

CARDIFF AND VALE UHB STAKEHOLDER REFERENCE GROUP
1.30pm – 4pm on Thursday 24 May 2018
Seminar Room 1, Cochrane Building, UHW

AGENDA

PART 1: ITEMS FOR DISCUSSION		
1 1.30pm	Welcome and Introductions	<i>Chair</i>
2	Apologies for Absence	<i>Chair</i>
3	Declarations of Interest	<i>Chair</i>
PART 1: ITEMS FOR DISCUSSION		
4 1.35pm (5 mins)	Minutes and Matters Arising from the Stakeholder Reference Group meeting held on 27 March	<i>Chair</i>
5 1.40pm (10 mins)	Feedback from Board <i>To receive feedback from the Board meeting on 29 March 2018</i>	<i>Chair and Director of Corporate Governance</i>
Sustainability		
6 1.50pm (45 mins)	Healthy Travel for All <i>To receive a presentation on the Annual Report of the Director of Public Health 2017- Moving Forwards: Healthy Travel for all in Cardiff and the Vale of Glamorgan, and to discuss work with partners to develop sustainable travel plans</i>	Dr.Tom Porter Consultant in Public Health
7. 2.35pm (30 mins)	Car Parking at UHW <i>To receive an update on changes to car parking at UHW from 5th June and to discuss how this is communicated to the public</i>	Colin McMillan UHB Head of Transport and Sustainable Travel
Deliver Outcomes that Matter to People		
8 3.05pm (45 mins)	Community Mental Health Services <i>To discuss proposals for a reconfiguration of adult community mental health services</i>	Ian Wile Director of Operations and Delivery, Mental Health Clinical Board
Our Service Priorities		
	<i>No items</i>	
Culture and Values		
	<i>No items</i>	

**PART 2: ITEMS TO BE RECEIVED AND NOTED FOR INFORMATION BY THE
STAKEHOLDER REFERENCE GROUP**

	Next Meeting of SRG 9.30am-12pm, 25 July, Cochrane or Hafan Y Coed, tbc <ul style="list-style-type: none">• Winter Planning – Lee Davies, Head of Service Planning	
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**UNCONFIRMED MINUTES OF CARDIFF AND VALE STAKEHOLDER REFERENCE
GROUP MEETING HELD ON TUESDAY 27 MARCH 2018, HAFAN Y COED,
UNIVERSITY HOSPITAL LLANDOUGH**

Present:

Paula Martyn	Care Forum Wales (Chair SRG)
Posy Akande	Carer
Sarah Capstick	Cardiff Third Sector Council
Liz Fussell	UHB Volunteer
Iona Gordon	Cardiff Council
Alison Kibblewhite	South Wales Fire and Rescue
Linda Pritchard	Glamorgan Voluntary Services
Richard Thomas	Care and Repair Cardiff and the Vale
Geoffrey Simpson	One Voice Wales

In Attendance:

Abigail Harris	Director of Planning, UHB
Linda Hughes-Jones	Head of Safeguarding, UHB
Simone Joslyn	Engagement Lead, UHB (item SRG 18/07 only)
Natalie Southgate	Cardiff Council Performance Improvement (Gender Specific Services), (items SRG 18/01-18/07 only)
Anne Wei	Strategic Partnership and Planning Manager, UHB
Peter Welsh	Director of Corporate Governance, UHB

Apologies:

Suzanne Duval	Diverse Cymru
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Secretariat:

Gareth Lloyd

SRG 18/01 WELCOME AND INTRODUCTIONS

The Chair welcomed colleagues to the meeting.

SRG 18/02 APOLOGIES FOR ABSENCE

The SRG **NOTED** the apologies.

It was **NOTED** that although not members of the SRG, apologies had been received from the Community Health Council, Sheila Harrison, Angela Hughes and Keithley Wilkinson.

SRG 18/03 DECLARATIONS OF INTEREST

There were no declarations of interest.

**SRG 18/04 MINUTES OF JOINT MEETING OF HPF AND SRG
HELD ON 31 JANUARY 2018**

The SRG **RECEIVED** and **APPROVED** the minutes of the meeting held on 31 January 2018.

SRG 18/05 FEEDBACK FROM BOARD

Peter Welsh reported on the Board Development session held on 22 February 2018. He explained that over 60% of Board members had been newly appointed within the past twelve months. The focus of the session had been on how the Board and its Committees function. The need for transparency had been re-emphasised. It had also been agreed that the Board should focus on strategic issues and that many of the papers it has typically received should be considered by its Sub-Committees. A piece of work would be undertaken to review the role of Board members and identify ways of streamlining Board papers.

**SRG 18/06 VIOLENCE AGAINST WOMEN, DOMESTIC ABUSE
AND SEXUAL VIOLENCE STRATEGY**

The SRG **RECEIVED** a presentation from Natalie Southgate, on the draft Cardiff and Vale Violence Against Women, Domestic Abuse and Sexual Violence (VAWDASV) Strategy 2018-23 'It's In Our Hands'. The SRG was the first group to receive the presentation as part of the formal public consultation exercise.

Natalie Southgate explained that the Violence against Women, Domestic Abuse and Sexual Violence (Wales) Act, 2015, sets out a number of duties; one of these is for health boards and local authorities to prepare joint local strategies. These strategies must specify objectives, timescale for achievement and actions and must be published by May 2018. There is however, no additional funding to support the implementation of the Act including the development of the strategies and neither is there a national VAWDASV strategy. The SRG was then informed of the approach taken to the development of the Cardiff and Vale Strategy. All the comments received during the consultation exercise would be collated and a revised Strategy would be presented to the Council's Scrutiny Committee. Formal approval would then be sought from all partners and the intention was for the Strategy to be submitted to the UHB Board on 31 May 2018.

The SRG then addressed a number of specific questions.

- Is the Strategy Accessible? Does it make the right balance between prior knowledge and new information?
- Does it address all the inherent inequalities issues?

- Are there any gaps/does it go far enough?
- Does it demonstrate collaboration between services?
- Will it deliver services to improve prevention, protection and support?
- What do you think of the Title – ‘It’s in our Hands’?

The SRG made a number of observations.

- The Strategy is concise and well structured.
- The Strategy is very engaging with a good mix of facts, case examples and quotes etc.
- Text over images is difficult to read particularly for the visually impaired.
- Binary and transgender individuals and the Gypsy/Romany/Traveller communities are not mentioned.
- There is a mixture of strategy and justification for strategy and consideration should be given to separating these.
- There is no specific reference to elderly victims or victims of dementia related violence.
- Women seeking asylum and those who have been granted asylum are in a particularly vulnerable position and require support and advice regarding unplanned pregnancies, contraception, the morning after pill and terminations of pregnancy etc. Abigail Harris highlighted that all women granted asylum not registered with a GP practice should be registered with the Cardiff Health Access Practice (CHAPS) based in Cardiff Royal Infirmary.
- There is a lack of clarity regarding how outcomes will be measured. Natalie Southgate explained that a set of national Key Performance Indicators would be produced.
- The strategy could be strengthened by giving more recognition of the work undertaken by Third Sector organisations with vulnerable groups
- There is less information on initiatives in the Vale of Glamorgan than in Cardiff. Natalie Southgate explained that this was because her counterparts in the Vale of Glamorgan Council had been off work and more information would hopefully be included in the final draft.
- The holistic approach is welcomed but there is an acknowledgement that it will present a challenge.
- There has in the past been a marked difference in attitudes towards victims of domestic violence between social services and housing staff The SRG was informed that a national training framework was being developed with a 100% compliance target for front line staff in all partner organisations. Violence Against Women, Domestic Abuse and Violence awareness training is now one of the mandatory e-learning packages for all UHB staff.
- Staff in front line roles with students in higher education such as personal tutors, receive very little training in pastoral care for students. Natalie Southgate explained that this was recognised and would be addressed.

- Training should be part of the medical and nurse training programmes.
- It was good to see there was an acknowledgement of the impact of Adverse Childhood Experiences
- There do not appear to be any actions relating to the section on forced marriages.
- In discussion about the title 'It's in our Hands', there were comments about how the word 'hand' could have a negative connotation. However, there were other comments that it was helpful for there to be alignment with other campaigns such as the 'These hands are not for hurting'. It was agreed that it would be hard to get consensus on the title.
- It could be confusing if strategies have different titles in each region.

The SRG made some specific comments the Strategy on a Page

- It reads well for staff but some of the language needs to be reviewed for a public facing document
- The colours used make it difficult for the visually impaired to read and advice should be sought on how this could be improved.
- Helpline Details would be helpful
- Consideration should be given to amending the phrase 'community perpetrator programmes'.

SRG 18/07

THE NHS AT 70

The SRG **RECEIVED** and **NOTED** a briefing on local plans to celebrate 70 years of the NHS.

Simone Joslyn informed the SRG that on 2 July, Aneurin Bevan's great nieces would be opening the NHS at 70 art exhibition at UHL. She explained that the UHB's Communications team were keen to hear stories of peoples' experiences of the NHS. The SRG agreed to cascade this request within their organisations once an updated list of events had been circulated.

Action: All

Abigail Harris explained that it was likely that on 5 July NHS Wales would be in the middle of a national consultation on a new model for health and social care for Wales.

A suggestion was made that views from children and young people about what the NHS should look like in the future could be another element of the stories being collected. Simone Joslyn commented that views collected from children and young people as part of the Vale Wellbeing Plan consultation would be helpful in this respect.

The SRG suggested that the UHB should consider running a stall at the Vale of Glamorgan Show on 8 August.

The Chair agreed to ask care homes to mark the 5 July anniversary.

Action: Chair

Simone Joslyn agreed to update the list of events for circulation to the SRG.

Action: Simone Joslyn/Gareth Lloyd

SRG 18/08 UPDATE ON WINTER PRESSURES

Abigail Harries explained that the UHB had endured a very challenging winter. Influenza had nearly reached pandemic levels despite the UHB meeting the 60% staff vaccination rate set by Welsh Government. The disruption caused by the recent adverse weather had also presented problems. All organisations had worked collaboratively during the period to ensure that services were maintained. Although the UHB's planning had been robust, the large number of staff required to maintain services had been highlighted. The UHB was undertaking a 'lessons learned' exercise which would be shared with partner organisations.

The UHB had also witnessed higher levels of emergency activity with an increase in major cases of circa 12% and more extremely unwell people attending on foot. This was due in part to delays in ambulances and partly due to difficulties with the GP Out Of Hours service. Overall however, planning has been robust and the service has held up.

Abigail Harris informed the SRG that the UHB's 4 and 12 hour wait performance for January and February 2018 was less favourable than the same period in 2017. The position regarding Delayed Transfers of Care had also deteriorated slightly during February but overall there had been a great improvement on previous years.

The UHB would be undertaking a formal review of its performance during the winter and the findings would be reflected in its planning for winter 2018/19.

Anne Wei informed the SRG that Lee Davies, Head of Operational Service Planning would attend the SRG meeting on 25 July to discuss planning for winter 2018/19.

Major Trauma Consultation

Abigail Harris reported that the consultation had concluded and the responses had been thoroughly reviewed. Understandably the responses had a distinct regional bias. There were legitimate concerns about how the Trauma Network would work and reassurances were sought that the anticipated improvements to clinical outcomes would be the same for everyone regardless of where they live. Other issues frequently raised were affordability and concerns about how a Major Trauma Centre could be accommodated on the congested UHW site and what services would have to transfer off the site to facilitate this.

The SRG was informed that all Health Boards would simultaneously be considering a paper on the establishment of a Major Trauma Network at their Board meetings on 29 March. They would be asked to approve the establishment of a Major Trauma Network for South and West Wales and South Powys and the recommendations of the Independent Panel.

Thoracic Surgery Services Engagement

Abigail Harris reported that the engagement process had concluded. The recommendation of the Independent Panel was that all Thoracic Surgery should be provided at Morriston Hospital. Abertawe Bro Morgannwg UHB had been asked to produce a business case for implementation of this new model by 8 May. Consideration was being given to whether the proposal would require formal public consultation. Cardiff and Vale UHB would welcome a public consultation as it would be helpful for the reasons for the Independent Panel's recommendation to be in the public domain. Anne Wei indicated that she believed that this was also the collective view of all the Community Health Councils.

Public Consultations

The SRG were notified of and encouraged to participate in two public consultations:

- Strengthening Local Government: Delivering for People
- Cardiff's Transport and Clean Air Green Paper

Gareth Lloyd agreed to email links to these consultations to members of the SRG.

Action: Gareth Lloyd

SRG 18/11

NEXT MEETING OF SRG

The next meeting of the SRG will take place 1.30pm-4pm, 24 May 2018,
Seminar Room 1, Cochrane Building, UHW.

BOARD MEETING
9am on 29th March 2018
Board Room, University Hospital Llandough

AGENDA

Chair to give a brief introduction on "Time to Change" a mental health initiative
and photo opportunity

STAFF STORY Kathryn Murray, Clinical Trials Pharmacist My Mental Health Journey – "Time to Change"		
PART 1: ITEMS FOR ACTION		
1	Welcome and Introductions	Oral
2	Apologies for Absence	Oral
3	Declarations of Interest	Oral
4	Minutes of the Board meeting of 25 th January 2018	Chair
5	Action Log	Oral Chair
6	Chair's Report	Chair
7	Chief Executive's Report	Chief Executive
8	A Major Trauma Network for South and West Wales and South Powys - Report on Consultation with Supporting Documents: 1 - Initial Equality Impact Assessment 2 – Board Report January 2017 3 – Independent Panel Terms of Reference 4 – Independent Panel Agenda 5 – Independent Panel Report 6 – Board Report September 2017 7 – Consultation Plan 8 – Details of Public Meetings 9 – Consultation Mid Way Review 10 – Collaborative Executive Group Paper January 2018 11 – Numerical/Thematic Analysis of Consultation Response 12 – Consultation Responses Analysis Against Framework 13 – Post Consultation EQIA	Medical Director
9	Patient Safety Quality and Experience Report	Executive Nurse Director
10	Finance Report	Director of Finance
11	Performance Report	Medical Director

12	Integrated Medium Term Plan 2018/21 See separate document for whole IMTP	<i>Director of Planning</i>
13	Delivering our Strategy - Presentation	<i>Dr Anna Kuczyńska</i>
14	Developing the Cardiff and Vale Way	<i>Chief Executive</i>
15	Wales Audit Office Annual Audit Report 2017	<i>Anne Beegan Wales Audit Office</i>
16	Audit of the Contractual Relationship with RKC Associates Limited and its Owner	<i>Director of Corporate Governance</i>
17	Well-being Plans for Cardiff and the Vale of Glamorgan	<i>Director of Public Health</i>
18	UHB Research and Development Implementation	<i>Medical Director</i>
19	Whitchurch Hospital – Disposal of Site	<i>Director of Planning</i>
20	Funded Nursing Care	<i>Director of Corporate Governance</i>
PART 2: ITEMS TO BE RECORDED AS RECEIVED AND NOTED FOR INFORMATION BY THE BOARD AVAILABLE ON THE UHB WEBSITE http://www.cardiffandvaleuhb.wales.nhs.uk/board-meetings		
21.	Minutes from other Boards/Committees	
1	Strategy and Engagement Committee – November	<i>J Antoniazzi</i>
2	Charitable Funds Committee – December	<i>A Hanuk</i>
3	Finance Committee – January x 2	<i>J Union</i>
4	Health and Safety Committee – January	<i>M Imperato</i>
5	Resource and Delivery Committee – January	<i>C Janczewski</i>
6	Joint Meeting of Health Professionals' Forum and Stakeholder Reference Group – January	<i>P Martyn/S Bailey</i>
7	Local Partnership Forum – February	<i>M Driscoll</i>
8	Quality, Safety and Experience Committee – February	<i>S Elsmore</i>
9	New Strategy and Delivery Committee - March	<i>C Janczewski</i>
10	WHSSC Joint Committee – September and November briefing	<i>L Richards</i>
11	Collaborative Leadership Forum – December	<i>M Battle</i>
12	Emergency Ambulance Services Committee – November and Chair's summary – January	<i>L Richards</i>
22	Agenda of the Private Board Meeting	<i>Chair</i>
23	To note the date of the next Board Meeting 31 May 2018 at 1pm	<i>Chair</i>
24	Dates for 2018/19 Thursday 26 th July (plus AGM), 27 th September (and Trustees), 29 th November, 31 st January, 28 th March	

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Moving forwards: Healthy travel for all in Cardiff and the Vale of Glamorgan



Annual Report of the Director of Public Health
for Cardiff and Vale of Glamorgan 2017

Moving forwards: Healthy travel for all in Cardiff and the Vale of Glamorgan

Annual Report of the Director of Public Health
for Cardiff and Vale of Glamorgan 2017

Acknowledgements

Many thanks to everyone who has helped in putting this report together with ideas, suggestions and evidence, including:

Hester Adams, Dr Simon Barry, Huw Brunt, Paul Carter, James Clemence, Jason Dixon, Councillor Susan Elsmore, Dr Margaret Eni-Olotu, Marcus Goldsworthy, Andrew Gregory, Dr Siân Griffiths, Joshua Hart, Fiona Kinghorn, Brian Marsh, Colin McMillan, Helen Moses, Gareth Newell, Professor Graham Parkhurst, Anne Phillips, Emma Reed, Rob Thomas, Sue Toner, Councillor Caro Wild, Dr Suzanne Wood, and Dr Thom Waite

My thanks to Dr Tom Porter as the chief author of the report.

