

Movement for Growth

Health and Transport
Strategy



Transport for
West Midlands

Executive summary

Everyone travels or lives on streets. Where they are well designed with health and wellbeing goals in mind, they can be at the heart of cohesive and supportive communities. They can encourage physical activity by making it easier to walk and cycle, and have wider impacts on everyone's health by reducing air pollution and increasing the feeling of safety.

Streets that make the West Midlands healthier and happier will also make it more economically active. Transport can play a large part in increasing productivity and reducing the demand for public services by preventing ill health and improving the wellbeing of people at work.

Life expectancies in the West Midlands have increased, ever since 2001, and in some areas men are expected to live to 80.4 years old and women 84.2 years old. However, recent years have seen a slow-down in the rate that they are increasing, and life expectancy in some parts of the West Midlands may even be decreasing.

Healthy life expectancies are lower still. The lowest male healthy life expectancy is in Wolverhampton where men are expected to live 56.4 years in good health. Similarly, in Walsall women are expected to live 59 years in good health.

There are also inequalities in health. Some of the more deprived areas within the West Midlands have even lower healthy life expectancies and people might only expect to live for 50 years in good health. This is a barrier to inclusive economic growth in the West Midlands.

Transport investment to improve health has a large impact. The number of people who might benefit from interventions can be large.

Transport can improve health by several different ways, and where schemes are designed to address many of these the benefits can be maximised.

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Transport can play a large part in increasing productivity and reducing the demand for public services by preventing ill health and improving the wellbeing of people at work.

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Cleaner air

Emissions of many pollutants have been falling since the 1970s, although the trend has slowed in recent years, the concentration of pollutants that people are exposed to has not fallen as quickly. This means that in the urban parts of the West Midlands, large numbers of people are living in areas of poor air quality and large amounts of traffic. This harm is more likely to fall on people living in deprived areas, who contribute fewer emissions to the problem.

Particulate matter is made up of small particles suspended in

the air. It is caused by emissions from vehicle exhausts, but the wearing down of tyres, roads and brakes also contributes roughly the same amount of pollution. It is of importance because of the consistently strong evidence that it causes heart and lung disease, such as heart attacks or lung cancer. It can be particularly harmful to children and can cause early deaths, asthma, or developmental issues. The elderly are also more at risk, as well as people living with long term conditions.

Nitrogen dioxide is another harmful pollutant that can be caused by combustion in car engines, and it leads to increased amounts of heart or lung disease. In 2017 each of the constituent members of WMCA have a road above legal limits for this pollutant and both Birmingham and Coventry have been identified by DEFRA as local authorities that may still be above this limit by 2020, without further action.

Physical activity

One of the most convenient ways for people to be physically active is to build it into their daily routine. This includes cycling and walking, and walking to and from public transport can also help people get enough physical activity during the week to have a protective effect. The Chief Medical Officer's advice is to get 150 minutes of moderately intensive physical activity every week and people who cycle for transport are four times more likely to meet this.

In the West Midlands around 3 in every 10 people get less than 30 minutes of physical activity every week. 90,000 fewer people would be inactive if the physical activity rate could be increased to the England average. Physical inactivity is more common in the elderly, people in semi-routine or

routine occupations and people with disabilities.

Physical inactivity has been linked with early deaths and the onset of many health conditions such as circulatory disease, type 2 diabetes, some cancers such as breast and colon, and depression. Even small increases of physical activity can have a big protective impact against ill health, especially amongst people who would otherwise be physically inactive. Because of the large impacts, increasing physical activity is an effective way to reduce short term sickness absences.

In 2011 around 1.8% of adults cycled to work and through the West Midlands Cycling Charter there is the ambition to increase this to 5% by 2023.

There are many people who are more casual cyclists and around 10% of adults cycle at least once a month who might be encouraged to cycle more. There is a similar picture for walking. There is strong evidence that dedicated cycling infrastructure and improvements to make the streets feel safer can increase the amount of walking and cycling.

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Good wellbeing and social connectedness

Street design can have a big impact on how people feel. When residents think their neighbourhood is poor because of characteristics like dirty and inadequate streets, they are also more likely to suffer from depression. Characteristics of the streets themselves such as higher volumes of traffic also increase psychological distress.

One of the biggest impacts that streets have on wellbeing is the level they encourage social contact and increase community cohesion. Strong social networks can prevent mental ill health in children and reduce loneliness and isolation in adults. Being able to walk to local services such as shops, and lower traffic volumes increases the strength of social networks.

Busy or wide roads can prevent social contact where they disconnect communities from each other, and can have a greater impact on the elderly who can be more reluctant to cross a busy road, and children who are given more parental restrictions on their independence living close to busy roads.

Commuting can also contribute to good wellbeing, and people

with shorter commutes have more time for other activities that are good for wellbeing such as sleep, exercising or spending time with friends and family. There is developing research that cycling into work also improves wellbeing at work and makes people feel more productive.

Safer streets

Most of the West Midlands has lower injury rates than England, however, this is not necessarily true of all groups and children are more at risk of serious or fatal injury. Children living in more deprived areas are 4 times more at risk of being seriously injured or killed than children living in the more affluent areas. In part this is because of more unsafe roads and larger amounts of walking.

Several countries have taken the ethical position that streets should be designed so that a human error that causes a driver to hit a pedestrian is unlikely to lead to a death. This is known as a 'safe systems' approach and countries that have adopted this provide dedicated infrastructure for cyclists and pedestrians on high speed roads and reduce vehicle speeds in areas where this cannot be provided. Vehicle speeds of around 20mph are unlikely to kill pedestrians in a collision and many local

authorities in the West Midlands are introducing 20mph speed limits across wide areas.

Noise

Transport is a source of noise, and this can be caused by a range of sources on vehicles, such as engines, tyres and wind resistance. Sounds can affect people in different ways, but typically they are more likely to be seen as an annoyance if people feel that it is unfair that they should hear it or that they have no control over it. Even at low volumes, noise can damage health and wellbeing. It can cause stress and heart disease and disturb sleep. Over 200,000 people in the West Midlands are exposed to levels of night time noise that the World Health Organisation describes as critical for human health.

Groups with longer and fragmented sleep patterns are more at risk from night time noise such as children, the elderly or pregnant women. Children have not yet developed the same coping mechanisms to noise as adults and are less able to deal with the stress caused by noise, and there is evidence that it can impact on children's mental health and school performance.

Sustainability

Sustainability is a wide issue and covers economic productivity and health. There are predicted to be direct health impacts from climate change and in the West Midlands summer temperatures are predicted to increase by 1.1 to 4.3 degrees and winter temperatures by 1.1 to 3.2 degrees.

Heat waves cause increased numbers of deaths, mainly from heart attacks caused by the increased stress on the circulatory system. Recent heat waves lasting several days were estimated to have caused around 150 deaths in the West Midlands. Urban areas are typically hotter than the surrounding countryside and this can worsen the impact of heat waves without green urban spaces.

Action to reduce carbon emissions can often have positive benefits for health that can be capitalised on, and carbon reduction through increased levels of cycling has the greatest health benefits. Higher temperatures and lower summer rainfall might lead to a greater preference for cycling as a mode of travel.

Our approach to improving health through transport

There are actions that we can take to maximise the positive impacts that transport has on health and wellbeing. This can be done by embedding health and wellbeing considerations in to our approach to planning and delivering transport schemes. This allows the connections to be made across transport and health that might

be missed if the focus is only on one issue. It also helps focus on groups who are more at risk, such as children, the elderly and people living in deprived areas.

ACTION ONE: We will use data on population health to help prioritise and target transport interventions. This can help to make the strategic case for transport schemes that will increase health and wellbeing. In order to do this we will produce health and transport profiles for each local authority in the WMCA using the public health outcomes framework and create an interactive dashboard of health data in smaller areas. We will refer to local authority Joint Strategic Needs Assessments that identify local health priorities.

ACTION TWO: Through our Equality Impact Assessment process we will assess the equity of health impacts. We will incorporate questions that identify health inequalities and propose how they can be addressed through transport schemes.

ACTION THREE: We will understand the social impact of transport schemes. We will do this by calculating the financial value of improved health and reduced sickness absence to improve the economic case for

schemes that improve health. Some schemes might benefit from a health impact assessment and to systematically understand how to increase the health benefits or reduce negative impacts and we will identify opportunities to conduct these,

ACTION FOUR: We will set out an evidence based statement of what makes a healthy and active street and trial the approach. The built environment can have a cross-cutting impact on health but often the evidence hasn't been drawn together in a way that will show this. The West Midlands Cycle Design Guidance also sets out how high-quality standards for cycling can be introduced and equivalent guidance to support healthy outcomes from transport environments will place this in context.

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INTRODUCTION:

**Health and wellbeing
is a resource for
everyday life**

Transport investment has an essential role in building a healthier and happier West Midlands. Good health and wellbeing is important to people and it is also a key resource that people draw upon to improve their life. Good health and wellbeing is an important driver of economic growth, and allows people to build strong friendships and contribute to the lives of others.

The design of the streets we use has a crucial role in promoting good health and wellbeing. Streets can create healthy and active cities that are made up of vibrant places. This promotes community cohesion and social interaction, busy high streets for people, and encourages investment and access to opportunities for the people who live there.

The way that we travel also promotes health and wellbeing. Often the easiest and most acceptable ways to be physically active are when it can be built into daily routines. Cycling and walking gives people this opportunity, and journeys to and from public transport are also important ways to be active.

Investment in transport can have a big impact on health and wellbeing. It can influence many of the more direct causes of illness by providing an opportunity to adopt healthy lifestyles or improve mental wellbeing. As it has a wide impact, it can create inequalities in health where the burden falls more heavily on some groups.

This strategy sets out the wide-ranging positive impact of transport on health and wellbeing. It presents the evidence that shows how transport can encourage and support people to be physically active and how streets can promote good mental wellbeing by encouraging social contact and making people feel safe.

There are negative impacts of transport on health and wellbeing, such as traffic injury or air quality. These often have more severe impacts on vulnerable groups such as children and the elderly. Major roads can be barriers and can exclude people from services or the rest of their communities. This increases the use of local authority and healthcare services.

