Oxfordshire County Council - Local Transport and Connectivity Plan 2022 - 2050

July 2022

Document information

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Contents

Executive summary

The LTCP at a glance
The LTCP outlines a clear vision to deliver a net-zero Oxfordshire transport and travel system that enables the county to thrive whilst protecting the environment and making Oxfordshire a better place to live for all residents.

We plan to achieve this by reducing the need to travel, discouraging unnecessary individual private vehicle journeys and making walking, cycling, public and shared transport the natural first choice. The policies included in the LTCP are the tools that we believe are necessary to achieve this.

Introduction

Local Transport Plans are statutory documents, required under the Transport Act 2000. We are calling ours the Local Transport and Connectivity Plan (LTCP), to better reflect our strategy both for digital infrastructure and for connecting the whole county. The LTCP covers the time period to 2050.

The LTCP outlines our long term vision for transport and travel in the county and the policies required to deliver this. The LTCP vision and policies will be used to influence and inform how we manage transport and the types of schemes we implement.

The LTCP is required to reflect changes to policy and funding and account for new priorities such as decarbonisation. The LTCP also represents an opportunity to adopt and implement a new way of thinking which considers people first and seeks to create healthy places whilst improving biodiversity and air quality.

The LTCP has been informed by a wide-ranging evidence base. The evidence base has been developed using available data from local, regional and national sources. The full evidence base can be found in the supporting baseline report.

Challenges

In order to create an effective plan and deliver our vision it is important to first identify the key transport challenges. The challenges we identified are:

- Decarbonisation – Delivering a net-zero transport system is a critical part of contributing to UK targets and addressing climate change.
- The private car – A 36% increase in car vehicle miles since 1993 is having negative impacts on human health and the environment.
- Future growth – Proposals for many new jobs and homes in the county will have a significant impact on our transport network.
- Connectivity – There is a need to improve connectivity by walking, cycling and public transport and also other forms of connectivity such as digital.
- Rural areas - Residents in rural areas have specific challenges and currently have fewer alternatives to the private car.
- Inclusivity – Some communities face barriers to transport which need to be removed to create an accessible and fair transport system for all residents.

Vision

The vision outlines a clear long-term ambition for transport in the county and underpins the policies in this document.

"Our Local Transport and Connectivity Plan vision is for an inclusive and safe net-zero Oxfordshire transport system that enables all parts of the county to thrive.

It will tackle inequality, be better for health, wellbeing and social inclusivity and have zero road fatalities or life-changing injuries. It will also enhance our natural and historic environment and enable the county to be one of the world's leading innovation economies.

Our plan sets out to achieve this by reducing the need to travel and private car use through making walking, cycling, public and shared transport the natural first choice."

Key themes

In support of the vision we have identified five key themes. These are the specific areas we are seeking to transform through implementation of the vision. We have also identified the outcomes we will deliver for each key theme.

Environment

Outcome: Sustainable communities that are resilient to climate change, enhance the natural and historic environment, improve biodiversity and are supported by our net-zero transport network.

Health

Outcome: Improved health and wellbeing and reduced health inequalities, enabled through active and healthy lifestyles, improved road safety and inclusive, communities.

Healthy place shaping

Outcome: Sustainable, well designed, thriving communities where healthy behaviours are the norm and which provide a sense of belonging, identity and community.

Productivity

Outcome: A world leading business base that is sustainable, has created new jobs, products and careers for all communities and is supported by an effective, net-zero transport network.

Connectivity

Outcome: Communities are digitally connected, innovative technologies are supported and there is improved connectivity and mobility across the county, enabling greater choice and seamless interchange between sustainable modes.

Inclusivity

Outcome: Barriers to access are removed and all communities are supported by our inclusive transport system to play a full role in society and have independence, choice and control.

Targets
In order to track delivery of the vision and key themes we have identified a set of headline targets.

By 2030 our target is to:

- Replace or remove 1 out of every 4 current car trips in Oxfordshire
- Increase the number of cycle trips in Oxfordshire from 600,000 to 1 million cycle trips per week
- Reduce road fatalities or life changing injuries by 50%

By 2040 our targets are to:

- Deliver a net-zero transport network
- Replace or remove an additional 1 out of 3 car trips in Oxfordshire

By 2050 our target is to:

- Deliver a transport network that contributes to a climate positive future
- Have zero, or as close as possible, road fatalities or life-changing injuries

Policies
The LTCP outlines our transport policies which will be used to influence and inform how we manage transport and the types of schemes we implement. These policies outline the new approaches and measures that we will be taking to make the vision and targets achievable.

The LTCP policies are grouped according to policy focus area. The policy focus areas are:

- Walking and cycling
- Healthy place shaping
- Road safety
- Digital connectivity
- Public transport
- Environment, carbon and air quality
- Network, parking and congestion management
- Innovation
- Data
- Freight and logistics
- Regional connectivity
- Local connectivity

Implementation
The LTCP will be delivered in a number of ways. This includes: delivery of physical infrastructure and services, influencing development, changes to the council's decision making processes and incorporation with other highway works.

More detailed implementation plans for local areas will be developed as part of the area transport strategies.

Funding
Some of the policies identified in the LTCP will require funding to deliver. However, councils cannot fund these from reserves and are reliant on central government funding for most transport improvements. We will also work hard to identify alternative funding sources such as through the Oxfordshire Infrastructure Strategy.

Key potential funding sources are; funding bids, developer contributions, working with our partners such as the Local Enterprise Partnership (LEP), revenue raised from demand management schemes such as the zero emission zone and operator or private sector investment.

Monitoring
The LTCP will be reviewed on an annual basis. In order to monitor the LTCP we have identified a set of key performance indicators (KPI's). We intend to publish annual monitoring reports to demonstrate progress on delivering the LTCP, progress made against the headline targets and performance against the KPI's.

Supporting Strategies
In support of the overall LTCP, we have developed three initial supporting strategies for Freight and Logistics, Active Travel and Innovation. These build upon the high level policies in the LTCP but provide more detail about our proposals and how they will be delivered.

Following adoption of the LTCP, work will commence on developing the remaining supporting strategies. These will include the area and corridor transport strategies, bus strategy, rail strategy, and digital strategy.

Policy summary table

Policy focus area	Policy
Walking and cycling	Policy 1 – Transport user hierarchy
	Policy 2 – Cycle and walking networks
	Policy 3 – Local Cycling and Walking Infrastructure Plans
	Policy 4 – Strategic Active Travel Network
	Policy 5 – Public Rights of Way
	Policy 6 – Greenways
	Policy 7 – Community Activation
Healthy place shaping	Policy 8 – Healthy Streets Approach
	Policy 9 – Health Impact Assessment
	Policy 10 – Safe streets
	Policy 11 – Travel to school and work
	Policy 12 – Guidance for new development
	Policy 13 – 20-minute neighbourhoods
	Policy 14 – Integrated planning
Road safety	Policy 15 – Vision Zero
	Policy 16 – 20mph zones
	Policy 17 – Equestrians
Public transport	Policy 18 – Bus strategy
	Policy 19 – Community transport

	Policy 20 – Park and ride
	Policy 21 – Rail strategy
	Policy 22 – Multi-modal travel
	Policy 23 – Mobility hubs
Digital connectivity	Policy 24 – Digital infrastructure
	Policy 25 – 5G
	Policy 26 – Remote working
Environment, carbon and air quality	Policy 27 – Embodied carbon
	Policy 28 – Clean Air and Zero Emission Zones
	Policy 29 – Zero emission vehicles
	Policy 30 – Green Infrastructure
Network, parking and congestion management	Policy 31 – Network management
	Policy 32 – Asset management
	Policy 33 – Parking management
	Policy 34 – Parking enforcement
	Policy 35 – Demand management
	Policy 36 – Road schemes
	Policy 37 – Smart infrastructure
Innovation	Policy 38 – Passenger micromobility
	Policy 39 – Car clubs
	Policy 40 – Connected and Autonomous Vehicles
	Policy 41 – Unmanned Aerial Vehicles
	Policy 42 – Living Lab
	Policy 43 – Innovation Framework
Data	Policy 44 – Data
	Policy 45 – Modelling
	Policy 46 – Monitoring
Freight and logistics	Policy 47 – Freight and Logistics Strategy
	Policy 48 – Long distance movement
	Policy 49 – Local movement
	Policy 50 – Last mile movement
Regional connectivity and cross-boundary working	Policy 51 – Regional connectivity and cross-boundary working
Local connectivity	Policy 52 – Area transport strategies
	Policy 53 – Transport corridor strategies
	Policy 54 – Rural journeys

Foreword

We have made good progress since the publication of the Local Transport Plan 4 in 2016. However, a more ambitious transport strategy is needed if we are to deliver the councils priorities, particularly taking action to address the climate emergency, tackling inequalities, prioritising the health and wellbeing and investment in an inclusive, integrated and sustainable transport network.

We need to fundamentally reconsider how people move around the county. Current trends of private car use have contributed to congestion and public health issues across the county. In order to address these challenges, we have to reduce the need to travel and discourage individual private car use.

We plan to do this by making walking, cycling, public and shared transport the natural first choice. The policies in this document set out how we will make these modes more attractive and create a balanced transport system.

We recognise that in order to deliver our aspirations there will be considerable challenges. Delivering our vision will not be easy and there will be some tough decisions around how we use existing road space.

However, the health of Oxfordshire residents and the protection of our environment is paramount. The benefits of this approach will be felt by all people today in terms of improved health, cleaner air and easier journeys. It will also help to protect our environment for future generations.

Delivering the LTCP will require work with a range of stakeholders. We have engaged with many of these during development of the LTCP and we will continue to work these partners as we move forward.

Engagement with the residents of Oxfordshire will also be crucial. We thank everyone who commented on the LTCP consultations to date and encourage further engagement as we move forward with this project. Working together we can deliver the LTCP and a better Oxfordshire for all.

Councillor Duncan Enright
Cabinet Member for Travel and Development Strategy

Councillor Andrew Gant
Cabinet Member for Highways Management

Councillor Pete Sudbury
Cabinet Member for Climate Change Delivery & Environment

Introduction

Background

Local Transport Plans (LTP) are statutory documents, required under the Transport Act 2000. They have recently been strengthened by the Department for Transport's decarbonisation plan, Decarbonising Transport: A Better, Greener Britain (2021).

The transport decarbonisation plan sets out a role for revitalised LTPs to set quantifiable targets in carbon reductions in transport for local areas. Guidance for designing sustainable transport solutions through LTPs will also be published by the Department for Transport and it is stated that this will be linked to funding for schemes.

We are calling our LTP the Local Transport and Connectivity Plan (LTCP) to better reflect our strategy both for digital infrastructure and for connecting the whole county. The LTCP covers the time period from 2022 to 2050.

The local and regional policy context has changed significantly since the publication of our previous Local Transport Plan (LTP4) in 2016. The LTCP is an opportunity to develop a transport policy framework that reflects these changes.

It is also clear that our previous approaches to reducing car use in the county have not been successful. Attempts to manage traffic flow and accommodate other modes have been unsuccessful as the car remains the dominant mode of choice. This has created environments that are not welcoming places for people and negatively impact on biodiversity and air quality. The LTCP represents an opportunity to implement a new way of thinking.

Development of the LTCP

We have developed and consulted upon the LTCP in 3 stages. This process began in March 2020 and has allowed for ongoing public engagement at each stage of the project. We have therefore been able to refine proposals before inclusion in this document.

The stages of development that we have conducted are:

- Stage 1 – Topic Paper Engagement in March 2020
- Stage 2 – Development of Vision Document. Public consultation in February 2021
- Stage 3 – Development of LTCP and supporting documents. Public consultation in January 2022.

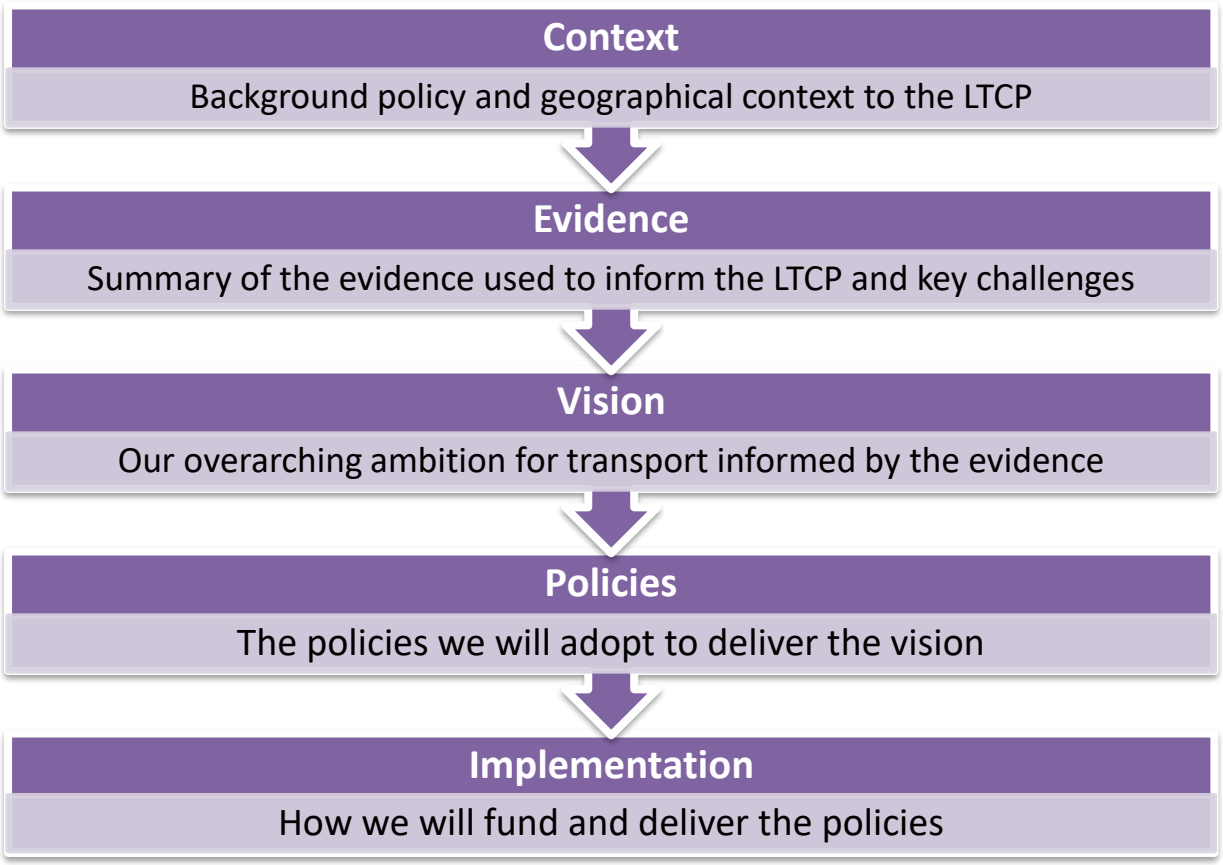
In total we received 2200 responses to the engagement exercises, both from individuals and organisations. Analysis of these responses has helped to shape the content of this document. Full engagement summaries for both consultations have been published and are available on the County Council website.

The LTCP has also been informed by a wide-ranging evidence base. The evidence base has been developed using available data from local, regional and national sources. This has enabled us to understand past trends, the current situation and

identify future challenges and opportunities. The full evidence base and analysis can be found in the accompanying evidence base document.

This document

The LTCP outlines all of the high level transport and travel policies until 2050. From this point, the document progresses through the following broad stages, starting with the high level context and progressing through to implementation of our policies:



Integrated Sustainability Appraisal

In support of the LTCP we commissioned the specialist consultants AECOM to conduct an Integrated Sustainability Appraisal (ISA). The ISA has been conducted in order to ensure that the LTCP protects the environment, human health and allows equal access for all residents.

The ISA has achieved this by subjecting the LTCP to a series of assessments. These assessments include a Strategic Environmental Assessment (SEA), Health Impact Assessment (HIA), Equalities Impact Assessment (EqIA), Community Safety Assessment (CSA) and Habitats Regulation Assessment (HRA). The full ISA report has been published alongside the LTCP and is also subject to public consultation.

The ISA will help to inform area transport strategy development, but separate environmental assessments will be required for more detailed work. The exact process for this will be confirmed as part of the development process.

COVID-19

We recognise that the LTCP has been developed and published at an unprecedented time. We are continuing to deal with the impacts of the COVID-19 pandemic and some of the impacts on travel remain uncertain.

Whilst we must reflect on the short term impacts of COVID-19 on travel, it is important that we remember the need for a clear long term plan for transport in the county. The LTCP provides this long term plan and will help us to deliver a more sustainable, prosperous and healthier Oxfordshire.

Some of the impacts of COVID-19 on travel are uncertain, however there is much that we do know. We know that motor traffic flow has already returned to pre-pandemic levels and that most of these vehicles are polluting, negatively impacting on both our environment and human health.

Likewise, we know that walking and cycling delivers a range of health benefits and that 25% of adults and 42% of children in Oxfordshire do not meet physical activity recommendations. Encouraging the use active and sustainable transport modes therefore remains essential to support important benefits to public health, climate change, air quality and environmental protection.

The COVID-19 pandemic also provides us with an opportunity to continue to develop and shape different ways of communicating and working that reduce the need to travel.

There are some areas where levels of uncertainty remain such as the long term impacts on public transport and home working. In these cases, we will continue to monitor emerging data, adjusting our approach accordingly via annual reviews of the LTCP, as outlined later in this document.

Oxfordshire context

The county of Oxfordshire has a two-tier government system, with five planning authorities – the district councils of Cherwell, South Oxfordshire, Vale of White Horse and West Oxfordshire and the city council of Oxford – and a county-wide highways authority, Oxfordshire County Council.