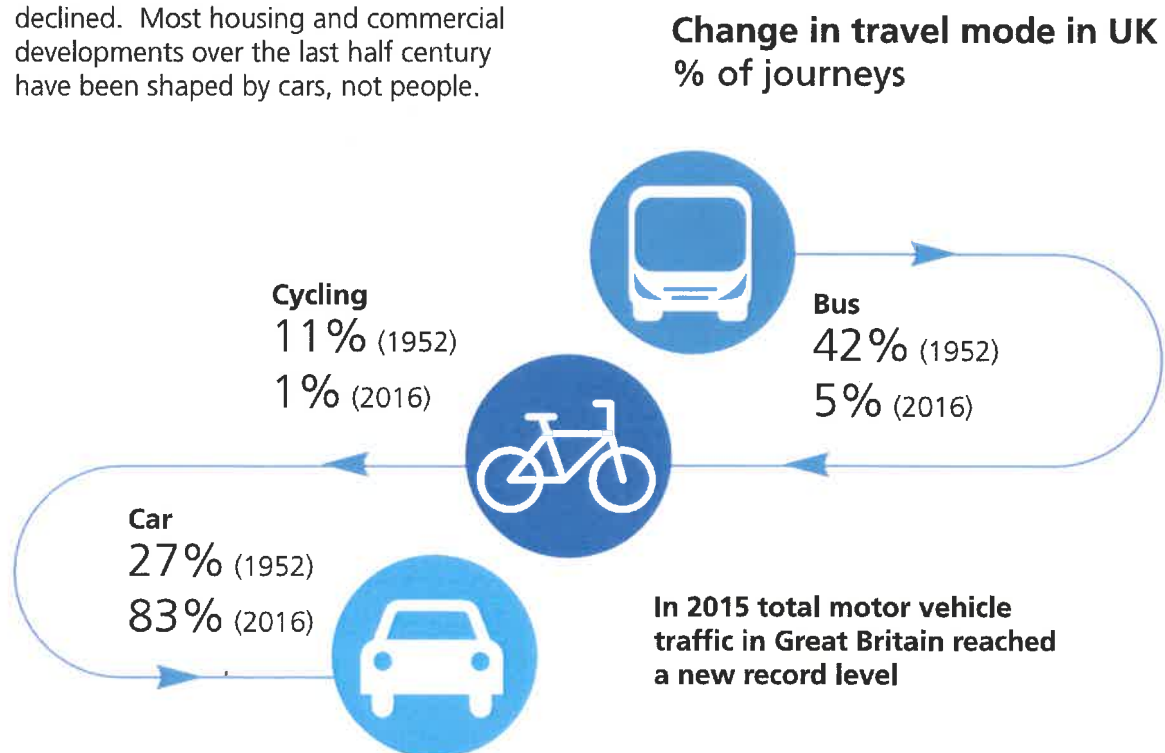
Executive summary

Declining levels of physical activity, increasing levels of obesity and diabetes, widespread air pollution, social isolation, and worsening health inequalities are all pressing public health issues in our area. Climate change is a severe threat which is already being felt in the UK and across the world.

Changing patterns in the way we travel and how we design our environments for travel have played a significant role in these issues. Bold action is required locally if we are to reverse these trends in population and global health, and create a healthier more sustainable future for our residents.

How did we get here?

While car use has sharply increased over the last 50 years, walking and cycling levels, and public transport use, have declined. Most housing and commercial developments over the last half century have been shaped by cars, not people.





The effects on health and well-being

This shift in travel mode has contributed to a significant decrease in physical activity, which in turn is associated with an increased risk of ill health, including cardiovascular disease, cancer and diabetes.

Road transport is a major contributor to harmful air pollution, and is responsible for nearly 1000 accidents causing injury or death each year in Wales. As our environments have been shaped around the car, interactions within and between communities have dropped. Many of the adverse impacts of road transport are felt more in more deprived communities, contributing to worsening health inequalities.

Climate change increases the risk of severe weather events including flooding which will increasingly affect our communities and our infrastructure.

- Over half (54%) of adults in Cardiff and Vale are overweight or obese, and are classed as 'inactive' because they do less than half an hour of physical activity in an entire week
- An estimated 5% of deaths in Cardiff and Vale are due to particulate matter air pollution
- Nearly 1 in 4 vulnerable people in Cardiff and Vale report being lonely some or all of the time
- A man living in one of our most deprived communities in Cardiff can expect to live 11 years fewer than someone in the least deprived areas
- Flood-related displacement of communities has been found in the UK to cause significant and enduring mental health issues



We could do things differently

Health and well-being in our communities could be significantly improved if active travel becomes the norm for short journeys, public transport is used for longer journeys, and air quality improves.

- Daytime journeys of less than 2km should be walkable for individuals aged 5 to 74 without a disability
- For many people the trigger to take up active travel is a significant life event
- People who walk and cycle in a neighbourhood are more likely to spend money in local shops
- Public transport use is facilitated by affordable ticket prices, flexibility in stops, high quality travel information and regular services
- Clean Air Zones deliver benefits worth £29 for every £1 spent
- The NHS should set the benchmark for clean air and safe workplaces
- The London congestion charge resulted in an 80% increase in cycling



The time is right for change

A number of opportunities exist through legislation, national and local policy, and a gradually changing culture around the use of cars, which make now the time to act.

- Four recent major pieces of legislation support active travel in Wales
- Driving a car has become less popular among young people
- Examples of good practice in Cardiff and the Vale of Glamorgan include support to residents to encourage children's street play, helping Vale Council staff travel sustainably, and the UHW Park and Ride scheme.



Seizing the day: a vision for Cardiff and the Vale

This report sets out a vision based on five key themes, showing what we could achieve in Cardiff and Vale.

- Active travel is the default for short journeys
- There is a well used, fully integrated transport system
- We have well connected, active and social communities
- Transport emissions are significantly reduced
- Cardiff and Vale are leaders in this field

If we get this right, potential benefits include reduced rates of cardiovascular disease, cancer, obesity and diabetes; improvements in mental well-being; and reduced sickness absence.

- Reduced illness and deaths from cancer (20-30% lower risk of colon and breast cancer)
- Reduced illness and deaths from cardiovascular disease and stroke (20-35% fewer cases)
- Reduced type 2 diabetes (30-40% fewer cases)
- Reduced risk of depression and dementia (20-30% lower risk)

- Reduced inequality in life expectancy between most and least deprived areas
- More cohesive communities and reduced loneliness
- Reduced air pollution and lower carbon emissions contributing to global warming
- Reduce demand for health and social care services



Everyone playing their part: what we need to do together

To make a significant and sustained improvement in our health and well-being we need to take decisive action now and over the next 5-10 years, in four main areas.

- Accelerate improvements to infrastructure to support active travel and low emission transport
- Support staff to choose active travel
- Engage with the local communities and businesses on the benefits of active travel
- Discourage unhealthy and polluting travel

Foreword



We all want the best health and well-being we can have for our population. To achieve that the inequalities gap between our most and least deprived communities has to narrow. To achieve that we need to take every

opportunity we can, working together as individuals and communities with all of our partners in public health.

Frequently, taking opportunities will mean embracing change, doing things differently, driving continuous improvement as hard as we can and telling the story about why health and well-being should be important for each and every one of us. Opportunities to improve health and well-being will always involve behavioural change at population, individual and organisational levels. This is tricky as most of us will say 'I support change but I don't want to change,' but we, each of us, have to become the change we need to see if we are to achieve sustainable improvement in our health and well-being.

Some of the opportunities we have open to us today have not been fully exploited by us as individuals, collectively as leaders or as organisations. This probably isn't surprising as change and continuous improvement are challenging and often question our current beliefs, practices and systems. Yet today across our public sector and third sector organisations we are better placed than ever before to take up those opportunities. In Cardiff and Vale excellent partnership working has led to a common understanding of the needs of the population we serve and what we need to do, to enable better health and well-being. This has been hugely strengthened by the recent Well-being of Future Generations (Wales) Act

2015,¹³⁴ the Social Services and Well-being (Wales) Act 2014²⁴ and the Public Health (Wales) Act 2017.¹³⁷ These put our health and well-being firmly at the top of the agenda.

Added to this we know that as a Cardiff and Vale population, people want better health and well-being and the understanding that this will involve change, including behaviour change,¹⁶⁸ is evident. This was evidenced in the surveys and discussions which have taken place to inform our most recent needs assessments in Cardiff and Vale.^{11,48,161} Added to that we have some emerging examples of positive change in two of our biggest causes of poor health and well-being. The numbers of people smoking tobacco in Cardiff and Vale is lower than it has ever been and is continuing to decrease and the rate of obesity in our children is slowly decreasing.

This report looks at one of the opportunities that we haven't yet fully exploited, active travel. It is an issue that affects every single person in our population as well as every single organisation operating within our communities. It is an issue which demands an understanding of the past, an understanding of the disruptive technologies which our younger generations are rapidly embracing, an understanding of what the evidence is telling us, and most importantly a willingness to seriously drive rapid continuous improvement which utilises the evidence and new technologies. Inevitably it demands that we ourselves begin to adopt and adapt to active travel as part of how we live each and every day.

I hope you will enjoy reading the report and that it will stimulate you to think about your role in making active travel a part of achieving sustainable improvements in our health and well-being.

Dr Sharon Hopkins, Executive Director of Public Health

What is at stake?



Our health and well-being: local and global

Declining levels of physical activity, increasing levels of obesity and diabetes, widespread air pollution, social isolation, and worsening health inequalities: these are all pressing public health issues in Cardiff and the Vale of Glamorgan.

Globally, climate change is a severe threat which is already being felt in the UK and across the world in extreme weather events such as flooding and heatwaves, with impacts increasing every year as the earth warms.

These issues all have something in common: changing patterns in the way we travel over the last half century, along with how we design our environments for travel, have played a significant role.



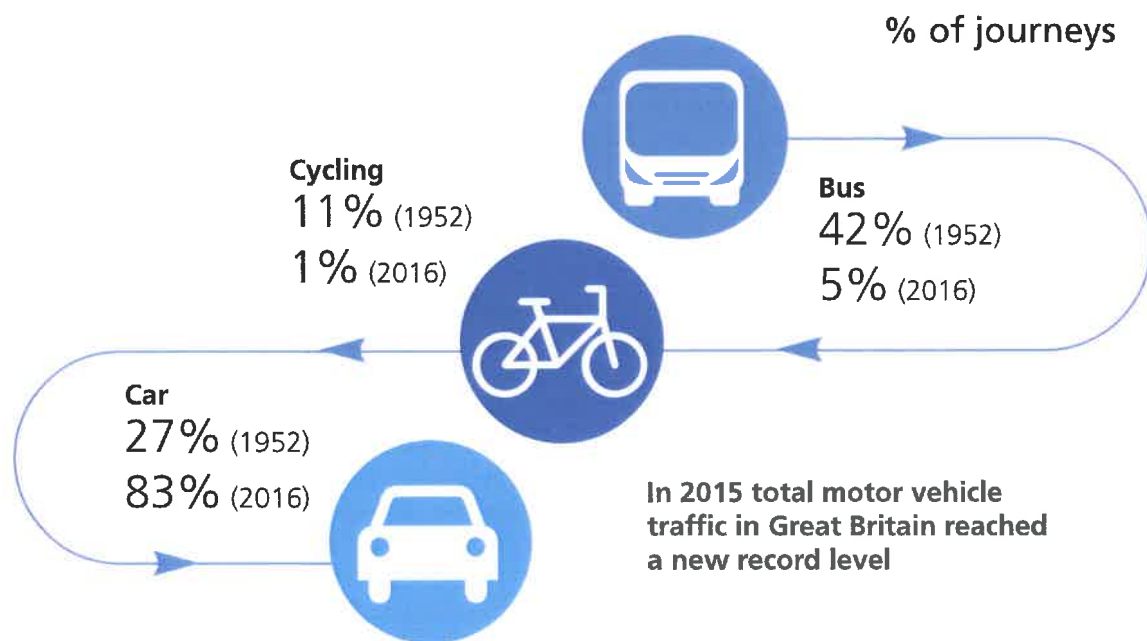
We need to take positive action now

Bold action is required locally if we are to reverse these trends in population and global health, and create a healthier more sustainable future for our residents.

A slew of evidence available now suggests a brighter future is possible, with positive impacts on health, well-being and community cohesion, as well as reducing our reliance on fossil fuels and their impact on climate change.

The intention of this report is to stimulate thinking and discussion locally about the issues described and encourage co-ordinated and decisive action to address them.

How did we get here?



Changing patterns of travel

A dramatic transformation has taken place over the last century in how people in the UK travel for work and leisure.

Until the 1950s, most people got around on foot or by public transport. Since then car ownership has increased rapidly, and the last fifty years has seen a huge shift to journeys by car, with public transport use dropping precipitously. For example, in 1952, 42% of journeys in the UK were by bus, but by 2016 this figure had dropped to just 5%. Car journeys rocketed from 27% to 83% over the same period.¹

Locally we don't have to go far back to see this stark transition. In the 1920s trams were at their peak in Cardiff, with an extensive network throughout the city and a staggering

42 million passenger journeys taken in the city each year, or around 180 journeys per resident each year.² The tram system closed in Cardiff in 1950, but trolleybuses – a form of electric bus – were a common sight after this, until the network closed in 1970.³

Figure 1. A tram running along Newport Road in Cardiff²



42 million journeys were taken by tram in Cardiff in 1928. The tram closed in 1950

The railway line in the Vale between Barry and Bridgend was closed with the Beeching programme in the 1960s, and only re-opened in 2005. However, over the previous century there had been a much more extensive rail network in the Vale including a Cowbridge Railway line, which opened in 1865.

Figure 2. Cowbridge railway station¹³



Initially the car brought with it a sense of new-found freedom, and the ability for people to keep in touch more easily with friends and family, facilitating further geographic spread of these important social networks.

But this transformation in transportation came with a price: a steep decline in physical activity levels, with many adults now routinely spending their waking life sitting in the car, at the office desk, or on the sofa, with little meaningful physical activity in between. Indeed a quarter of adults in Cardiff and the Vale of Glamorgan are now classed as 'inactive' because they do less than half an hour of physical activity in an entire week.⁴

Effects on health are not limited to changes in physical activity: air pollution, social isolation, noise pollution, access to green space and health inequalities have also been impacted on by car use.

The surge in car use has reduced demand for public transport, resulting in a decline in frequency and routes. Fewer services has made public transport a less viable option for some journeys, further reducing demand. Between 2007 and 2014, bus use declined by 4% in Cardiff,⁵ and yet a third of residents (35%) in Cardiff cite frequency and availability of public transport as a major issue.⁵ Although 90% of residents say they are satisfied with public transport in the Vale, rates of use are much lower.⁶

Over the last five years the cost of rail fares have increased by 15%, and bus/taxi costs have increased by 14%, while the cost of running a car has decreased by 5%.⁷ Over 1 in 10 (11%) journeys in the UK in the 1950s were made by bicycle, but that figure now stands at just 1%. Increasing motorised transport on the roads, both rural and urban, has also had an impact on how safe people feel cycling.



Over the last five years
the cost of running a car
has decreased by 5%
while the cost of the bus
has increased by 14%

The UK still loves its cars. In 2015, total motor vehicle traffic in Great Britain reached a new record, of 317 billion miles travelled in one year, the majority travelled by cars and taxis.⁸ Growth in traffic levels over the last 10 years has been higher in Wales (5.9%) than the other home countries.⁹ There are currently 206,000 licensed cars in Cardiff and Vale.¹⁰ Population growth in the region, particularly in Cardiff, will put an increasing strain on the road network without a change in approach.⁵

In 2015 total motor vehicle traffic in Great Britain reached a new record level

Commuting into Cardiff is a snapshot of this: each day over 80,000 people travel to Cardiff for work from neighbouring local authorities, including 20,000 from the Vale.⁵ This makes up around a third of people working in Cardiff. The vast majority (about 80%) of those travelling in from neighbouring local authority areas currently do so by car.⁵ There are around 59,000 working residents in the Vale, of whom around half (28,500) work in the area and half (30,300) commute out of the area; around 14,000 people commute into the Vale. The majority commuting out work in Cardiff, with smaller numbers commuting to Bridgend and Rhondda Cynon Taf.¹¹

Among staff working in the Cardiff and Vale UHB, over 1 in 6 (17%) report walking or cycling to work, 8% take public transport, and 8% share their car journey with a colleague, with the remainder travelling alone by car.¹²

One bright spot is that while overall rail use remains lower than the 1950s (10% of journeys now compared with 17% previously) this has been steadily increasing following a low of 5% in the mid-1990s.¹

Our built environment

As our transport modes have changed over the past century, our built environment has followed. As well as a decline in the previously extensive public transport infrastructure for trams, buses and railways, our rural and urban

environments have been indelibly shaped by the car. Reversing this long-standing trend will take significant effort.¹⁴

Unused, parked vehicles take up a significant part of our urban space - on roads and outside houses, shops and work. Despite encouraging efforts to reverse the trend in recent years, our road network is designed to facilitate the movement of cars, rather than meeting the needs of pedestrians or cyclists. Road junctions frequently prioritise cars over cyclists and pedestrians.

While there are some examples of excellent cycling infrastructure locally, there are still too many examples of cycle lanes which start and stop inconsistently, with little in the way of continuity of flow car drivers have come to expect.

Most housing and commercial developments over the last 50 years have been shaped by cars, not people



Most housing and commercial developments over the last 50 years have been shaped by cars, not people. The rise in out-of-town shopping centres and offices has necessitated car travel (and ownership) for many people.

At the same time, increasing traffic on the road has led to a progressive reduction in urban green space, and in uninterrupted peaceful green spaces in rural areas.

The effects on health and well-being

The profound shift in how people get around, and the built environment changes which accompanied this, are exposing us to a combination of risk factors which we now know lead directly to serious illness and reduced life expectancy.



Physical inactivity and sedentary lifestyles

Health impacts: increased risk of death from any cause; increase in risk of cardiovascular disease, cancer, and type 2 diabetes; adverse impacts on mental well-being

This hasn't been seen among the most deprived, leading to worsening health inequalities.¹⁶ Teenage girls have the lowest physical activity levels out of the UK countries, with only 8% of Welsh teenage girls meeting the physical activity guidelines.¹⁶



Over half (54%) of adults in Cardiff and Vale are overweight or obese

Over half (54%) of adults, and a fifth (21.5%) of 4-5 year olds in Cardiff and Vale are overweight or obese,⁴ with the rates higher in more deprived areas. Obesity is a complex issue which has been discussed in previous annual reports, but we know that changes in physical activity levels are a key driver of the current epidemic.¹⁵ Physical activity levels for many people are insufficient to maintain good health: two in five (41%) of adults in our area don't do sufficient physical activity, with over a quarter (27%) classed as being inactive (less than 30 minutes physical activity in a week).⁴

While physical activity levels across Wales are broadly static, this masks a recent increase in activity among the least deprived communities.

Fewer than 1 in 10 (8%) of teenage girls in Wales meet the physical activity guidelines.