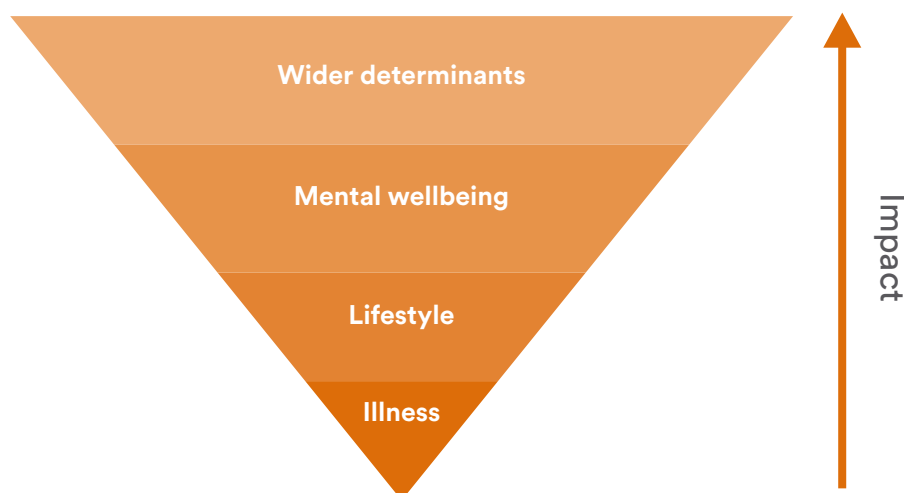


Figure 1: Where to intervene to have the greatest impact on health and illness

Within the West Midlands there is the ambition that transport will improve health. This is set out in Movement for Growth, which is the Strategic Transport Plan for the West Midlands Combined Authority area. There are a range of objectives in the strategy that impact health:

- a. ENV1 To significantly improve the quality of the local environment.
- b. ENV2 To help tackle climate change by ensuring large decreases in greenhouse gas emissions.
- c. PUBH1 To significantly increase the amount of active travel.
- d. PUBH2 To significantly reduce the number and severity of road traffic casualties.
- e. PUBH3 To assist with the reduction of health inequalities.
- f. SOC1 To improve the wellbeing of socially excluded people.

This strategy sets out a series of more detailed actions to achieve these ambitions, and maximise the positive impact that transport can have on health and wellbeing. It covers the proven connections between health and transport and importantly addresses how the positive social impact from health and wellbeing can be assessed and incorporated into transport investment decisions.

This strategy also develops the link between Movement for Growth and the health objectives within the West Midlands Combined Authority’s Strategic Economic Plan. There are high-level ambitions to improve healthy life expectancy and reduce inequalities in healthy life expectancy in the West Midlands. Accompanying this, there are objectives to reducing physical inactivity and

sickness absence, carbon emissions and days of poor air quality.

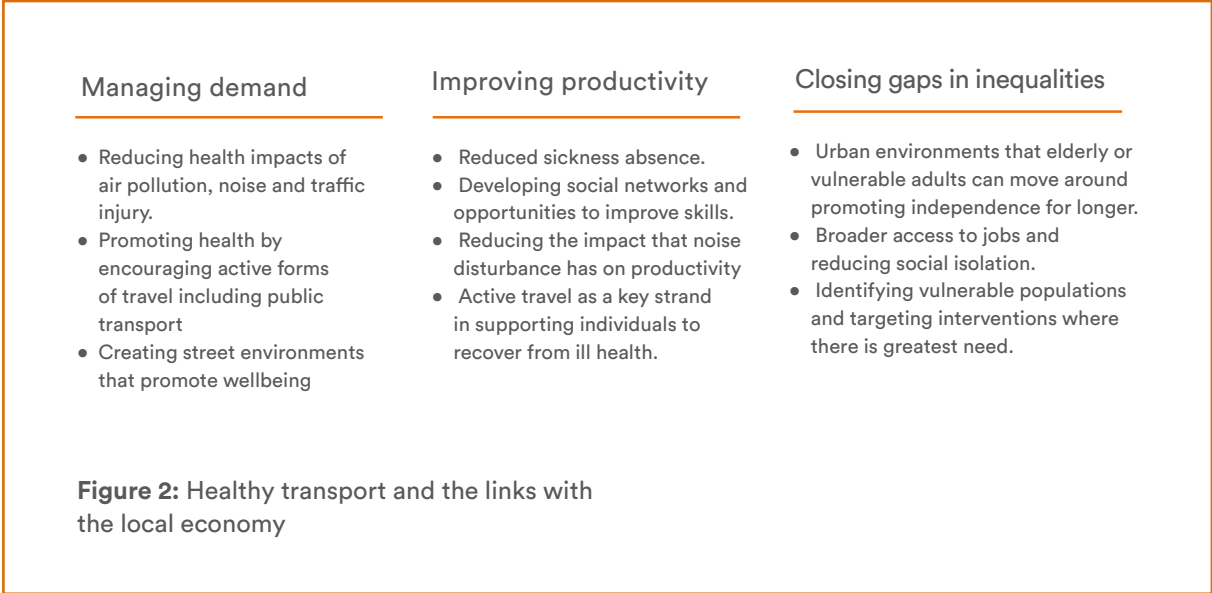
West Midlands on the Move is the Physical Activity Strategic Framework that has been



adopted by the West Midlands Combined Authority. This has a theme and actions to increase the contribution that transport makes to physical activity in the West Midlands. This strategy builds on those actions by supporting the case for investment in active forms of travel.

This strategy supports the work of Thrive West Midlands in improving the mental health of the West Midlands. It does this by identifying the strongest links between transport and mental health and where investment can have a positive impact on mental health and wellbeing.

By developing the case for health and transport, the strategy also helps to link healthy travel with the West Midlands Combined Authority ambitions around managing demand for public services, improving productivity, and closing the inequality gap.





**Health and wellbeing
is a resource for
everyday life**

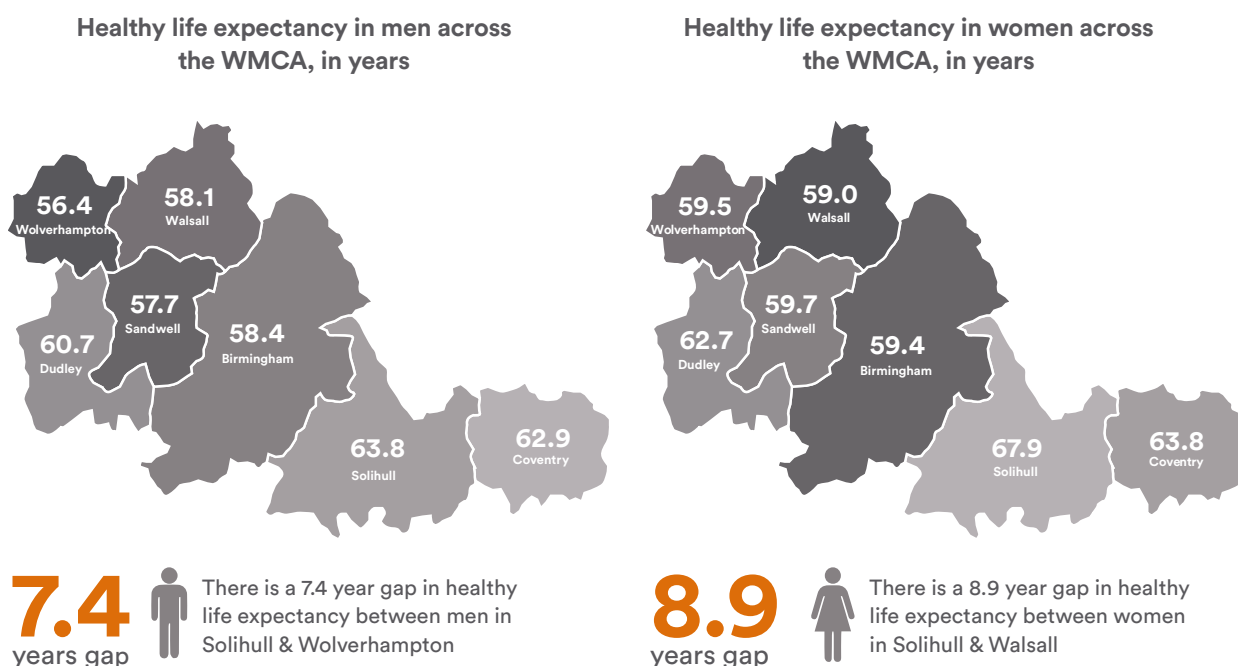


Figure 3: Healthy life expectancies in the West Midlands

Life expectancy describes how old an average person in an area can expect to live and can be used to describe the health of an area, as lower life expectancies suggest that ill health causes people to die earlier. In England, the life expectancy for men at birth is 79.5 years old. On average, women tend to live longer and female life expectancy at birth is 83.1 years old in England.

Six of the seven local authorities in the West Midlands have lower life expectancies at birth than England. The lowest male life expectancies are 77.1 years in Birmingham and Sandwell, compared with the highest of 80.4 years in Solihull. There is variation in female life expectancies, and in it is 81.3 years old in Wolverhampton compared against 84.2 years in Solihull. The differences of several years show that some areas of the West Midlands are in poorer health.

Life expectancies for both men and women have increased across all the West Midlands since 2001-2003. There is some evidence that since at least 2011-13 life expectancies have not increased as quickly as they did the decade before, and some areas in the West Midlands are seeing decreases in life expectancy.

More recently, healthy life expectancy has been used to describe how many years a person would expect to live in good health. It is based on people's perceptions of their own health and also describes wellbeing and mental health issues as well as where

long term conditions are having an impact on people's health.

There are differences in healthy life expectancy at birth within the West Midlands. In Wolverhampton, the healthy life expectancy for men is 56.4 years, compared against 63.8 years in Solihull. Women generally have higher healthy life expectancies and amongst women the lowest healthy life expectancy is 59 years in Walsall and the highest is 67.9 years in Solihull.

Local authorities with lower life expectancy typically also have higher rates of unemployment and more people with long term sickness and disability. In areas of low healthy life expectancy over half of men aged 25 to 64 who are out of work and not seeking work have long term illnesses.

There is a connection between healthy life expectancy and skills. Fewer people in areas of low healthy life expectancy have a qualification of NQF Level 4 and above. However, people with similar educational levels were more likely to report better health in areas of higher healthy life expectancy.

Many lifestyle-related risks are more common in areas with low healthy life expectancies, including smoking and alcohol related harm. There are also more common life-style related risks that can be reduced by improving the built environment and encouraging more active forms of travel such as obesity and physical inactivity.

Differences in health within local authorities

Healthy life expectancies for local authorities are the average of the diverse communities within them. This means that the difference in healthy life expectancy within each local authority can be more than the difference between them. In some deprived areas in the West Midlands area, people are expected to live for 20 fewer years in good health than people in the most affluent.

The healthy life expectancy in the more deprived parts of the West Midlands is as low as 49 years for men and 46 years for women.