Neighbouring Oxfordshire's borders, the adjacent counties and immediate neighbouring local authorities include:

- Warwickshire - Stratford-on-Avon District Council
- Northamptonshire - West Northamptonshire Council
- Buckinghamshire - Buckinghamshire Council
- Berkshire - West Berkshire Council, Reading Borough Council and Wokingham Borough Council
- Wiltshire - Swindon Borough Council and Wiltshire Council
- Gloucestershire - Cotswold District Council

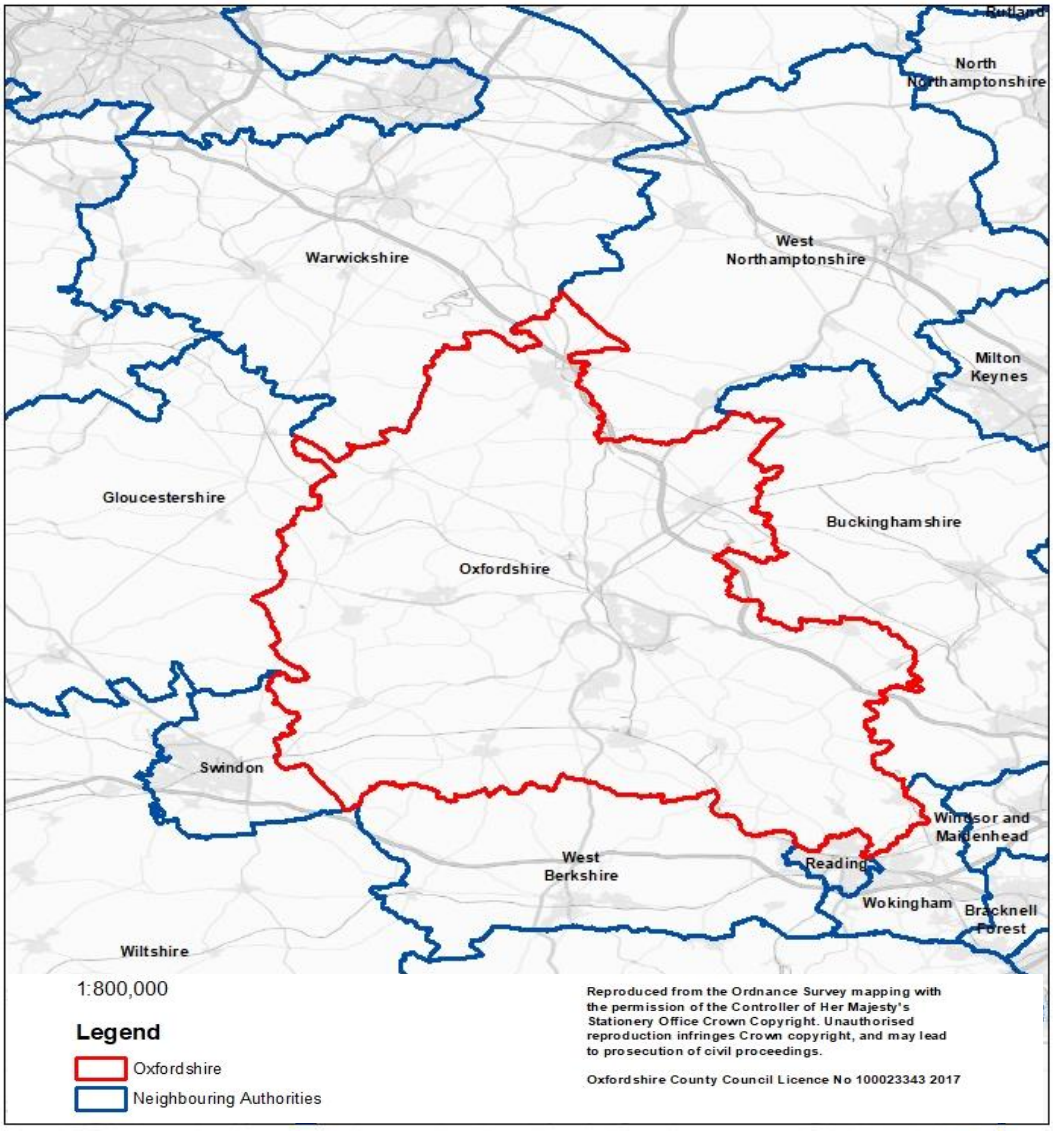


Figure 1 – Map of Oxfordshire and Neighbouring Authorities

Oxfordshire Fair Deal Alliance
Following the Oxfordshire County Council elections on 6 May 2021, a new political administration was formed: the Oxfordshire Fair Deal Alliance. The Fair Deal Alliance is a coalition between Liberal Democrat, Labour and Green Councillors.

The LTCP builds on the 9 strategic priorities of the county council and will be key to delivering the following five:

- Put action to address the climate emergency at the heart of our work
- Tackle inequalities in Oxfordshire
- Prioritise the health and wellbeing of residents
- Invest in an inclusive, integrated and sustainable transport network.
- Preserve and improve access to nature and green spaces.

Future Oxfordshire Partnership
The Future Oxfordshire Partnership is a joint committee of the six councils of Oxfordshire together with key strategic partners. The partnership oversees the delivery of projects that the councils of Oxfordshire are seeking to deliver collaboratively in the fields of economic development and strategic planning. This includes overseeing some major transport schemes.

The Partnership meets six times each year and is supported by four Advisory Sub-Groups (Infrastructure, Environment, Housing and Oxfordshire Plan 2050) and a Scrutiny Panel.

Non-local authority groups in Oxfordshire and the South East region
Oxfordshire is also a member or a direct neighbour of several non-local authority groups and partnerships. These groups are part of the broader policy context and are central to our cross-boundary and partnership working arrangements addressed later in the LTCP.

Oxford to Cambridge Arc
The Oxford to Cambridge Arc (OxCam Arc or 'the Arc') has been identified by the Government as a national economic priority. The Arc is formed of five ceremonial counties: Oxfordshire, Northamptonshire, Buckinghamshire, Bedfordshire and Cambridgeshire. Development of the Arc work is currently being led by central government, with strong local input from the Arc Leadership Group.

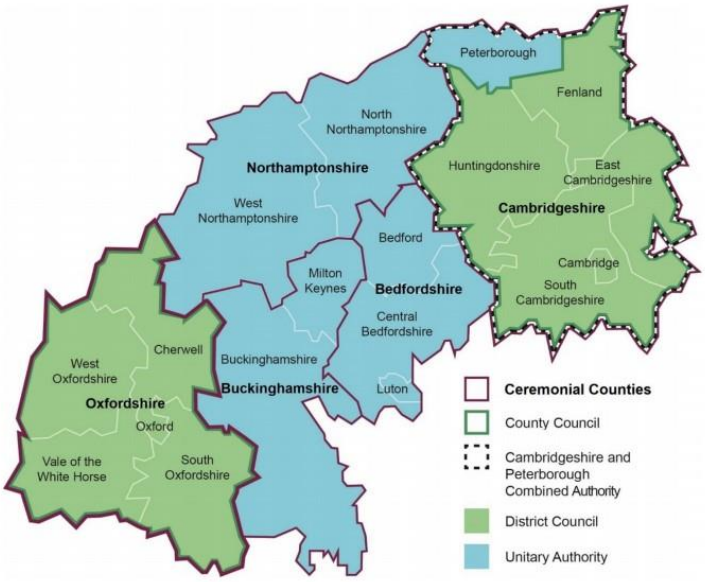


Figure 2 – OxCam Arc Geographical Area[1]

England's Economic Heartland

England's Economic Heartland (EEH) is a partnership authority group, which functions as a non-statutory sub-national transport body. It provides leadership on strategic transport infrastructure in support of the Arc.

EEH has expanded since forming in 2014 and now comprises of transport authorities across Swindon, Oxfordshire, Northamptonshire, Milton Keynes, Buckinghamshire, Bedford, Central Bedfordshire, Luton, Hertfordshire, Peterborough and Cambridgeshire.

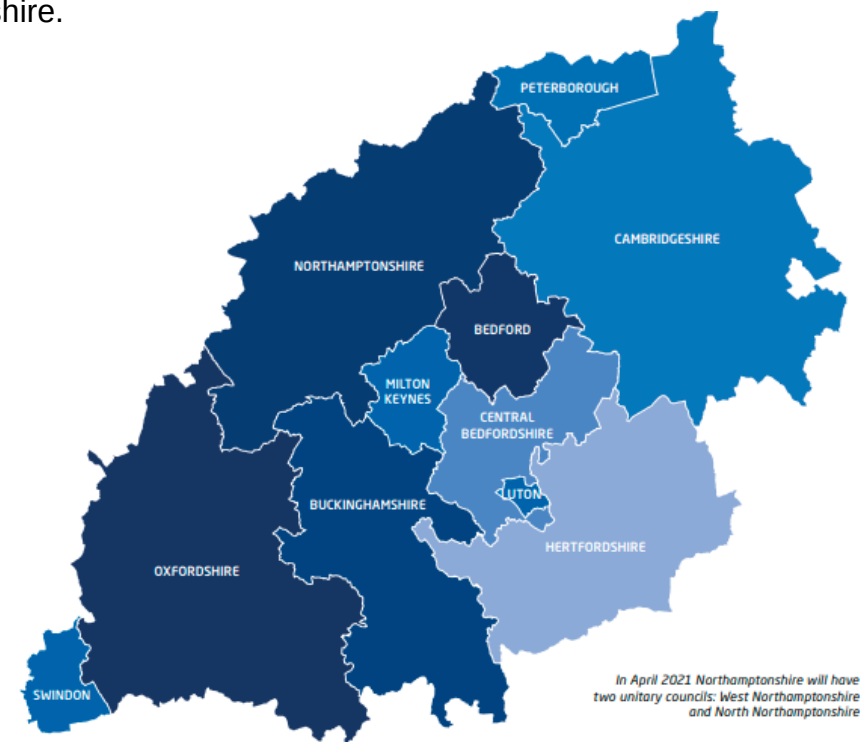


Figure 3 - England's Economic Heartland Geographical Area[2]

[1] Ministry of Housing, Communities & Local Government: Planning for sustainable growth in the Oxford-Cambridge Arc: an introduction to the spatial framework

Transport for the South East

Transport for the South East is a sub-national transport body comprising 16 local authorities. The region covers Berkshire, Kent, Hampshire, the Isle of Wight, Surrey, East Sussex and West Sussex.

Transport for the South East published a transport strategy for the region in June 2020. Whilst not a member of Transport for the South East, Oxfordshire borders the region and so it is necessary to consider the proposals and potential impacts.

Other bordering bodies

In addition, Oxfordshire borders the sub-national transport bodies of Western Gateway and Midlands Connect. Again, whilst not a member of these groups, there are matters such as cross-boundary transport movements that need careful consideration.

[2] EEH Transport Strategy

Policy context

This section provides more detail about the policy context within which the LTCP sits. We recognise that this is not an exhaustive list, it does however highlight key policies at the national, subnational and local level. Further detail about these policies is summarised in the LTCP baseline report.

National

At the national level there are a range of policies that provide context for the LTCP and have set high level ambitions which the LTCP will contribute to delivery of:

- **Local Transport Act 2000**: Establishes Local Transport Plan's (LTP) as statutory documents.
- **Build Back Better: our plan for growth (2021):** Sets out the government's plans to support economic growth through investment in infrastructure, skills and innovation. The aim to support the transition to net zero has strong links to the LTCP.
- **Transport Investment Strategy (2017)**: Provides context for the levels of funding available and the rationale behind government investment in transport.
- **Transport Decarbonisation Plan (2021)**: Sets out the government's commitments and the actions needed to decarbonise the entire transport system in the UK.
- **Gear Change (2020)**: Describes the vision to make England a great walking and cycling nation and sets out the actions required to deliver this.
- **Future of Mobility: Urban Strategy (2019)**: Outlines the government's approach to maximising the benefits from transport innovation in cities and towns.
- **Government's 25 year Environment Plan (2018)**: Sets out how the government will improve the environment.
- **National Bus Strategy (2021):** Sets out the vision and opportunity to deliver better bus services for passengers across England. As required by the strategy, the county council entered into an enhanced partnership with Oxfordshire's bus operators in June 2021. We have also published our bus service improvement plan.
- **UK Carbon Budget (2021)**: Sets the legally binding target to reduce emissions by 78% by 2035 compared to 1990 levels.
- **Great British Railways and the Integrated Rail Plan (2021):** Outlines proposals to bring the rail network under single national leadership, a new public body called Great British Railways. It has also published plans for rail projects in the midlands, which has some links to our rail aspirations.

Sub-national and regional

As outlined in the previous chapter, Oxfordshire County Council is also a part of regional bodies and partnerships which outline further aspirations for the region:

- **EEH Transport Strategy (2021)**: Sets out that a step-change in approach is required to address the challenges our transport system already faces and to realise the region's economic potential and deliver sustainable growth.
- **OxCam Arc Spatial Framework (2021)**: The government started a public consultation seeking views on the first stage of the Oxford-Cambridge Arc

Spatial Framework. This would have national planning and transport policy status, meaning it would carry significant weight in the planning process. However, the next steps on development of this framework are not yet clear. It is therefore not possible to take into account any proposals at this time.

Local

At the local level, the LTCP supports and will inform a range of policies. It is important to ensure alignment so that we are working towards a common goal. Key strategies at the local level include:

- **Oxfordshire Strategic Vision (2021)**: The Future Oxfordshire Partnership is a joint committee of the six councils of Oxfordshire together with key strategic partners. The Partnership have developed a Strategic Vision for Oxfordshire to establish a common and shared ambition to guide the focus of plans, strategies and programmes.
- **Local Plans**: All of the Oxfordshire district councils have produced local plans which guide future development proposals to the 2030's.
- **Oxfordshire Plan 2050**: To support future growth, the district councils are working together to produce a Joint Statutory Spatial Plan known as 'the Oxfordshire Plan'. The Oxfordshire Plan will provide a strategic planning framework for Oxfordshire to 2050, setting out housing, employment and infrastructure needs.
- **Oxfordshire Infrastructure Strategy (2022):** The Oxfordshire plan will be supported by the Oxfordshire Infrastructure Strategy (OxIS). OxIS provides a long-term framework to identify strategic infrastructure investment priorities. OxIS stage 1 was endorsed by the county council in February 2022.
- **Oxfordshire County Council Climate Action Framework (2020)**: Sets out the county council's plans to make itself a carbon neutral organisation by 2030, and to enable Oxfordshire as a whole to become zero-carbon by 2050.
- **Local Industrial Strategy (2019)**: Sets out an ambitious plan to build on Oxfordshire's strong foundations and world-leading assets, to deliver transformative growth which is clean and sustainable. The Oxfordshire Investment Plan and Economic Recovery Plan are key supporting strategies.
- **Joint Health and Wellbeing Strategy (2018):** Sets out how the NHS, Local Government and Healthwatch will work together to improve resident's health and wellbeing.
- **Oxfordshire Digital Infrastructure Strategy and Delivery Plan (2020):** Sets out our vision for Oxfordshire to be enabled with smart infrastructure and our strategy for achieving this.
- **Oxfordshire Rights of Way Management Plan (2015):** The county council's plan to manage, improve and extend the public rights of way and countryside access network
- **Zero Carbon Oxford Charter (2021):** The county council, Oxford City Council and leaders from Oxford's universities, institutions and large businesses signed the Zero Carbon Oxford Charter, which marks their support for achieving net zero carbon emissions as a city by 2040.

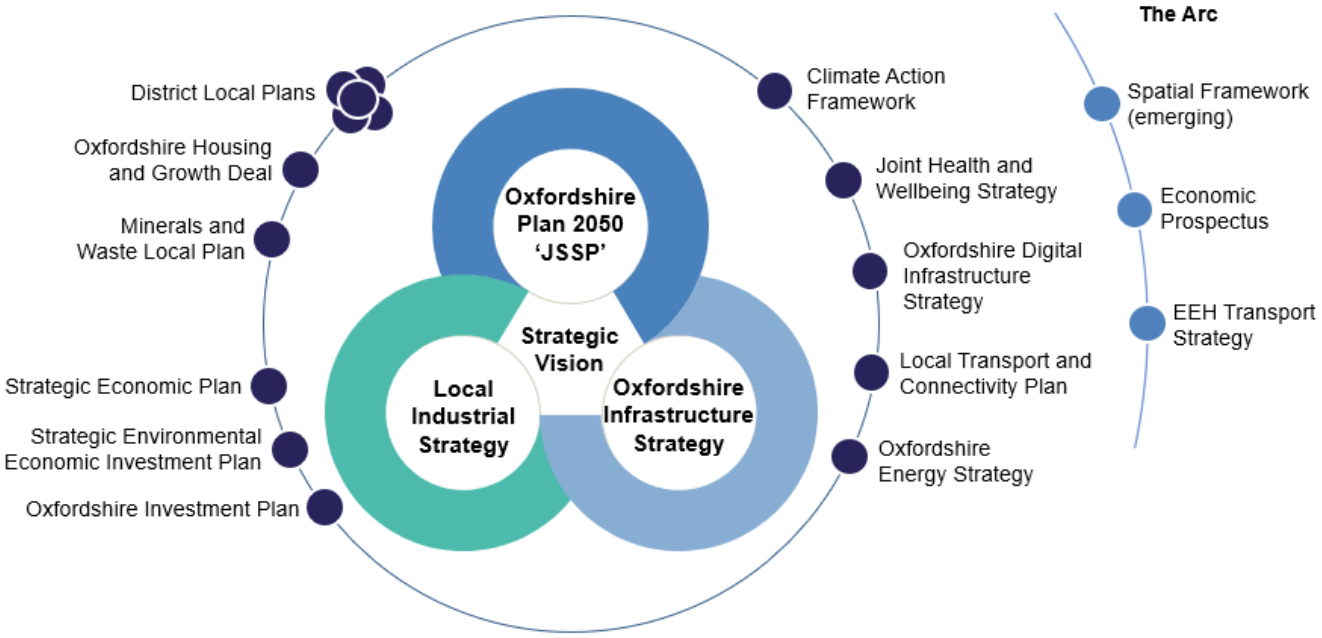


Figure 4 – Oxfordshire's strategic map

Evidence base

The LTCP has been informed by a wide-ranging evidence base. The evidence base has been developed using available data from local, regional and national sources. Development of this evidence base has enabled us to understand past trends, the current situation and identify future challenges and opportunities. This understanding has informed the policies in the LTCP. The full evidence base and analysis can be found in the accompanying evidence base document.