Car ownership is linked to how much walking and cycling people do, with a perception that car journeys are invariably quicker and easier than active travel. You are much less likely to undertake active travel if you have a car (37% with a car, compared to 71% without).¹⁷ Use of a car is associated with an increased risk of obesity, while walking and use of public transport is associated with not being overweight or obese.¹⁸ Active travel is less common in rural compared with urban environments in the UK, and becomes less common as people age.¹⁷

You are much less likely to undertake active travel if you have a car

We now know that insufficient physical activity and being sedentary are dangerous to our health.^{19,20} Being sedentary is associated with an increase in death from any cause of over a fifth (22%), and an increase of around one in seven in the risk of death from cardiovascular disease (15%) and cancer (13%). There is a staggering near doubling (91%) of the risk of acquiring type 2 diabetes. These effects are even more pronounced if sedentary activity is not offset by regular physical activity.¹⁹ Over 24,000 people are currently recorded as having diabetes in Cardiff and Vale.²¹



The Academy of Medical Royal Colleges has recommended that “a change in culture is needed so that it is no longer considered ‘normal’ to spend a large amount of time sitting in cars.”²²

Sedentary lifestyles are associated with a 91% increase in risk of type 2 diabetes



Air pollution

Health impacts: associated with cardiovascular and respiratory disease, stroke, cancer, diabetes, low birth weight, dementia

The nature of air pollution

Great progress was made in environmental protection in the 1950s with the introduction of the Clean Air Act, which enforced smoke control areas in some cities to reduce smog and air pollution from sulphur dioxide.²³

The main pollutants of concern today are nitrogen dioxide (NO₂), and particulate matter (PM_{2.5} and PM₁₀). The primary source of both pollutants are vehicle emissions, especially those from diesel vehicles, although there are industrial, agricultural and domestic sources too. Exhaust emissions continue to be produced when diesel or petrol vehicles are stationary and the engine is on, and traffic congestion tends to worsen emissions.

Deaths from particulates increase steadily with exposure for over 65s, even at concentrations below the current WHO guidelines and EU legal levels, for both short-term and long-term exposure.²⁵

Benzo[a]pyrene (BaP) is a component of PM₁₀ generated by diesels; maternal exposure to BaP has been linked to mental health problems in childhood and neurocognitive delay.²⁶ BaP emissions rose by 52% in the EU between 2000 and 2014, with 80% of the urban population exposed to levels above WHO limits.²⁶

Roadside concentrations of NO₂, which are mainly emitted by diesel vehicles, has been above the legal limit in nearly 90% of urban areas of the UK since 2010.²⁷ HGVs, LGVs and buses make up just over half of the emissions, with private cars and taxis the remainder.²⁸ Levels of NO₂ in Cardiff and Vale residential areas are the highest in Wales.²⁹

Levels of NO₂ in Cardiff and Vale residential areas are the highest in Wales.

Particulate matter (PM_{2.5}) pollution is also higher in Cardiff and Vale than all other LHB areas in Wales. Cardiff has the highest annual average concentration, weighted for population, among local authority areas, at 9.5 µgm⁻³. This is slightly below the mean for England (9.9 µg m⁻³), but above the average concentrations in Scotland (6.8) and Northern Ireland (6.6). Due to the levels of air pollution, there are currently four statutory air quality management areas (AQMA) designated in Cardiff, and one in the Vale (see Box 1). Because of the characteristics of particulate pollution, evidence suggests there is no 'safe' threshold, so it is likely that many more people are affected by air pollution exposure beyond these localised 'hotspots'.

Box 1. Air quality management areas in Cardiff and the Vale³⁰

Cardiff City Centre, Cardiff
Llandaff, Cardiff
Stephenson Court, Cardiff
Ely Bridge, Cardiff
Cogan, Penarth

Transport pollution isn't just from cars: diesel buses and trains can also be significant contributors and any plan to reduce air

pollution needs to address this as well.^{31,32} A recent study found air pollution levels in a large railway station in London exceeded those on a busy road outside.³¹

The general trend for air pollution from transport is a reduction over the last two decades,⁸ but it remains much higher than it should be for good health.



Exposure to air pollution

The relationship between exposure to air pollution and mode of transport is complex.
27,33-35

Exposure to air pollution is generally higher sitting inside a vehicle than outside on the road itself, because vehicle ventilation systems suck in polluted air from the vehicle in front and recirculate and concentrate it in a small area. However, because active travel increases the breathing rate, the amount of inhaled pollutant is generally higher for active travel modes. In spite of this, because of the overwhelming benefits of physical activity on cardiovascular and general health, people who travel in motorised transport still reduce their life expectancy by a year on average compared with people who actively travel.³⁶ When active travel routes are built away from busy roads, and less polluting vehicles become more common, the benefits of active travel increase further.



“Children sitting in the backseat of vehicles are likely to be exposed to dangerous levels of air pollution. If more drivers knew the damage they could be doing to their children, they’d think twice about getting in the car.”

Prof Sir David King, former government Chief Scientific Adviser²⁷

High levels of air pollution aren’t confined to main roads. A recent study of estimated air pollution around health facilities in London found that over half of the NHS sites in the capital exceeded legal limits.³⁷ The authors recommend that organisations across the UK review air pollution levels around health facilities as a matter of urgency.



Health impacts of air pollution

Using international modelling, it has been estimated that across the UK around 40,000 deaths each year are due to air pollution (PM_{2.5} and NO₂).³⁸ In Wales, an equivalent of around 1,600 avoidable deaths are estimated each year due to particulate matter, and 1,100 due to NO₂ exposure.²⁹

It is estimated 143 deaths each year in Cardiff and 53 each year in the Vale among over 25s are due to air pollution caused by particulate matter, and 2,100 life years are lost each year.³⁹ Long-term exposure to particulates is

estimated to be responsible for 5.1% of all deaths in Cardiff and Vale.^{29,39} Across Wales, the years of life lost due to air pollution puts it ninth out of the top 10 modifiable risk factors, but three other risk factors associated with a car-dependent environment, namely high blood pressure, high body mass index, and low physical activity are also in the top 10 (see Figure).¹⁶

Figure 3. Top 10 risk factors for years of life lost (YLL) in Wales (2015). Four of the top ten are impacted by car use.¹⁶




An estimated 5% of deaths in Cardiff and Vale are due to particulate matter air pollution

Air pollution has been linked to cancer, asthma, COPD, pneumonia, stroke and heart disease, diabetes, obesity and changes linked to dementia.^{38,40} Long-term exposure reduces life expectancy, principally due to increases in cardiovascular disease, respiratory disease and lung cancer.^{40,41}

Children are four times more likely to have significantly reduced lung function in adulthood if they live in highly polluted areas.⁴⁰ The risk of adults developing type 2 diabetes has been found in large prospective studies to increase by up to 10% for every 10µgm⁻³ increase in exposure to pollutants.⁴⁰

Dirty air has also been associated with premature birth, and low birth weight. It is estimated that one fifth of cases of low birth weight are due to traffic-related air pollution, with the greatest harm occurring with exposure in early pregnancy.⁴⁰ NO₂ exposure has been linked to neurodevelopmental impairment, and increased risk of attention deficit hyperactivity disorder (ADHD) in children.⁴⁰



It is estimated that one fifth of cases of low birth weight are due to traffic-related air pollution.

Short-term exposure to air pollution can lead to negative effects on lung function, exacerbation of conditions such as asthma, and increases in hospital admissions and deaths.⁴¹

Health problems from air pollution in the UK have been estimated to cost society, businesses and the NHS over £20bn per year (Box 2).⁴⁰



Box 2. The health impacts of air pollution

"Damage [caused by air pollution] occurs across a lifetime, from a baby's first weeks in the womb all the way through to the years of old age.... Harm to babies and children will have an impact that lasts far into the future. For the same reason, any air quality improvements we make now will have long-lasting benefits. Older people, and adults with long-term conditions are also vulnerable to the effects of air pollution. Improving air quality will help them to stay independent and well, benefiting individuals and easing the pressure on our NHS and social services." Every breath we take: the lifelong impact of air pollution. Royal College of Physicians and Royal College of Paediatrics and Child Health (2016)⁴⁰



Road traffic injuries and deaths

Health impacts: serious injuries and deaths due to physical trauma; knock-on impact on active travel levels in population; reduced outdoor play by children

Even with significant improvements in road safety over the last 30 years, with progressive advances in car safety equipment, a change in drink-driving culture, and speed limit enforcement, deaths and injuries associated with cars remain common.

There are 20 road accidents causing death or serious injury each week in Wales

In Wales there were 975 road accidents which caused death or serious injury in 2016, or nearly 20 serious accidents each week. 103 people died last year in road accidents in Wales, or two people each week. Such statistics are unfortunately so common and an accepted part of driving that they no longer cause public concern – but if there were that number of incidents or deaths on the railways in Wales each year there would be a public outcry.



Half of car drivers in 30mph zones routinely exceed the speed limit

Enforcement of speed limits is important, with half (52%) of car drivers in 30mph zones routinely exceeding the speed limit.⁸ Figures for Great Britain found that a quarter (24%) of road fatalities were pedestrians.⁴² The number of incidents and casualties is highly sensitive to speed. A drop of just 1mph in average speed is estimated to reduce incidents by 5-6% on urban roads.⁴³

The most common cause of death for children aged 5-14 years is being hit by a vehicle.⁴⁴ Those aged over 60 are seven times more likely to die from being hit by a car at 30mph compared with other age groups;⁴⁴ over a third (35%) of all pedestrian fatalities are people aged 70 or over.

The most common cause of death for children aged 5-14 years is being hit by a vehicle.

The perception of road safety has also had a significant impact on people's willingness to cycle for work and leisure, as well as parents'

willingness to let their children play outdoors in the street. This coincides with an increase in children's 'screen time', the amount of time spent by children and young people on electronic devices.⁴⁵ Play, including outdoor play, is incredibly important to children's physical development and mental well-being.⁴⁶



Increase in loneliness and social isolation

Health impacts: Reduced mental well-being and lower life expectancy

Seventeen percent of people in Wales report being lonely,⁴⁷ with results from a recent local survey in Cardiff and Vale putting the figure at nearly 1 in 4 (23.3%) among people in more vulnerable groups.⁴⁸ As car use has become more prevalent, people's social and support networks have also become more geographically dispersed.



Nearly 1 in 4 vulnerable people in Cardiff and Vale report being lonely some or all of the time

How well people are connected to their neighbours, and how many they count as friends, has been found to be directly associated in the UK and internationally with the traffic volume in their street.

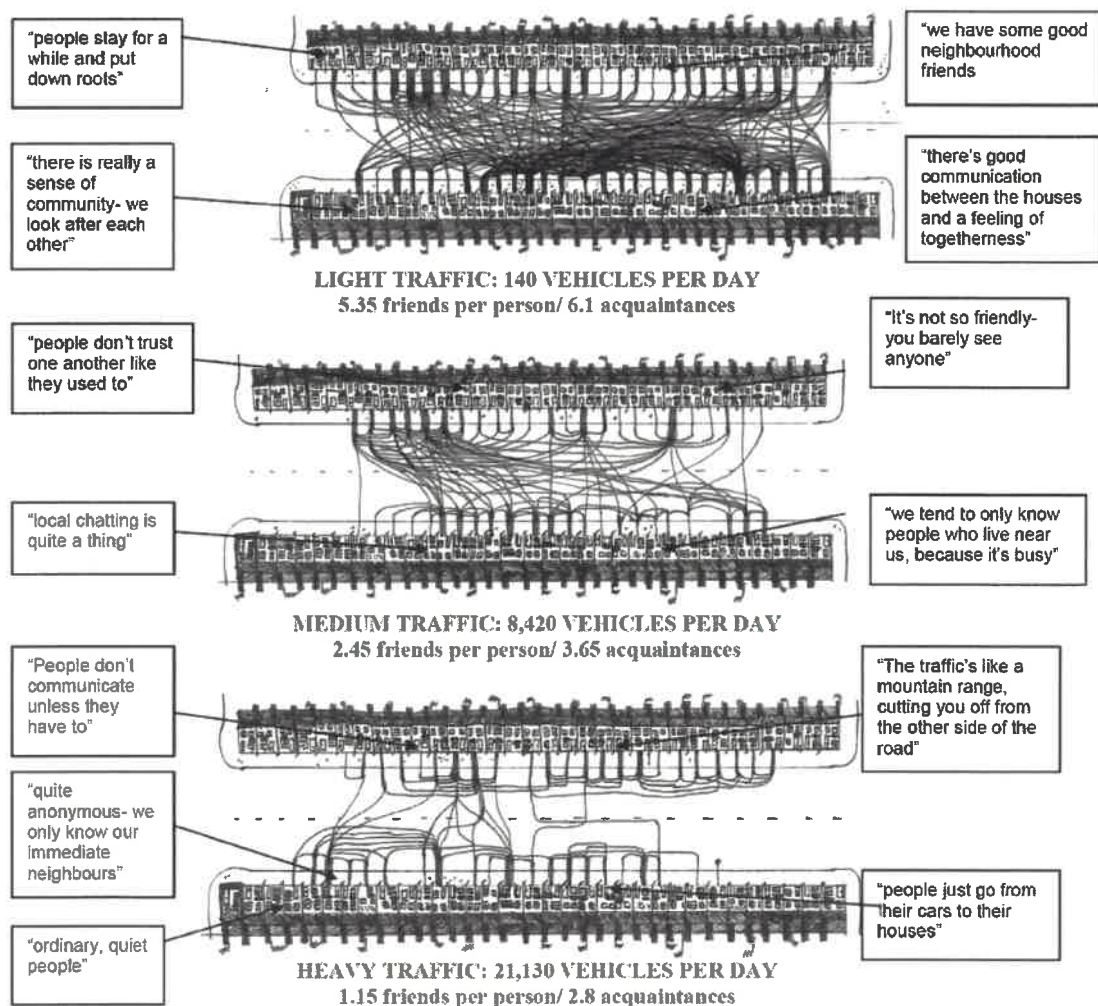
Replicating a classic US study from the 1960s, a study in Bristol in 2008 found that the number of friends and acquaintances reported by residents was significantly lower on streets with higher volumes of motorised vehicles.⁴⁹ The study asked residents on quiet, medium

and busy traffic streets to draw lines on a map of their street representing where their friends and acquaintances were on the street (see Figure 4). The average number of friends of each resident on the light traffic street was 5.35, compared to 2.45 on the medium traffic street and 1.15 on the heavy traffic street. Residents on the light traffic street also reported more of a sense of community and togetherness.

Residents on the light traffic street reported more of a sense of community and togetherness

The increasing reliance on the use of a car to reach shops, banks and community facilities has had a particular impact in rural

Figure 4. How community interactions vary by traffic volume.⁴⁹



communities. While a minor inconvenience for people with a car, those without become reliant on easily accessible and frequent public transport to access facilities and maintain their social networks and independence.

Increased car use has been associated with 'severance', the isolation of individuals and communities for example where a wide, busy road makes short local walks difficult.¹⁸

Loneliness and social isolation has a direct impact on length, as well as quality, of life. Studies have found that low levels of social integration, and isolation, significantly increase mortality. One study found social isolation increased the risk of death by a quarter (26%), partly but not wholly mediated by long-term illness and social deprivation.⁵⁰ Social participation acts as a protective factor against dementia and cognitive decline in the over 65s.⁵¹

Reducing car use and traffic speeds, and increasing access to public transport and active travel have been highlighted as priorities in an international report looking at healthy ageing in cities.⁵²

Reducing car use and increasing access to public transport support healthy ageing in urban environments



Transport noise

Health impacts: associated with high blood pressure

There is evidence that road transport produces noise pollution resulting in noise levels in excess of WHO guidelines for over 200,000 people in Wales.⁵³ The majority of these are in South Wales; in our area they are focused around key trunk roads including the M4, A4232, A48 and key routes in Cardiff.⁵⁴ Although transport noise may be seen as an inevitable consequence of living in an urban area, or near a large road, it has a long-term adverse impact on cardiovascular health, being associated with a small but significant increase in blood pressure.⁵⁵ In addition it has been associated with impaired intellectual development in children, sleep disturbance and reduced well-being.^{18,56}

Traffic noise is associated with high blood pressure, impaired intellectual development in children, and sleep disturbance

Traffic noise should not be inevitable: it is possible to reduce the volume of traffic by encouraging healthier forms of travel. Reducing speeds, and moving away from petrol and diesel powered trains and motor vehicles, also have the potential to reduce noise pollution.



Reduction in green space

Health impacts: associated with reduced physical activity, reduced mental well-being, increased mortality

Across the UK there has been a historic and ongoing steady decline in green spaces, due to net deforestation and urbanisation.⁵⁷ At the same time there is a growing evidence base on the positive effect on mental health and well-being of living near and visiting green spaces.^{51,58,59}



The rise in cars has led to increasing areas of our rural and urban landscape being concreted over, including the trend of paving over gardens to allow cars to be parked outside homes.⁶⁰ As well as reducing the space for nature to thrive, this impacts on the ability of urban areas to soak up rain and reduce flooding naturally.

A recent World Health Organisation (WHO) review of the health benefits of urban green spaces found multiple impacts,⁶¹ including improved social interactions and social capital, positive effects on the immune system, enhanced physical activity and reduced obesity, reduced exposure to air pollution, noise buffering, improved cardiovascular health,

reduced prevalence of type 2 diabetes, improved cognitive functioning, and reduced mortality.

Green spaces are associated with improved social interactions, increased physical activity and cardiovascular health, and reduced mortality



Exacerbating health inequalities

Health impacts: gap in life expectancy of around 11 years (Cardiff) and 8 years (Vale) between least and most deprived areas; pollution tends to be worse in more deprived areas; higher incidence and poorer outcomes across a wide range of health conditions

There are significant and persistent health inequalities in Cardiff and the Vale of Glamorgan. This is most clearly illustrated by the dramatic difference in life expectancy depending on where people live. A man living in one of our most deprived communities in Cardiff can expect to live 11 years fewer than someone in the least deprived areas. A similar gradient exists for women and for people in the Vale.

A man living in one of our most deprived communities in Cardiff can expect to live 11 years fewer than someone in the least deprived areas.

The rise in car use has exacerbated health inequalities. On the one hand, people in the least deprived communities are more likely to have a car than those in the most deprived areas. On the other, the impact of pollution (particularly NO₂)⁶² is felt more in deprived areas, which tend to be located closer to main highways, have a higher proportion of 'imported' traffic (from less deprived areas), and have a higher proportion of people with chronic illness which makes them more vulnerable to air pollution exposure.^{51,63}

Carbon dioxide (CO₂) emissions due to transport are significantly higher from the 10% least deprived households than the 10% most deprived, with the least deprived contributing to 17% of CO₂ emissions and the most deprived 2%.⁶⁴

Road traffic injuries and deaths are also higher in more deprived areas. Children in more deprived wards are four times more likely to be hit by a car compared with the least deprived wards.⁵¹ Fatal accidents on the road are also particularly high among children of unemployed parents.⁵¹

Children in more deprived wards are four times more likely to be hit by a car compared with the least deprived wards



Car-dependent environments isolate people without a car, making it difficult for them to access employment and education opportunities, further exacerbating and embedding inequalities.^{65,66} This is a particular issue in rural areas which are more reliant on

good public transport networks. Young people, and older people who can't drive, are particularly affected.