The proportion of life spent in good health also changes between the most and least deprived areas. In some of the most deprived areas, people spend on average a third of their life in poor health, compared to a tenth in the most affluent areas.

In more deprived areas, people are also more likely to have multiple health issues, often including both physical and mental health. This shows the complexity of illness experienced by many.²

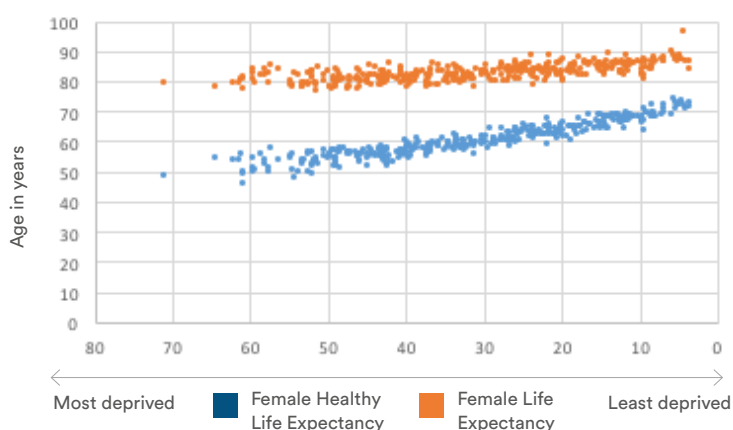
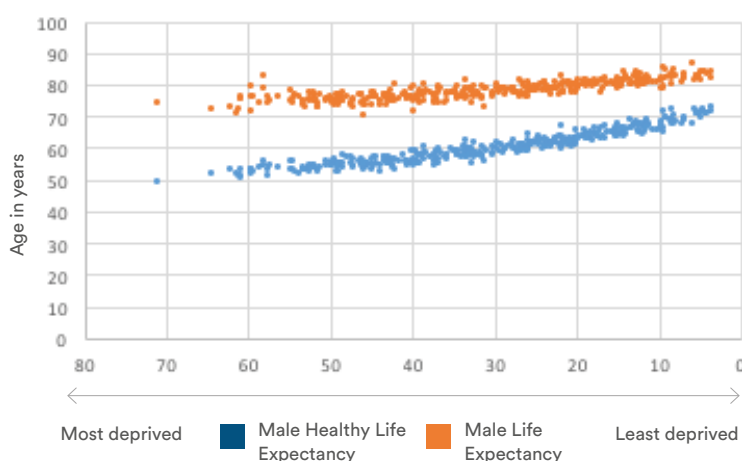


Figure 4: Male and female healthy life expectancies in the West Midlands by deprivation



The impact that transport has on health and wellbeing



This section sets out several ways that transport interventions can improve health. This includes finding approaches to reduce environmental hazards such as air pollution and noise, as well as reducing traffic injuries and promoting physical activity and good mental health.

Transport schemes or programmes can have the greatest impact when they are designed to have a positive influence on many of these. Understanding these links helps to prioritise interventions that will have the greatest impact and maximise the benefits of investments to improve health through transport.

Not everyone benefits equally from the same intervention. There are groups of people or areas within the West Midlands where there is a greater potential to improve health and wellbeing. The benefits of transport schemes can also be maximised when they are designed to reduce health inequalities and are targeted at these areas or groups.

Benefits can also be maximised when street modifications or improvements are carried out to consider the wider health and wellbeing needs of residents or people who use the street. By doing this, the same intervention can often help to improve health and wellbeing in a wide range of ways, even when primarily targeted at one issue. Unintended negative impacts can also be identified and prevented by taking this approach.

This section sets out the current evidence base on the relationship between transport and health to identify where these connections exist.

3.1 Cleaner air

There are many different pollutants in outdoor air that can cause ill health. These come from a variety of sources including industry, agriculture, power generation, and transport. In the UK between 1970 and 2015 the total emissions of harmful pollutants across all sectors has been declining.

Changes to society and industry have influenced the type and amount of pollutants emitted every year. The trend has historically been downwards, although this has slowed for some pollutants, there is still an ongoing health risk. Over time the evidence base on the harms has continued to grow, and as recently as 2013 outdoor air

Emissions:

Ammonia	↓ 9.9%
Nitrogen Oxides	↓ 69.1%
Sulphur Dioxide	↓ 96.3%
Non-methane volatile organic compounds	↓ 66%
PM10	↓ 73.2%
PM2.5	↓ 76.3%



But concentrations are still high across urban areas and by road sides

Figure 5: Emissions of pollutants since 1970

pollution was formally recognised as capable of causing cancer at levels seen in many European cities.³

Local authorities have the statutory obligation (since 1997) for local air quality management (LAQM). This requires them to review and assess the air quality in their area against Air Quality Objectives/Standards. They are also required to establish AQMAs, write action plans and provide annual status reports to DEFRA on their progress.

Whilst action to prevent exposure to all pollutants is important, particulate matter and nitrogen dioxide are identified as of particular importance in this strategy because of the current harm they cause to people and the potential to reduce the contribution that transport makes to these pollutants.

Sulphur dioxide, non-methane volatile organic compounds and ammonia also contribute to air pollution. Ozone is another important pollutant, and although it is not directly emitted by people, it can form at ground level when other pollutants react together, typically in strong sunlight.

Although the trend in emissions of harmful pollutants across all sectors has generally been

downwards the concentrations of the pollutants that people are exposed to has not always reduced as quickly.⁴

Urban areas in many parts of the West Midlands have large numbers of people living in small areas and high traffic levels. This means that large numbers of people can be exposed to high background concentrations of traffic related pollutants even when they are away from the most polluted roads. In order to protect people from air pollution, action therefore needs to be wider than measures that target individual roads.

The harm from traffic related pollution often falls on relatively more deprived areas and contributes to inequalities in good health. Households in deprived areas contribute fewer emissions than more affluent households, in this way people who live in some of the most polluted areas contribute less to the problem.⁵

Particulate matter

Particulate matter is small particles suspended in the air and these are usually categorised by their size in microns, and measuring the amount of particulate matter less than 2.5 microns ($PM_{2.5}$) and less than 10 microns (PM_{10}) being the most commonly used measurements. They are created from a variety of natural or manmade sources with, the latter being the greatest contributor in urban areas.

In 2015, it was estimated that traffic is responsible for around a quarter of all man-made $PM_{2.5}$.⁶ Vehicles emit particulate matter from their exhausts and the amount has been decreasing over time with improvements in vehicle engines. However, the wearing down of tyres, brakes and roads contributes around half of the amount of fine particulate matter from road transport, and this is likely to increase or

decrease with the amount of traffic on the road.⁷

There is very strong evidence that particulate matter, especially $PM_{2.5}$ has a significant impact on health. The Committee on the Medical Effects of Air Pollution carried out an extensive review of published studies in this field and concluded that each $10\mu g/m^3$ increase in average exposure raises the number of attributable deaths by around 6%.

The health impacts may be greater. More recent studies have identified that twice as many attributable deaths could be caused by that increase and also concluded there is no safe amount of $PM_{2.5}$ in outdoor air. This means that reducing concentrations of $PM_{2.5}$ has an important contribution to improving health, even when levels are relatively low.

Amongst adults, the other main health effects of poor air quality are increases in the number of people who have heart disease and heart attacks, and respiratory conditions such as lung cancer. Again the evidence supports the need for action to reduce concentrations even when regulatory levels are achieved.⁹ Within the West Midlands over 5% of deaths are attributable to long term exposure to particulate matter.¹⁰

Children are particularly at risk. This starts from before birth and parents who are exposed to higher levels of particulate matter are more likely to have low birth weight births.¹¹ During infant development, their lungs are relatively larger compared to adults and so they breathe in greater volumes of pollution for their size. Because of this, particulate matter pollution has been linked with increased numbers of infant deaths.^{12, 13}

Exposure to higher concentrations of $PM_{2.5}$ has also been linked with the development and exacerbation of asthma amongst children^{14, 15, 16}.

Particulate matter air pollution damages the health of children by increasing

Infant deaths

Low birth weight births

Development and exacerbation of asthma

Delayed mental and physical development



This can cause hospital admissions, and there are at least 2000 hospital admissions due to asthma in under 19 year olds every year in the West Midlands.¹⁷

There is developing evidence that particulate matter has other impacts on children, including their neurological development and the likelihood of autism spectrum disorder.¹⁸

Elderly individuals are also more susceptible to the effects of poor air quality, and are at greater risk of diseases such as Chronic Obstructive Pulmonary Disease (COPD) and pneumonia.¹⁹ This is especially true when people with pre-existing illnesses are exposed to poor air quality.

Nitrogen Dioxide (NO₂)

Nitrogen Dioxide is a product of combustion, including those that occur in car engines. In high concentrations, it can cause people's airways to become inflamed.

The concentration of nitrogen dioxide has not decreased as much as expected. Explanations for this are that recent diesel engines have failed to achieve the expected emissions standards in real world driving conditions^{20, 21} and there has been an increase in the number of new diesel cars registered each year from less than half a million in 2001 to 1.2 million in 2015.

There is a legal target to reduce roadside concentrations of NO₂ to 40µg/m³ by 2020. DEFRA air quality models of roadside concentrations have estimated that each of the constituent members of the WMCA currently have roads above this limit.

If no additional action is taken to improve air quality by 2020, DEFRA predicts that some roads in Birmingham and Coventry will still be above this threshold. In December 2015 DEFRA published a plan to reduce NO₂ emissions in the UK and this introduced a programme of Clean Air Zones (CAZ) for five cities including Birmingham. A revised air quality plan for NO₂ in UK was published in July 2017, which also identified that Coventry City Council were required to take action.

In producing the plans DEFRA modelled the concentrations at roadsides around the UK. Of the roads in the West Midlands, on road transport was responsible for around 80% of all NO₂ pollution, with 60% being from vehicles travelling on that road.²²

Given that concentrations of nitrogen dioxide in urban areas are typically high in the same locations as particulate matter and both are emitted by traffic, it has often been difficult to untangle the contribution that both make to ill health separately.

The best current estimate is that a 10µg/m³ increase in NO₂ concentrations raises the number of attributable deaths by 4%. Increased levels of deaths from cardiovascular or respiratory disease were seen.²³ A similar study linked NO₂ with lung cancer and showed how living closer to busy roads increased this risk.²⁴

The Committee on the Medical Effects of Air Pollution is currently repeating the rigorous process used to identify and review evidence about the increased deaths from particulate matter to agree a similar value for NO₂.