Whilst the evidence shows that Oxfordshire is in a good place for some things, there are also some significant challenges and areas where much more work is required. A summary of the key headlines is provided below:

- Since 1952 there has been a significant increase in car usage in the UK. This trend has been reflected in Oxfordshire, with vehicle miles increasing.
- Although bus usage in the county has increased overall since 2010, it has been declining since 2013/14.
- Rail usage has been increasing in the county and there are opportunities to further improve this.
- Oxfordshire is in a good starting place with regards to current walking and cycling levels.
- Road safety has improved but there have been some upward trends since 2018.
- Transport is responsible for the largest proportion of greenhouse gas emissions in the county.
- How freight is moved is changing and Light Goods Vehicles (LGV) growth is projected to significantly increase.
- Oxfordshire has a rich and varied natural and historic environment, but certain habitats have been in decline in recent years.
- Oxfordshire has significant amounts of rural area.
- Oxfordshire has one of the UK's strongest economies, however housing and economic growth are placing strain on the existing transport network.
- Digital connectivity is good in Oxfordshire and can play a role in reducing travel demand.
- Oxfordshire is a prosperous and affluent place to live. However, it also hides significant health and social inequalities across the County. We need to create a health enabling environment which makes it easy for people to walk and cycle more and to make healthier decisions.

LTP4 review

As part of our work to develop the LTCP we have also reviewed progress made on the delivery of LTP4. This is important to identify progress made on delivering the plan, success and failures. This will help us to improve the LTCP and identify lessons learned so that delivery is improved.

LTP4 policies

LTP4 set out our policy and strategy for developing the transport system in Oxfordshire to 2031. It was developed with four over-arching transport goals:

- To support jobs and housing growth and economic vitality.
- To reduce transport emissions and meet our obligations to Government.
- To protect, and where possible enhance Oxfordshire's environment and improve quality of life.
- To improve public health, air quality, safety and individual wellbeing.

To achieve these goals, ten objectives for transport were developed. These were set within three themes, around which the policy section of LTP4 was structured. A summary of the objectives and themes is provided below.

Theme and section in LTP4	Objective
Supporting growth and economic vitality	Maintain and improve transport connections to support economic growth and vitality across the county
	Make most effective use of all available transport capacity through innovative management of the network
	Increase journey time reliability and minimise end-to-end public transport journey times on main routes
	Develop a high-quality, innovative and resilient integrated transport system that is attractive to customers and generates inward investment
Reducing emissions	Minimise the need to travel
	Reduce the proportion of journeys made by private car by making the use of public transport, walking and cycling more attractive
	Influence the location and layout of development to maximise the use and value of existing and planned sustainable transport investment
	Reduce per capita carbon emissions from transport in Oxfordshire in line with UK Government targets
Improving quality of life	Mitigate and wherever possible enhance the impacts of transport on the local built,

	historic and natural environment
	Improve public health and wellbeing by increasing levels of walking and cycling, reducing transport emissions, reducing casualties and enabling inclusive access to jobs, education, training and services

In order to deliver these objectives LTP4 identified 34 policies. It is challenging to assess and track whether individual policies were delivered, however we know that whilst the overall framework was sound policies were delivered with mixed success. This is for a range of reasons including funding constraints, resource constraints and inconsistent or partial application. Lessons learnt from this are:

- Need for strong policy wording and a clear vision.
- Need to improve internal processes and consistent application of policies.
- Need to improve monitoring and reporting of progress.

LTP4 area strategies

A set of area and route strategies were published in support of LTP4. This included strategies for the A40, A420, Banbury, Bicester, Carterton, Science Vale (Wantage, Grove, Didcot, Harwell, Milton, Culham), Witney and Oxford. These strategies identified the specific schemes required to deliver LTP4.

We have reviewed these strategies and the progress made on delivering them. A summary of this progress is in Appendix 1. Overall, there has been good levels of delivery, particularly from the Science Vale and Oxford area strategies. A more limited number of schemes have been delivered from the Witney and Carterton area strategies. Notable schemes delivered from the LTP4 area strategies include:

- A ‘hamburger’ link was delivered under the A34 at Milton Interchange, with widening across the roundabout, in May 2015.
- North-facing slips were delivered at Chilton Interchange to provide a full movement junction in November 2016.
- A multi-storey car park and cycle hub were opened at Didcot Parkway station in July 2019 and March 2021 respectively.
- The X36 bus service linking Grove, Wantage, Milton Park and Didcot launched in January 2021.
- Science Vale Cycle Network routes 1, 3, 5, 6 and 8 have been delivered.
- Various schemes including Low Traffic Neighbourhoods, Quietway’s and Quickways have been introduced in Oxford.
- A Zero Emission Zone (ZEZ) Pilot scheme for Oxford was approved and commenced in early 2022.
- The Oxford Controlled Parking Zone (CPZ) programme was approved in June 2019. Several CPZ schemes have since been introduced with further schemes planned.

The review in appendix 1 highlights that there is ongoing work to deliver some of the schemes from the LTP4 area strategies. The schemes that have not been delivered will be reviewed as part of our work to develop updated area strategies. Lessons learnt from the review of the LTP4 area strategies are:

- Need for a consistent countywide approach that aligns with LTCP policy.

- Need to move away from the traditional transport planning approach of ‘predict and provide’.
- Need for a greater focus on activation and measures to support infrastructure improvements.

The LTCP is an opportunity to build on LTP4 and incorporate the lessons learned to strengthen the document and improve delivery of our ambitions.

Challenges

Oxfordshire's transport system affects all residents' lives. It plays a role in connecting our communities, supporting the 30,000 businesses in the county and enabling journeys for education, leisure and work.

There has also been a growing recognition of the way in which transport affects everyday experiences and health. The transport system and the options available shape how residents travel, how much physical activity they do and also how enjoyable everyday journeys are.

Therefore, it is vital that we create a plan for a transport system that will be resilient to different kinds of changes, addresses existing challenges, enables all residents to have a high quality of life and creates a healthy, sustainable county.

Decarbonisation
Greenhouse gas emissions from human activity are changing the Earth's climate in unprecedented ways, with some changes now irreversible[3]. In order to limit global warming to well below 2°C and pursue efforts to limit warming to 1.5°C, the UK government has made a legal commitment to deliver net-zero emissions by 2050.

Transport is responsible for the largest proportion of greenhouse gas emissions in the county (36%[4]). Therefore, there is an urgent need to decarbonise all forms of transport in the county. We must increase the share of trips taken by walking, cycling, public and shared transport and support uptake of zero-emission vehicles.

The private car
There has been a huge rise in car use across the UK since 1952. We have seen this trend reflected within Oxfordshire with a 36% increase in vehicle miles since 1993[5]. In 2019, total vehicle miles driven in Oxfordshire passed 4 billion for the first time[6].

This is having negative impacts for example, congestion is disrupting journeys and accommodating and managing vehicles in our towns and villages has created environments that have become less welcoming places for people. Encouraging a change in behaviour to tackle private car use will be a significant challenge.

Future growth
Current forecasts are for over 85,000 new jobs and 100,000 new homes in the county between 2011 and 2031. Such growth will have a significant impact on our transport network, with more people and goods needing to use it. Given the scale of growth, more radical solutions are needed to transform transport in Oxfordshire.

[3] IPCC: AR6 Climate Change 2021: The Physical Science Basis
[4] University of Oxford Transport Studies Unit: Pathways to a zero-carbon Oxfordshire
[5] https://www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra
[6] Census 2011

Connectivity
Whilst Oxfordshire has good public transport connectivity along certain corridors, there are notable areas that suffer from poor connectivity. Poor public transport connectivity and reliability is a particular issue in rural areas.

Another key area is the need to improve walking and cycling connectivity to enable more journeys by these modes. There is also a need to better manage movement of freight and goods, both in rural and more urban areas.

There is also a need to improve other forms of connectivity such as digital connectivity. This will help reduce the need to travel and provide residents with the ability to work, shop and access services such as GP appointments from home.

Rural areas
Oxfordshire is the most rural county in the south east with 2.6 people per hectare compared with the regions average of 4.8 people per hectare. 40% of the population live in smaller towns and villages and so there is a need to consider how we improve connectivity for these residents[7]. Challenges in rural areas include:

- Poorer provision of and access to digital connectivity.
- Reduction and removal of public transport services.
- Fewer dedicated walking and cycling routes.
- Fewer local facilities and services, increasing the need to travel.
- Roads that are less intensively managed than urban and main roads.
- Public rights of way that could be better connected and managed.
- Older average population with different mobility needs.

In the short term we recognise that the car will continue to play role for rural residents and that we will need a targeted approach to address these challenges.

Inclusivity
Different communities experience transport differently and some communities are excluded from transport because of affordability, accessibility or geography. It is important that we work to recognise and remove these barriers to create an accessible and fair transport system for all residents.

The accessibility of the transport system is a particularly key issue for disabled people. There are estimated to be 131,400 people with a disability in Oxfordshire, 19% of the population.[8] It is important that we address the barriers faced by disabled people and use inclusive design to ensure the transport system is accessible to all.

The cost of transport is also a key determining factor affecting its use. The cost of living has been increasing across the UK since early 2021 and in April 2022, inflation reached its highest recorded level. This is affecting the affordability of goods and services, including transport, for households[9]. There is a need for us to support measures to address these issues and improve the affordability of transport.

[7] https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2017
[8] Oxfordshire Health and Wellbeing Joint Strategic Needs Assessment 2021
[9] House of Commons Library: Rising cost of living in the UK

Decarbonisation

Decarbonisation is a key overriding challenge that the LTCP seeks to address. In line with guidance from the government's Transport Decarbonisation Plan, we have provided background information and more detail about our approach to decarbonisation in this chapter.

Net-zero
The LTCP seeks to deliver a net-zero transport system. This means that any carbon emissions created are balanced by taking the same amount out of the atmosphere. This differs to zero carbon which concerns all emissions produced from a product or service. Zero carbon means no carbon is given off at all.

Climate Change
Climate change is the large-scale, long-term shift in the planet's weather patterns and average temperatures. Climate change has meant that since the 1800's the average global temperature has risen by around 1°C[10].

Climate change is primarily caused by the greenhouse effect. This is where greenhouse gases such as carbon dioxide are released into the atmosphere by humans. This creates a 'blanket' which means some infrared radiation cannot escape the earth's atmosphere. Instead, it is absorbed and goes back down to earth, causing the surface to heat.

The impacts of human induced climate change affect the climate system, ecosystems and people. Evidence of observed changes in extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and their attribution to human influence, has strengthened over the last 8 years[11].

In order to tackle climate change, 196 countries signed the Paris Agreement in December 2015. The agreement goal is to limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels[12].

[10] Met Office
[11] IPCC: AR6 Climate Change 2021: The Physical Science Basis
[12] United Nations Climate Change: The Paris Agreement

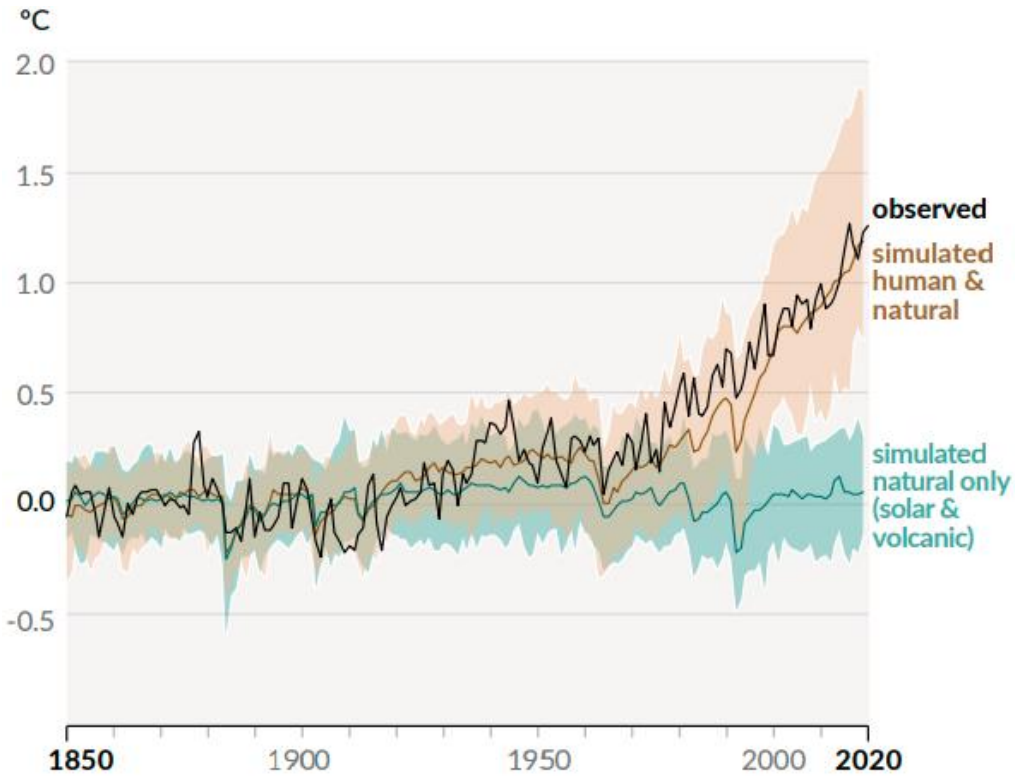


Figure 5 - Change in global surface temperature (annual average) as observed and simulated using human & natural and only natural factors[13]

UK Government

Building on the Paris Agreement, the UK government passed a net-zero emission law in 2019. This target will require the UK to bring all greenhouse gas emissions to net-zero by 2050. This will end the UK's contribution to global warming.

Transport is now responsible for the largest proportion of UK greenhouse gas emissions. In 2019 transport was responsible for 27% of total UK greenhouse gas emissions, with road transport responsible for 91% of transport emissions. Within this passenger cars produce 55% of road transport emissions[14].

Decarbonising transport is therefore a critical part of reaching net-zero emissions and addressing climate change. In order to set out how this will be achieved, the government published the Transport Decarbonisation Plan in July 2021.

[13] IPCC: AR6 Climate Change 2021: The Physical Science Basis
[14] UK Government: Transport Decarbonisation Plan
[15] UK Government: Transport Decarbonisation Plan

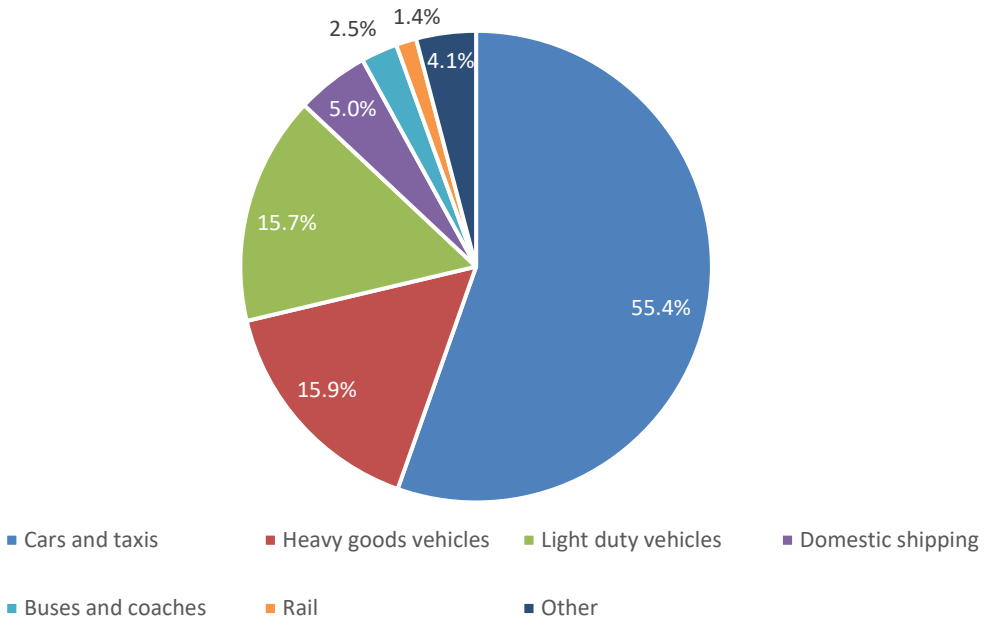


Figure 6 – UK Greenhouse gas emissions by transport mode[13]

Transport Decarbonisation Plan

The Transport Decarbonisation Plan reiterates commitments to end the sale of new petrol and diesel cars by 2030 and proposes ending the sale of non-zero emission HGVs by 2040. It also highlights the need to make better use of road space and encourage more trips by walking, cycling and public transport.

As highlighted earlier, the document sets out a role for LTPs. It is suggested that for future local transport funding, LTPs will need to demonstrate how local areas will reduce emissions through a portfolio of transport investments.

Oxfordshire Climate Action Framework

In recognition of climate change, all Oxfordshire authorities have declared a climate emergency. Following our declaration, Oxfordshire County Council adopted a Climate Action Framework

The framework commits us to operating at net-zero carbon by 2030 and enabling a zero-carbon Oxfordshire by 2050. The LTCP will be essential to delivering these commitments and outlines in more detail how transport will contribute.

Pathways to a zero carbon Oxfordshire

Further local context to climate change and decarbonisation is provided by the University of Oxford's Environmental Change Institute (ECI) Pathways to a zero carbon Oxfordshire report.

The report outlines different potential pathways to achieving a zero carbon economy in Oxfordshire by 2050. The most ambitious of these, the 'Oxfordshire Leading the Way' scenario has been identified as the preferred route for the county to follow.

In this scenario, Oxfordshire goes further and faster than other areas of the UK in achieving zero carbon emissions[16]. The LTCP builds on the recommendations in this scenario and will be key to delivering it.

Oxfordshire Leading the Way Scenario
This scenario is driven by high levels of public support for local action and strong policy, as well as lifestyle change amongst householders and communities. In terms of transport the following key features are identified:

- Energy demand associated with transport falls as Oxfordshire residents incorporate walking and cycling into their daily routines.
- More amenities are provided locally, and businesses support remote working.
- Reduced car-usage is also driven by extensive pedestrianisation measures, workplace charging levies, the proliferation of low traffic and higher density neighbourhoods, and the expansion of shared transport options.
- Vehicle electrification occurs more rapidly than in other scenarios, and sharing business models, are pioneered in Oxfordshire.
- Freight consolidation centres and other localised warehousing and production enable low carbon local delivery of goods throughout urban areas.