UK public spending to support transportation is nearly four times higher for the richest 10% (who primarily use a car or the train) than for the most deprived 10% (who primarily use the bus).⁴⁴

Access and visits to green space, often curtailed by highway expansion and an important contributor to physical activity, obesity and well-being levels, are also lower in more deprived areas.⁵¹

Thus there is a double-whammy on health inequalities: cars are owned and used more by the least deprived, but the negative consequences from car use impact most on the most deprived.

Cars are owned and used more by the least deprived, but adverse impacts are felt most by the most deprived

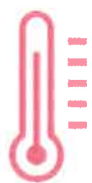
How the planet is responding

Climate change

Health impacts: mental health impacts of severe weather events; food insecurity; impact on community cohesion from mass migration

There is incontrovertible evidence from the international scientific community that climate change is taking place due to man-made emissions of greenhouse gases. Burning fossil fuels is a major contributor to these emissions, and nine in ten adults in Wales identify man-made emissions as contributing to global warming.⁴⁷

If existing commitments made by countries around the world are all implemented, global warming of 2.7°C is currently predicted, but there is a real danger of warming exceeding this.⁶⁷ The 'business as usual' modelling scenario, which assumes emissions continue unabated, projects increases of more than 4°C above the pre-industrial temperature by 2100.^{68,69} Regional variation across the globe means some parts of the northern hemisphere will experience temperature increases of over 10°C.



Global temperatures are expected to increase by 4°C by 2100 if current trends continue, with some areas experiencing 10°C increases

Global warming is not something we should welcome. Projections suggest there will be real impacts on people, communities and infrastructure around the globe within the next generation.



A rise in global temperatures will bring with it more frequent extreme weather events (such as heatwaves and flooding), food insecurity (as the traditional areas of the world which produce food suffer from drought and less fertile land), and the likelihood of mass migration over many years, from areas of the world which are no longer habitable. Rising sea levels will increase the likelihood of coastal flooding – particularly relevant in our area.⁶⁸ There are also less predictable impacts, such as the potential for infectious diseases to spread more easily.⁶⁷ The most recent UK Climate Change risk assessment also highlights substantial risks to UK wildlife and natural ecosystems.

Increased flood events will affect our communities and core infrastructure such as hospitals, health centres and transportation networks

Each of these impacts will be felt in the UK, ranging from increased flood events affecting our communities and our core infrastructure such as hospitals, health centres and transportation networks;^{53,67} pressure on water availability during the summer; through to increased food prices, likely to have the largest

impact on the most deprived groups in society; and increased migratory flows which, if large or unmanaged, may impact adversely on community cohesion. In Wales, rainfall during the summer is predicted to fall by 20% by the 2080s, and rise by a similar amount in the already wet winter months.⁷⁰ Effects on transport networks, energy and digital infrastructure are also predicted.⁷¹ Climate change also poses a threat to coastlines and tourism reliant on the natural environment.

Flood-related displacement of communities has been found in the UK to cause significant and enduring mental health issues.⁷² Across Western Europe, there will also be an estimated increase in heat-related deaths of around 14,000 per year if there is no adaptation and climate change continues at the current rate.⁷³ The threat of climate change to human health is increasingly being recognised within the UK public health arena.^{68,74,75}

Flood-related displacement of communities has been found in the UK to cause significant and enduring mental health issues.



The impacts of climate change will be felt most heavily in the southern hemisphere and poorer countries. Globally, between 2030 and 2050, climate change is projected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress.⁷⁶

Two thirds (67%) of adults in Wales are concerned about climate change,⁴⁷ and in a

recent 'national conversation' involving 70,000 people across Wales for the Well-being of Future Generations Act, climate change was rated as the single most important issue for people in Wales.⁷⁷

One quarter of domestic greenhouse gas emissions are due to car transport

One quarter (23%) of UK domestic greenhouse gas emissions were from car transport in 2014,⁶⁴ up from 15% in 1990.⁸ In contrast, just 3% of household emissions are due to public transport. Car CO₂ emissions are highest in the 45-55 age band, and lowest among under 25s and over 65s. In our area, it is estimated that 5 tonnes of CO₂ are emitted per person in Cardiff, and 4.9 tonnes per person in the Vale.⁷⁸ These have both shown a progressive decline over the last 10 years.

The issue of greenhouse gas emissions from transport is far from solved: for each of the last two years in the UK, emissions from road transport have actually increased.^{79,80} Reducing the burning of fossil fuels for transport would not only have a beneficial impact on the climate, but would have geopolitical and sustainability benefits too, reducing the UK's reliance on gas and oil imports.

Yet reducing car use is low in the public's mind when it comes to addressing climate change. In the National Survey for Wales, a large annual survey of households, almost everyone reported recycling waste as a means to protect the environment (97%), with a much smaller proportion, 1 in 4 (25%), reporting they have reduced the amount they travel by car.⁴⁷

We could do things differently

What we need to do

A growing body of evidence describes the positive impacts on health and well-being across society which are possible if we increase our active travel rates, reduce air pollution, and prioritise designing well-connected and attractive urban and rural communities. Recent technological advances may also help with this.



Support active travel and public transport

Reduce car use

In order to increase physical activity it is necessary to reduce use of the car.⁶⁶ Many of the journeys which are currently made by car in Cardiff and the Vale could be made by walking, cycling or public transport. Daytime journeys of less than 2km, which do not involve carrying bulky loads, should generally be walkable for individuals aged 5 to 74 without a disability.⁸¹ When combined with public transport as part of an integrated transport system, active travel can also be a sustainable and healthy alternative to car-based travel for longer journeys.⁶⁵



Daytime journeys of less than 2km should be walkable for individuals aged 5 to 74 without a disability

Over half of residents in Toronto (54%) and Copenhagen (63%) cycle regularly.⁵ A similar proportion in Cardiff (56%) say they would like to ride a bike more, and three quarters (74%) think it would be better if there was more

cycling.⁵ Furthermore, over half of Cardiff residents (57%) travel less than 5km to work.⁵ 84% of residents in the Vale use a car once a week or more, compared to 7% who cycle weekly.⁶

Because lifestyles have developed around near-universal car use, alternatives to the car must provide a level of accessibility similar to the car to be widely adopted.⁶⁶ In Cardiff, use of the car for commuting is only one quarter of journeys, with a similar proportion due to each of leisure, shopping, and other purposes.⁵

NICE recommends the use of car-free days to raise awareness and interest in active travel,⁴¹ and has published evidence-based guidance on increasing walking and cycling levels.⁸²

'Designed to move: Active Cities' cites an extensive evidence base on the economic, well-being and environmental benefits of cities becoming more active.⁸³ Examples include significant increases in employment and visitors and community involvement; and falls in crime (74%), pollution and stress.

Improve infrastructure to support active travel

Well-designed infrastructure to support active travel, as well as frequent, reliable public

transport which covers all major local destinations, are essential elements in increasing take up of these travel modes.⁵¹ Eight in ten Cardiff residents think that safety for cycling needs to improve.⁵

Historically, investment in infrastructure for cars has dwarfed that of walking and cycling routes. The UK Faculty of Public Health has called for 10% of transport budgets to be committed to walking and cycling.⁸⁴ NICE found that off-road cycle routes were good value for money, with every £1 investment in off-road routes returning around £14 in benefits.⁴¹ They advise that cycle routes should ideally be on quiet streets or segregated, in order to minimise exposure to air pollution. Investments in walking infrastructure return £37 for every £1 invested.⁸⁵



NICE found that off-road cycle routes were good value for money, with every £1 investment in off-road routes returning around £14 in benefits



Road space should be progressively reallocated to active travel modes as their share of journeys increases;^{22,66} this prevents car use

from increasing again as congestion starts to fall, and is also highly efficient, especially for a growing population: 12 bicycles can be stored in a single car parking space.⁸⁶ Road crossings should be modelled around pedestrians and follow their 'desire' lines.⁵¹

12 bicycles can be stored in a single car parking space

In designing environments to encourage active travel, evaluation of success may include the use of data from smartphone apps, for example cycle app data which can reveal changing patterns of local travel.⁸⁷

Box 2. Road design in Europe

The Netherlands adopted five principles of **sustainable safety** in 1992, to prevent severe crashes and reduce the severity of injuries when crashes do occur.⁸⁸ The principles include clearly defined road categorisations which separate road users according to speed and purpose, and segregating traffic where speed differences cannot be eliminated. Motorized vehicles are considered as 'guests' in residential areas, with pedestrians and cyclists prioritised.⁸⁹ Predictable road layout is encouraged, with a 'forgiving' environment should errors occur (e.g. 45° rather than 90° pavement edges to reduce the likelihood of a cyclist falling if they hit the kerb edge). Sustainable safety has been found to contribute to a significant reduction in fatalities.⁹⁰ **Filtered permeability** is another concept common in European transport planning, with pedestrians and cyclists given an advantage, in terms of speed and convenience, compared to motor traffic – for example, a two-way cycle route but one-way car traffic.⁸⁴

Support people to take up active travel at trigger points in their life

Suitable active travel infrastructure is necessary to enable a modal shift, although not sufficient in itself.⁹¹ In addition to investing in infrastructure, for many people the trigger to take up active travel is a significant life event.⁹² For example, starting a new job or moving to a new workplace location, becoming a parent, people recovering from ill health, and people retiring, have all been found to be triggers which make people more likely to review their travel options and switch to active travel. Raising the topic of active travel at these critical points is something which could be done systematically throughout the public sector locally, which will be involved in these events for many people.

For many people the trigger to take up active travel is a significant life event

Provide high quality, flexible public transport

Public transport use is facilitated by affordable ticket prices, flexibility in stops, high quality travel information and regular services.^{22,93} Modelling in Australia found that there was significant potential to increase the number of adults physically active by encouraging people to take public transport.⁹⁴ The study reviewed international evidence and found that on average around 15 minutes' walking time was associated with public transport use each day. Mixed mode travel, especially important in rural areas where combined active travel and public transport is the most pragmatic approach for many journeys, can be enabled by allowing easy transport of bicycles on buses and trains.⁹³ In Germany a controlled study

which gave free public transport tickets and a personal schedule to people who had recently moved house resulted in a doubling of public transport use (18% to 36%) and a decline in car use (53% to 39%).⁶⁶

Public transport use is facilitated by affordable ticket prices, flexibility in stops, high quality travel information and regular services



Reduce air pollution and carbon emissions

National Institute for Health and Care Excellence (NICE) recently issued detailed guidance on improving air quality and health. Recommendations include supporting active travel, providing infrastructure for electric vehicle charging, introducing clean air zones, and bringing in 'no idling' bylaws outside schools (see Box).⁴¹

NICE recommends the introduction of Clean Air Zones which support low-emission travel

NICE found that clean air zones cost around £2 per head annually (based on Amsterdam costs), but deliver benefits which far exceed this, of around £29 benefit for every £1 spent.⁴¹ Low emissions zones should ideally cover all motor traffic, including cars and vans, to be effective at improving air quality.²⁶

No idling zones outside schools were estimated to have a return on investment of up to £44 for every £1 spent.⁴¹



Clean Air Zones deliver benefits worth £29 for every £1 spent

Box 3. Selected recommendations from NICE guidelines on improving air quality.⁴¹

Support active travel. There should be a choice of cycle routes, including routes avoiding highly polluted roads

Support car sharing schemes and car clubs

Provide electric vehicle (EV) charging points in workplaces, commercial developments and residential areas

Consider introducing a clean air zone that introduces restrictions or charges on certain classes of vehicle, and supports zero- and low-emission travel (including active travel)

Where traffic congestion is contributing to poor air quality, consider incorporating a congestion charging zone within the clean air zone

Introduce bylaws to support 'no idling' areas where vulnerable groups congregate such as outside schools, hospitals and care homes

Specify emission standards for private hire and other licensed vehicles

Address emissions from public sector transport

Introduce 20mph zones without physical measures, to avoid unnecessary accelerations and decelerations which contribute to air pollution

Many of the NICE guidelines are echoed by a major joint Royal College report into air pollution,⁹⁵ which also recommends promoting safer 'school runs' which avoid using the car, encouraging employers to support alternatives to commuting by car, promoting leisure cycling, and monitoring and displaying air pollution around schools. They also recommend local authorities should publish serious incident alerts when levels exceed WHO and EU limits.⁴⁰ The report calls on the NHS to lead by example and set the benchmark for clean air and safe workplaces.



The NHS should set the benchmark for clean air and safe workplaces

While electric vehicles are preferable to petrol and diesel-fuelled vehicles in terms of air pollution, it is important to note that EVs still produce particulate matter, albeit at lower levels than diesel vehicles especially. Therefore strategies to improve air quality and health should still focus primarily on active travel and low emission public transport. Where vehicles are still required, EVs (and other ultra low emission technologies) should be prioritised over internal combustion engine (ICE) vehicles.

Shifting the model of car ownership to a shared or rental model would change the cost profile of driving; instead of a large up-front investment (buying a car) with individual journeys relatively cheap to make after that (thus encouraging them), the costs would be more evenly distributed. This would not only lower the barrier to use of car when required (e.g. carrying bulky goods) but also discourage use of the car when public transport or active travel may be as easy. This would also potentially be cost-saving for more deprived households, reducing inequalities.⁶⁶

Case studies demonstrating systematic approaches to improving air quality are available on Defra's website,⁹⁶ and guidance to local areas in Wales from Welsh Government and Public Health Wales is due shortly.

Design well-connected and attractive communities

Street layout and proximity to other routes has been found to relate to active travel behaviour, with more active travel and less car use in more 'integrated' streets (those linking better to other streets).^{97,98} Streets with lower traffic volumes have also been found to have stronger social networks between neighbours,⁴⁹ reducing social isolation.

Walking is encouraged by safe, traffic free walking routes and large public open spaces.⁵¹ A UK survey on walkability in large cities found Cardiff had a lower score for accessing green spaces (50%) compared with the UK mean (54%), but did score well for safety of walking.⁹⁹ The Faculty of Public Health suggests transport and land use proposals with a negative impact on walking and cycling should routinely be rejected, and towns and cities should be 'people friendly' rather than car-friendly.⁸⁴ Higher density development should be encouraged near public transport hubs,²² and commercial developments should have zero car parking except for blue-badge users.²²

Reducing traffic speed with 20mph limits make streets more inviting for walking, socialising and cycling. Published modelling for Wales has estimated that if all 30mph roads were reduced to 20mph in Wales, between 1,200-2,000 casualties would be avoided each year, along with a net reduction in deaths and years of life

lost due to air pollution.¹⁰⁰ The Faculty of Public Health has called for 20mph limits to be the norm for residential streets, with higher limits only on strategic traffic routes.⁸⁴

Reducing traffic speed with 20mph limits make streets more inviting for walking, socialising and cycling

People who walk and cycle in a neighbourhood are more likely to spend money in local shops than people in cars who are more likely to drive through.^{51,65} Retail sales have been found to increase by around 30% where walking and cycling projects have been undertaken.¹⁰¹ It is therefore important to engage with local business communities to raise awareness of the financial benefits associated with prioritising walkability, active travel and public transport access.⁹³



People who walk and cycle in a neighbourhood are more likely to spend money in local shops

Tools to help people moving to an area identify neighbourhoods which are more walkable are becoming available, such as Walk Score in the US.¹⁰² A newly devised walkability score for London was tested against walking behaviour in a large cohort study, and found that people in more walkable areas were – unsurprisingly – more likely to walk.¹⁰³ Understanding the key characteristics of walkable neighbourhoods and incorporating these into future developments and works is therefore important in improving physical activity.

In some areas of the UK residents are working with local authorities to allow children to safely play in the streets outside their houses, by temporarily closing the street.¹⁰⁴ Many examples are in England, but there have also been recent examples in Cardiff (see Good practice locally, below) which have been well received and demonstrate this approach can work in a local context.

Protect and enhance our green space

Ensuring everyone has access to good quality open and green spaces is a key recommendation of the Marmot report on spatial planning and health inequalities.⁵¹ Green space encourages physical activity and play, and should be accessible for those walking, cycling and using public transport, and have sufficient cycle parking.⁵¹ In a rural context, outdoor recreation and activities are a key driver of the economy.⁵³

Trees naturally absorb air pollution and improve air quality,⁶⁰ reducing particulate matter by up to a quarter (24%) in their vicinity.¹⁰⁵ Furthermore, trees sequester carbon (mitigating climate change), reduce summer air temperatures by 0.5 to 2.0°C (for example during heatwaves), and reduce noise pollution.¹⁰⁵

Provide leadership

Senior, visible leadership and role-modelling on these issues is essential, in order to raise awareness and knowledge and build a broad consensus on action required. Engagement with local residents and organisations is a key part of this.⁶⁵ Active travel should be prioritised

in urban planning and infrastructure development.⁶⁵

A passionate call has been made in the British Medical Journal (BMJ) for healthcare professionals to lead by example on this, reducing their own car use and providing leadership to help others do so.¹⁰⁶

Moves such as the introduction of the London congestion charge, which resulted in an 80% increase in cycling in central London since its inception in 2000,⁸⁴ and the UK government's timetable for phasing out fossil-fuelled cars by 2040,²⁸ have both reset expectations of what is possible, and the terms of public debate around travel and transport.

This is important: we are currently working from a 'norm' of routine petrol and diesel car use and this will only shift if leadership continues to be shown in this area.



The London congestion charge resulted in an 80% increase in cycling

Recent technological progress

The evidence of how we could make positive changes is supported by, and in some cases being overtaken by, significant progress in a number of different technologies over the last decade.

Being able to understand and respond to disruptive technologies will be an essential part of future strategy.



Bicycles

Dockless bike hire

Bike hire schemes have been around for a long time, and have increased in popularity and visibility in the last decade with schemes such as 'Boris bikes' in London. However, the cost to set up such schemes are high, and they rely on people finding docks near the start and end of their journey.

More recently 'dockless' bike schemes have started to appear, firstly in South East Asia and now in Europe.^{107,108} These schemes do not require docks, with users finding the nearest available bicycle through a smartphone app, and leaving the bike at any convenient location near their destination. The schemes are run directly by the bicycle hire company, with no investment required by the host city. While promising increased convenience for residents with no startup cost for the city, there have been concerns voiced by city authorities, principally where large numbers of bicycles have been discarded or left in inappropriate locations. Working with scheme operators to agree an approach which benefits local residents and addresses concerns would be a win-win for local authorities and the private firms.