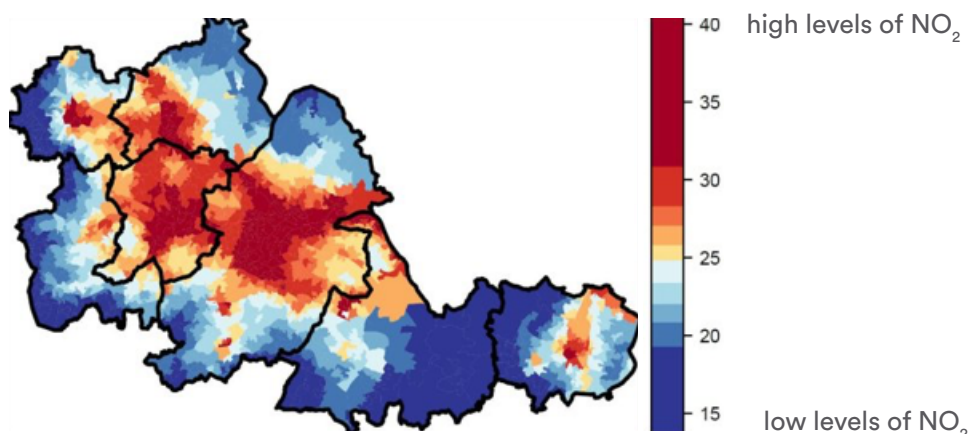


Figure 6: Background concentration levels of NO₂ across the WMCA area

Increased physical activity

Through West Midlands on The Move, the WMCA has a vision to increase physical activity. Through the West Midlands Cycling Charter there is the aim to increase cycling to 5% of trips to work by 2023. An Action Plan outlines the delivery of schemes and programmes to achieve this goal.

One of the most convenient ways for people to get more physically active is to build it into their daily routine.²⁵ This is usually through encouraging people to walk or cycle. Public transport also plays an important part in increasing physical activity when people walk or cycle as part of their journey.

The Chief Medical Officer's (CMO) advice is that adults get 150 minutes of moderately intensive physical activity each week, or that 75 minutes of intensive activity can have the same effect.

There are an estimated 580,000 adults who are inactive and achieve less than 30 minutes of physical activity a week in the West Midlands. In the West Midlands it is estimated that 3 out of every 10 adults are not achieving that across all their activities for the whole week.²⁶ This is lower than the England average, and if physical activity levels were increased to this average then 90,000 fewer people would be inactive.

There are inequalities in how likely people are to be physically inactive. Data from across England shows that:

- a) 54 out of 100 people older than 75 years are physically inactive, compared with 15 out of 100 16-25 year olds
- b) 27 women in every 100 are inactive compared with 24 out of every 100 men
- c) 32 out of every 100 people in semi-routine or routine 33 out of every 100 people with a long term disability are physically inactive, compared with 21 out of every 100 with no impairments. The more impairments an individual has, the more likely they are to be physically inactive
- d) 37 out of every 100 people in semi routine or routine occupations are inactive, compared with 17 out of every 100 people in managerial or professional jobs.²⁷



People with disabilities or long-term conditions are less likely to be physically active and less likely to cycle or walk the whole journey to work.²⁸

Increasing the range of opportunities to walk and cycle creates an accessible way to get physically active. People who cycle for transport purposes are 4 times more likely to meet physical activity guidelines.²⁹ Walking and cycling to and from public transport is an important source of physical activity.

There are numerous health benefits that can be achieved from encouraging physical activity. Across the whole of the UK, if physical inactivity was eliminated then it would add an additional year to the national average life expectancy.³⁰

The more intensive or longer the physical activity is for, the greater the protective effect. The longer that people are physically active for, the lower their risk of premature death.³¹

Even small increases in physical activity can have a significant impact. For someone who is inactive, doing around 25 minutes of walking per day can reduce the risk of premature death by about 9%. The same amount of time spent doing more intense cycling reduces the risk of premature death by 17%.^{32,33}

Physical activity has the greatest effect on health when people who would be otherwise inactive are enabled to become active. Whilst walking for around 25 minutes every day reduces the risk of death by 10%, reducing this risk by a further 10% requires five times the amount of walking.³⁴ Transport schemes that reduce the number of people who are inactive are likely to have a bigger impact for each person than schemes aimed at people who are already physically active.

As cycling is usually more intensive exercise than walking, it can reduce the risk of death by a large amount, especially when done regularly. One study of people aged between forty and sixty nine found that regularly cycling reduced the risk of death by 40% during the research.³⁵

The benefits of physical activity can be gained even after someone has been physically inactive for a long time. In those over 60 year olds, 2 hours of walking every week translated as a 22% reduced likelihood of premature death. Greater benefits were seen with more activity.³⁶

In someone who is inactive

2 hours of walking  reduced risk of death by **9%**

2 hours of cycling  reduced risk of death by **17%**

Figure 7: Reduced likelihood death by amount of walking or cycling each week

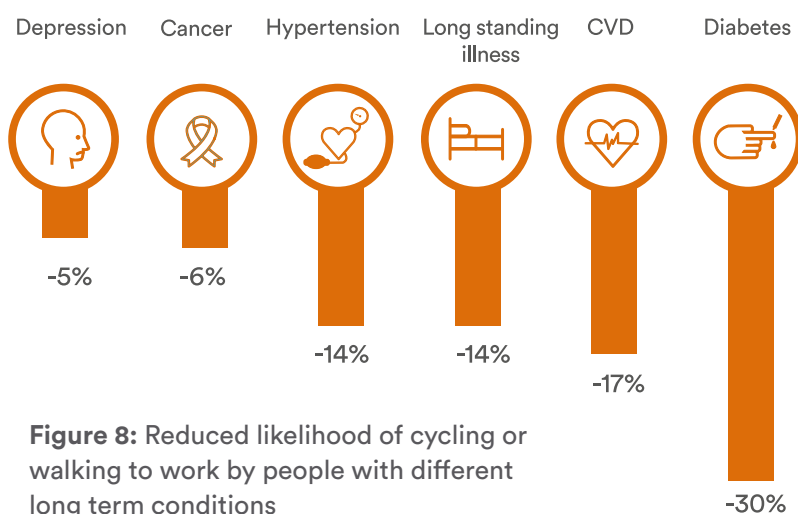


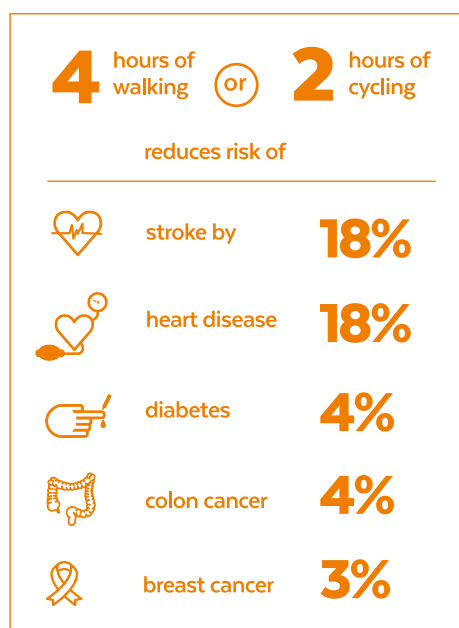
Figure 8: Reduced likelihood of cycling or walking to work by people with different long term conditions



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Physical activity prevents illness

Physical activity protects people from many of the diseases that contribute to lower healthy life expectancies, such as heart disease and stroke^{37, 38}, and type 2 diabetes.^{39, 40, 41}

The greatest benefit in reducing the likelihood of breast and colon cancer, diabetes, heart disease and stroke is gained when physically inactive individuals become more active.

Physical inactivity contributes to obesity. In the West Midlands currently, between 30 to 36 adults out of every 100 are not obese or overweight. On current trends, it is predicted that by 2050 this will reduce to around 10 of every 100 men and 15 out of every 100 women.⁴³

Adults who switch from commuting by car to a more active form of commuting

such as walking and cycling or public transport are much more likely to reduce their body weight and likelihood of obesity. The opposite is also true and typically people will increase in bodyweight when changing from one of those forms of transport to a sedentary form of commuting, such as driving.^{44, 45}

Childhood obesity is also relatively high in the West Midlands. In Year 6, around 4 in every 10 children in the West Midlands are either overweight or obese.⁴⁶ This is higher than the England average. Obese children are more likely to become obese adults, and intervening early to reduce the weight of children has a long term impact on reducing ill health in adulthood.

There is a proven link between physical activity and mental health. There are a growing number of studies that show how walking for a commute also reduces the likelihood of depression or anxiety.^{47, 48, 49}

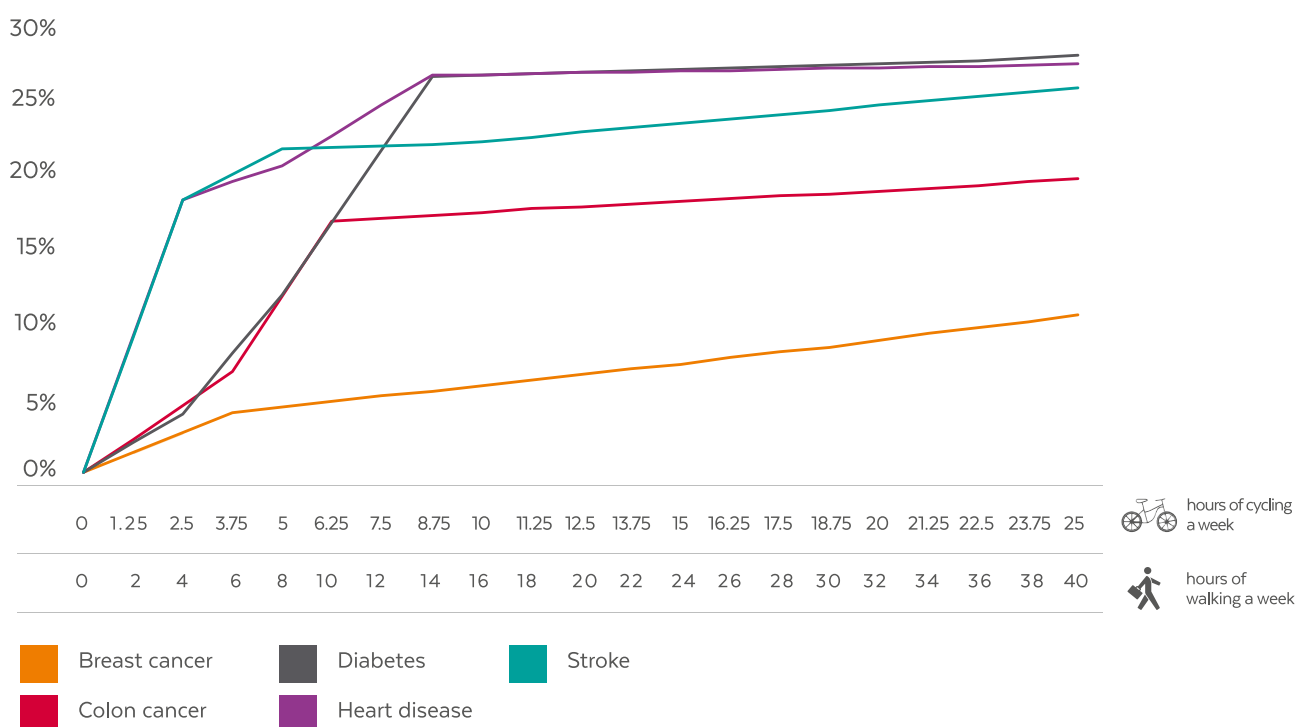


FIGURE 9: REDUCED LIKELIHOOD DIFFERENT DISEASES BY HOURS CYCLING (TOP) AND WALKING (BOTTOM) EACH WEEK

Physical activity prevents sickness absence

Across the WMCA constituent members, around 1.1% of working days are lost due to sickness absence. This is not just due to long term sickness absence and roughly 1.9% of workers take at least a day's sickness absence each week.⁵⁰