Our approach to decarbonisation
This section has highlighted that it is essential for us to outline a clear plan for the decarbonisation of transport in Oxfordshire. Recognising the need for rapid reductions in greenhouse gases in this decade, the LTCP aims for a net-zero Oxfordshire transport system by 2040.

We recognise that achieving this target will be challenging. It will require technical innovation, bold policy decisions and widespread behaviour change. However, the benefits are significant.

Delivering this target will ensure that Oxfordshire plays its part in tackling climate change. By leading the way, we will help others to get there quicker and will create opportunities for Oxfordshire based enterprises. Decarbonisation will also deliver wider benefits to biodiversity and people's health and wellbeing in Oxfordshire.

Our approach to decarbonisation, is primarily by seeking to reduce unnecessary private car use and increasing the proportion of trips made by walking, cycling, public and shared transport. Reducing long car trips will be particularly important to reduce transport emissions.

The policies in the following chapters outline our approach for doing this. We have also outlined policies to support the uptake of zero-emission vehicles, encourage home working and support alternative modes for the movement of goods.

These policies build on the features identified in the Pathways to a Zero Carbon Oxfordshire report.

[16] University of Oxford Transport Studies Unit: Pathways to a zero-carbon Oxfordshire

Vision and themes

We have developed a transport vision to set out the overarching direction for transport in Oxfordshire. The vision outlines a clear long-term ambition for transport in the county and underpins the policies in this document. The vision also ensures that we both take account of, and inform, wider strategy development.

In support of the draft vision we have identified five proposed key themes. These are the specific areas we are seeking to transform through implementation of the vision. We have also identified the outcomes we hope to deliver for each key theme.

The vision and key themes help provide structure and consistency throughout the LTCP and its supporting strategies. They ensure that all policies and schemes are aligned and working towards delivering the same outcome.

Vision

"Our Local Transport and Connectivity Plan vision is for an inclusive and safe net-zero Oxfordshire transport system that enables all parts of the county to thrive.

It will tackle inequality, be better for health, wellbeing and social inclusivity and have zero road fatalities or life-changing injuries. It will also enhance our natural and historic environment and enable the county to be one of the world's leading innovation economies.

Our plan sets out to achieve this by reducing the need to travel and private car use through making walking, cycling, public and shared transport the natural first choice."

Key themes

<u>Environment</u>
Outcome: Sustainable communities that are resilient to climate change, enhance the natural and historic environment, improve biodiversity and are supported by our net-zero transport network.

<u>Health</u>
Outcome: Improved health and wellbeing and reduced health inequalities, enabled through active and healthy lifestyles, improved road safety and inclusive, communities.

<u>Healthy place shaping</u>
Outcome: Sustainable, well designed, thriving communities where healthy behaviours are the norm and which provide a sense of belonging, identity and community.

<u>Productivity</u>
Outcome: A world leading business base that is sustainable, has created new jobs, products and careers for all communities and is supported by an effective, net-zero transport network.

Connectivity

Outcome: Communities are digitally connected, innovative technologies are supported and there is improved connectivity and mobility across the county, enabling greater choice and seamless interchange between sustainable modes.

Inclusivity

Outcome: Barriers to access are removed and all communities are supported by our inclusive transport system to play a full role in society and have independence, choice and control.

Headline targets

In order to track delivery of the vision and key themes we have identified some headline targets. These will help us to quantify progress made on delivering the vision and ensure that we are on track to deliver the vision.

Headline targets

By 2030 our target is to:

- Replace or remove 1 out of every 4 current car trips in Oxfordshire
- Increase the number of cycle trips in Oxfordshire from 600,000 to 1 million cycle trips per week
- Reduce road fatalities or life changing injuries by 50%

By 2040 our targets are to:

- Deliver a net-zero transport network
- Replace or remove an additional 1 out of 3 car trips in Oxfordshire

By 2050 our target is to:

- Deliver a transport network that contributes to a climate positive future
- Have zero, or as close as possible, road fatalities or life-changing injuries

Our targets recognise that the car will still be a part of Oxfordshire's transport system and do not aim to eliminate all car use. Cars will still be needed, such as for journeys undertaken by disabled people and rural residents where there are not sustainable alternatives at present.

However, we know that there are many opportunities to reduce the number and length of car journeys made. This is critical to address the climate emergency as technology alone will not deliver a net-zero transport network and address issues such as congestion, physical inactivity and poor air quality.

The targets relate to all car trips and fuel types. Although zero-emission vehicles reduce carbon emissions they are still responsible for particulate matter emissions from brake and tyre wear, take up road space that could be allocated to walking, cycling or public transport and do not address issues such as congestion.

Work is ongoing to establish our monitoring methodology for trips and the most appropriate baseline year. Once confirmed, this document will be updated. The monitoring of the targets will take into account the impact of population growth.

The policies in the following chapters outline the approaches and measures we will be taking to make these targets achievable. Many of these policies are the tools we know to reduce car use following review of evidence from other towns and cities.

The key ways in which we will achieve the targets are broadly grouped into the following three areas:

Avoid – Avoid or reduce the need to travel
This will be enabled through:

- Improved digital connectivity to support remote working and digital access to services
- Working with partners to better locate goods and services near to homes.

Shift – Shift to less polluting transport modes
This will be enabled through:

- The promotion of walking and cycling through new and upgraded physical infrastructure and community activation measures.
- Investment in our strategic public transport networks and the provision of better and quicker bus and rail services.
- Improving multi-modal travel, including the development of mobility hubs where people can easily change between different forms of transport, including helping to break-up existing longer car journeys by providing more sustainable travel alternatives.
- Improving road safety to create safe and attractive infrastructure for vulnerable road users, including people walking and cycling.

Improve – Improve vehicle and fuel efficiency
This will be enabled through:

- Supporting the introduction of zero emission vehicle charging and refuelling infrastructure.
- Supporting transport innovations that will help us to make walking, cycling, public and shared transport more attractive.
- Supporting the uptake of cargo bikes for parcel and goods delivery.
- Supporting car clubs and car sharing schemes and measures to encourage their uptake.

However, it is important to recognise that these measures alone are unlikely to be enough. Therefore, if we are to truly achieve these targets some demand management measures such as the Zero Emission Zone and Workplace Parking Levy will be required that make private car use less attractive.

In support of the headline targets, we plan to develop further targets for individual transport modes as part of the relevant supporting strategies. These will provide more detail about how we will achieve the headline targets.

The first supporting targets have been developed for cycling as part of the Active Travel Strategy (ATS). Additional supporting strategies and targets will be developed during ‘part 2’ of the LTCP.

Walking and cycling

Encouraging increased levels of walking and cycling will be central to delivering our vision for travel in Oxfordshire. More people choosing to walk and cycle will improve the mental and physical health of Oxfordshire's residents and make Oxfordshire's streets more welcoming, safe and relaxing places.

Increasing walking and cycling will be a key part of reducing private car usage. Reduced private car usage is essential to achieving our ambition for a net-zero transport network and it will help to improve air quality, address climate change and tackle associated health and inequality issues.

This chapter outlines the high level policies that will help us to deliver increased walking and cycling. More detail about how these will be achieved can be found in the Active Travel Strategy which has been published alongside the LTCP.

Physical activity explainer

Physical activity guidelines

Evidence now demonstrates that there is no minimum amount of physical activity required to achieve some health benefits. However, it is recommended that:

- Children and young people should do physical activity for an average of at least 60 minutes per day across the week.
- Adults should accumulate at least 150 minutes of physical activity each week.

In general, the more time spent being physically active, the greater the health benefits. However, the gains are especially significant for those currently doing the lowest levels of activity (fewer than 30 minutes per week)[17].

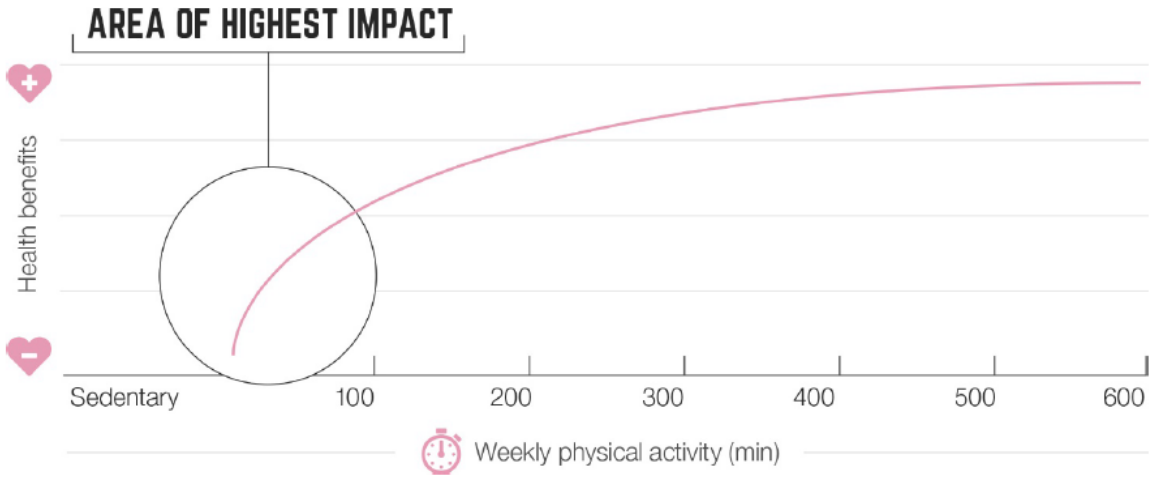


Figure 7 – Dose-response curve of physical activity and health benefits[18]

Current physical activity levels

Inactivity is the fourth largest cause of disease and disability, and directly contributes to one in six deaths in the UK[19]. This makes it as dangerous as smoking[20].

[17] UK Chief Medical Officers' Physical Activity Guidelines 2019
[18] UK Chief Medical Officers' Physical Activity Guidelines 2019

In Oxfordshire, 72.5% of adults meet physical activity recommendations, higher than the national average[21]. Despite this 3 out of 10 adults are still not meeting the recommendations. There are also significant variations across the county.

In Oxfordshire 52.4% of children meet the 60 minute per day recommendation compared to 46.8% nationally. However, this figure is still only just over 50% and means approximately 42,100 children are not getting enough physical activity.

Benefits of physical activity

In children, regular physical activity is associated with improved learning and attainment, better mental health and cardiovascular fitness[22]. It also reduces sickness absence and can reduce crime and anti-social behaviour[23].

In adults, there is strong evidence to demonstrate that physical activity can help to protect from a range of chronic conditions including coronary heart disease, obesity, type 2 diabetes, Alzheimer's and social isolation[24]. Physical activity has also been shown to improve mental health[25]. Those who walk for more than 8.6 minutes per day are 33% more likely to report better mental health[26].

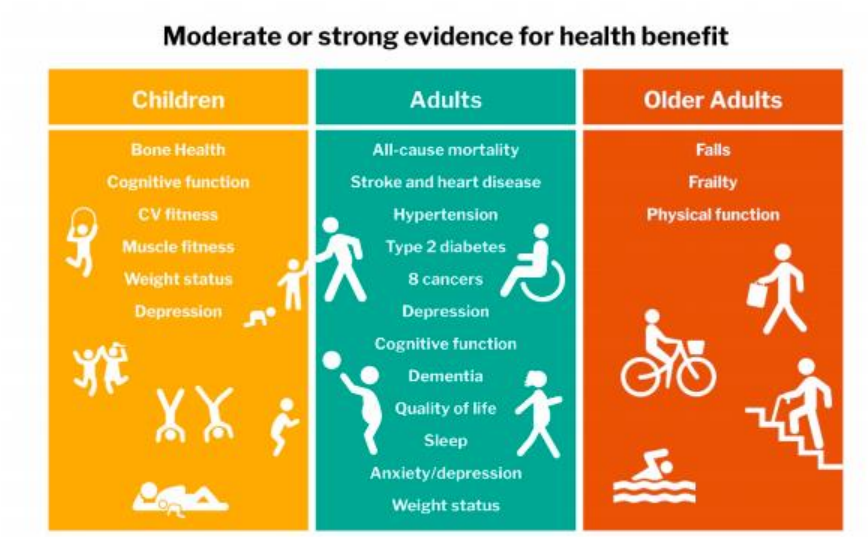


Figure 8 - Diagram showing health benefits of physical activity[27]

Transport user hierarchy

In order to deliver these benefits a new approach is required that prioritises walking and cycling. We will put this approach into practice through our transport user hierarchy. The transport user hierarchy translates our vision into policy and sets the direction for the rest of the LTCP.

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[19] Everybody Active, Every Day, Public Health England, (2014) -https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/366112/Framework_23_Oct.pdf
[20] Steps to solving inactivity, UKactive, www.ukactive.com, 2014
[21] Public Health England Profiles
[22] UK Chief Medical Officers' Physical Activity Guidelines 2019
[23] Everybody Active Every Day (2014), Public Health England,
[24] UK Chief Medical Officers' Physical Activity Guidelines 2019
[25] Journal of Environmental Planning and Management. Pretty, J. Peacock, J. Hine, R. Sellens, M. South, N & Griffin, M. (2007) Green Exercise In The UK Countryside: Effects On Health And Psychological Well-Being, and Implications For Policy And Planning.
[26] Making the case for investment in the walking environment: A review of the evidence, by Danielle Sinnett, Katie Williams, Kiron Chatterjee and Nick Cavill. 2011. UWE
[27] UK Chief Medical Officers' Physical Activity Guidelines 2019

The hierarchy clearly outlines the order in which we will consider different modes of transport in policy development and scheme design. It identifies that our priority is to enable and encourage walking, cycling, public and shared transport use.

Why is this policy needed?

The transport user hierarchy will ensure that future schemes consider walking, cycling, public and shared transport before the private car. This will deliver infrastructure that enables people of all abilities to travel without being dependent on a car.

This approach will reduce the private car's dominance and develop a more balanced transport system. It will also ensure that we consider human health and well-being first, creating attractive environments for people to walk, cycle and spend time in.

The hierarchy recognises that private cars will still play a role in Oxfordshire's future transport network. The hierarchy does not mean that every future scheme will be in relation to walking, cycling or public transport.

Instead, it recognises that many existing streets have been designed around the private car which create environments that are not welcoming for people and do not support a variety of travel modes.

We also recognise that the hierarchy is a simplification and different modes will be more appropriate in certain locations. These more localised decisions will be taken through the area transport strategies. The hierarchy provides us with a clear, agreed position to help with that process.

What are the benefits to people in Oxfordshire?

Prioritising alternatives to the private car will be essential to deliver an effective net-zero transport network. The hierarchy will also help create environments that support people of all abilities to travel by non-car modes, thereby improving inclusivity, air quality and delivering the benefits related to physical activity.

Application of the transport user hierarchy will deliver a more balanced and effective transport network that provides for a greater range of travel modes and accessibility needs. This will enable all residents to have more choice and easier interchange between sustainable modes, making every day journeys more convenient.

Policy 1 – We will develop, assess and prioritise transport schemes, development proposals and policies according to the following transport user hierarchy:

- Walking (including running, mobility aids, wheelchairs and mobility scooters)
- Cycling and riding (bicycles, non-standard cycles, e-bikes, cargo bikes, e-scooters and horse riding)
- Public transport (bus, scheduled coach, rail and taxis)
- Motorcycles
- Shared vehicles (car clubs and carpooling)
- Other motorised modes (cars, vans and lorries)

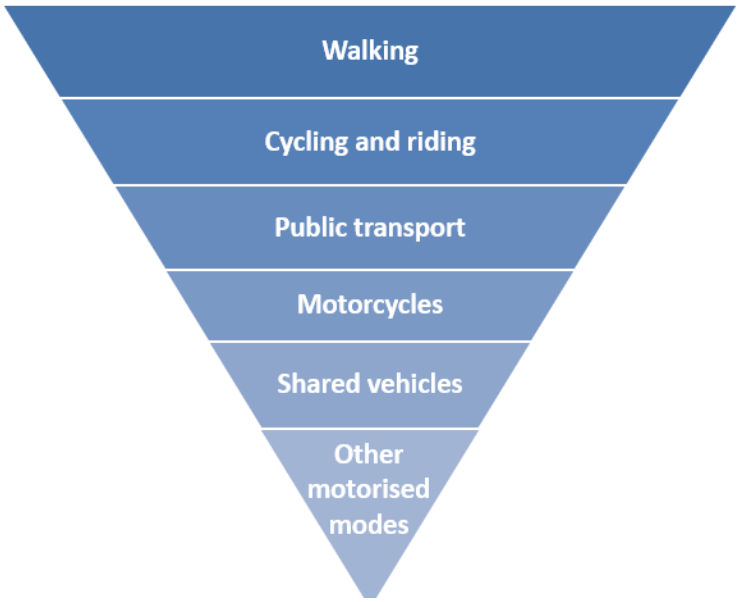

Figure 9 - LTCP Transport User hierarchy

Cycle and walking networks

In order to support this hierarchy and prioritise walking and cycling we will create plans for safe and accessible infrastructure across the county. Comprehensive cycle and walking networks are fundamental to successfully increasing their usage.

A network is a collection of strategic routes that go from node to node and link to each other. What this creates is town-wide connectivity. Generally walking and cycling routes will overlap but the infrastructure for each mode is in most cases significantly different.

For instance, when people are walking, they legally have exclusive right to use footways. When people are cycling there is the need to choose between several options – the road carriageway or some form of cycle path.

The scale of the network is also significantly different. Walking journeys are typically under 1 mile (20 minute journeys), whereas the equivalent 20 minute journey by bicycle is nearly 5 miles, so a cycle network will cover around 25 times the area of a walking network.

When developing these networks cycling, walking, disability and environmental groups will be key partners. These groups can help to identify new routes, suggest improvements, critique designs and publicise surveys and new routes.

In order to facilitate a good working relationship with these stakeholders, we have signed up to co-production in developing new schemes. Co-production involves the equal exchange of ideas to understand different priorities and problems.

Figure 10 – Photo of women cycling[28]

Why is this policy needed?

There is convincing evidence from the Netherlands and UK that good quality cycle networks have an impact on increasing cycling. Cycle routes in the network should be easily accessible from every local neighbourhood in a town and lead to significant destinations, such as work, shopping, education or leisure.