Bicycle sharing schemes including bike hire and pooled bicycles increase the availability of bicycles

More broadly, other bicycle schemes such as pooled bicycles at workplaces, peer-to-peer sharing of bicycles, and workplace bicycle purchase schemes also offer ways to increase the availability of bicycles.¹⁰⁹

E-bikes

One of the barriers for people taking up cycling, especially in more rural areas where journeys may be longer and hilly, is the physical effort required to cycle. E-bikes offer power assisted cycling with power provided by a rechargeable battery integrated into the bike. Pedalling is still required to move the bicycle, but the motor assists when there is significant resistance such as a hill.

E-bike technology is improving and coming down in price rapidly, and is a price-competitive option for personal ownership, bicycle hire or shared bike schemes.

Car pooling and sharing

Car pooling, where individuals use a shared car (e.g. operated at their workplace, or with other residents in a local area), aims to reduce the number of journeys made by car while maintaining access when required. For example, if staff in an office need to make house visits or journeys for meetings during the day by car, a car pool would enable them to commute to work by public transport, then use a pooled car when required during the day.

Pool car systems can be locally organised, or large providers including some car hire firms offer this service. Prioritising parking for pooled cars encourages their use. Smartphones have enabled car pool systems to be used in residential areas, with residents locating the nearest pool car through an app when they make a journey for which they need a car.

Car sharing schemes aim to put co-workers in touch who live near each other, to help them save fuel and reduce emissions by sharing journeys on the same route.²²

Real-time pollution monitoring

Technology to monitor pollution is becoming cheaper and more portable. A personal monitoring device is already available which costs less than £50, CleanSpace.¹¹⁰ An accompanying app tracks your exposure to carbon monoxide during your daily journeys (a measure of vehicle exhaust exposure), presenting you with a summary of your journey on a map. This allows people travelling by foot or bicycle to avoid particularly polluted areas for future journeys.

Although delayed in its development and implementation, a system is due to start imminently in Swansea (Nowcaster) which will monitor air quality and divert drivers via electronic signs when pollution is above a certain level.¹¹¹



Ultra low emissions vehicles

Cars

Reducing emissions from vehicles is important to improve air quality and reduce harmful greenhouse gas production.

The most developed ultra low emission technology currently available is the battery electric vehicle (EV), with charging infrastructure and vehicle ranges improving rapidly. The car industry is undergoing rapid change, with the number of manufacturers launching pure EVs rapidly increasing, and Volvo recently committing to all new models being hybrid or pure electric from 2019.¹¹²

The car industry is undergoing rapid change, with the number of manufacturers launching pure EVs rapidly increasing

To further stimulate a transition to EVs, the rollout of charging facilities needs to continue, and particularly address charging where off-road parking isn't available. For example, there are now trials in London and elsewhere in the UK of EV charging from streetlamps.¹¹³ For transitional uses where current driving range and charging infrastructure is insufficient, plug-in hybrid models offer significantly lower emissions and fuel consumption than pure ICE vehicles.

Did you know...?

Electric vehicles aren't new. The first production electric vehicle was built in 1884, over 20 years before the Ford Model T started production in 1908

A number of cities across the UK are now incentivising or mandating taxis to be plug-in hybrids or pure electric vehicles, including London where all new taxis presented for licensing from 1 January 2018 will need to be able to travel at least 30 miles with zero emissions.¹¹⁴ A UK Government plug-in taxi grant has also been introduced to incentivise electric taxis, and taxi charging infrastructure is being subsidised in 10 cities.¹¹⁵ Fleet-owned vehicles are another opportunity for

introducing ultra low emission vehicles. A number of NHS organisations in the UK including acute trusts and ambulance services have already started introducing electric vehicles to their fleets,^{116,117} and Royal Mail has started trialling electric delivery vans.¹¹⁸

Box 4. Moving to cleaner energy sources

Switching to zero emissions vehicles is an important contribution to reducing local air pollution. Electric vehicles are inherently 3-5 times more efficient in their use of energy than internal combustion engine (ICE) vehicles.¹²⁰ However, to reduce wider air pollution and carbon emissions, it is important that the transition to EVs is accompanied by the continuing decarbonisation of the UK electricity grid, through increasing use of renewable energy sources.^{53,95}

There is an opportunity to marry some new demands for energy with generation at the point of use, such as through solar car parks,¹²¹ or e-bike charging stations. Wales is currently generating around 9,000 gigawatt hours of energy from renewable resources, with this figure rising.⁶⁰



A number of cities across the UK are now incentivising or mandating new taxis to be electric

While EVs certainly help in reducing local air pollution, they do not eliminate it altogether (due to particulates produced from tyre wear), and do nothing to improve physical activity rates, so measures to move people to active travel and public transport are still essential.¹¹⁹

Buses

Buses are a major source of pollution, particularly older diesel vehicles. Newer technology (such as Euro VI diesels) have much lower NOx emissions than previous generations of engines. Cardiff Bus has recently purchased ten Euro VI models.¹²² Bus fleets elsewhere in the UK have also introduced hybrid, plug-in hybrid and full electric buses into their fleets.³² While converting an entire fleet may be expensive, this could be done over time, with the busiest routes converted first; and with costs of conversion being directly subsidised by levies on polluting vehicles.

Retrofit technology for buses has been taken up extensively across the UK, with around 3,000 older diesel buses retrofitted with selective catalytic reduction (SCR) to reduce NOx emissions by over 90%, reductions which have been confirmed in real-life testing by Transport for London (TfL).³² TfL alone have retrofitted over 2,100 buses with SCR.

Retrofitting buses can reduce NOx emissions by 90%

Another option in some cases would be to replace bus routes served by polluting buses with electrified light rail services.

Box 5. Cardiff Capital Region Metro proposals

A £1.2bn City Deal was agreed in March 2016 covering ten South East Wales local authorities, including a substantial investment in a Cardiff Capital Region Metro integrated public transport system. The details of the Metro are still being worked through, but the proposal includes electrified rail; integrated transport hubs; park and ride facilities; light rail and/or bus rapid transit routes; better integration across modes and operators; and active travel interventions.¹²³ The City Deal also included a commitment to electrification of the Valley Lines rail network by 2023.⁵

Trains

Diesel trains are also responsible for high levels of pollutants. Electrification of lines will reduce the use of diesel locomotives, but can be very expensive to roll out. This is planned already for the main line to Cardiff,¹²⁴ although a previous policy to extend electrification further west has recently been cancelled. Trials have suggested that battery-operated locomotives may be able to provide a solution for areas where electrification is too costly.³¹

Home working and remote meeting technology

A further alternative to car-based travel to work or during work time is avoiding travel altogether by making use of remote technologies. This includes home working but also a reduction in travelling during work hours by substituting face-to-face meetings with teleconferences or videoconferences.

While homeworking and remote meetings are only suitable for some roles, some of the time,

they are nonetheless important options as part of an overall solution. Homeworking one day a week, for example, is likely to reduce transported-related air pollution and carbon emissions for an employee by one fifth.

Using data to analyse gaps in public transport

There is now a huge amount of anonymised data collected at a population level on people's movements, using information from smartphones. This data can be used to improve public transport. The makers of a popular transport app, CityMapper, used data in London to identify gaps in existing routes and have now set up a night bus route to meet this need.¹²⁵

Technology on the horizon

Improvements in electric vehicle technology

The range and affordability of electric vehicles is increasing rapidly, with most major manufacturers now planning to release EVs within the next 1-2 years. Prices of EVs are expected to fall progressively.

Increases in EV uptake rates will require the introduction of smart charging technology to avoid overloading the electricity grid, for example by scheduling charging at various points overnight to even out demand.

Technology to allow on-the-go charging of vehicles ('dynamic charging') through the road surface, is already being trialled in South Korea and the US.¹²⁶ This has the potential to allow public transport vehicles to stay in service while charging.

Autonomous and connected vehicles

While some vehicles already available connect to the internet, the scope and nature of this connectivity has the potential to evolve further over the coming years, with cars communicating with traffic lights or other cars, to better understand local traffic conditions, pollution levels, and to avoid collisions.¹²⁷

Self-driving cars are on the verge of becoming a reality due to improvements in sensors and advances in artificial intelligence. Cars are already on the market which can brake by themselves to avoid collisions, park themselves, and drive autonomously on motorways. Major manufacturers plan to have almost fully autonomous cars on the road within the next 4 years.¹²⁸ Autonomous freight vehicles are also planned.

Major manufacturers plan to have high automation cars on the road in the next 4 years

The potential impact of autonomous or driverless vehicles within the next 10-15 years is noted in the Welsh Government Future Trends report.⁷¹

Within the context of an integrated transport system, perhaps the biggest potential for autonomous vehicles is a role in 'mobility as a service'. This would see autonomous vehicles running a fixed route, or being summoned on demand (essentially a driverless taxi), and could help plug holes in public transport coverage. Driverless pods have been used at London Heathrow airport for over 5 years now, and are now being trialled in Greenwich.¹²⁹ Car-sharing technology firms such as Uber, which are already having a disruptive impact on the transport sector, are also trialling autonomous technology.¹³⁰

As the technology matures, autonomous vehicles have the potential to have a broad range of impacts, from improvements in road safety, to reducing personal car ownership, and impacts on jobs in the transport industry.



How health and well-being could improve

Encouraging walking and cycling, and reducing air pollution, should result in significant improvements in cardiovascular health, rates of diabetes, overweight and obesity, falls, cancer and mental health, as well as overall increases in life expectancy.

For example, increases in physical activity result in a reduction in the overall death rate by up to 30%, a 20% to 35% lower risk of cardiovascular disease and stroke, a 30% to 40% reduction in type 2 diabetes, a 30% lower risk of falling among older adults, a 30% lower risk of colon cancer and 20% lower risk of breast cancer, and a 20-30% lower risk of depression and dementia among adults.^{93,131-133}

Other benefits include reductions in low birth weight babies, reduced staff sickness absence and improved productivity, and increased time children spend playing outdoors.



The time is right for change

A number of opportunities exist through legislation, national and local policy, and a gradually changing culture around the use of cars, which make now the time to act. This chapter describes the main opportunities we need to seize.

Bringing about cultural change in our communities and large organisations will not take place overnight. Using existing tried and tested approaches to change such as continuous improvement methodology, and making the most of the opportunities posed by disruptive technologies, will need to be fundamental to our approach.

Legislation

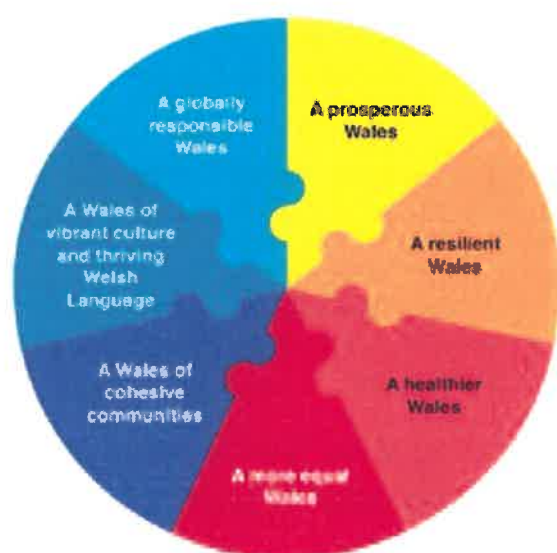
National

Four key pieces of legislation have recently been passed in Wales which pertain to improving health, well-being and environmental sustainability (see Box 6).

Box 6. Recent Welsh legislation relevant to sustainable travel, health and well-being

Well-being of Future Generations (WFG) (Wales) Act 2015 ¹³⁴	Introduces duties on public sector organisations in Wales to take into account future generations when planning services and making decisions
Active Travel (Wales) Act 2013 ¹³⁵	Makes it a legal requirement for local authorities in Wales to map and plan for suitable routes for active travel, and to build and improve their infrastructure for walking and cycling every year.
Environment (Wales) Act 2016 ¹³⁶	Places a duty on Welsh Ministers to ensure that the net Welsh emissions account in 2050 is at least 80% lower than the baseline. ¹³⁵
Public Health (Wales) Act 2017 ¹³⁷	Introduces a duty to carry out Health Impact Assessments

Figure 5. Well-being goals established under the Well-being of Future Generations Act



The WFG Act set up public services boards (PSBs) in each local authority area with a duty for members to act together and individually to meet challenges in the area identified through a well-being assessment. The WFG Act, and its implementation presents a significant opportunity in addressing the issues highlighted in this report.

The Future Generations Commissioner (FGC) role is to act as an advocate for future generations and guide implementation of the WFG Act. Of the top seven priorities listed by the Commissioner in office, five are directly related to the issues discussed here: City Region Deals, integrated transport systems including South Wales Metro, prevention, early years, and climate change.¹³⁸ Separately, the FGC has reiterated the requirement for urgent action on climate change.^{139,140}

International

Internationally, the UK is a signatory to the 2015 Paris Agreement on climate change. This legally binding agreement commits the UK to take significant steps to reduce greenhouse gas emissions to restrict global warming to less than 2°C, with an aim of 1.5°C maximum warming.¹⁴¹ For the UK to meet its obligations under the Paris Agreement a significant reduction in emissions from road transport will be required.

Strategy and policy

There are a number of strategies and policies relevant to the issues described here. International and national strategies are listed in Box 7, and local strategies in Box 8. A description and reference for each is given in the Appendix.

In addition to the local strategies shown, each public sector organisation has an active travel strategy; and an air quality strategy is currently being developed for Cardiff.

Box 7. Key international and national strategy and policy

UK plan for tackling roadside nitrogen dioxide concentrations
Real Driving Emissions (RDE) regulations
Office for Low Emission Vehicles (OLEV) grants
Town & Country Planning Association (TCPA) guidance: Planning for better health and well-being in Wales
Royal Town Planning Institute (RTPI) policy
Local air quality management (LAQM) Wales guidance 2017
Manual for Streets
UN Convention on the Rights of the Child (UNCRC) and Rights of Children and Young Persons (Wales) Measure 2011
Public Health Wales (PHW) Well-being Objectives
Future Generations Commissioner for Wales – Draft strategic plan 2017-23

Box 8. Key local and regional strategy

Public Services Boards – Well-being objectives and plans
Regional Partnership Board – Area plan (in development)
Local Development Plans (LDPs)
Local Transport Plans (LTPs)
Shaping our Future Well-being
Cardiff Transport Strategy
Cardiff Cycling Strategy
City Region Deal

Culture change

The green shoots of a shift away from cars are starting to be seen. Residents in our area are keen to cycle more, take more physical activity, and want to see improvements in public transport.

Driving a car has become less popular among young people over the last few years, partly as a result of large increases in insurance costs, as well as the availability of ride-sharing apps such as Uber.⁸ There has also been an increase in shoppers visiting high streets rather than out of town sites in Wales.¹⁴²

Driving a car has become less popular among young people

While the car used to be an essential means to keep in touch with friends and relatives, the recent explosion in the use of social media, video calls and instant messaging, has made many of these journeys unnecessary.

Public transport accessibility for people with mobility difficulties has increased significantly over the last 10 years, with nearly all (94%) of buses now accessible in England, up 65% since 2005.⁸ (comparative figures for Wales are not available).

Although petrol and diesel cars still dominate sales, ultra low emission vehicle sales are rising rapidly in our area, from below 20 vehicles sold in Cardiff and Vale each quarter three years ago, to over 300 now.¹⁴³

Good practice locally

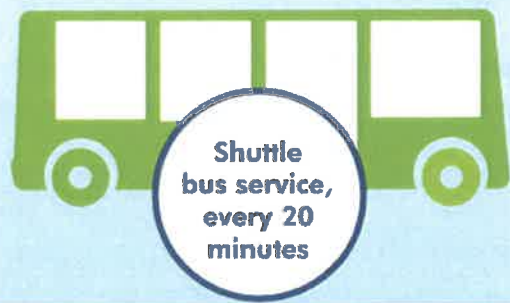
There are already some fantastic examples of projects which are paving the way for a brighter future in our area.

Cardiff and Vale University Health Board

There are a number of examples of good practice across the Health Board, including a new Park and Ride scheme for the Heath site (see Box 9); development of the Orchard at University Hospital Llandough, to encourage physical activity in a nearby green space; a bicycle purchase scheme; the establishment of a 'Park and Stride' scheme at Severn Road Primary School in North Cardiff, to reduce car emissions and hazards outside school gates; plans for an integrated bus hub at the UHW site, working with the local authorities; including ease of access by public transport and active travel in decisions around developing new health and well-being centres across the area; and the establishment of a group to review air quality data for schools to help promote active travel.

Box 9. Park and ride service for University Hospital of Wales

Park and Ride Service for UHW



A new Park and Ride bus service has been introduced for the University Hospital of Wales, in conjunction with Cardiff Bus and the City of Cardiff Council. The regular bus service reduces traffic-related congestion and emissions on-site, helping to make the environment more conducive over time for active travel and pedestrians. Using the Park and Ride is cheaper for staff and visitors than parking on site.

Vale of Glamorgan Council

Vale of Glamorgan Council are keen to see their staff travel sustainably (see Box 10). The Greenlinks scheme in the Vale is a form of on-demand transport, enabling people without regular access to a car to make ad hoc journeys which are not served by the public transport network.¹⁴⁴

Box 10. Helping staff travel sustainably

Vale of Glamorgan Council are taking the lead in encouraging their staff to travel sustainably. Their approach includes provision of pool bikes to get between nearby offices; pool cars; and a travel expenses policy which encourages short journeys to be made actively.



City of Cardiff Council

In addition to the ambitious Cardiff Transport Strategy,⁵ there are a number of projects encouraging people to ditch their cars in Cardiff. These include street play (see Box 11); a programme to encourage active travel among staff who work at County Hall; Cardiff shared car scheme; and the ongoing development of a local air quality strategy.

Box 11. Encouraging street play

Ely and Whitchurch in Cardiff saw streets closed on 2 August 2017 to allow safe play for children in a residential area. The events, organised by Play Wales and following the 'Playing Out' model, with the support of the City of Cardiff Council, are hoped to be the first of many such examples, allowing children to get outdoors and get active, reducing screen time and increasing physical activity. Children were encouraged to come together to play on the street along with their families and bring their scooters, footballs, chalk and skipping ropes.




