMATION

This briefing paper is based on a longer report *Active travel – are we moving in the right direction?* written by Mark Livingston (University of Glasgow) and Bruce Whyte (GCPH). This longer report can be accessed on the GCPH website www.gcpH.co.uk/healthysustainabletransport

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