Each cycle route should be coherent from start to finish, which means that it is continuous without a break and consistent in the type of infrastructure and the experience of the person cycling.

The first major challenge for providing walking networks is having destinations within each walking distance. This ties in with the 20-minute neighbourhood concept, outlined in policies 16 and 17.

Quality Pedestrian Corridors (QPCs) aim to provide continuous level footways from start to finish on the core most important strategic walking routes. In QPCs, footways and priority for people walking is extended across all side roads by side road entry treatments (SRETs). Good quality and convenient crossings of main roads on desire lines and at junctions are another crucial element of creating a walking network.

Committing to co-produce these networks will ensure that designs are shared at an early stage for critique and input from local groups. It will also help to better publicise surveys and new routes.

[28] Cycling UK

What are the benefits to people in Oxfordshire?
Comprehensive walking and cycling networks will give all residents an opportunity and an incentive to cycle and walk. By providing attractive strategic local routes that link every neighbourhood to nearby destinations, people of all ages and all abilities will be encouraged to make more local journeys on foot or by cycle.

Improving walking networks is particularly important for disabled people who face a barrier to their mobility when pavements are narrow, in poor repair or lack dropped kerbs at junctions. Therefore, QPCs will particularly benefit disabled and vulnerable residents, such as children and those who use wheelchairs, sticks, buggies, pushchairs or have sight impairments.

An important benefit of a good quality cycle network is that it significantly widens residents' choice and ability to conveniently reach services and destinations. This supports those unable to afford a car and typically makes the whole town accessible.

Policy 2 – We will:

a. Develop comprehensive walking and cycling networks that are inclusive and attractive to the preferences and abilities of all residents in all towns. All new walking and cycling schemes will be designed according to the updated Oxfordshire Walking and Cycle Design Standards (to be published in 2022).
b. Ensure that all new developments have safe and attractive walking and cycling connections to the site, include a connected attractive network for when people are walking and cycling within the development and that the internal routes connect easily and conveniently to community facilities and the local cycle and walking network.
c. Work closely with stakeholders using co-production methods when developing and improving cycle and walking networks from inception to delivery.

Local Cycling and Walking Infrastructure Plans

In order to develop these networks, we recognise that there are different requirements for different towns and that they should be informed by tailored, evidence led plans. We will therefore develop Local Cycling and Walking Infrastructure Plans (LCWIPs).

LCWIPs are strategic policy documents that identify improvements to walking and cycling infrastructure at the local level. They enable a long-term approach (normally over a 10-year period) to prioritising interventions, with the aim of developing coherent, safe and attractive networks for walking and cycling.

LCWIPs will be rolled out in those towns with higher populations, which include large employment and retail sites or where significant new developments are planned. Oxfordshire County Council has already developed LCWIPs for Oxford, Bicester and Kidlington, with others underway or programmed for development. The approved LCWIPs and information about ongoing work can be found on our website.

Case study – Bicester LCWIP

The Bicester LCWIP was approved in September 2020. The document sets out a programme of measures to improve cycling and walking in support of the LTCP and Cherwell Local Plan policies. It identifies targets for at least a 200% increase in cycling and 50% increase in walking for trips within Bicester from 2020 to 2031.

The Bicester LCWIP sets out different scheme options that could be applied over the 10 year timescale of the plan. The most ambitious of these, category A, proposes that to go from one area to another residential area or to the town centre, cars would return to the ring road and enter the other area from the ring road. The map below shows a comparison of internal journey times by travel mode in this situation.

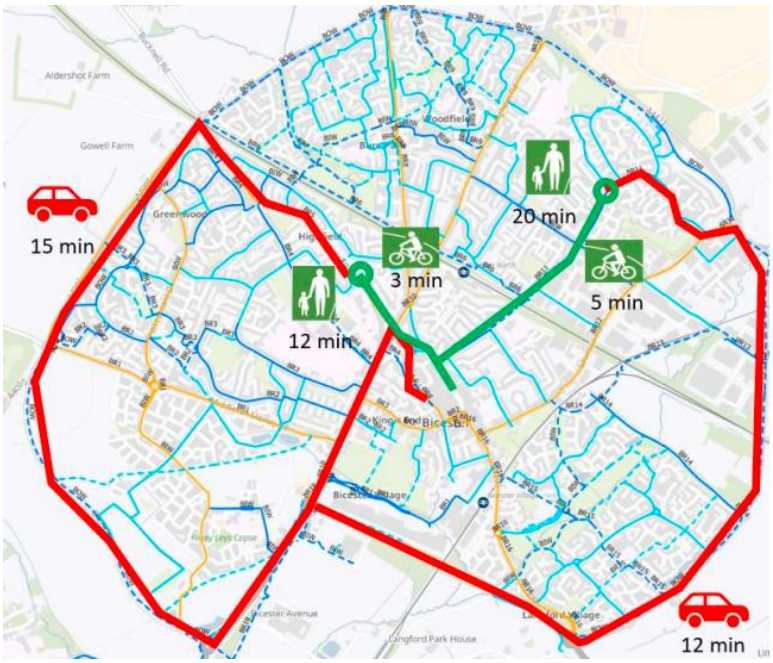

Figure 11 – Category A: Comparison of internal journey times by travel mode[29]

LCWIPs will plan improvements to existing walking and cycling infrastructure and link in with new development proposals and the Oxfordshire Strategic Active Travel Network.

The cycle and walking networks will be embedded in wider transport schemes and designed according to Oxfordshire cycling and walking design standards. For cycling, these standards will be based on Government guidance LTN 1/20 and support Government policy document "Gear Change".

Why is this policy needed?

LCWIPs are set out in the Government's Cycling and Walking Investment Strategy as a key tool to enable sustained investment in cycling and walking infrastructure. In 2020, Government updated cycling guidance in LTN 1/20 and Gear Change.

The Government has indicated that access to Government funding for walking and cycling infrastructure will be increasingly dependent on local authorities having

[29] Bicester LCWIP

adopted LCWIPs for their main towns with routes designed in line with LTN 1/20 standards.

LCWIPs enable a structured and coherent approach to cycling and walking as modes of travel. This allows Oxfordshire County Council to prioritise those interventions that are most effective in increasing the number of trips made on foot or by bike and deliver schemes that offer the most value for money.

What are the benefits to people in Oxfordshire?
LCWIPs will provide Oxfordshire residents with opportunities to walk and cycle along routes designed for their comfort, directness and safety. This will help facilitate a shift from private cars to walking and cycling and deliver the associated benefits.

Encouraging more travel to town centres without congestion or the need for extra parking, can also help reinvigorate local town centres in terms of retail and social exchange.

Policy 3 – We will:

a. Develop Local Cycling and Walking Infrastructure Plans (LCWIPs) for all main urban settlements (over 10,000 inhabitants) across the county by 2025, according to national guidance and best practice with the aim of increasing walking and cycling activity.
b. Implement local cycling and walking networks in line with LCWIP proposals as funding opportunities arise to achieve a step change in the use of cycling and walking in line with local and national targets.
c. Support rural areas and smaller settlements to develop their own walking and cycling plans.

Strategic Active Travel Network

We recognise that the largest potential for increasing walking and cycling activity is in and around large population centres, which are covered by the LCWIPs. Longer commutes by walking and cycling are less frequent but can be stimulated by better network connectivity, improved infrastructure, new technology (particularly electric bikes (e-bikes) and electric scooters (e-scooters)) and more convenient interchanges with other travel modes.

The Strategic Active Travel Network (SATN) is a project aimed at providing a county-wide approach to walking and cycling connectivity. It will identify key existing and potential routes for walking and cycling between main destinations or corridors and prioritise interventions to such routes. This will include considering crossings of main roads away from settlements.

The SATN will enhance the potential of inter-town routes, while also providing a strategic approach to walking and cycling in small and dispersed settlements in rural areas. It will be focused on facilitating regular commuting while acknowledging that parts of the network can also be important leisure routes.

From a strategic perspective, the SATN will cover the space between different LCWIPs and ensure they are coherent. It will connect less densely populated areas to more densely populated areas, will build on existing regional projects (such as the

Science Vale Active Travel Network and Oxford Greenways project) and will also tie in with local sections of the National Cycle Network.

Why is this policy needed?
A county-wide approach to walking and cycling infrastructure is needed in order to provide good, consistent interventions to all. The SATN will provide context to local or district-based interventions and ensure that there is coherence between them. It will also serve as a roadmap for planning improvements in rural areas of the county.

What are the benefits to people in Oxfordshire?
The development of the SATN will expand the opportunities to walk and cycle between rural towns, villages and key corridors in Oxfordshire. This improved connectivity will contribute to encouraging walking and cycling, reducing car use and delivery of our vision.

Policy 4 – We will:

a. Develop a Strategic Active Travel Network in order to identify key routes for walking and cycling between destinations across the county and prioritise interventions to existing and new infrastructure.
b. Identify and support all opportunities to develop and link up the Strategic Active Travel Network in new developments, rural and major roadworks and road schemes.

Public Rights of Way

There are also existing off-road networks that could be developed to support the uptake of walking and cycling. There are nearly 4,000 kilometres of Public Rights of Way (PRoW) throughout Oxfordshire comprising Footpaths, Bridleways, Restricted Byways and Byways.

These routes are highways and have evolved over many years to reflect historical and cultural changes in the county. Unlike the roads network many of them pass over and through farmed land and through areas kept for wildlife. Most in the wider countryside provide leisure routes for walkers, cyclists and horse riders and a number provide essential linking walking and riding routes within settlements.

The adopted Oxfordshire Rights of Way Improvement Plan sets out the detail of the assessment of user needs and the council's strategy for the protection, maintenance, management, improvement and extension of the PRoW network. This Plan is reviewed and republished every ten years and is integrated with the LTCP. The biggest area of change since the last plan was produced in 2014 is climate change. Climate change adaptation will be better taken account of in this policy.

Why is this policy needed?
Public rights of way experience the impacts of climate change through increased extremes of weather, especially rainfall/flooding, stronger winds, fire/overheating and disturbances to the timing and duration of 'normal' seasons. This makes adaptation and mitigation necessary to consider and then implement.

Public rights of way are mostly negatively affected by the impacts of climate change. For example, the increased strength and duration of rainfall can lead to unusable or

unsafe flooded routes. Similarly, increased rainfall combined with elevated temperatures can cause vegetation to grow faster causing physical access and maintenance challenges.

In order to mitigate these issues, public rights of way assessment will be undertaken using best practice from other authorities and emerging government guidance. Possible interventions across the network or in priority areas might include:

- Choice of materials used
- Locations for structures and how far they extend
- Surfacing choices
- Maintenance, management and repair programmes

What are the benefits to people in Oxfordshire?

The overarching PRoW policy will improve the quality, resilience, accessibility and connectivity of the network so that public rights of way fulfil their potential role as a vital part of life in the county.

Adapting and mitigating the impacts of climate change will ensure that Oxfordshire's PRoW network and countryside access network remains accessible for all users and would-be users. This will support rural residents to reduce car use and take trips by walking and cycling. It will also help to improve residents access to green areas which will support both mental and physical health benefits.

Policy 5 – We will:

a. Adapt the public rights of way network to current and future climate change by conducting assessments that involve communities, users, farmers and landowners as well as respecting the natural and historic environment.

b. Protect the rights of access for the public by working closely with farmers, landowners, developers and householders to ensure the line, width, surface, vegetation and furniture is appropriate to the path and user.

c. Conduct maintenance and management of the public rights of way network that reflects the route, landscape characteristics and responds to the needs of users.

d. Whenever possible make the public rights of way more accessible to those with limited mobility, vision or confidence.

e. Extend and improve the public rights of way network by securing on and offsite mitigation measures from developments and increasing partnership working with a range of stakeholders to achieve shared outcomes.

Greenways

Building on the existing PRoW networks discussed previously, there are unsurfaced roads, disused railway lines, canal corridors, and other tracks that, if better linked, improved and managed, could provide a set of high quality Oxfordshire Greenways. These Greenways could be used by a range of residents and visitors for active recreation, social use and travel whilst also providing benefits for habitats, landscape character and wildlife. They would be particularly important for improving walking and cycling connectivity in rural areas.

Case study – The Icknield Greenway

Route 1 of the Science Vale Cycle Network, between Wantage and Harwell was completed in April 2021. The Icknield Greenway is the first new Greenway for Oxfordshire and provides a leisure commuting focused route using new, upgraded and improved public rights of way and quiet roads.

The route balances cycle, walking and horse-riding needs alongside farming and land-managing on a robust and well-managed path in the setting of an Area of Outstanding Natural Beauty. The route is now being enjoyed by families and cycle commuters of all abilities and types of bike, as well as walkers, runners and equestrians.

Figure 12 – The Icknield Greenway

Why is this policy needed?

In line with the aims of the Oxfordshire Rights of Way Improvement Plan, the development of Oxfordshire Greenways will provide routes for active leisure routes.

Families with younger children, people with disabilities and those who need easier access, horse riders and carriage drivers, and those people who prefer to cycle away from busy roads will especially benefit from shared spaces away from the noise, pollution and speed of motor vehicles.

What are the benefits to people in Oxfordshire?

Oxfordshire Greenways would be free to use and could play an important role in giving opportunities for outdoor physical and social activity for non-motorised users on routes that are more attractive to inexperienced people or those that need to be assured of a certain standard of accessibility. They would enable connectivity with nature which is important for mental wellbeing.

They would also help to contribute to reduced private car usage, support economic sustainability in the county and can be designed and managed to provide and improve habitats, biodiversity and landscapes.

Policy 6 – We will develop a number of Greenways across the county providing routes for people walking, cycling and equestrians. Priority will be given to routes that benefit communities and that have a deliverable route.

Community activation

The combination of measures outlined previously will help to improve walking and cycling infrastructure across the county. However, we recognise that just providing infrastructure is not enough to ensure that people derive the health and wellbeing benefits such infrastructure offers.

Community activation, together with improving the built environment and developing prevention focused models of care, are the three core elements of healthy place shaping.

Health inequalities explainer

The economic and health impacts of the COVID-19 pandemic have exacerbated the existing health inequalities in Oxfordshire. Although the county is generally affluent, 16 areas out of 407 are in the 20% most deprived areas nationally.

People in these areas experience significantly worse health and wellbeing and shorter healthy life expectancy. COVID-19 has had a disproportionate impact on them, with mortality rates in the most deprived areas more than double those in the least deprived areas of the county.

COVID-19 has also increased levels of social isolation and loneliness and reduced levels of physical activity where there has been poor access to green spaces and public rights of way, resulting in poorer mental and physical health.

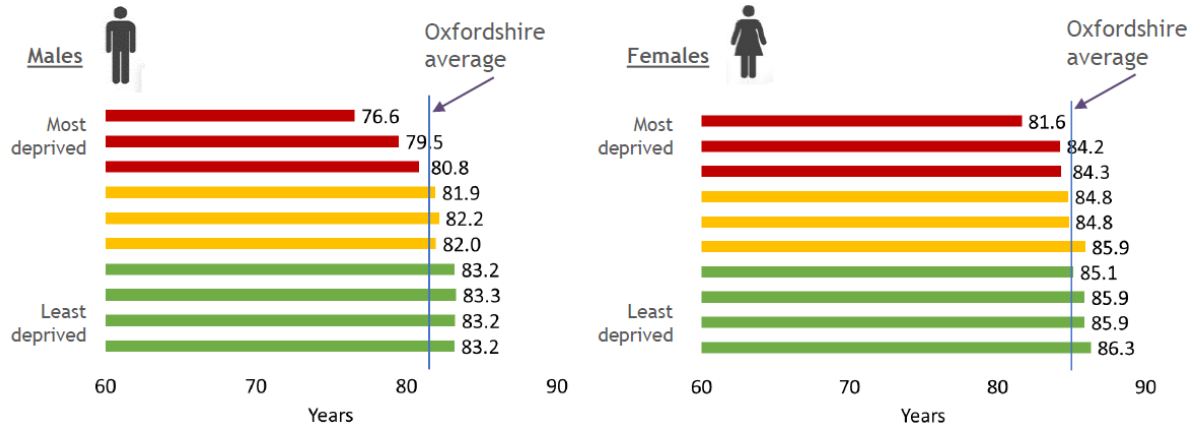

Figure 13 - Oxfordshire Life Expectancy at birth by deprivation: males and females, 2017-19[30]

Community activation is the process of enabling people to obtain the health and wellbeing benefits of assets in their local community, both hard assets such as parks and soft assets such as local community groups which offer social interaction.

Community activation aims to enable people to make healthy decisions in terms of physical activity, healthy eating and social connection and to enjoy the benefits of belonging to a thriving community. It particularly focuses on working with local community groups to engage residents who may experience greater barriers to enjoying a healthy lifestyle.

[30] Oxfordshire Health and Wellbeing Joint Strategic Needs Assessment 2020

Why is this policy needed?
New or improved, walking and cycling infrastructure has the potential to reduce health inequalities, but community activation is required to ensure that the potential benefits to health and wellbeing are realised by those who are disadvantaged in our communities.

Community activation involves co-production of initiatives with local community groups, such as local walking groups, to reach people who are inactive and address their barriers to more walking and cycling.

This engagement can identify common barriers to cycling and walking such as lack of bike parking and lack of confidence in cycling that need to be addressed to encourage people to walk or cycle more. It can also develop local solutions such as the provision of bike libraries, free bike repairs for low income families, family based cycle training, wayfinding of local safe walking routes, guided walks and walking buddy schemes.

What are the benefits to people in Oxfordshire?
Community activation will help to maximise the number of residents using walking and cycling routes and benefiting from the health improvements of being more physically active and the opportunities for social interaction.

Policy 7 – We will ensure that improvements to cycling and walking networks and access to green infrastructure are supported by a wide range of community activation measures and promotional programmes that enable the whole community, and particularly those with greatest need, to benefit from these improvements, and for healthy day-to-day behaviours to become the norm.

Healthy place shaping

The previous chapter outlined several policies in relation to walking and cycling infrastructure. However, we also need to consider the wider role of how we design our neighbourhoods as this can influence levels of physical activity, travel patterns, social connections, and physical and mental wellbeing. We need to make it easy and enjoyable for people to walk and cycle, by considering the design and connectivity of our streets and places.