Cardiff resident and mother of two, Toni Morgan said 'I wanted to kick start the project in my street as I was aware of the many families living in the street, however I had never actually encountered any children at any time playing outside in the three years of living here.'



Other examples

Public Health Wales Environmental Health is working closely with public health teams and councils across Wales to foster closer collaboration between local specialists to improve local air quality, and has played a key role in raising the profile and awareness of air pollution as a health issue in Wales. Information on air pollution for primary and secondary schools in Wales is being developed,¹⁴⁵ based on experiences in Scotland and Northern Ireland.

Seizing the day: a vision for Cardiff and the Vale

What future do we want for ourselves and our communities? A vision is presented here around five key themes, showing what we could achieve in Cardiff and Vale.

 <p>Active travel is the default for short journeys</p>	Built infrastructure consistently enables and promotes walking and cycling as the default for short journeys
	Residents including schoolchildren routinely travel by active means for short journeys
	Active travel is routinely raised and promoted at key life points for residents and staff in Cardiff and Vale
	Employers positively encourage active travel, recognising benefits in staff well-being, sickness absence, and productivity
	Infrastructure developments for active and sustainable travel are funded through ring-fenced charges on polluting transport
	Local businesses support active travel by customers
	There are one or more annual car-free days co-ordinated across Cardiff city centre and Vale towns
 <p>There is a well used, fully integrated transport system</p>	Some journeys for work are avoided by using remote technologies
	There is a comprehensive public transport system with timetables and ticketing integrated across travel modes
	Residents routinely travel by public transport (and/or active travel) for journeys over 2km within the region
 <p>Well connected, active and social communities</p>	There is a steady decline in private car use for commuting and leisure
	20mph town and city-wide speed limits are introduced throughout the region
	The planning system and people moving into the area recognise the importance of walkability of residential and mixed use areas
	Children regularly play safely in residential streets
	Green space (including trees) is protected and enhanced, with good access to areas by active travel and public transport
	Communities are more cohesive, with increased social networks on streets
	Improvements in active travel and air pollution are seen first in our most deprived communities
	There is an ongoing re-vitalisation of local high streets for shopping and leisure, with these locations chosen by local shops and national chains in preference to 'out of town' areas

 Transport emissions are significantly reduced	Low emission buses, trains, taxis and public sector fleets
	There are one or more low emission zone(s) in Cardiff
	There is a comprehensive charging infrastructure for electric vehicles
	Public awareness of local air pollution is high
	'No idling' zones are introduced around all schools and health facilities in Cardiff and Vale
	Local planning principles include expectations around reducing private vehicle use and ownership, and promoting ultra low emission vehicles
 Cardiff and Vale are leaders in this field	Decarbonising transport is accompanied by an increase in locally generated renewable energy
	Cardiff and Vale is recognised as an exemplar for active travel and reducing car use within the UK and internationally

This is a summary of a more detailed vision which has been prepared for this report.

The potential impact...

The impact of achieving our vision	What this could mean for us...
Reduced illness and deaths from cancer	30% lower risk of colon cancer & 20% lower risk of breast cancer
Reduced illness and deaths from cardiovascular disease and stroke	20-35% fewer cases
Reduced rates of overweight and obesity	Decrease in BMI of 0.3-0.45kg/m ²
Reduced type 2 diabetes	30-40% fewer cases
Improved mental well-being	20-30% lower risk of depression and dementia
Reduced rates of falls among older adults	30% less risk
Reduced sickness absence	46% reduction if people cycle to work
Improved employee productivity	15% increase in concentration, reductions in stress
Increased retail sales	30% increase in retail sales
Other benefits...	Reduced inequality in life expectancy between most and least deprived areas
	More cohesive communities and reduced loneliness
	Reduced air pollution and lower carbon emissions contributing to global warming
	Reduce demand for health and social care services

Everyone playing their part: what we need to do together

We have set out a bold vision of the future locally. This vision is entirely achievable; indeed many aspects of it are already a reality in cities such as Amsterdam; and other European cities including Hamburg and Madrid have set out plans to drastically reduce the number of cars in them in the next 20 years.¹⁴⁹

To make a significant and sustained improvement in our health and well-being we need to take decisive action now and over the next 5-10 years. Doing so will mark out Cardiff and the Vale of Glamorgan as leaders in this field in Wales and across the UK. The public sector has a vital role to play in leading and modelling behaviours.

Throughout the chapters we have suggested many actions which will make a lasting difference in improving health, by making active and healthy travel the norm in our communities. The most important and achievable actions are highlighted below.

Who	What should be done
City of Cardiff Council and Vale of Glamorgan Council	<p>(a) Accelerate improvements to infrastructure to support active travel and low emission transport</p> <ul style="list-style-type: none"> • continue improvements and ongoing development of dedicated walking and cycling infrastructure, prioritising deprived areas first • provide access to local green spaces by active travel • maximise opportunities presented by Metro programme, including in rural areas • introduce bike hire schemes (including e-bikes) • consider widespread introduction of 20mph zones • increase electric vehicle charging infrastructure, particularly for areas without off-street parking • reject planning proposals which have an adverse impact on walking or cycling • support local renewable energy generation <p>b) Support staff to choose active travel</p> <ul style="list-style-type: none"> • encourage all staff to travel actively, to reduce sickness absence and increase productivity • visible senior leadership and role-modelling • assess opportunities at times of workplace moves • support employees preparing for retirement

	<p>(c) Engage with the local community and businesses on the benefits of active travel</p> <ul style="list-style-type: none"> • agree consistent communication across local public sector • emphasise increased customer spend in walkable areas • organise and promote co-ordinated car free days across the region <p>(d) Discourage unhealthy and polluting travel</p> <ul style="list-style-type: none"> • introduce 'no idling' zones outside all schools • consider gradual increases in public car parking charges to fund and accelerate improvements in active travel facilities and public transport • scope the introduction of a low emission zone in Cardiff, with any charges levied used to fund active travel and public transport improvements • introduce low emission pool cars for major sites where they are not already in place
Cardiff and Vale UHB	<p>(a) Accelerate improvements to infrastructure to support active travel and low emission transport</p> <ul style="list-style-type: none"> • work closely with local authorities to maximise opportunities for active travel to current and future sites, including links with new strategic cycle routes • introduce electric vehicle charging infrastructure • introduce pool bikes on UHW campus, and further improve off-road cycle routes through UHW site <p>b) Support staff and students to choose active travel</p> <ul style="list-style-type: none"> • visible senior leadership and role-modelling • encourage all staff to travel actively, to reduce sickness absence and increase productivity • assess opportunities at times of workplace moves • encourage healthcare students to travel sustainably, as future health leaders • support employees preparing for retirement <p>(c) Engage with our local communities on the benefits of active travel</p> <ul style="list-style-type: none"> • increase communications encouraging visitors to sites to use active travel and public transport • agree consistent communication across local public sector • promote and participate in co-ordinated car free days across the region • additional messages at key transitions, including new parents

	<p>(d) Discourage unhealthy and polluting travel</p> <ul style="list-style-type: none"> • introduce low emission pool cars for major sites • scope introduction of ultra low emission vehicles to fleet • review prices of staff car parking at congested sites. Changes in charging could directly fund improvements in active travel facilities and public transport
Cardiff and Vale Local Public Health team	<p>(a) Prioritise promoting healthy travel in the public health work plan</p> <ul style="list-style-type: none"> • identify promotion of active travel and addressing air pollution as cross-cutting themes in workplan • include active travel and air pollution references and actions in Making Every Contact Count • agree suitable performance indicators to measure progress and impact <p>(b) Work with partners to promote healthy travel</p> <ul style="list-style-type: none"> • work with PHW Environmental Health to produce local geographic maps of air pollution exposure, including exposure at schools and health sites • take action in response to forthcoming guidance from Welsh Government and PHW on addressing local air quality • work with Cardiff and Vale Healthy Schools Schemes to review air pollution levels around schools, to engage in conversations with staff and parents around active travel and impact of bringing cars to school gates • consolidate and strengthen links between Local Public Health team and local authority planning and transport departments, including in developing LDPs and the Health Board IMTP, to support action on active travel and air pollution <p>(c) Engage with our local communities and businesses on the benefits of active travel</p> <ul style="list-style-type: none"> • engage with Employers' Network • support the development and promotion of co-ordinated car-free days across our region
Public Services Boards	<p>Identify actions relating to active travel and air pollution which would benefit from a co-ordinated approach across the partnership, e.g. active travel support for staff, car-free days, joint procurement of low emission vehicles</p> <p>Agree key public messaging across the public sector in Cardiff and the Vale on the rationale and health benefits associated with increased active travel, reducing car use, and low emission transport</p>

	Provide visible senior leadership and role modelling at a PSB and organisational level to promote active travel
Current and future bus and train operators in Cardiff and the Vale	<ul style="list-style-type: none"> • Provide clean, frequent and reliable services across the network • Transition to low emission buses / electric trains • Provide routine space for carrying bicycles on buses/trains, including key routes at busy times and in rural areas • Support the introduction of integrated ticketing across travel modes • Make data available to support real-time travel information
Public Health Wales (national)	<p>Support local campaigns to increase active travel and reduce air pollution through</p> <ul style="list-style-type: none"> • standard promotion materials • support to produce local air pollution profiles with map of area highlighting schools and health facilities • continuing national leadership on active travel and air pollution as health issues
Welsh Government	<p>(a) Consider policy changes to support healthy travel</p> <ul style="list-style-type: none"> • make it easier for residents and local authorities to make temporary street closures to encourage children's outdoor play • prohibit secondary schools from offering car parking places for pupils who live within 2km of the school, except if they are disabled • consider allowing Local Health Boards to introduce proportionate parking fees for staff where alternative modes of transport are available, in order to incentivise appropriate active travel and public transport use • review NHS travel expenses policies to ensure they promote active travel where appropriate, for example by not routinely reimbursing for distances <2km <p>(b) Consider further legislative changes to support healthy travel</p> <ul style="list-style-type: none"> • introduce legal requirements for public transport operators to participate in region-wide integrated ticket programmes • introduce legal requirements for large public sector organisations to have sufficient cycle parking spaces (e.g. a minimum specified ratio of spaces per employee) <p>(c) Engage with citizens across Wales to encourage healthy travel</p> <ul style="list-style-type: none"> • undertake a national communications campaign to improve the image of active travel

Appendix

Summary of relevant strategies and policies

International and national strategies and policies

UK plan for tackling roadside nitrogen dioxide concentrations ²⁸	Defra and DfT plan to reduce NO ₂ emissions. Includes proposal for a Clean Air Zone framework for Wales, suggesting Cardiff may be one of the first areas to implement, by 2021; also guidance to be issued to Directors of Public Health and Local Authorities to support delivery of LAQM plans; and schemes to encourage bus retrofitting and electric taxis. Also commits that UK Government will 'end the sale of all new conventional petrol and diesel cars and vans by 2040'
Real Driving Emissions (RDE) regulations	Requirement for vehicle manufacturers to ensure real world NO _x emissions are controlled across a range of driving conditions, from September 2017. ²⁸
Office for Low Emission Vehicles (OLEV) grants	Grants available from UK Government for local authorities to support on-street charging, ¹⁵⁰ and for employers, including the public sector, to support workplace charging ¹⁵¹ for staff and fleet vehicles
Town & Country Planning Association (TCPA) guidance: Planning for better health and well-being in Wales ⁹⁸	This guidance was developed in conjunction with Public Health Wales and the Wales Health Impact Assessment Support Unit. It sets out opportunities for public health to work with planning, for each to positively influence the others' work programme using their area of expertise. ⁹⁸ It also recommends using the Director of Public Health Annual report to tackle unhealthy environments.
Royal Town Planning Institute (RTPI) policy ^{152,153}	Policy paper on transport infrastructure investment, including challenge to integrate schemes to encourage inter-modal transport
Local air quality management (LAQM) Wales guidance 2017 ¹⁵⁴	Guidance for LAQM in Wales in light of the WFG Act. Specifically, LAQM should not be carried out to seek short-term solutions; and should be carried out in an integrated way to find solutions to related outcomes including reduced carbon emissions and healthier lifestyles. Also recommends LA and public health should work together to reduce health risks and inequalities; and special consideration should be given to long-term risks of exposure by babies and children, including in homes, schools and nurseries, and travel between these locations

Manual for Streets ¹⁵⁵	UK Department for Transport guidance on designing streets. Recognises a user hierarchy which places pedestrians and cyclists above cars, explained more in Making Space for Cycling. ¹⁵⁶
UN Convention on the Rights of the Child (UNCRC) ¹⁵⁷ and Rights of Children and Young Persons (Wales) Measure 2011 ¹⁵⁸	Rights of children applicable under international law and domestic law in Wales. Article 31: Children have the right to relax and play, and to join in a wide range of cultural, artistic and other recreational activities. Article 24 includes the right to a safe environment
Public Health Wales (PHW) Well-being Objectives ¹⁵⁹	Objectives required under the WFG Act. One of the 7 well-being objectives is to 'maximise the potential of our natural and cultural resources to promote physical and mental health and well-being and contribute to a low carbon, environmentally resilient Wales'. Giving children opportunities to play and learn in a healthy and safe environment is another objective.
Future Generations Commissioner for Wales - Draft strategic plan 2017-23 ¹⁴⁰	Sets out four key purposes for the plan period. Includes highlighting the big issues facing future generations – the first of four being climate change, for which the focus should be reducing emissions and tackling impacts.

Local and regional strategies

Public Services Boards – Well-being objectives and plans	Well-being assessments and plans are required for each local authority area under the WFG Act, overseen by the local PSB. In the Vale, the objectives in the draft well-being plan focuses on four priority areas, including giving children the best start in life, and protecting, enhancing and valuing the environment, and tackling inequalities. ¹⁶⁰ In Cardiff, the draft objectives include resilient growth, giving children the best start in life, tackling poverty, and caring for older people (including tackling social isolation). ¹⁶¹
Regional Partnership Board – Area plan	An assessment identified needs including social isolation and loneliness; insufficient physical activity; and accessibility to green space. An Area Plan is being developed to respond to the assessment.

Local Development Plans (LDPs)	<p>Cardiff's LDP was adopted in 2016 and includes a commitment to over 40,000 new homes and a similar number of new jobs; 162 specific aims include to reduce reliance on the car, by improving travel choices for communities, integrated travel, orbital rather than radial bus networks, and improved traveller safety. Achieving a 50/50 modal split is described as a necessity for the transport network to cope with growth. It also sets out plans to retain and protect trees and green infrastructure in the city.</p> <p>The Vale LDP was adopted in June 2017 and includes improvements to walking, cycling and public transport infrastructure (including a proposed coastal cycle route, NCN 88, running east/west through the Vale), modernising the Valley rail line as part of the Cardiff Metro, and identifying areas for potential renewable energy regeneration.¹⁶³</p>
Local Transport Plans (LTPs)	<p>The Vale LTP promotes a shift from car use to sustainable travel, including increasing the number of cycle routes and encouraging integrated transport as the Vale of Glamorgan railway line is electrified. Where active travel is difficult due to the rural nature of the Vale, public transport accessibility will be enhanced.¹⁶⁴</p> <p>The Cardiff LTP promotes a shift away from hub and spoke bus lines to a grid system, which links communities better and prevents all traffic having to go through the centre of the City.¹⁶⁵</p> <p>The supporting masterplanning principles laid out by Cardiff Council recommend high density residential and mixed-use development along public transport corridors; and providing strategic walking and cycling corridors.¹⁶⁶ Streets will give priority to pedestrians and cyclists, and infrastructure should enable easy interchange between and active travel and public transport. All residents will be within easy access of off road paths. Varied green space open corridors will be provided.</p>
Shaping our Future Well-being	<p>Cardiff and Vale UHB's 10 year strategy prioritises prevention as a key theme, keeping people well for longer.⁸¹ It also aims to support people to choose healthy behaviours and reduce health inequalities; and also be an excellent employer to work for. Air pollution, obesity and physical activity are recognised as key issues in the population profile in the Health Board's integrated medium term plan.¹⁶⁷</p>

Cardiff Transport Strategy Cardiff Cycling	The Cardiff Transport Strategy sets out an ambitious aim to create a modal shift to a 60/40 split of sustainable travel compared with car use by 2026, preceded by a 50/50 split in 2021. ⁵ The strategy includes commitments to a city-wide cycling network, central cycle parking hub, transport interchanges at strategic points throughout the city, green bus technologies, integrated ticketing, and support for car clubs. This follows on from a laudable decline in city centre traffic of one quarter (26%) between 2004 and 2014
Strategy	The draft strategy sets out a vision of a city where cycling is normal, practical and safe for short trips, for people of all cycling abilities, and to double the number of cycle trips by 2026. Sets out plans for two primary route corridors in Cardiff – North/South and East/West; and promoting cycling in schools, workplaces, for shopping.
City Region Deal	A £1.2bn City Deal was agreed in March 2016 for 10 South East Wales local authorities, including a substantial investment in a Cardiff Capital Region Metro integrated public transport system. The City Deal also included a commitment to electrification of the Valley Lines rail network by 2023. ⁵ The details of the Metro are still being worked through, but the proposal includes electrified rail; integrated transport hubs; park and ride facilities; light rail and/or bus rapid transit routes; better integration across modes and operators; and active travel interventions. ¹²³