Physical activity reduces short term sickness absence: even relatively small increases in physical activity when continued over the course of a year. Where employees have had exercise once a week over the course of a whole year, sickness absences have reduced by around 25%.^{52, 53, 54, 55, 56}

This same relationship between activity and sickness absence has been found when employees use active travel. Commuting by bike reduces sickness absence by around one day per year for each cycling employee, even after taking into account other factors that might explain the reduction.^{57, 58}

Cycling for transport in the West Midlands

Currently, around 1.8% of commuting trips are made by bike. This varies between local

1/4

reduction of sickness absence when inactive people become active

authorities.

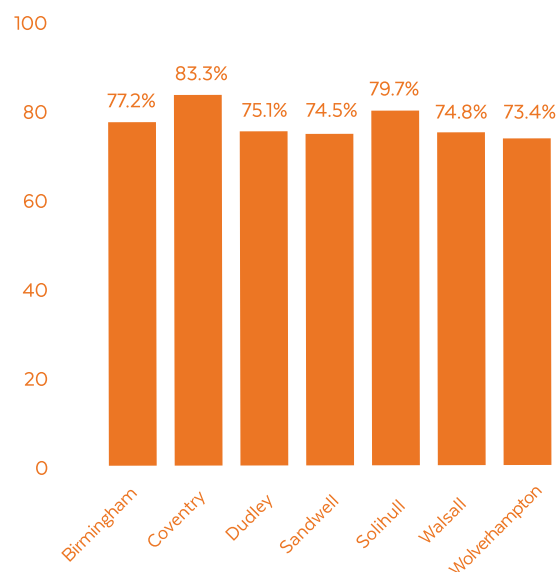
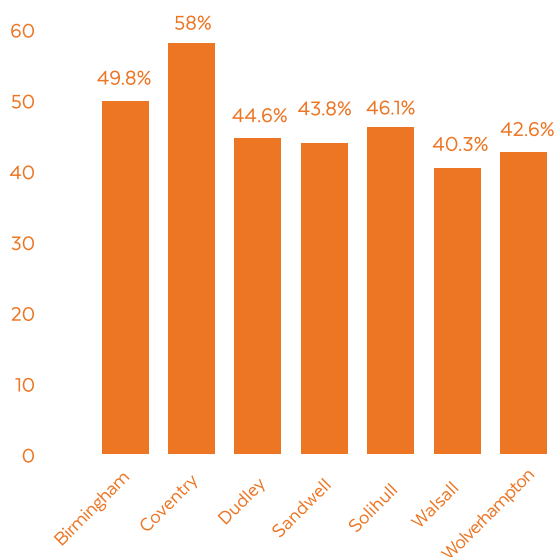
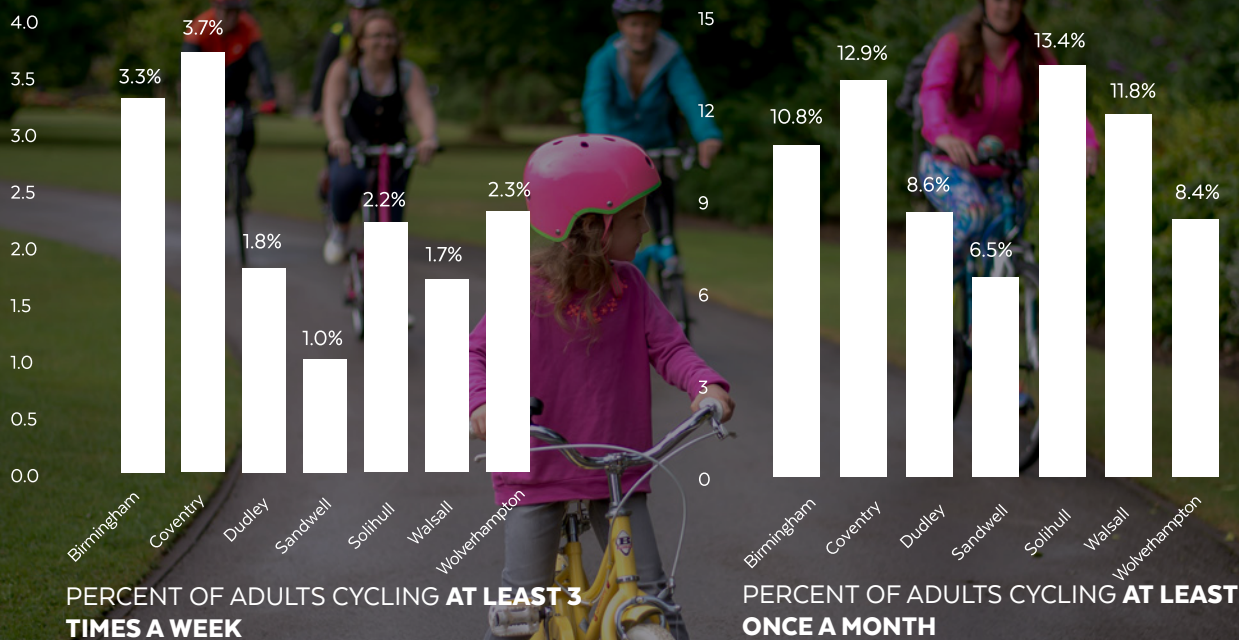
More adults have access to a bike and cycle than cycle for commuting purposes, and in some parts of the West Midlands over 10% of adults report cycling at least once a month.

This shows that there are more casual cyclists in the West Midlands than people who cycle to work, and that there is opportunity to increase the amount of cycling amongst casual or leisure users.

The built environment and perceived safety of the roads can often be a barrier to cycling. Dedicated cycling infrastructure such as cycle parking and dedicated cycle lanes increases the amount of people who cycle^{59, 60, 61}.

Women have a higher preference for predicated cycle lanes and their provision may reduce the inequalities in physical activity between genders.⁶²





The Combined Authority board has approved the development of a strategic cycle network across the area, which links between constituent and non-constituent members. This can be integrated with local networks. West Midlands Cycle Design Guidance has also been approved in order to create a better environment for cyclists.

Birmingham City Council is planning a segregated cycleway along the A38 (between city centre and Selly Oak) and A34 (between city centre and Perry Barr) as part of the Birmingham Cycle Revolution programme.

Walking for transport in the West Midlands

Walking is the most likely way that most adults will meet the CMO recommended physical activity levels.⁶³

Currently around 1 in every 10 journeys to work in the West Midlands are entirely by foot, however, this disguises many more walking trips. Many people walk to and from public transport such as buses and train stations. Although these are relatively short distances, they are important ways to improve health and wellbeing, especially amongst people who would otherwise be inactive.

More people walk during the week than is suggested using commuting statistics. Counting walks of only 10 minutes or more, over 40% of adults walk five times a week and most walk at least once. These might be trips to destinations other than work, or for leisure.

The Movement for Growth 10 year delivery plan sets out the importance of the built environment to encourage walking by improving the public realm and reducing vehicle speeds through area wide 20mph speed limits.

3.3 Good mental wellbeing and social cohesion

'Thrive West Midlands: an Action Plan for change', sets out the ambition to improve mental wellbeing in the West Midlands and reduce the impact that poor mental health can have on people's lives. It is estimated that over 200,000 adults in the West Midlands aged between 16-74 have either a mixed anxiety or depressive disorder at any one time. There would be 30,000 fewer if the CA average was the same as the average across the whole of England.

There are mental health benefits from reducing transport related noise and injury, and improving physical activity and perceived safety. The design of the transport system and street environment can also directly influence wellbeing.

There is a direct relationship between mental health and the built environment as a whole. People who rate the built environment in their neighbourhoods as poor can be around 30% to 60% more likely to report having depression in the last six months, with higher rates of lifetime depression.

Compared with physical health, there has been less discussion and research on street design and its relationship to mental health and wellbeing. This is an important area for research to understand how streets can meet the objectives of Thrive West Midlands.

There have been few studies on the relationship between how the design of streets encourages people to walk and mental health. Whilst the overall relationship between mental health and street design is unclear, some characteristics such as increased volumes of traffic have been shown to increase psychological distress.⁶⁵

Transport and social cohesion

Street design can increase social contact between residents. Social contact and supportive social networks strengthen mental resilience in children⁶⁶ and improve community cohesion. People who are socially isolated are at greater risk of poor mental health,^{67 68} and isolation can have much wider impacts on early deaths, hospital admissions in the elderly and cardiovascular disease.⁶⁹ Whilst isolation can occur at any age, the elderly are more at risk of being socially isolated.