Healthy place shaping explainer

Healthy place shaping is a collaborative approach which aims to create sustainable, well designed, thriving communities where healthy behaviours are the norm and which provide a sense of belonging, identity and community.

Healthy place shaping can apply to new developments and in the regeneration of existing communities. It involves action across the following three key workstreams:

1. **The built environment** – Shaping the built environment, green spaces and infrastructure at a local level to improve health and wellbeing.
2. **Community activation** – Working with local people, local community organisations, businesses and schools to engage them in developing places, facilities and services and to enable them to adopt healthy behaviours.
3. **New modes of care** – Re-shaping health, wellbeing and care services, and the infrastructure which supports them, to prevent future poor health and wellbeing.

Figure 14 – Visualisation of the Healthy Place Shaping pillars for the Bicester Healthy New Town project[31].

[31] Active Oxfordshire

Oxfordshire is leading the way in terms of implementing this place-based approach having developed and tested it through the Healthy New Town programmes in Bicester and Barton. As a county, healthy place shaping is now a core strategic priority and we are embedding the approach through the work of the Future Oxfordshire Partnership and Health and Wellbeing Board. This will ensure that development of our places is inclusive, that it addresses the current health inequalities in the county, and that it results in the creation of healthy communities

Streets play a role in all journeys and have a significant impact on people's experiences of travel and everyday lives. Designing streets that prioritise people over motor vehicles will create places where people feel welcome, safe and choose to walk and cycle. However, there is a need for a new approach to street design if these aspirations are to be met.

Previously, we have tried to maintain traffic flow whilst accommodating other modes but driving remains the more attractive mode. Our new Street Design Guide, endorsed for adoption by cabinet in September 2021, proposes a new approach to tackle this and will be a key guidance document alongside District Design Guides.

To further support this new approach and to support application of our transport user hierarchy, we are also promoting use of the Healthy Streets Approach.

Healthy Streets Approach

The Healthy Streets Approach is about a gradual shift to a system more focused on people and provides a framework for making human health the central aspect of planning[32]. Ultimately, the Healthy Streets approach is about improving human experience on all streets.

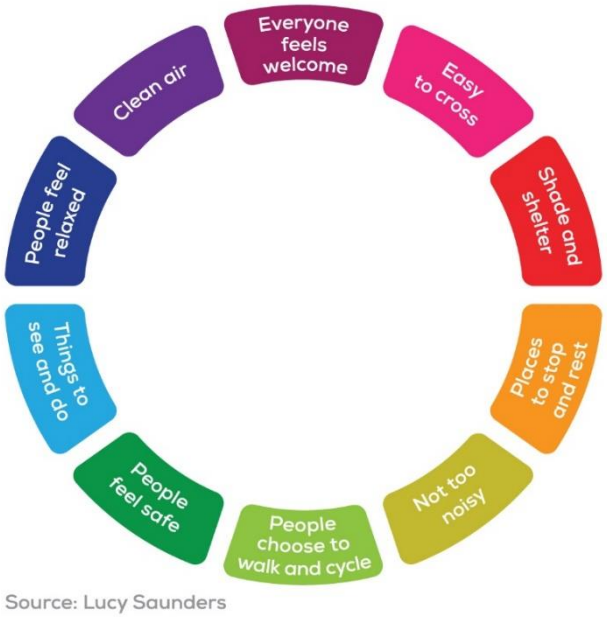

Figure 15 - Healthy Streets indicators[33]

[32] https://healthystreets.com/
[33] https://healthystreets.com/

In order to achieve this, the Healthy Streets Approach has identified 10 indicators for assessing how streets feel for human beings. There are assessment tools available that enable us to assess streets and scheme proposals against the indicators so that we can understand how appealing they are to walk, cycle and spend time in.

By embedding the Healthy Streets Approach into relevant guidance and decision making processes we can identify improvements to existing streets and seek improvements against all indicators for future proposals.

Why is this policy needed?
The Healthy Streets Approach is required in Oxfordshire if we are to deliver our vision to make walking, cycling, public and shared transport the natural first choice. A new approach is needed that reduces the dominance of vehicles and improves streets for all users.

Improving people's experiences of streets will contribute to the delivery of our vision and key themes. Notably, the Healthy Streets Approach will help us to deliver a net-zero transport network, improve the inclusivity of our streets, improve health and wellbeing and create healthy, dynamic communities.

What are the benefits for people in Oxfordshire?
Streets are central to everyday life in Oxfordshire. They play a role in all transport journeys and are places where people shop, work and spend time. Improving the experience of being on Oxfordshire's streets will therefore improve people's local areas and their everyday lives.

Improving streets to encourage walking and cycling will help to improve public health, reduce road noise, improve air quality and make local areas more relaxing. Furthermore, the Healthy Streets approach will help to tackle inequalities and improve inclusivity by ensuring streets are accessible to all users.

Policy 8 – We will embed the Healthy Streets Approach and Design Check Tool into relevant guidance and decision making processes to improve the human experience of streets and encourage walking and cycling.

Health Impact Assessment
In support of the Healthy Streets Approach, we are also proposing to expand the use of Health Impact Assessments (HIAs). HIAs are a tool used to identify the health impacts of a plan or project.

They also produce recommendations for decision makers and stakeholders which aim to maximise a proposal's positive health effects and minimise its negative health effects, while maintaining a focus on addressing health inequalities.

HIAs must look at the issue of health comprehensively, including the range of wider determinants of health and inequality, and not focus solely on access to health services. It will identify any unintended health consequences and a clear analysis of whether the health of the whole population or just certain sections will be affected.

HIAs can be used to assess Transport Plans and Policies and individual infrastructure schemes. The level of HIA required will depend upon the scale and impact of the development. An initial screening will identify an infrastructure proposal's possible impacts and identify where a full HIA may be required.

The checklist in Appendix 2 has been designed to support HIAs of infrastructure schemes. It provides questions to consider when assessing a proposal at several stages in the design process so that it can inform the design rather than acting as a checklist at the end. The questions are not exhaustive, and not all questions will be of relevance to all proposals.

As part of the LTCP, we will expand the use of HIAs to include all major transport schemes or plans. This will further ensure considerations about health are embedded in the planning and design process.

Why is this policy needed?

Major development can impact on health in a variety of ways including through noise and pollution during the construction phase, increased traffic movements and greater competition for limited open space.

Equally, development can deliver improvements such as improved access by walking, cycling and public transport and the provision of opportunities to access green spaces, services, cultural and community facilities.

HIAs provide a systematic framework to identify the potential impacts of an infrastructure proposal on the health and well-being of the population and highlight any health inequalities that may arise. HIAs can highlight mitigation measures that may be appropriate to enable new infrastructure to maximise the health of communities.

The HIA checklist includes questions about disabled people, children, older people and minority groups. This will help to improve the inclusivity of our transport system by ensuring these groups are considered throughout the design process

What are the benefits for people in Oxfordshire?

Requiring the use of HIAs and embedding their use into the design process will ensure that future development and improvements to the transport network across Oxfordshire positively impacts on existing health inequalities and creates healthy, more resilient and sustainable communities.

The use of HIAs will also provide a mechanism for putting the healthy place making principles into practice and delivering improvements to health and well-being.

Policy 9 – We will require transport plans and infrastructure schemes to deliver health benefits and to mitigate any negative impacts by:

a. Requiring all major schemes or plans where potential health issues are likely to arise, to screen for possible health and wellbeing impacts.
b. Requiring a Rapid or Full HIA to be submitted for larger-scale infrastructure proposals.

Safe streets

As highlighted previously, healthy place shaping is a key aspect of encouraging walking and cycling. Designing streets that prioritise people over motor vehicles will create places where people feel safe and choose to walk and cycle.

The Waltham Forest Low Traffic Neighbourhood (LTN) survey found that traffic was the key factor affecting local people's perception of the quality of their streets; with too much traffic the key complaint (50% of responses) and less traffic, less noise and safer roads the key benefits (80% of responses) of the LTN.

There are various tools available that can help to prioritise people over motorised vehicles. Many traffic measures can be used to support significant reductions in both the speed and volume of motorised traffic. This is particularly important on streets where people live. One of the most effective is the deployment of Low Traffic Neighbourhoods.

LTNs are residential areas where through motor traffic is prevented by traffic filters, whist still allowing access for cycling and other forms of micromobility such as e-scooters (where legally allowed). LTNs create walking and cycle friendly streets and a better liveable environment for residents.

Traffic filters can be bollards or planters, which prevent motor traffic driving through it, but have gaps wide enough for people walking and cycling and those with buggies, mobility scooters or wheelchairs to pass through. On bus routes only, traffic filters permit buses, taxis and private hire vehicles through but not general traffic. These are backed up by automatic number plate recognition (ANPR) cameras.

Case study – Oxford Low Traffic Neighbourhoods

During March 2021, we introduced a trial of three LTNs within the Cowley area of Oxford. These were implemented using some of the £2.98 million in funding received from the Department for Transport's Active Travel Fund.

Temple Cowley, Church Cowley and Florence Park were chosen for the LTNs because drivers from outside the area take shortcuts along the residential streets and there are strategic cycle routes running through the neighbourhoods.

We have introduced the LTNs via a legal process called an Experimental Traffic Regulation Order (ETRO). In an ETRO, the Council introduces the scheme as an experiment first and there is then a six-month period when the public can see for themselves the impact of the scheme and the Council can monitor its impacts before deciding whether to confirm, cancel or extend the ETRO.

Figure 16 – Photo of the Cowley LTN's

Why is this policy needed?

Traffic measures such as LTNs, have great potential to make neighborhoods safer. The introduction of a LTN in Waltham Forest, London, was associated with a 10% decrease in total street crime[34]. Similarly, another study of Inner London, found that total street crime excluding antisocial behaviour fell by 17% in LTN areas[35]. They also have the potential to make neighbourhoods cleaner and more desirable.

LTNs can also help the local economy. A review of the Walthamstow Village LTN in London found that 15.5% of residents said their trips to Orford Road shops increased because of the scheme, compared to 8% who said they visited less frequently. High street walking, cycling and public realm improvements can also increase retail sales by up to 30%[36].

LTNs also enhance community interaction and help to build people's cycling confidence on quiet, safer streets, promoting improved public health and reducing air pollution. All this helps to make communities where people want to live.

LTNs are also an essential element of wider plans to promote cycling and walking as they are the most effective way of creating Quietways along key residential routes, such as from suburbs to a town centre, which would otherwise be used heavily by motor traffic.

What are the benefits for people in Oxfordshire?

Benefits of LTNs include reducing traffic speeds and traffic volumes on residential roads, reducing air pollution, making it easier and safer to cycle, making it safer for

[34] Goodman, A. & Aldred, R. (2021). The Impact of Introducing a Low Traffic Neighbourhood on Street Crime, in Waltham Forest, London
[35] Goodman A et al. (2021) Short-Term Association between the Introduction of 2020 Low Traffic Neighbourhoods and Street Crime, in London, UK
[36] Lawlor E (2013) The pedestrian pound. Just Economics for Living Streets

children to travel and play in the street and making it easier and safer for disabled and vulnerable people to cross streets and thereby walk to local facilities.

Another element of LTNs is to create parklets – small pedestrian areas of urban space which can provide greenery, seating and trees and places for residents to meet up and children to play.

Policy 10 – We will:

a. Support the creation of safe streets through traffic measures such as low traffic neighbourhoods (LTNs), particularly where they support the creation of strategic safe walking and cycling routes. LTN locations will be identified when developing Local Cycling and Walking Infrastructure Plan networks.
b. Encourage the use of filtered permeability in new developments to create LTNs and strategic walking and cycling routes.

Travel to school and work

Commuter and school travel are two main journey purposes and contribute significantly to peak time travel. They are therefore key trips that we need to shift to more sustainable modes.

Healthy place shaping will be an important part of this as alternatives to the private car are already in place for many of these journeys. However, we need to create environments that improve accessibility for all users, remove barriers and change perceptions. This will encourage more residents to build walking and cycling into their daily routines.

In particular there is a need to consider how streets can better cater children. Children are particularly vulnerable and susceptible to the impacts of physical inactivity and air pollution. By encouraging walking and cycling at a young age there is also an opportunity to embed these travel choices.

One of the main opportunities for children to walk or cycle is travelling to school. A generation ago, 70% of children walked to school, now it's less than half. This is damaging children's health and congesting our neighbourhoods[37]. Even in a more active county like Oxfordshire, 41.6% of children don't meet physical activity recommendations[38].

The 'school run' significantly increases traffic congestion and exposes children to increased road safety hazards. High volumes of stopping and starting traffic can also result in localised air pollution spikes around school gates. This air pollution has long term health impacts on children and increases incidences of hospitalisation.

In order to address these issues and create a healthier environment for children travelling to school, we are promoting a toolkit of measures to encourage walking and cycling to school. These include:

- School Streets - Timed road closure that restricts access for motor vehicles at school drop-off and pick-up times.

[37] https://www.livingstreets.org.uk/walk-to-school
[38] Sport England, Active Lives Children and Young people Survey 2019/20

- Park and stride – Providing parking a short distance from the school so that families can walk for part of the journey.
- Wayfinding – Providing clear signage on walking and cycling routes.
- Travel planning – Our travel plan team work with schools to create plans that encourage active and sustainable travel.

Similarly, we will work in partnership with employers and businesses in the county to promote walking, cycling and public transport such as through the development of travel plans. We recognise that many journeys to work are longer and our focus is therefore on encouraging walking and cycling for part a journey such as to and from a rail station. The development of mobility hubs will be a key part of achieving this.

Case study – Oxfordshire School Streets

In May 2021, we conducted a small number of school street trials as part of our Department for Transport funded active travel programme. The trials included 4 schools in Oxford, 2 in Bicester, 1 in Witney and 1 in Abingdon.

The pilot schemes each ran for six weeks, Monday to Friday, during term-time only. During this time lots of data was collected about the closures, from surveys and air quality data where available.

Figure 17 - Pictures taken during the School Street trials across Oxfordshire[39]

Surveys found that 59% of residents and parents said they supported the School Streets and 60% of pupils said they felt the road outside their school felt safer or much safer during the School Street trial. Four of the schools that took part in the pilot have decided they wish to make their 'school street' permanent. For further information about the trials or for schools interested in taking part in future School Streets please visit the School Streets page on the County Council website.

[39] Sustrans

Why is this policy needed?
Creating an environment where more residents walk or cycle as part of their daily routine is critical to improving health and wellbeing. We need to create appealing environments to encourage this as well as working to remove existing barriers such as lack of understanding or training. For children, it will also help to embed these travel choices and create a walking and cycling culture.

A major barrier to parents allowing children to walk or cycle to and from school is the level of traffic and inconsiderate parking outside the school gate. Introducing measures to create a car-free environment outside school gates will help to:

- Encourage walking and cycling to and from school
- Improve air quality outside the school gate
- Develop children's ability to travel independently
- Improve the perception of road safety outside the school

What are the benefits for people in Oxfordshire?
These measures will help residents overcome barriers and create a safe, attractive environment for walking or cycling to school or work. This will improve health and wellbeing, reduce congestion and reduce emissions.

The measures will be particularly beneficial to children, parents and teachers by enabling them to safely walk, cycle, scoot or park and walk to school. We already have evidence of some of these benefits from earlier schemes.

Evaluation of earlier school street schemes have shown that motorised traffic not only decreases on the school street where the scheme has been implemented, but also on surrounding streets. This suggests a change in behaviour with people swapping cars for walking and cycling.

Evidence gathered from the park and stride pilots with four schools across the county showed that they also support children and parents to walk and cycle at least part of their journey to school.

Policy 11 – We will:

a. Work with schools, to develop a programme of walking and cycling measures for travel to and from school.
b. Work with employers and businesses in the county to improve promotion and education of travel choices.

Guidance for new development
In order to achieve our aspirations for healthy place shaping we can't just focus on street redesign. Very few streets are redesigned each year and large scale public realm projects are high cost for a limited geographic area.

We need to focus on small improvements, changes and reprioritisation of space to improve the human experience on all streets. This can be achieved in a variety of ways such as through the planning process and community led projects.

A key way in which this can be achieved is by embedding these principles into guidance for new development so that they are built in from the outset. This will ensure that healthy places are created and prevent the need for retrofitting.

Guidance for new developments will also help to deliver our vision by ensuring that walking, cycling, public and shared transport are the natural first choice for travelling within new developments and between new and existing settlements.

Why is this policy needed?
Significant housing growth is planned for Oxfordshire between 2021-30. This policy is needed to ensure that new residential development creates sustainable, healthy communities. It will ensure there is relevant infrastructure and safe, well connected routes that reduce the need for travel, maximise use of walking and cycling and is fit for the future to avoid the need for costly retrofit measures.

The aim is to make it easy, attractive and convenient to walk, cycle or use public transport within new residential developments and between new and existing settlements.

What are the benefits for people in Oxfordshire?
Creating comprehensive networks for cycling, walking and public transport at an early stage within new residential areas, which also connect with existing active travel infrastructure, will help to make walking and cycling more convenient for most journeys than private car usage.

Designing new developments that prioritise walking and cycling will also create healthy, vibrant communities that have good air quality, low noise pollution and will achieve carbon reduction targets. Being active outdoors with the opportunity to be sociable also brings important benefits to mental wellbeing.

Policy 12 – We will embed the guidance for residential developments (Appendix 3) into relevant guidance and decision making processes and will work with District and City Councils so that they are reflected in local planning guidance and design codes.

20-minute neighbourhoods
Healthy place shaping also extends to ensuring there are relevant services within residents' local areas to walk or cycle to. By providing residents with relevant goods and services within a 20 minute walk (10 minutes out and 10 minutes back) they are more likely to walk or cycle.

Oxfordshire currently performs poorly in this respect. The Geographical Barriers to Services deprivation domain, considers the accessibility of people to local services. As highlighted by the deprivation map below, many of the rural areas of Oxfordshire suffer disproportionately from this type of deprivation. Overall, 21% of the total population live within areas that are ranked within the worst 10% of areas nationally.