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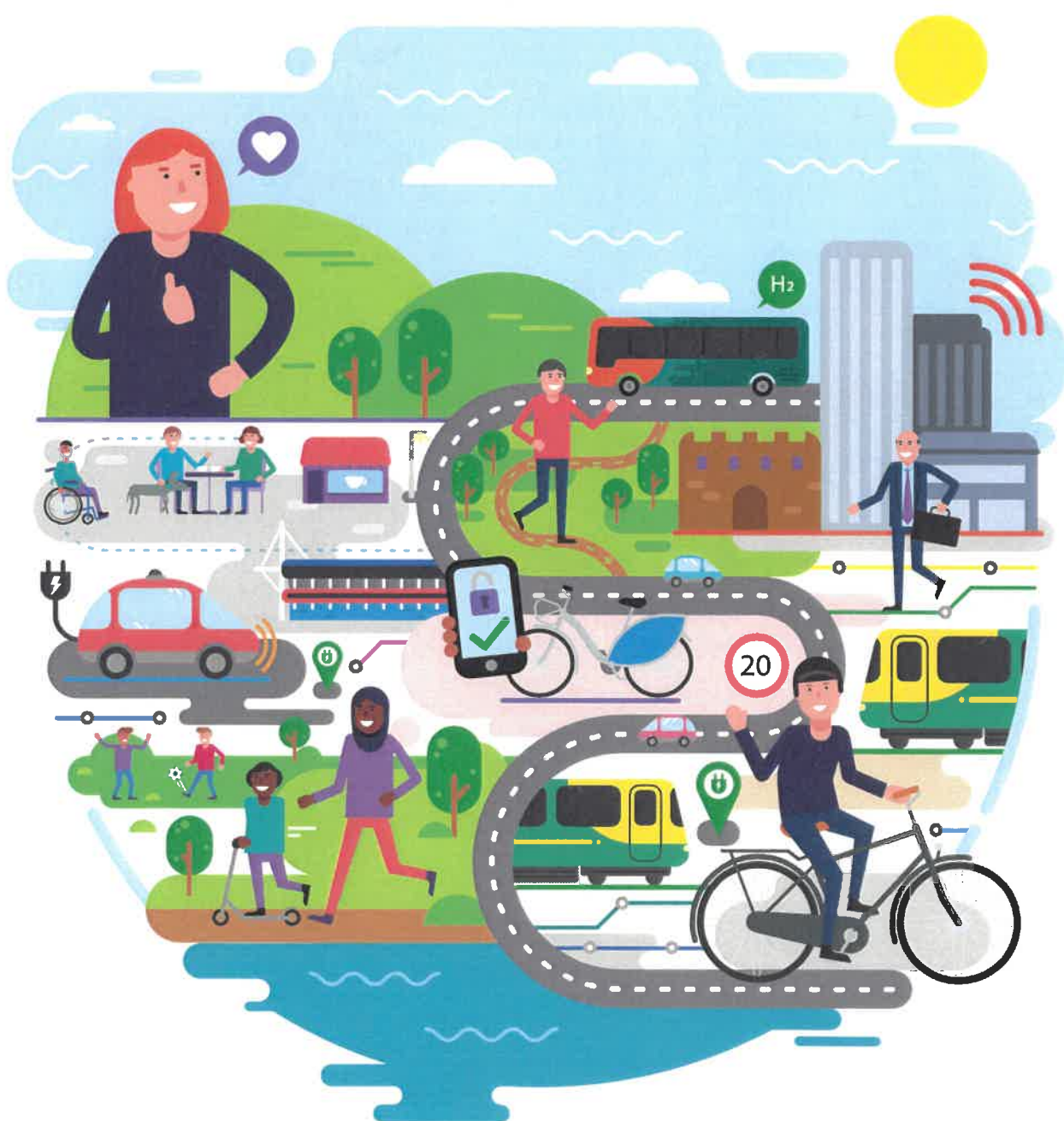
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Changing how we move around a growing city





Forewords

We all know Cardiff's transport network needs to change. Too many of us have been stuck in traffic trying to drop off our children, or late for work because the bus didn't turn up, and whilst a growing number want to walk or cycle, the facilities to do so are often inadequate.

But it's not just about our own inconvenience and frustration. There is now a more alarming and pressing matter. Pollution levels in Cardiff are now damaging our health. Improving the air we breathe has become a matter of life or death.

It would be simple to just blame everything on car travel, and say we expect everyone to suddenly become a cyclist. But we understand that for some people car travel is simply essential and we don't want to make it more difficult for people to go about their daily lives.

Our job is to improve people's lives, giving people the opportunity to choose transport options that are healthier, that help us save money, that make it safe to enjoy cycling and walking on a daily basis, and that help us not

spend hour after hour sat in traffic on the school run or the daily commute.

We have an idea of the kind of Cardiff we want. We have bold ambitions for our city. This paper proposes ideas of changes we could make that we believe would improve our city. They are all possible. But we want to have a conversation with the people of Cardiff about the issues, and how changes could impact their lives because, ultimately, we will all need to shape our future together.

This process will help us decide together the future direction of this city, so we can create the change that improves all our lives and makes Cardiff a healthier and stronger city for current and future generations.

Councillor Caro Wild
Cabinet Member for
Transport & Strategic Planning



How we get from A to B has a huge impact on our health, the environment, and our communities. I have recently explored this more in my Annual Report, 'Moving Forwards: healthy travel for all in Cardiff and the Vale'. We are at a crucial moment - high levels of illness in our area are caused or made worse by how we travel and the air we breathe; but there are also once-in-a-generation opportunities open to us to solve this, with the development of the Metro in Cardiff and the surrounding region, and legislation requiring and enabling us to prevent future illnesses, improve the health of future generations, and improve air quality.

I really welcome the publication of this Green Paper on such an important subject, and we are working closely with Cardiff Council and other partners on these issues. We urge residents to engage in this conversation on how we can all travel in a more healthy and sustainable way. If we get this right we will be healthier and happier, and Cardiff will be one of the best places in Europe to live, work and visit.

Dr Sharon Hopkins
Director of Public Health,
Cardiff and Vale University Health Board



How this document works

The document is made up of six themes, each of which has ideas and proposals that we believe could improve transport and air quality in Cardiff. They are based on good practice examples from other progressive cities from across the world, and from ideas taken from a variety of groups and individuals across Cardiff and beyond.

page. 6

The Future of The Metro & Buses

The Metro forms the heart of a fully integrated public transport network that is modern, clean, efficient and affordable.

page. 10

Active Healthy City

Cardiff becomes one of the best places in Europe for active travel.

page. 14

Clean Air City

All parts of Cardiff will have clean air. No citizen will have to suffer ill health as a consequence of high levels of pollution.

page. 18

International Capital City of Business, Work and Culture

A vibrant 'destination capital city centre' supporting a thriving business economy, major events and a rich, diverse culture.

page. 22

The Future for Cars

More Cardiff citizens feel able to either share or not own a car. Many will choose zero carbon cars.

page. 26

Smart City

As the digital world evolves, Cardiff will use the latest technology to support an integrated transport system in which travellers are well informed and able to make smart travel choices.

How you can get involved

We want to hear your views and prompt discussions. Each idea is numbered and you can feed back on some or all of them. For each idea we want to get your general views, perhaps let us know how it would impact you personally, or those in your organisation or community. You can:



Complete our online survey at:
www.cardiff.gov.uk/askcardiff



Drop off your completed paper copy at any Hub or library



Email comments directly to us:
consultation@cardiff.gov.uk



Facebook/Twitter
[@CardiffCouncil](https://www.facebook.com/CardiffCouncil)



Take part in a consultation event organised by the council or its partners; a list of organised consultation events can be found at the web address above.



Organise a consultation event for your group, community or workplace and gather people's views on one or more of the sections.



Respond in writing to: Cardiff Research Centre, Room 401, County Hall, Atlantic Wharf, Cardiff, CF10 4UW

Why does transport matter to Cardiff?

Cardiff is growing faster than any other major city in the UK outside of London, and is projected to grow by more than every other local authority in Wales combined.

Over 300m transport trips are made on our network by residents each year, and we all know that too many of these trips are by car. Driving in Cardiff isn't much fun – drivers spend an average of four working days a year stuck in traffic during peak periods. 90,000 commuters also come in and out of Cardiff each day from outside of the city.

"The latest figures from Public Health Wales suggest that the number of deaths per year that can be attributed to poor air quality has increased to over 225 across Cardiff and the Vale of Glamorgan."

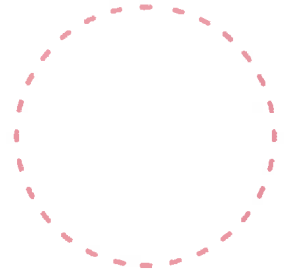
This traffic is the main contributor to air quality and congestion generally. It has an effect on everyone's quality of life, health and wellbeing in one way or another. The people who suffer most from poor air quality are the very young, the very old and those suffering ill health. We also know that poor air quality is worse in the more deprived southern areas of the City, and is caused primarily by cars from outside of these communities.

The population of Cardiff is 360,000 and is projected to grow by an additional 72,000 people over the next 20 years. This growth will bring about great cultural and economic opportunities, but it will also bring about additional pressures on the quality of our air and the potential for even more traffic.

Cardiff is at an important crossroads. If we want a fairer, cleaner, healthier and more prosperous city tomorrow we must make some brave changes today. If we don't, then inequality, air quality and congestion will get worse.

Cardiff has always risen to the challenge when it has had to change: from building docks and railways that helped transport coal from South Wales to the world, to a city that has managed to refocus its economy after de-industrialisation. Now Cardiff has to change again.

This Green Paper will set out what a fairer, cleaner, healthier, prosperous, and more convenient city could look like, and gives you a chance to help us decide how we get there.



The Future of the Metro and Buses



The Metro forms the heart of a fully integrated public transport network that is modern, clean, efficient and affordable.

What's happening?

South Wales Metro

The Welsh Government are soon to decide which operator will take forward the new South Wales Metro and wider rail network responsibilities.

Over £750m will be invested in upgrading the core valley lines, adding new modern vehicles and improving stations.

We believe the new operator will bring forward new technology and begin the implementation of a tram solution alongside heavy rail lines. We anticipate there will be additional stations added to the network in Cardiff to meet the demands of a growing city.

Cardiff Council will work with the new Transport for Wales body and the new operator to ensure that a tram system is prioritised with the ability to add and extend routes.

Buses

Bus passenger numbers in Cardiff are not increasing at the rate we would all like. There is confusion over routes, different operators with no transferable ticket, and the situation is not helped by not having a bus station.

The new Central Transport Interchange will help drive a reconfiguration of the bus network, adding more clarity to stops and routes.

Bus priority schemes have been introduced on key corridors to improve reliability and efficiency of bus journeys and greater reliability, and more priority measures are planned. We are also developing new

interchange hubs at the University Hospital Wales and Cardiff West to facilitate interchange between services and modes of travel.

We are working with the developers of the strategic site north of M4 Junction 33 to secure a new purpose-built Park and Ride facility as part of the new housing and commercial development. We are supporting Park and Ride facilities in other appropriate locations in Cardiff and neighbouring areas, offering people an attractive alternative to the car.

We are working with Network Rail and rail operators to identify opportunities to develop Active Travel routes to stations and improved on-station passenger facilities.

The big ideas: what more could be done?



1. Realign the Bus Services Network

The introduction of the Metro offers the opportunity to comprehensively review the overall bus network. We could look to realign how the network works, creating better connectivity between locations and modes of transport. For example other cities have switched to routes that run in circles around the centre with co-ordinated connections inwards like the spokes of a wheel.

The outer routes could, for the time being, run on diesel while smaller electric buses, existing trains and new trams, provide the spoke connections. New rapid bus routes could be clearly mapped out alongside the new Metro lines and other transport modes to create a transport 'masterplan' for the city.

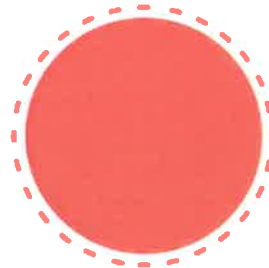
2. Integrated Ticketing

A number of cities across the world have developed integrated ticketing systems. If you have visited London in recent years, you may have encountered the Oyster Card – a plastic card like a bank card which allows you to hop on and off buses, trains and tubes as long as you have credit on the card. Transport authorities are increasingly

moving towards a payment system where ticket fares are deducted straight from your bank card by reading devices on the bus/train/ticket barrier. Proposals for the south Wales Metro include integrated ticketing but we could extend this to include Cardiff buses, and car and bike hire within the city.

3. Zero Carbon Bus Fleet

With key bus operation partners, we will investigate options for developing a bus fleet that is powered by electricity or hydrogen and so does not contribute to poor air quality. There are many cities around the world and some, like Milton Keynes, in the UK where electric and hydrogen buses are already operating. The buses currently come with a far higher price tag but we could learn from this considerable body of knowledge and make the right choices for Cardiff.



What are your views on our 3 big ideas regarding the future of the South Wales Metro and buses?

On a scale of 1 to 5, (1 being low and 5 being high) how much do you support our big ideas?

1. Realign Bus Services with new City Network and Effective Orbital Bus Hub Network

1 2 3 4 5

○ ○ ○ ○ ○

2. Integrated Ticketing

○ ○ ○ ○ ○

3. Zero Carbon Bus Fleet

○ ○ ○ ○ ○

Do you have any other ideas, big or small regarding the future of the South Wales Metro and buses?

What more can you do?

If you have never used a bus, try it!

Could you make bus travel a routine for certain journeys?

Get in touch

cardiff.gov.uk/askcardiff

consultation@cardiff.gov.uk

[@CardiffCouncil](https://twitter.com/CardiffCouncil)

Active Healthy City



Cardiff becomes one of the best places in Europe for active travel.



What's happening?

More people are walking to work, to school, to college and to the shops.

Over a five-year period, there has been a significant increase in cycling for all journeys.

The numbers of cyclists within the city centre has risen by around 65% between 2002 and 2016.

The Nextbike cycle hire scheme will launch in May 2018 with 50 Stations and 500 bikes.

Working with communities, the council has introduced 20mph pedestrian-friendly zones around the city, with more planned.

The big ideas: what more could be done?

4. Develop Active Travel Zones in the city centre and in neighbourhoods

An active travel zone is an area designated as a place where walking, cycling and non-motorised transport take priority. The benefits of such zones are cleaner air, a healthier lifestyle, safer, quieter streets and more lively, sociable spaces. Children are more likely to play outdoors, cafes can place seating outside, and there is space for plants, trees, lawns and benches. Streets could be closed to vehicles at certain times of the day – for example, at the start and close of school or between the end of school and 5.30pm to allow children to play. Areas in the city centre could be developed as exciting new public spaces, like squares and green pockets, for all to enjoy.

Many cities around the world are creating areas where people come first. Sometimes this means excluding all types of vehicles, or it can mean combining cycle, bus and tram lanes with much wider pavements and plazas.

The benefits of doing this are many:

- cleaner air
- encouraging walking/cycling, which helps improve physical health
- more social interaction, which helps reduce loneliness
- a less stressful environment
- opportunities for retailers with greater numbers of shoppers stopping and browsing
- opportunities for open-air seating and street food stalls
- opportunities for cultural and artistic activities, and safer major event management.

We would encourage people living in active travel zones to take up active travel. For example, those who have never cycled before could use an affordable cycle hire scheme. We would provide special support to people of limited mobility, helping them use the streets without having to rely on a motor vehicle.

5. Comprehensive Cycle Superhighway & Primary Cycle Route Network

Our vision is to develop Cardiff into a cycling city where cycling is a normal, practical and safe choice for short trips for people of all ages and abilities. We are already committed to introducing fully segregated Cycle Superhighways in Cardiff. However, we need

further public support and funding to introduce a comprehensive network, including the delivery of more localised cycling infrastructure, in order to be faster and bolder in implementing our cycling strategy

6. Total City 20 mph zone

The vision of Cardiff as a 20mph city is consistent with encouraging more use of public transport, walking and cycling. Work to increase the number of 20mph zones is ongoing and we have learnt a great deal from our pilot areas. We will continue to implement 20mph zones, ensuring that all people understand the process, and taking

account of the fact that designing, consulting and procuring contractors places a significant demand on resources. However, we could speed up this process if the resources were available to make larger areas, or the whole city (excluding key arterial roads) a single 20mph zone.



Play Streets - A city where children can play freely and safely outside of their own homes

It is estimated there are now more than 80 designated 'play streets' in England and Wales. Dozens of roads are now being closed to traffic for up to three hours a week as part of a nationwide drive to bring back 'play streets'.

What are your views on our 3 big ideas for making Cardiff an active healthy city?

On a scale of 1 to 5, (1 being low and 5 being high) how much do you support our big ideas?

	1	2	3	4	5
4. Develop Active Travel Zones in the city centre and in neighbourhoods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Comprehensive Cycle Superhighway & Primary Cycle Route Network	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Total City 20 mph zone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you have any other ideas, big or small for helping Cardiff to become a more active healthy city?

What more can you do?

Get that old bike out of the garage and mend that puncture

If you have a child you could talk with other parents/guardians about a new 'walking bus' scheme

Get in touch

cardiff.gov.uk/askcardiff
consultation@cardiff.gov.uk
[@CardiffCouncil](https://twitter.com/CardiffCouncil)

Clean Air City



All parts of Cardiff will have clean air. No citizen will die or have to suffer ill health as a consequence of high levels of pollution.

What's happening?

Poor air quality, caused primarily by traffic congestion, is now recognised across the UK and the rest of the world as a public health priority. It has significant impacts on health, child development and environmental quality.

Clean air is polluted mainly by nitrogen oxides (specifically NO₂) and what is known as "particulate matter" or "particulates". In 2012, the International Agency for Research on Cancer listed diesel exhaust pollution as a Class I carcinogen (causes cancer). The levels of NO₂ found in Cardiff are the highest in Wales, and in some parts of the city exceed EU pollution limits.

The Health Crisis in Cardiff

Recent work by Public Health Wales estimates that the equivalent of over 225 deaths each year – or 5% of all deaths – can be attributed to particulate matter and nitrogen dioxide (NO₂) in the Cardiff and Vale Health Board area, with thousands more suffering from long-term illnesses.

Dirty air is now a greater public health risk than alcohol or obesity. And the people who suffer most from poor air quality are the very young, the very old and those suffering ill health. We also know that poor air quality is worse in the more deprived southern areas of the City, and is caused primarily by cars from outside of these communities. This situation is untenable and requires urgent action.

Cardiff Council has recently been legally directed by Welsh Government to undertake a feasibility study to identify the option that, in the shortest possible time, will deliver compliance with legal limits for air quality.

This study, which will report in September 2018, will consider the scale of the current air pollution challenge, all of the options and measures currently in place or planned (many of which are set out in this paper) and will recommend what will need to happen next to reduce air pollution to legal levels, in the shortest time possible.

Cardiff is not alone in having to tackle this issue. Similar feasibility studies have been recently directed by government in Bristol, Manchester & Leeds. They have all recommended that action be taken, including many of the big ideas contained within this Green Paper, like improved public transport in the city and city-region, better cycling and walking routes and having more electric vehicles. They have also recommended that that Clean Air Zones should be developed.

The big ideas: what more could be done?



7. Clean Air Zones

In cities across the world, Clean Air Zones are being put in place. The Mayors of Paris, Mexico City, Madrid and Athens have all recently committed to stop the use of all diesel-powered cars and trucks by the middle of the next decade. Copenhagen's mayor wants to begin restrictions as early as next year.