If street design helps people to walk to places then it will directly impact on the strength of the local community. People who can walk to local services know more neighbours, are generally more trusting of people, and have more social contact.⁷⁰ The ease of accessibility of local services such as shops, parks or other facilities also increases the number and strength of social connections that people have.⁷¹

Streets with less traffic encourage larger social networks and places where people are more likely to stop and chat. People on streets with smaller traffic volumes are more likely to have more friends and acquaintances.⁷²

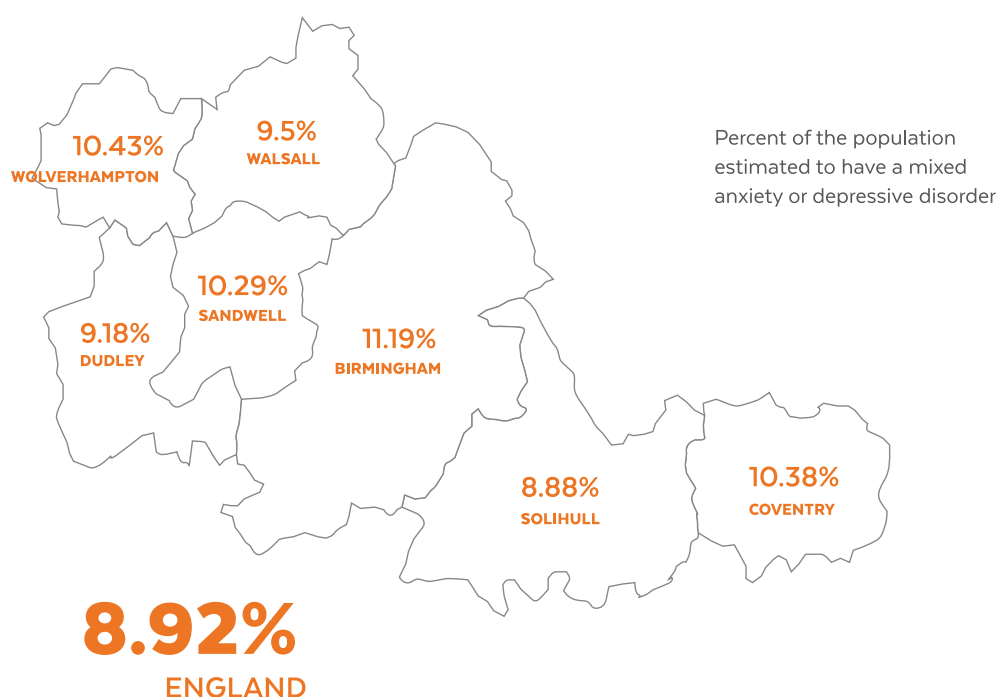


FIGURE 10: ANXIETY AND DEPRESSION IN EACH LOCAL AUTHORITY

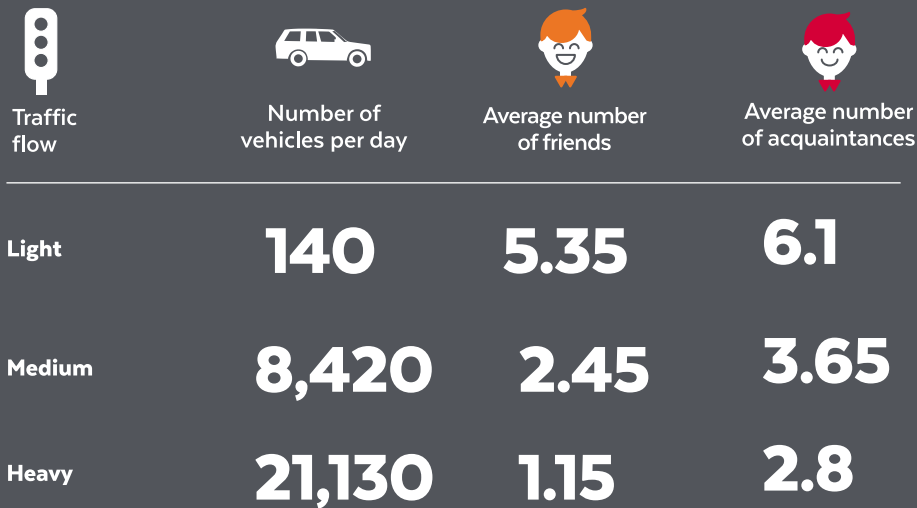


FIGURE 11: RELATIONSHIP BETWEEN NUMBER OF VEHICLES AND SIZE OF SOCIAL NETWORK IN A TYPICAL UK CITY

High traffic flow can also create a barrier that prevents people from accessing local shops or other services and visiting friends. This is often referred to as 'severance' and can be especially true on dual carriageways and high-speed roads. Reluctance to cross a main road is more common in elderly individuals and can also result in parents placing more restrictions on the independent travel of their children due to concerns about the street.⁷³

Accessible transport can also reduce isolation and increase independence by providing accessible and low cost door to door transport. In the West Midlands there are around 850,000 journeys every year to 12,000 registered users, and the service supports older people and those with a disability to access services like employment, training, leisure and retail.

Commuting

Commuting can have a negative impact on mental health. Shorter commute times increase job satisfaction and reduce turnover, as well as increase satisfaction with leisure time and improve mental health.

The shorter the commute, the greater the positive impact on mental health. The opposite is true with longer commutes and bus users particularly feel increased negative impacts on mental health from longer commutes.⁷⁴

People in Britain who commute longer distances are less satisfied about their health and more likely to visit their GP⁷⁵. This is mostly seen on forms of transport where there is more likely to be crowding, congestion or delays, and these can lead to the feeling of not being in control and lead to poorer mental health.

Shorter commute times increase

- wellbeing and mental health
- job satisfaction
- time spent with family or friends
- amount of sleep
- opportunity to exercise

Longer commutes reduce time for other health promoting activities, such as spending time with family or friends, sleep, or exercise.⁷⁶

There is developing evidence that commuting by bike can have a positive impact on productivity. Cyclists were more likely to agree that they arrived at work 'energised' than commuters using different modes.⁷⁷

The relationship between commuting mode and productivity is an important area for further research. The potential health impacts of working from home is also an area where more research is needed.

3.4 Safer streets

Safer streets are essential in helping people move around the West Midlands without perceived or genuine risk of injury. Reducing the danger that people are exposed to decreases the risk of injury, but also encourages people to walk or cycle.

Human error is often cited as the major cause of traffic collisions⁷⁸. One perspective is that errors are a result of a set of circumstances and they can be prevented rather than being random events.⁷⁹ Roads can also be designed so that errors do not result in deaths.

Addressing these underlying causes and ensuring that common errors do not lead to deaths can also reduce road danger and improve perceptions of safety. In this way, action to improve road safety can have a much wider influence on health beyond preventing injuries.

The World Health Organisation has promoted a 'safe systems' approach to road safety based on the Vision Zero approach in Sweden and Sustainable Safety in the Netherlands. Under these approaches, it is considered unethical to design roads where an error could lead to deaths.

Based on the understanding of how likely people were to die in a typical collision on different road types, speed limits were set to reduce the chances of this happening and segregated facilities provided for cyclists and walkers on roads that required higher speed limits. Over half of all deaths could be prevented by adopting a safe systems approach.^{80 81}

Part of a safe systems approach is 20mph limits in areas where pedestrians are at risk. If hit at 20mph, 3 out of every 200 pedestrians will be killed. At speeds of 30mph, the risk of death is around 1 in every 10.⁸² A recent analysis has shown that across England, around 85% of serious and fatal child pedestrian injuries occur on roads with 30mph limits, showing the wide potential of reducing vehicle speeds.

If hit at **20mph**, **3 out of every 200** pedestrians will be killed. At speeds of 30mph, the risk of death is around one in every ten.

85% of serious and fatal child pedestrian injuries occur on roads with **30mph** limits

This approach that reduces the speed of traffic also improves people's perceptions of safety. This supports other ways of keeping healthy, such as increasing people's confidence to cycle and walk.⁸⁴

The Movement for Growth 10 year delivery plan identifies areas where 20mph areas will be introduced to encourage active travel and improve safety. This includes Coventry's ambition to be a 20mph city.

Children who live in deprived areas are more likely to be killed on the roads as pedestrians and cyclists. This is because of the more unsafe road environment, and the larger amount of walking that children do.⁸⁵ Within the WMCA area there are typically higher rates of child serious and fatal injuries than the England average.⁸⁶