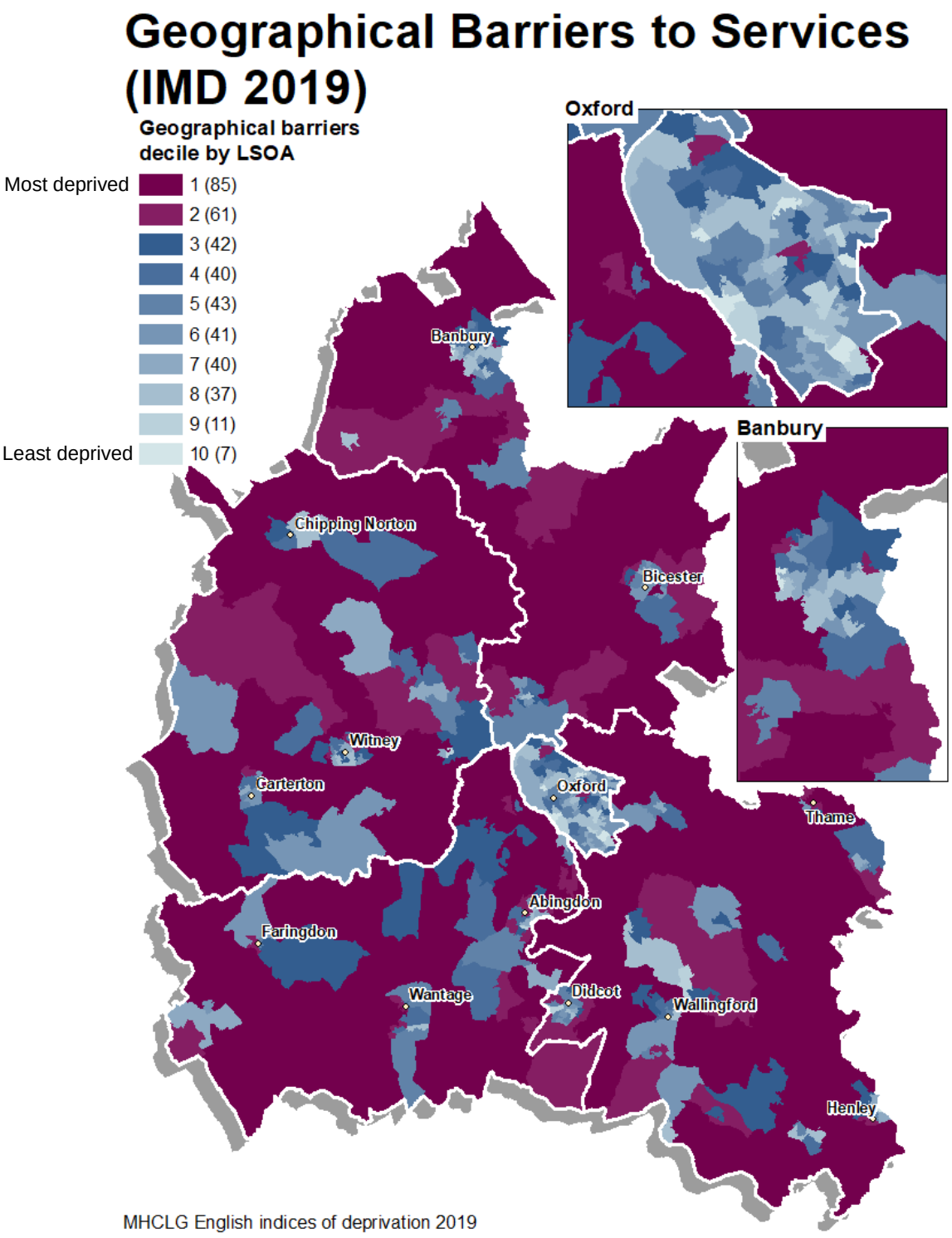

Figure 18 – Deprivation across Oxfordshire: Geographical access to services domain[40]

[40] English indices of deprivation 2019 - GOV.UK (www.gov.uk)

Similarly, we have conducted an initial analysis of the number of food retailers accessible within a 10 minute walk of an area. This analysis is shown below and highlights the scale of the challenge. Outside of Oxford there are currently few towns that offer good access to food retailers by foot. There will be an opportunity to further analyse this work through the area transport strategies.

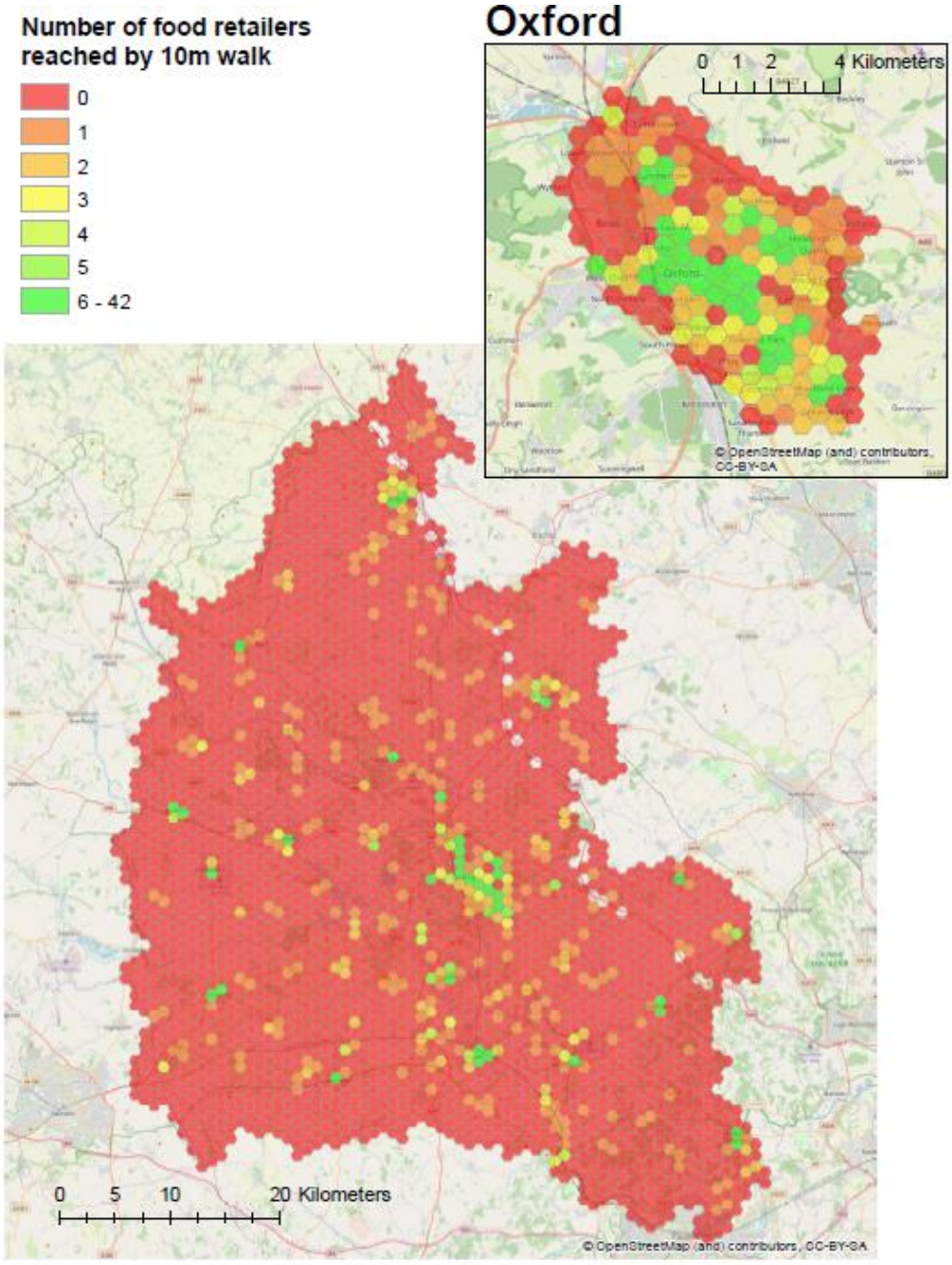

Figure 19 – Number of food retailers reached by a 10 minute walk in Oxfordshire

In order to address these issues and improve access to services within a 20 minute walk we are promoting the 20-minute neighbourhood concept.

The 20-minute neighbourhood is a model of urban development that creates neighbourhoods where daily services can be accessed within a 20 minute walk. The idea originated in Portland, Oregon and was taken up in Melbourne, Australia. It is

now supported by the Royal Town Planning Institute (RTPI) and the Town and County Planning Association (TCPA) in the UK.

The aim of such neighbourhoods is to regenerate urban centres, enhance social cohesion, improve health outcomes and support the move towards net-zero carbon targets through increasing walking and cycling.

The 20-minute neighbourhood concept represents a 10 minute walk to access local facilities and services and a 10 minute walk back. This equates to approximately an 800 metre walking distance when considering average walking speed.

The Coalition for Healthy Streets and Active Travel have undertaken a local Oxfordshire survey about 15-minute neighbourhoods. Their local survey asked people what they thought was a reasonable time to spend getting to basic amenities. Across the whole sample 97% of respondents thought a walk for up to 10 minutes was a reasonable time[41].

The following figure from the TCPA outlines the key features of a 20-minute neighbourhood:

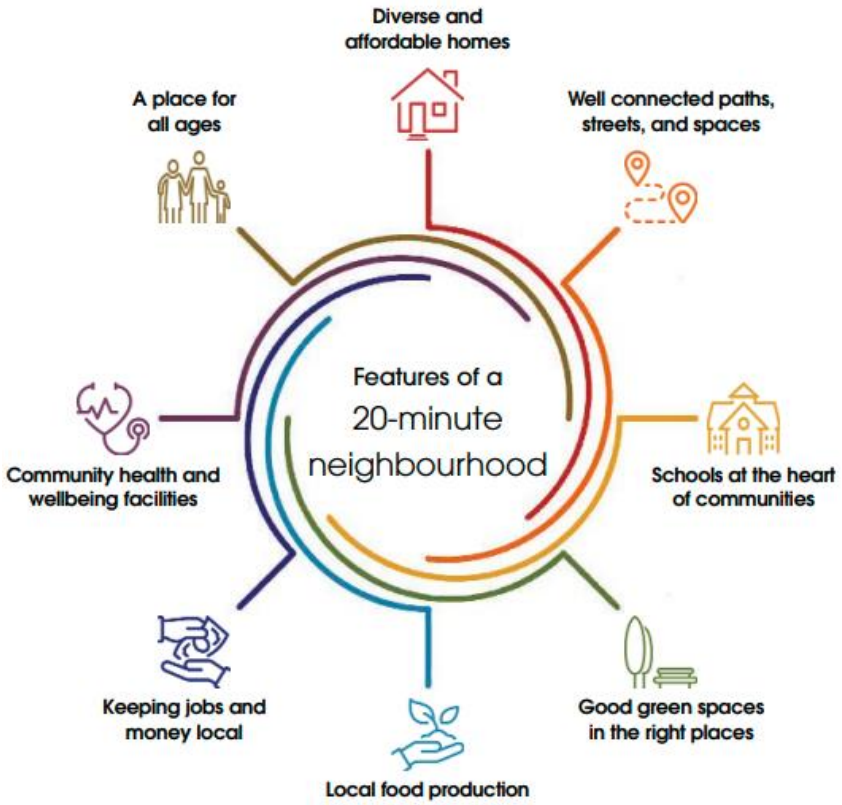

Figure 20 – Summary of 20-minute neighbourhood features[42]

From a transport and connectivity perspective, 20-minute neighbourhoods can apply to existing and new settlements, in both rural and urban settings. They need to:

- Be safe, accessible and well connected for people walking and cycling

[41] https://cohsat.org.uk/wp-content/uploads/2022/04/15mn-survey-final-report-march-2022.pdf
[42] Town and Country Planning Association: 20-minute Neighbourhoods guide

- Offer high-quality public realm and open spaces
- Provide services and destinations that support local living
- Facilitate access to quality public transport that connects people to jobs and higher-order services
- Deliver housing at densities that make local services and transport viable
- Facilitate thriving local economies

The 20-minute neighbourhood concept is more challenging in rural areas but can be tailored to apply. This can be through developing our market towns as 20-minute neighbourhoods or by improving walking and cycling connectivity between small villages so that a range of services are accessible locally and can be shared[43]. Measures such as the SATN and Greenways will help us to achieve this.

We recognise that it may not be practical to deliver some services within walking distance of a rural area and so the concept could also be tailored to look at providing access to a frequent public transport route or mobility hub within 20 minutes which will then connect residents to those services.

The Oxfordshire Plan 2050 will play an important role in helping to deliver the 20-minute neighbourhood concept. The Oxfordshire Plan will provide a strategic planning framework for Oxfordshire to 2050 and will inform future district local plans. The LTCP and its policies will be used to inform the Oxfordshire Plan.

To support the spatial planning work, we have developed a mapping tool for 20-minute neighbourhoods which will be used to inform future Local Plans. Further action plans showing how we can deliver 20-minute neighbourhoods will also be developed for the area transport strategies.

Why is this policy needed?

The COVID-19 pandemic has highlighted the importance of liveable neighbourhoods as places for social interaction and for accessing goods and services within an easy 20 minute walk. It has also accelerated changes in shopping and working.

The shift to online retail has further undermined the health and prosperity of the traditional High Street. Applying the 20-minute neighbourhood concept to our cities, towns and rural areas would see a better mix of uses, more activities, and a more flexible retail offer which would revitalise our town and city centres.

What are the benefits for people in Oxfordshire?

The 20-minute neighbourhood model can help to create inclusive mobility, enabling those without or unable to afford a car, disabled residents, those with mobility issues, such as older people, and those with hidden disabilities, such as autism, to access services locally.

[43] Town and Country Planning Association – 20 Minute Neighbourhoods

Walkable neighbourhoods promote healthy lifestyles, while ensuring community facilities are accessible to people of all ages and abilities. Reducing the need for travel by car will also support the LTCP vision and help to improve air quality.

In this way 20-minute neighbourhoods address some of the drivers of health inequality, with residents who may have felt socially excluded able to access the services that they need in a sustainable way and in a welcoming environment.

Policy 13 – We will:

a. Work with our District and City Councils to ensure that regeneration schemes and new developments support application of the 20-minute neighbourhood model to create walkable, vibrant neighbourhoods.
b. Work with our District and City Councils to apply the 20-minute neighbourhood concept in our market towns and rural areas.
c. Seek to enable the sharing of facilities in smaller towns and villages by delivering policies to improve walking and cycling connectivity in rural areas.

Integrated planning

The previous policies have highlighted the strong links between the planning of transport and the planning of land use and their impact on public health. The location and design of new housing developments have a significant influence on residents transport options and how they choose to move around. This includes reducing the need to travel by locating facilities within walking distance and ensuring there is high speed internet to support remote working.

If we are to deliver our aspirations for healthy place shaping and broader delivery of the LTCP vision, it will be essential that we have greater integration of transport and land use planning. This will require ongoing work with our District and City Councils to embed LTCP policies in relevant guidance, as well as exploring ways to improve integration.

Why is this policy needed?

We are at an important time for transport and land use planning in the county with a new LTCP alongside the developing Oxfordshire Plan 2050, district Local Plan reviews and emerging future Local Plans. It will therefore be critical that the LTCP policies and healthy place shaping principles are reflected in relevant planning and guidance documents.

What are the benefits for people in Oxfordshire?

Embedding the LTCP healthy place shaping policies in relevant land use planning and guidance documents will help to provide future housing developments that deliver high quality neighbourhoods, rather than simply building more homes.

This will create healthy, vibrant communities that are accessible to all. Reducing the need to travel and prioritising walking and cycling will also create communities that have good air quality, low noise pollution and contribute to delivery of our vision.

Policy 14 – We will:

a. Work with our District and City Councils to deliver high quality neighbourhoods by embedding the LTCP policies and healthy place shaping principles into land use planning and guidance documents.
b. Work with our District and City Councils to explore ways of improving the integration of transport and land use planning.
c. Continue to work with Oxfordshire local planning authorities, the Oxfordshire Local Enterprise Partnership and the Future Oxfordshire Partnership on cross-boundary matters.

Road safety

Improving road safety is a fundamental part of our LTCP. There has been a long term downward trend in reported collisions and injuries in the county. It is important that we continue this trend and minimise road danger for all users. This chapter builds on our heathy place shaping proposals and outlines our target to have zero, or as close as possible, road fatalities or life-changing injuries by 2050.

We know that concerns over safety can diminish the quality of life of residents and deter walking and cycling. This has been highlighted in the National Travel Survey where road safety was cited by 24% of respondents as to why they do not cycle more and too much traffic was also cited by 16% of respondents[44].

Road safety explainer

In 2019 there were 1389 total road traffic casualties in Oxfordshire, a 9% decrease from 2018 and a 52% decrease since 2005[45]. Of these casualties, there were 231 killed or seriously injured (KSI) in 2019. There has been a gradual decrease in the number of KSI since 2014, however cycle casualty numbers have seen an upward trend over the last year.

When compared to its statistical neighbours Oxfordshire's performance is ranked somewhere in the middle with regards to total casualties per 1,000 of the population. This figure is similar to that of the overall national picture. Oxfordshire has reduced the number of KSI casualties per 1,000 of the population and is now performing better than many of its statistical neighbours.