In cities like Manchester, Bristol, Leeds and Glasgow plans for Clean Air Zones (or similar) are now well advanced, and London have already introduced a Toxicity Charge (T-Charge), with plans for an Ultra Low Emission Zone where all vehicles must meet exhaust emission standards or pay a daily charge on top of the congestion charge to be in place by April 2019.

Until the feasibility work is done, we won't know if a Clean Air Zone is needed in Cardiff to reduce air pollution. But we don't want government to impose a solution on Cardiff that doesn't work for the people of Cardiff. That's why we want to start a conversation on this important issue now. This is an opportunity for us to be bold and shape a system that will help us tackle the challenge of traffic congestion in a growing city, while also protecting the health and wellbeing of current and future generations. Most importantly of all, we want any system to be fair.

What is a Clean Air Zone?

A Clean Air Zone is normally an area where targeted action is taken to improve air quality, in a way that improves health outcomes and supports economic growth. There are a number of different types of clean air zone models in operation or in development in the UK and Europe that aim to reduce congestion, lower pollution and raise funds to give people a realistic transport alternative to using their cars. In many Zones access is restricted, or charges are in place, for vehicles that don't meet certain emission standards.

What area do they typically cover?

Some Clean Air Zones cover the whole city (Stuttgart, Oxford), while others cover only the most polluted districts, typically the city centre (London, Milan, Berlin, Glasgow).

What type of vehicles are typically affected?

There are a number of different models in place across Europe and in development in the UK:

- Some clean air zones ban the most polluting vehicles from entry (Stuttgart, Berlin)
- Some target only the most polluting vehicles with a charge (London – T-charge).

- Others are adopting a phased approach, where the Zone will charge only buses, HGVs and taxis at first, with additional measures for other vehicles introduced over a period of years (Glasgow, Leeds)
- Others are in development that will ban all petrol and diesel vehicles entering the city (Oxford, from 2020).

There are often exemptions for newer vehicles which meet higher emission standards, emergency services vehicles, electric vehicles, scooters and mopeds.

If there was a charge, what would the money raised be used for?

Any funds raised from Clean Air Zones have to be ring-fenced for spending on sustainable transport improvements, like the ones contained in this Green Paper, and could be spent on things like:

1. Lowering bus fares and adding new routes, using clean new electric buses.
2. School transport, such as increased school bus services and bus passes for children.
3. Improving walking and cycling paths, so people have an alternative to paying a charge.

8. Active Travel Targets for the Public Sector and Business

Cardiff's Public Services Board, which represents the main public sector organisations responsible for Cardiff, has committed to increase active travel amongst its staff. Plans will be developed in 2018 to support staff in these organisations, and key partners, to take up healthy travel, setting clear, challenging but achievable monitored targets. Active Travel Plans will also be developed with schools to reduce the numbers of cars on the "school run."

By working with regional partners and the business community, we could help people choose more sustainable forms of travel; working in partnership to build the infrastructure that ensures people have safe and attractive alternatives to car travel. This partnership approach would show leadership across the public and business sectors to meet clean air targets and improve our city.

9. Parking Levies & Charges

In 2012, Nottingham introduced a workplace parking levy requiring workplaces to pay for each parking space provided (charging £387 for each parking space for businesses with more than 10 employees). The levy has raised between £8million and £10million a year, which has been used to improve public transport options, including a new tramline.

Cardiff currently has average parking prices compared to other cities in the UK. Cardiff could introduce a workplace levy similar to the one in Nottingham, or seek to increase its general parking charges. This would dissuade people from driving into town, while also raising funds for public transport alternatives.

What are your views on our 3 big ideas for making Cardiff an clean air city?

On a scale of 1 to 5, (1 being low and 5 being high) how much do you support our big ideas?

	1	2	3	4	5
7. Clean Air Zones	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Active Travel Targets for the Public Sector and Business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Parking Levies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you have any other ideas, big or small for helping Cardiff to improve the quality of its air?

What more can you do?

Consider how you could make changes to your routine to cut down on journeys and the use of a car

Discuss with your workplace or place of study about improved cycling facilities or access to membership of the new nextbike scheme

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Business, Work and Culture



A vibrant 'destination city centre' with a thriving business economy, supporting major events and a rich, diverse culture.

What's happening?

A city for business

Cardiff is one of the fastest growing and most competitive cities in the UK with a workforce of over 230,000 and 20 million annual visitors. Over the past two years, over 20,000 jobs have been added to the city's economy. Many of these are held by the 90,000 daily commuters travelling from outside the city. Businesses are increasingly seeking locations where they can access both a sizable talent pool and consumer market, and transport also has a big role in helping to shape how easy it is to get around places when you arrive.

An accessible city

The car remains the prevailing means of getting to work and back. Recent data however shows that congestion costs the average driver £1,119 a year. Conversely, active means of transport are growing in popularity. Over 45% of city workers have at some point walked to work, with a similar number cycling.

Rail continues to grow in popularity. Shopping trips by rail have increased by 50% between 2007 and 2016. Between 2014 and 2016, journeys to work by rail increased by 1.8%.

Over half of city centre shoppers over the past year used the city's bus system – more than any other form of transport identified in the 2017 transport survey. Commuting trends, however, show a downward trajectory for bus use in the city.

A destination capital city

Cardiff is the capital city of Wales. It is already a popular destination for numerous major international sporting and entertainment events. A great place for visitors who enjoy its shops, cultural events and nightlife, and as its reputation continues to grow, we want this to be for the right reasons. We want the city centre to be an attractive exciting 'destination'.

Metro Central

We are continuing to deliver an outstanding international gateway to Cardiff – the new transport Interchange. This will include Cardiff Central rail station and new links for bus, tram, and bicycle. As well as the focus for business and major events. The Central Transport Interchange will be the core of movement both for the city and region.

The big ideas: what more could be done?



10. Creating a high-quality capital city centre environment

Cardiff City Centre is one of the major assets the region and nation possesses to attract business and visitors, as well as a great place for local residents to live. Creating an international high-quality, people-focussed, active travel city centre will underpin major economic benefits and growth.

We want to use the city centre to celebrate the diverse culture and heritage of modern Cardiff and be a showcase for Wales on the international stage. In so doing, we will facilitate people to meet for leisure or business and enable traders and retailers to create innovative spaces for shopping, eating and entertainment.

11. Developing the South East Corridor

A major opportunity exists to increase accessibility for residents and businesses to the east of Cardiff, one of the city's most deprived and disconnected communities. Aligned with the new Industrial Strategy for the east the city, this would include a new park and ride rail station for St Mellons, the completion of the Eastern Bay Link road, further improvement to Queen Street Station, linked to improved cycling and walking routes.

12. Regional Park & Rides – Improved Regional Connections

Working with regional colleagues and the business community, we could accelerate plans to grow the region's park and ride network. New park and rides would be established to provide a more efficient route into the city centre for commuters. They would be based at junctions 33, 34 and north of junction 32 of the M4, and to the east and west of the city.

New York City pedestrian lanes

New York City authority repurposed 26 acres of car lanes as pedestrian zones with some areas seeing retail activity increasing by 172%



What are your views on our 3 big ideas to help make Cardiff an international capital of business, work and culture?

On a scale of 1 to 5, (1 being low and 5 being high) how much do you support our big ideas?

	1	2	3	4	5
I0. Creating a high-quality capital city centre environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
II. Developing the South East Corridor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I2. Regional Park & Rides – Improved Regional Connections Parking Levies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you have any other ideas, big or small to help make Cardiff an international capital of business, work and culture?

What more can you do?

If you own a business you could support your staff to make more sustainable transport choices

Try one of the city's park & ride services

Get in touch

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consultation@cardiff.gov.uk
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The Future of Cars



More Cardiff citizens feel able to either share or not own a car. Many will choose zero carbon cars.

What's happening?

On average, private cars are parked for 95% of the time and cost on average £4,000 a year to own. This is a grossly inefficient use of something that places huge demands on the environment, and on people's health and wealth. In many countries across the world, car ownership shows signs of decline, particularly amongst younger people. This decline in car ownership is often associated with a city lifestyle where there are attractive and efficient alternatives: London is one such example.

In Cardiff a new car club will launch in spring 2018, offering members a complete self-service, app-based system that will provide easy access to a vehicle. Developing initiatives of this kind are important as we know that fewer cars will reduce traffic congestion whilst also freeing up usable space on our streets and the substantial area we allocate for parking at work, shopping and leisure destinations.

Taxis already support this approach, and we need to ensure this essential service is prioritised and developed further in future plans.

There is a steady growth in electric vehicle ownership across the UK. The owners, local authorities, and the private sector are grappling with how to provide a variety of different electric charging options, especially for those that cannot charge their car in a driveway. More charging points are coming to Cardiff but a wider network will be needed if the growth of electric vehicles continues.

The big ideas: what more could be done?

13. Zero carbon vehicles

Japan now has more electric car charging points than petrol stations. A new electric car is currently registered in the UK every 13 minutes. Only 114 electric vehicles are currently registered in Cardiff (Nov 2017) but this will increase. Hydrogen is also emerging as an alternative fuel. While electric and hydrogen cars produce less pollution, they still contribute to congestion. Cardiff could encourage growth in electric and hydrogen vehicles as replacements for older, polluting models.

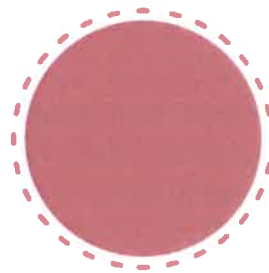
14. Comprehensive Network of Charging Points

The Council is committed to increasing the number of charging points around the city but it is unrealistic at this stage to expect every house in the city to have its own charging point. We could build on existing work with industry, retail and the community to bring forward a comprehensive network of charging points and hydrogen supply to encourage ownership of low carbon vehicles.



15. Car Clubs and Mobility as a Service

Instead of owning cars, there are indications that city dwellers around the world are choosing "mobility as a service" in which a person either joins a car club, or signs a contract with a service provider. A Cardiff Car Club is already operating but we could attract and develop a wider range of car sharing options, both market driven, including commercial car club operators and community based clubs, facilitated by communities and employers. This would give a variety of options to meet people's needs.



What are your views on our 3 big ideas regarding the future of cars?

On a scale of 1 to 5, (1 being low and 5 being high) how much do you support our big ideas?

13. Zero carbon vehicles

1	2	3	4	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Comprehensive Network of Charging Points

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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15. Car Clubs and Mobility as a Service

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Do you have any other ideas, big or small regarding the future of cars?

What more can you do?

Explore whether you could change to an electric car or more efficient vehicle

If your household has more than one car, discuss whether you could make do with fewer, and use taxi or new car share options

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consultation@cardiff.gov.uk

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Smart City



As the digital world evolves, Cardiff will use the latest technology to support an integrated transport system in which travellers are well informed and able to make smart travel choices.

What's happening?

Cardiff already has an extensive network of 'The Internet of Things' and Cardiff Council is using SMART technology to manage the traffic control systems, variable message signs and real-time information in bus shelters. The system provides API data for phone and internet applications. The system also includes data flow for car park management, automated bollards and air quality monitoring. Current improvements include:

- Parking sensors in 3,300 public parking spaces linked to a phone application that reduces the need for people to make unnecessary journeys on the search for parking spaces. The sensors improve the efficiency of enforcement and provide data to inform parking policies and future strategy.
- Intelligent lighting systems on strategic routes that monitor defects and better manage street lighting to control light levels, save energy and reduce costs.
- Technology to support Next Bike cycle hire, car clubs and the Cardiff Central Interchange hub.
- Upgrade of the real-time passenger information system.

The big ideas: what more could be done?



16. Maximise Digital Network/User Information

In partnership with the operator of the South Wales Metro, we will be able to use technology to support an integrated ticketing system that will enable people to pay for journeys across various modes of travel using phones, cards and on-line accounts. People will be better able to plan their

journeys using real-time information and previous journey information. This will give people more flexibility and the potential to create their own travel plans to suit their needs.

17. Fully Embed Intelligent Street Management

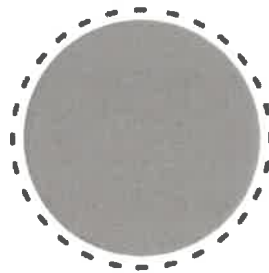
Building on the success of the parking monitors, we can ensure that streets are safer and ready to cope with the growth of electric and autonomous vehicles. We can ensure that drivers are not adding to congestion by searching for parking spaces when there are none and that drivers are not making streets dangerous through parking

violations. We will be able to help drivers of electric vehicles find available charging points and manage the charging system so that there is a fair distribution of power for all. This could partly be achieved through improving our understanding of and support for our 'Internet of Things' network.

18. Autonomous Vehicles

Experts are predicting a growth of autonomous vehicles but no one is quite sure yet how they will operate in a city like Cardiff and what impact they will have. We are working with universities, industry and the UK Government to fully understand the implications and potential of this emerging technology and to ensure that it brings

maximum benefit to the people and business of Cardiff. Cardiff could lead the way in automation and autonomous vehicle growth by, for example, providing the relevant digital connectivity in certain areas or asking partners to trial new technology on certain routes.



What are your views on our 3 big ideas to help make Cardiff a smart city?

On a scale of 1 to 5, (1 being low and 5 being high) how much do you support our big ideas?

16. Maximise Digital Network/
User Information

1 2 3 4 5

○ ○ ○ ○ ○

17. Fully Embed Intelligent Street
Management/ Street/Pavement/
Public Space Enforcement

○ ○ ○ ○ ○

18. Assess Autonomous Vehicles

○ ○ ○ ○ ○

Do you have any other ideas, big or small
to help make Cardiff a smart city?

What more can you do?

Download a transport app
such as Waze or Moovit

Discuss how you can use
mobile video conference
technology to cut down on
travel to meetings

Get in touch

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consultation@cardiff.gov.uk

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What happens next?

The consultation on this Green Paper closes on the 1st July. The outcomes of the consultation will be used, alongside clearer direction from Welsh Government and any feasibility studies on air quality, outcomes from our Economy Green Paper, and discussions with the South Wales Metro operator, to inform the development of a White Paper on Transport and Clean Air, to be published in the Autumn.

Contact Us:

**Complete our
online survey at:**

www.cardiff.gov.uk/askcardiff

Email comments directly to us:

consultation@cardiff.gov.uk

Respond in writing to:

Cardiff Research Centre, County Hall,
Atlantic Wharf, Cardiff, CF10 4UW

Contact us on social media:

Facebook/Twitter @CardiffCouncil





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**Bwrdd Iechyd Prifysgol
Caerdydd a'r Fro
Cardiff and Vale
University Health Board**

**Change in Car Parking contract at UHW
FAQ's - Public
Communications and Engagement Plan**

Why do we need a car parking management system at UHW after the contract with indigo ends on June 4th?

The safety of patients, staff, visitors and contractors on site remains one of our key priorities. It's essential that we retain a traffic and car parking system to ensure emergency services can access the hospital safely and quickly. With up to 16,000 cars using the site daily, the management system will reduce the potential of it becoming grid locked, particularly between the busiest periods on site 8am – 5pm.

UHW is one of the few city centre hospitals to retain car parking; a system is required to prevent it becoming misused.

The system is exactly the same as used in many railway car park and city centre car parks, with the exception that ours is free to use-if used correctly.

Who will manage the car parking at UHW from 5th June?

Parking Eye has been awarded the contract to manage car parking at the UHW site. Following a full tender process they were the only parking management company to apply.

When will car parking become free at UHW?

Car Parking will become free at UHW in line with all of our other car parks on 5th June. All car parks across the Health Board will have a traffic management system in place which is essential because the sites are in such close proximity to our busy city centre.

Is the Park and Ride service free from 5th June?

Yes this service will be free for all patients, staff and visitors from 5th June.

Is there any scope to increase frequency of the Park and Ride service during peak times?

Yes, we will be evaluating the volume of people using the free service and then exploring the potential to run every ten minutes during peak times.

How long does it take on the Park and Ride Service?

It takes approximately six minutes to travel to the UHW site. There is also free Wi-Fi on the bus and people can sit back and relax and not have to worry about finding a

space. The drop-off spot is conveniently located outside the multi-story near the cafes and concourse.

Can patients and visitors use the park and ride service?

Yes. It is free to use for all patients and their families accompanying them to clinics or visiting on the wards.

What do patients and visitors need to do to park at UHW?

1. Find a space in a patient car park- these are clearly indicated as blue zones
2. Note the time of your arrival
3. If you need more than four hours- register your number at one of the 40 terminals on-site.

Will patients / visitors be fined if they park in the wrong car park?

Yes, you will be fined for parking in the wrong parking zones. This will apply to patients / visitors who park in staff car parks. Please ensure you check signage when entering the site. There are Automatic Number Plate Recognition (ANPR) number plate recognition cameras across the site.

How much will the fines be from 5th June?

Each fine is £70 and will be reduced to £40 if paid within 14 days.

Will there be a maximum time to park for patients, visitors and contractors?

Yes, patient and visitor parking is available for four hours. If you exceed this time limit then you will need to register your number plate at one of the 40 terminals across site. Contractors will need to make special arrangements either via the Estates Department or the UHB Parking Office.

If I receive a ticket in error how can I appeal?

There will be clear instructions on the back of the ticket on how you can put forward an appeal. There are also full details on the Parking Eye and the UHB websites.

What if I am delayed in a clinic receiving treatment and not able to return to my car or register my vehicle?

You can register your vehicle after the four hour period. Please ensure you do this before you leave the site.

Are there plans to increase car parking on site?

We will not be increasing car parking on the UHW site. The aim of the Sustainable Travel Plan is to reduce parking and air pollution and encourage alternative forms of transport to our sites.

How are tickets issued?

Tickets will be issued either by on site wardens walking the site or via post via the ANPR cameras. We urge patients and visitors to pay attention to the new traffic system as the vast majority of the site will be covered by an ANPR system. It is not simply a question of being caught out by a warden on the day.

Why can't we just park where we want when we want?

We have to operate a fair and equitable system for all. We have limited space and the system will ensure that all patients can park within the four hour limit and then free up the space in time for the next round of patients.

Why do you need a sustainable travel plan?

Car Parking is an emotive issue and we are trying to cater for a diverse range of travel users to our sites. Our ambition is to support Sustainable Travel in line with Welsh Government Policy and alternative options to allow us to care for people and keep them well.

We have been working with both local councils to develop plans for a Sustainable Travel Hub on the UHW site. This will include a bus hub, a secure cycle storage unit and electric vehicle charge points. As a Health Board we also want to encourage physical activity for our staff and our communities and support physical and mental wellbeing.