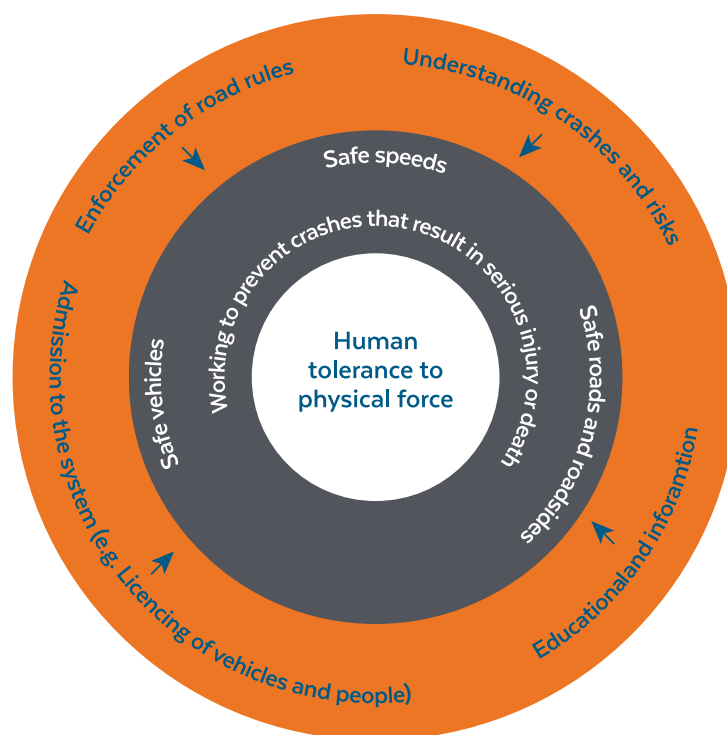


FIGURE 12: COMPONENTS OF THE WHO SAFE SYSTEMS APPROACH TO PREVENTING INJURIES

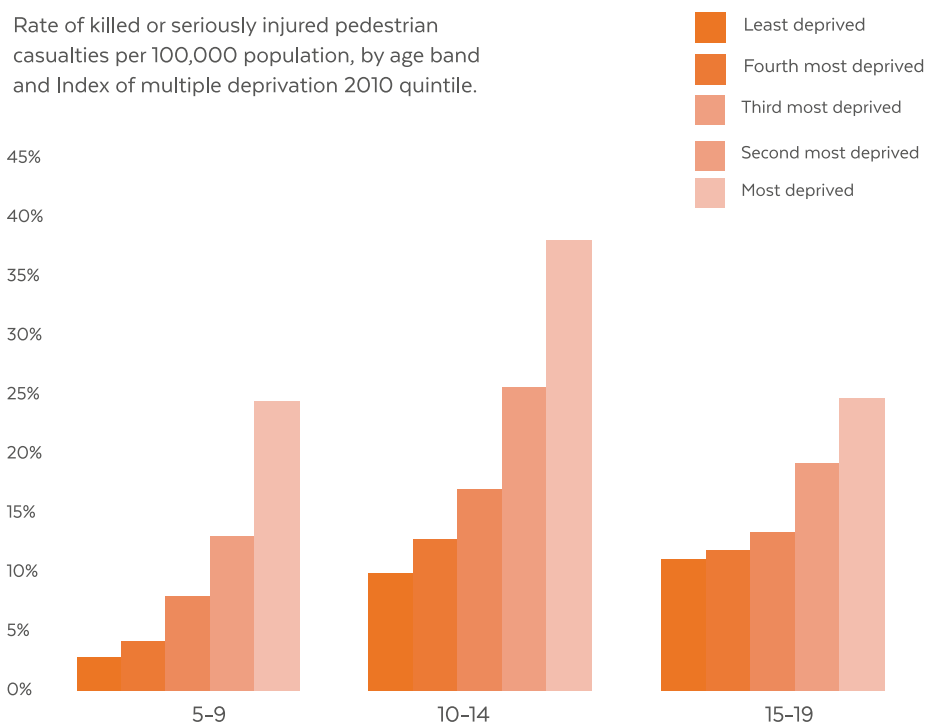


FIGURE 13: RISK OF SERIOUS OR FATAL CHILD PEDESTRIAN INJURY BY RELATIVE DEPRIVATION

Across England, children aged 5-9 who live in the most deprived 20% of households are nine times more likely to be killed or seriously injured as a pedestrian than children who live in the 20% most affluent areas. Among 10-14 year olds the rate was just under four times as high. A similar picture is seen for child cyclists.

Traffic injuries have longer term impacts including psychological distress or other mental health issues for up to three years following the crash.^{87, 88} More severe physical injuries seem to lead to higher levels of psychological distress.⁸⁹

3.5 Noise

Transport is a source of noise. This noise comes from a variety of sources such as vehicle engines, the interaction between tyres and the ground, and wind resistance.

Sound can affect people in different ways, depending on the situation and the environment as well as sensitivity to the noise and attitudes about it. If people do not feel in control over a sound or that it is unfair that they should hear it, they are more likely to notice it and react negatively.

Quiet or calming sounds, particularly from natural sources, can have a positive effect on people. Quieter places indicate safety and put people at ease.

Alternatively, louder pleasant sounds from a bustling public space can create a lively and exciting place that people enjoy.⁹⁰

Positive effects can be lost, particularly when sound is unwanted or when it masks quieter reassuring sounds. Loud noises produced at a distance can then have a negative impact.

Although excessive exposure to loud noise can damage hearing, there are also health implications at lower volumes. Even at low volumes, transport noise can be perceived as negative and act as a cause of stress or disturbed sleep. This is how it has a direct impact on health as well as quality of life.

Night time noise is usually measured as an annual average and between 11pm and 7am. During this period, exposure to average noise levels of around 55db and above are considered by WHO as increasingly dangerous to public health.⁹¹ This is slightly quieter than many fridges. Over 200,000 people in the Birmingham and Black Country urban conurbation are exposed to average road traffic noise above this level at night.⁹²

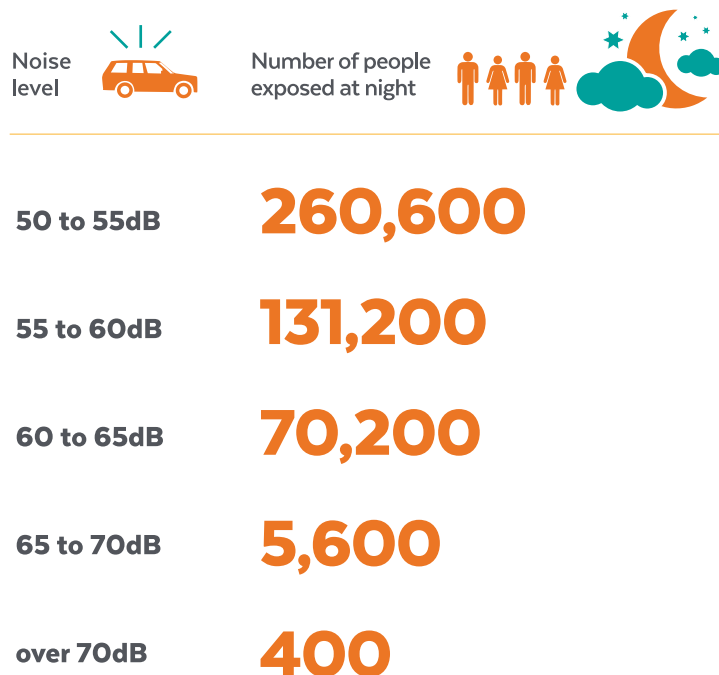


FIGURE 14: NUMBER OF PEOPLE IN BIRMINGHAM AND THE BLACK COUNTRY EXPOSED TO HIGH VOLUMES OF NIGHT-TIME NOISE

Sleep disturbance and waking can occur at much lower volumes. People in groups who typically sleep longer or have fragmented sleep patterns are considered more at risk of the effects of night time noise. Groups with these sleeping patterns include children, the elderly, pregnant women, people with ill health, and shift workers.

The highest burden from noise on health and wellbeing is predominantly through sleep disturbance and annoyance. Noise annoyance can effect wellbeing by causing negative responses, such as anger, disappointment, dissatisfaction, withdrawal, helplessness, depression, anxiety, distraction, agitation or exhaustion. Noise also increases the risk of heart disease due to increased stress, which can have physical symptoms such as tiredness and stomach-discomfort, and raised blood pressure.

The evidence is developing about a range of other plausible health impacts such as increased risk of diabetes and low-birth weight births.⁹⁶ There is a potential relationship with diagnosed mental health and people with depression are being more likely to report noise as a problem in urban areas.⁹⁷

Children are less able to deal with the stress caused by noise as they have not developed the same coping mechanisms as adults. In children there is evidence that noise is linked to emotional symptoms, conduct problems and hyperactivity.⁹⁸

Some studies have shown that road and rail noise also has a negative impact on mental health in primary school children, and predominantly in children who were born pre-term, with a low birth weight.⁹⁹

Noise also has an impact of school performance and learning outcomes. Higher levels of noise exposure worsens memory, performance in tests and can cause a delay in reading age. WHO recommend that background noise should not exceed 35dB during teaching sessions.¹⁰⁰

Across the West Midlands there are variations in the number of people exposed to road, rail and air traffic noise.



The percentage of the population exposed to road, rail and air transport noise of 65dB(A) or more, during the daytime (2011)

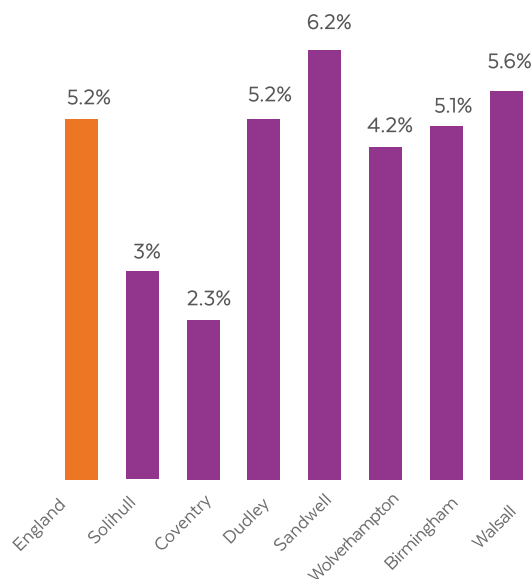


FIGURE 15: PERCENTAGE OF PEOPLE EXPOSED TO HIGH VOLUMES OF DAY-TIME NOISE IN EACH CONSTITUENT MEMBER



The percentage of the population exposed to road, rail and air transport noise of 55dB(A) or more, during the night-time (2011)

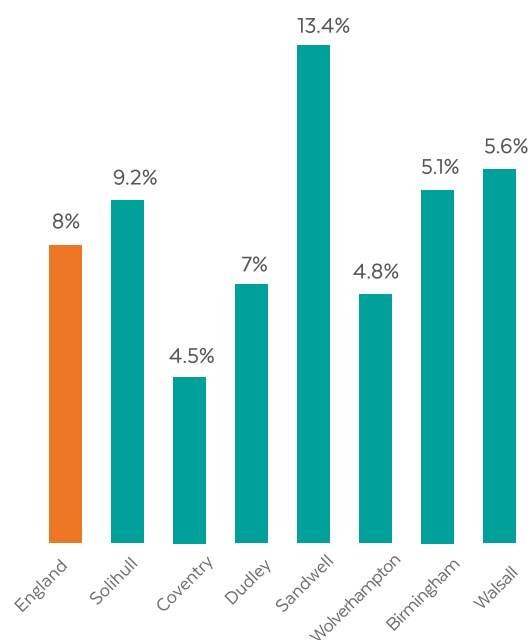


FIGURE 16: PERCENTAGE OF PEOPLE EXPOSED TO HIGH VOLUMES OF NIGHT-TIME NOISE IN EACH CONSTITUENT MEMBER

3.6 Sustainability

Sustainability cuts across a wide range of health and transport issues. Within the Strategic Economic Plan, targets around economic productivity, carbon emissions reduction and health inequality all contribute to sustainability. Climate change from carbon emissions will also have a significant impact and is covered in more detail in this section.

Climate change

In 2014, 22,708 kilotonnes of carbon dioxide were emitted across constituent and non-constituent members of the Combined Authority. Compared to the other eight Combined Authorities this makes the West Midlands the highest emitter. However, the higher volume of emissions is because of the size of the region compared to other Combined Authorities. On average, each person emitted 5.6 tonnes of carbon dioxide each year, compared with the average of 7.4 tonnes of carbon dioxide in the other Combined Authority areas

There has been a 14.5% reduction in carbon dioxide emissions since 2010 across the wider Combined Authority geography that includes

constituent and non-constituent members. Changing climate will have a range of impacts on human health. The main and most likely immediate health impact will be due to increasing average temperatures and the likelihood of heat waves occurring. Periods of very warm weather higher than 25 degrees can be followed quickly by a sharp increase in deaths.

The main causes of excess deaths related to increased temperatures are respiratory and cardiac events. Cardiac events are caused as the body tries to circulate more blood close to the skin, causing excess strain on the heart and circulatory system.¹⁰¹

Air pollution can be worse during warmer weather, in part because it creates the conditions for ground level ozone to form. Individuals more at risk include the elderly, people with existing long-term conditions, and children.

It was estimated that a 10 day heat wave in August 2003 caused 2,000 excess deaths across England and similar heat waves occurred in 2006 and 2009. In the 2006 heat wave, there were an estimated 150 excess deaths in the whole of the wider West Midlands alone.¹⁰²

The impact of heat waves are worse in built up areas such as much of the West Midlands, as there is an urban heat island effect. During the 2003 heat wave, Birmingham had on average a higher temperature by 3.2 degrees, with a maximum of 5.6 degrees higher. Wolverhampton had a maximum of 6.8 degrees higher than the rural average. Even areas close to the edge of the city such as Coleshill had temperatures 1.5 degrees higher than expected.¹⁰³

The urban heat island effect means that deaths from heat waves may be underestimated, and at least 90 excess deaths were attributed to the 2003 heat wave in the West. Presuming nothing is done to adapt the environment to reduce the effect of the heat wave a similar heat wave could cause around 280 deaths in 2080.¹⁰⁴

The climate change risk assessment identifies that increased temperatures risks the supply of resources that provide the foundation for good health such as the water supply to the public and for agriculture, as well as risks to domestic and international food production. This can often disproportionately impact on deprived communities.

A transport related opportunity from climate change may be an increased preference for cycling and walking given increased temperatures and lower summer rain fall.

Action to reduce carbon emissions can have a significant positive impact on other health issues. The greatest opportunity to improve the co-benefits are from a large shift to cycling and walking. This has a much greater impact on health than replacing the same travel with electric vehicles.¹⁰⁵

3.7 Summary of the relationship between transport and health

There is a wide-reaching relationship between transport and health. Some of the largest health benefits can be realised where physical activity is increased, or where air quality is improved.

It is likely that there are large opportunities to improve mental health and wellbeing that are being missed because the evidence base strongly suggests a link but the type of interventions to best capitalise on it have not been widely evaluated.

Looking at the overlap between the different ways that transport can influence health, there are two common themes.

Firstly, investing in areas of deprivation could have a huge impact on health by reducing potential risks. Investment would also allow more opportunity for these areas to benefit from health improvements. The wellbeing needs of children and the elderly should further be considered when planning and delivering transport intervention.

Secondly, the role of the built environment in improving health is another common theme and where interventions improve the public realm with a range of health and wellbeing goals in mind it enables behaviour change and healthy transport choices as well as increasing community cohesion. Where these interventions consider impact across each health issue identified in this report they can have greater benefit.

Previous heat waves in the west midlands have been estimated to cause around **150 deaths**

2040 in the West Midlands, there is likely to be a **1.2 to 3.2** degrees increase in winter temperatures and **1.1 to 4.3** increase in summer temperatures



Our approach to improving health through transport

There are actions that we can take to maximise the positive impacts that transport has on health and wellbeing. This can be done by embedding health and wellbeing considerations in to our approach to transport. By doing this opportunities and implications of schemes can be identified and acted upon. A set of actions has been developed to embed health into our approach.

To consider the breadth of health and wellbeing issues, a range of public health data and evidence is available. There is expertise in interpreting this data in the public health teams in constituent members. Often this evidence can be used to develop the business cases of schemes that improve health and wellbeing.

There are connections between different health and transport issues that might be missed if there is only a focus on single issues. Attention needs to focus on groups who might have the greatest health and wellbeing benefit and to protect groups most at risk. This report has identified children, the elderly and people living in deprived areas as these groups.

The design of streets and public places is an example of a transport intervention that can impact on multiple health issues. This report has identified many urban design interventions that can improve health and wellbeing by encouraging more walking.

ACTION ONE: We will use data on population health to help prioritise and target interventions

There is data and information that describes the health of local authorities and smaller geographies within them that can be used to assess health needs and how much benefit can be gained. That data will be included in the strategic outline cases for transport schemes that will improve health and wellbeing.

Across local authorities, the Public Health Outcomes Framework contains a set of indicators that explain the relative health and wellbeing of an area. This draws on a wide range of sources of data and is regularly updated when new data becomes available. To make best use of it, we will identify indicators that relate to transport and health and publish and update profiles for each local authority.

To make best use of health data for smaller areas within local authorities, we will develop health and transport dashboards that will show the health of people around transport schemes and corridors. Local authorities can communicate their health

priorities to TfWM through their Joint Strategic Needs Assessment. These should reference health and transport. We will work with the public health departments of our WMCA members to make sure that they have access to relevant data sets to help identify priorities.

ACTION TWO: Through our Equality Impact Assessment process we will assess the equity of health impacts.

No-one should be disadvantaged from achieving their potential to be healthy and everyone should have a fair opportunity to be in good health. Some areas and groups within the West Midlands have poorer health. By identifying and understanding the needs of disadvantaged groups at an early stage we can make sure that schemes help everyone to achieve good health and wellbeing.

We will consider how transport schemes impact on health inequalities through the existing WMCA Equality Impact Assessment process.

ACTION THREE: We will understand the social impact of transport schemes.

There are many benefits from investing in health. These might be directly to the health service or local authorities because of reduced need for health and social care or the value that people put on preventing early deaths or lost productivity and informal care costs. By calculating this value we will include health in the business cases and the benefit-cost ratio that is used to understand the value of the scheme.

We will use The World Health Organisation 'Health Economic Assessment Tool' to calculate the benefits of increased physical activity from cycling, walking and public transport schemes. This is in line with Department for Transport guidance.

The Department for Transport also approve the use of the Sickness Absence Reduction Tool. This gives a financial value on reduced sickness absence from increased physical activity.

There are other opportunities to describe NHS and local authority savings, but which are not approved for use in business cases by the Department for Transport's appraisal. We will explore the use of these tools internally to understand the size of benefits that might be currently missed.

Some significant transport schemes will benefit from a health impact assessment to identify opportunities to mitigate any health impact of the scheme on health, or capitalise on the opportunities to improve health. These can help to complete TfWM objectives to prevent the exacerbation of air quality problems. We will identify opportunities to conduct health impact assessments of transport interventions.

In some constituent member local authorities these are being built into the planning process and highlighted in the local plan, and these should also refer to the opportunity to conduct health impact assessments on transport schemes. We will work with local authorities to conduct health impact assessments, as part of broader sustainability and environmental impact assessments, whether lead by the local authority or TfWM.

The health and wellbeing issues identified in this report will be used to structure and assess any health impacts and should be considered by transport consultancies who have been commissioned to carry out Health Impact Assessments, alongside issues such as access to health care.

ACTION FOUR: We will set out an evidence based statement of what makes a healthy and active street and trial the approach

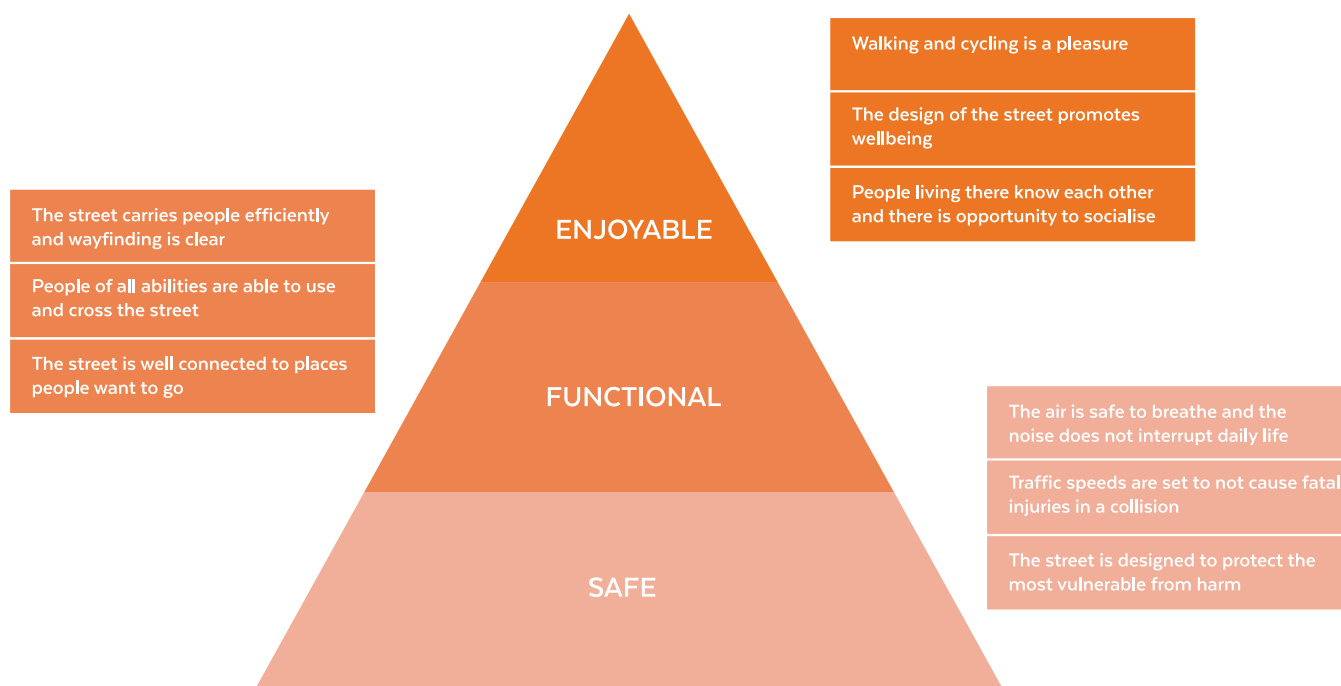
Streets can be an asset to improve the health of people who live and work close to them. This is a role beyond protecting people from the risk of injury or poor air quality. Streets that increase social contact or walking, cycling are health promoting environments. This helps to address transport challenges of people walking or cycling short distances.

There is now a large and continually growing evidence base that sets out how people use places such as streets and how to encourage more walking and cycling for travel.¹⁰⁶ This has a wider impact on wellbeing as greater amounts of walking for transport improve the sense of community or community cohesion.^{107, 108, 109}

The WMCA has approved cycle design guidance for the West Midlands to achieve high standards for key cycling routes. The Guidance can be used to develop spaces that encourage physical activity and social contact and reduce conflict between pedestrians and cyclists.

We will set out the evidence base for a healthy and active street environment that create better conditions for walking and improve community cohesion. This will provide a benchmark that streets can be evaluated against and set principles to enhance the public realm and local conditions for active travel.

We will work with constituent members to trial and evaluate a series of healthy and active streets projects over the next 2 years.



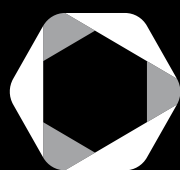
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