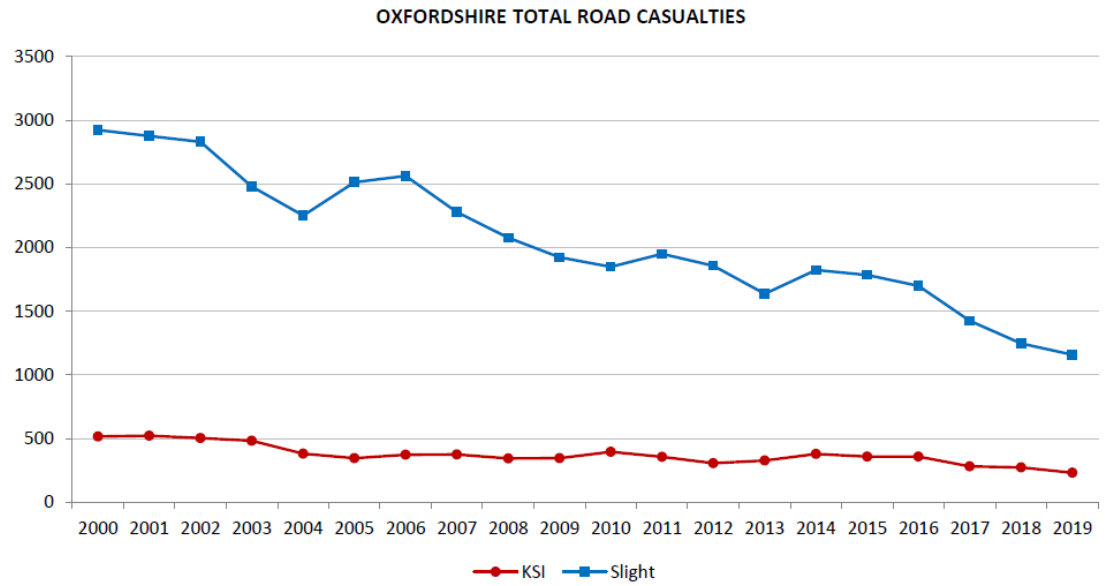

Figure 21 – Oxfordshire total road casualties 2000 - 2019[46]

Applying valuations issued by the Department for Transport (DfT), the value of preventing road traffic collisions on Oxfordshire's road is over £150 million each year. Even this high figure fails to capture the devastating personal consequences of

[44]Department for Transport: Walking and Cycling Statistics, England: 2019
[45] Oxfordshire County Council Road Traffic Accident Casualty Data Summary 2019
[46] Oxfordshire County Council Road Traffic Accident Casualty Data Summary 2019

fatal and severe injuries. There are many other costly consequences of poor road safety. Some of these, such as the often lengthy traffic delays following a collision, directly impact on road users.

Addressing car dominance by prioritising people walking and cycling will be a significant first step in tackling road danger. We will support this by adopting a vision zero approach to road safety.

Vision Zero
In order to improve road safety for all we will be adopting a vision zero approach. The aim of vision zero is to have zero road fatalities or life-changing injuries on Oxfordshire's transport system by 2050.

Whilst zero road fatalities or life changing injuries is our overall target, it is important to recognise it is an ambition that helps set the tone of what we are seeking to achieve rather than actual end point. Vision Zero is about the commitment to reducing road danger and recognition that deaths or life changing injuries on the road are not acceptable.

Vision Zero is a safe systems approach which starts with the idea that everyone has the right to be safe on the highway network. Every traffic death reflects a failure in the system, and none are acceptable.

The safe systems approach incorporates safe street design, safe speeds, safe behaviour, safe vehicles and post collision response. Some of these factors the county council can directly control, others will require stakeholder working to deliver. A more detailed action plan to address each of these aspects will be developed following adoption of the LTCP.

Why is this policy needed?
Minimising road danger is fundamental to creating an environment where everyone feels safe walking, cycling and using public transport. As highlighted previously, we know that road safety is one of the main reasons more people do not cycle. Adopting Vision Zero will strengthen our existing work on road safety and outlines a clear commitment to eliminating deaths or life changing injuries on the road.

Vision zero also recognises that many other partners have major roles in delivering improved safety, including national government, the police, vehicle manufacturers, local communities including parish councils and developers of new residential and commercial premises. By utilising a safe systems approach we will coordinate work in a proactive way to achieve zero deaths or life-changing injuries.

What are the benefits for people in Oxfordshire?
Reducing road danger on our highway network will deliver personal and economic benefits to people and businesses in Oxfordshire. Most importantly it will help to tackle the devastating personal consequences of fatal and severe injuries resulting from traffic collisions.

Reducing road danger and creating environments where everyone feels safe will also be key to achieving more walking and cycling, thereby contributing to delivery of our vision and the associated benefits.

Policy 15 – We will:

a. Adopt the vision zero approach, which seeks to eliminate all fatalities and severe injuries on Oxfordshire's roads and streets, to have safer, healthier, and more equitable mobility for all.
b. Work closely with partners and stakeholders to take a whole system approach, working together on infrastructure, behaviour, technology and legislation to achieve this change.

20mph zones

Oxfordshire County Council, as the Highway Authority, is responsible for the setting of all local speed limits across the road network throughout Oxfordshire excluding motorways and trunk roads.

We want to make our built environments safer places to walk and cycle. To enable this to happen 20mph speed limits are being used to help promote alternative modes of transport for local travel. This programme links into the Healthy Streets Approach. The 20mph Speed limit falls under the Local Speed Limits; 20mph, 40mph and 50mph, which are set by Local Authorities and guided by DfT Circular 1/13 Setting Local Speed Limits

Reduced vehicle speeds help to tackle the dominance of motor vehicles and makes them less imposing to residents walking and cycling. Reduced vehicle speeds also help to reduce the number of casualties and road danger. 20mph speed limits provide drivers more reaction time and reduce the stopping distance required. A person is five times less likely to be fatally injured if hit at 20mph than at 30pmh[47].

We are aware that 20mph zones alone will not reduce vehicle speeds. Lower speed limits need to be accompanied by measures to improve compliance such as enforcement, design and education. We will continue to work on the delivery of supporting measures, including the investigation of average speed cameras.

[47] Transport for London: Mayors Transport Strategy 2018

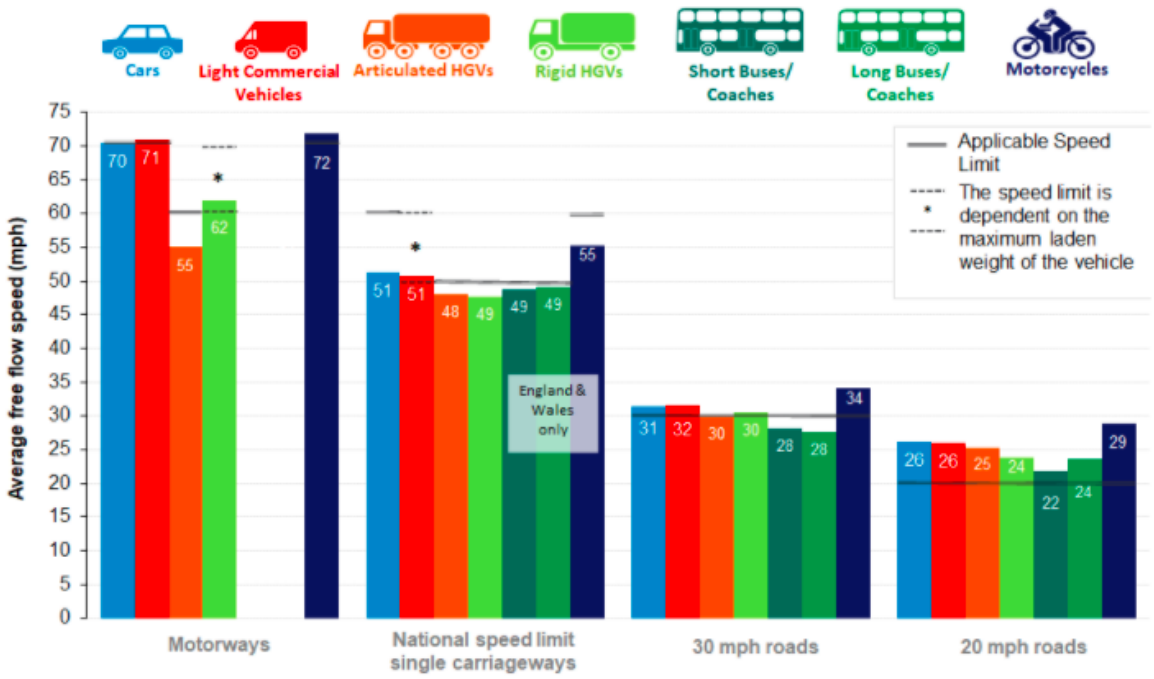

Figure 22 – Average free-flow speeds by vehicle and road type in Great Britain[48]

Case study - 20mph trial programme

In 2021 we undertook five 20mph trial sites within Oxfordshire to establish the best methodology for the implementation of a proposed countywide approach. All of the sites amended existing 30mph limits to 20mph limits via a phased approach of initial sign only changes that were supported by further engineered designs to reduce vehicular speeds if required.

It should be noted that signage and road markings for 20mph speed restrictions are not included within this policy and are covered by Road Markings & Road Studs Procedure and the Traffic Signs Procedure. Furthermore, we do not enforce speed limits, the responsibility of this function lies with Thames Valley Police.

A 20mph speed restriction should be considered wholistically as part of a programme to reduce vehicle speeds and improve road safety. The imposition of any new speed restriction, or amendment to existing speed restriction, requires a Traffic Regulation Order to be made.

Why is this policy needed?

The 20mph Approach is required in Oxfordshire if we are to deliver our vision to make active travel, public and shared transport the natural first choice. To achieve this a new approach is needed that reduces the speed of vehicles in areas that meet a set-criteria to reduce the dominance of vehicles, improve the experience of being on streets and making walking and cycling safer.

[48]https://www.gov.uk/government/statistics/vehicle-speed-compliance-statistics-for-great-britain-2020/vehicle-speed-compliance-statistics-for-great-britain-2020

What are the benefits for people in Oxfordshire?

The 20mph programme will improve streets to encourage walking and cycling. This will contribute to the delivery of our vision and key themes, notably the delivery of a net-zero transport network, improved health and wellbeing and the creation of healthy, dynamic communities.

As described elsewhere, encouraging a wide range of people to choose to walk and cycle will help to improve public health, improve air quality and make local areas more relaxing. The 20mph approach will provide wider benefits to wellbeing such as reduced casualty rates and reduced road noise and vibration. It will particularly help those with mobility issues, sight or hearing impairments to feel safe when crossing streets.

An effective speed limit policy can also contribute significantly to ensuring the efficient working and enforcement of road traffic regulations and the maintenance of effective traffic control.

Policy 16 – We will:

a. Promote 20mph as the default limit for roads through residential, villages and retail areas to ensure speeds are appropriate for the nature, environment and location.
b. Permit sign only 20mph schemes to be implemented regardless of the existing speeds travelled.
c. Carry out a consultation with public bodies such as the police, district and parish councils and local residents where a new 20mph speed restriction is proposed as per our statutory duties.
d. Continue to work on the delivery of supporting measures to improve speed limit compliance. This includes the investigation of average speed cameras.

Equestrians

As well as traditional road users, Oxfordshire has a high number of horse riders and horse owners who use the roads and PRoW network. These equestrian interests contribute to the local economy through spending on livery and associated goods and services.

In 2011 the government endorsed the Strategy for the Horse Industry in England and Wales. Aim 5 of that strategy is increasing access to off-road riding and carriage driving. The aim's strategic objectives are:

- Ensuring a joined up and well-maintained network of equestrian ProW.
- Increasing provision of other off-road equestrian routes and of areas with equestrian open access.
- Continuing safety education for motorists, riders and carriage drivers.
- Ensuring urban and suburban riding and carriage driving are promoted and improved as well as rural riding and carriage driving.

In the years since then, Oxfordshire Rights of Way Improvement Plans and Local Transport Plans have included some consideration of equestrian issues. The government's strategic objectives are still relevant and still require additional action.

Why is this policy needed?

Equestrian interests need to be considered and integrated as part of development planning, transport planning, road safety and road maintenance strategies and work on the ground. This will help to improve safety, minimise risk and improve inclusivity.

Engagement with local equestrian users will also help to identify where limited resources could be best targeted and where opportunities could be gained.

Key points for considering equestrians

The following points will help ensure more safe access to off-road riding and carriage driving and use of roads and public rights of way:

- Development affecting public rights of way that are available for horse riding need to provide safe and convenient routes at all stages.
- Horse or multi-user crossings on carriageways should be planned in from the start or retrofitted, ensuring that they are maintained to be fit for purpose.
- On a case-by-case basis, highway authority powers can be used to provide horse riders with access to cycle paths and grass verges.
- Maintenance for unclassified and unsurfaced roads could be adapted to make use by horses safer.
- Inclusion of equestrians in urban fringe and rural area network assessments can facilitate better connectivity and reduce the need to mix with road traffic.
- Public rights of way maintenance need to be inclusive of horse interests to ensure a safe, pleasant and easy to use network for more people.
- Educating all road users about horses on the road.

Policy 17 – We will:

a. Consider the needs of equestrian users in roads and highways strategies and planning as well as operations.
b. Continue to embed Aim 5 of the Strategy for the Horse Industry in England and Wales into relevant guidance and decision-making processes in order to improve safety, network connectivity and network quality for equestrians.

Public transport

Encouraging an increased number of public transport trips will also be an essential part of delivering our vision. Increased public transport use will help to reduce the number of private vehicle trips and deliver air quality improvements.

We view the different modes of walking, cycling and public transport, as part of one connected system rather than as competing modes. By viewing these modes as a connected system there is an opportunity to enable multi-modal journeys and improve connectivity across the county. Ultimately, public transport needs to be combined with walking and cycling to provide a viable alternative to the private car.

Walking, cycling and public transport are more space efficient than private cars. For example, buses can carry up to 120 people. There is the potential for more trips to be taken by bus and train in Oxfordshire which would reduce the number of vehicles on the county's roads. Reduced vehicle traffic will help us to reallocate street space for walking and cycling and make Oxfordshire's streets more welcoming places.

For both rail and bus, we will seek to understand and address the impacts of the COVID-19 pandemic as more data becomes available. However, we believe that public transport will remain an important aspect of Oxfordshire's transport system.

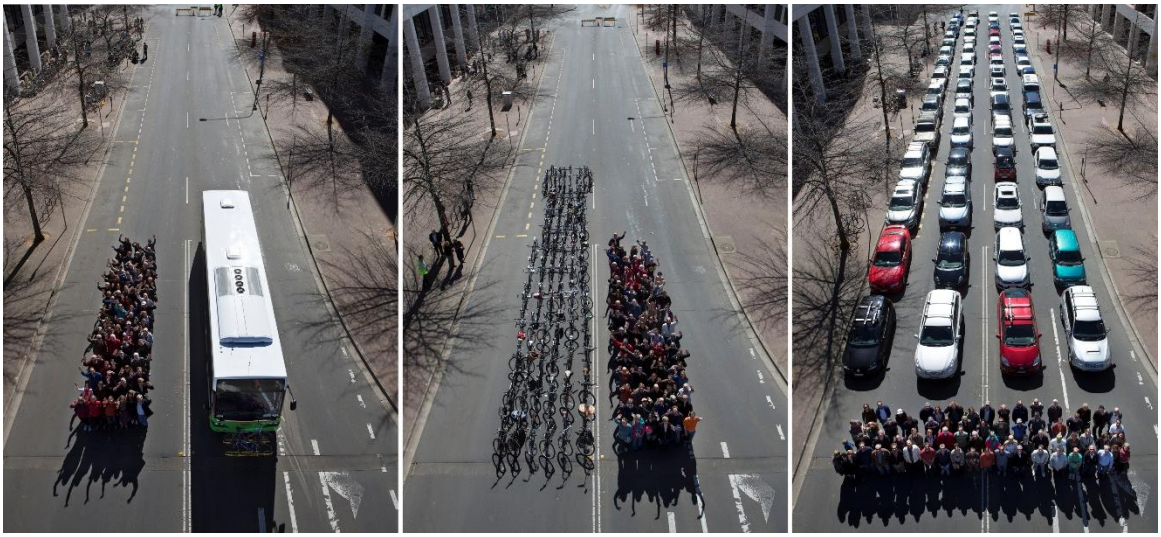

Figure 23 – Street space required to accommodate 60 people by bus, bicycle and car[49]

Whilst we view public transport as one connected system, we have presented our policies by individual mode for simplicity. It is through a combination of these measures that we will increase public transport use in the county.

Bus strategy

Buses are the main mode of public transport in England, and Oxfordshire is no exception. The county has historically been amongst the best performing areas in relation to bus use. In 2019 a total of 40.8 million bus journeys were made with 59.0

[49] www.cyclingpromotion.com.au

journeys per head of population, making Oxfordshire the best performing shire county in terms of bus use per capita.

Prior to the COVID-19 pandemic, an attractive bus travel offer was maintained on a largely commercial basis with some targeted enhancements arising from development schemes.

The Council has worked closely with its bus operator partners in recent years. Such partnership working will be increasingly important in the future as local authorities and providers work collaboratively to meet the ambitions of the Government's National Bus Strategy.

Figure 24 – Bus in Oxford city centre

However, despite an overall increase in bus usage in Oxfordshire since 2009, there has been a declining trend in recent years. The total number of passengers decreased by 6% between 2013/14[50] and the beginning of 2020, in line with the national trend. Similarly, the number of journeys per head of the population declined by 9% during the same period.

These issues were further compounded by the COVID-19 pandemic in 2020 and 2021. Bus patronage fell significantly during this time and is currently around 75% - 80% of pre-COVID levels, however some users and services are much lower. This is below the national average and the levels necessary to sustain full commercial operation of the pre-pandemic bus network.

In the short term we recognise there is a significant issue with bus usage, and we are supporting public transport to get back on its feet. This includes our work to give buses greater priority in Oxford through the introduction of traffic filters. This will also

[50] Department for Transport: Annual Bus Statistics: England 2019/20

benefit the bus network further out by making journey times into Oxford faster and more reliable.

We have also received up to £12.7 million from the governments national bus strategy fund which will be used to deliver measures in our Bus Service Improvement Plan. This is alongside £32.8 million from the Zero Emission Bus Regional Areas (ZEBRA) scheme to introduce a fleet of electric buses in Oxford and the surrounding area.

In the longer term we want to create an environment where people choose to use public transport, walking and cycling as the natural first choice. This requires an overarching approach and high level policy to establish our priorities. The LTCP includes this policy which will then be built on by a supporting Bus Strategy in 2022.

There are also some other issues that our long term policy needs to address. We recognise that many rural areas do not have bus services and the cost of public transport fares is an issue and barrier to use for some residents. Affordable fares are essential to encourage increased use of public transport and create a fully inclusive public transport system.

We need to make sure the public transport system is accessible to disabled people and alternatives such as community transport are well publicised. We also need to ensure everyone feels safe when travelling, improving personal security is particularly important for women and children.

Why is this policy needed?

Effective and efficient bus networks are vital for the financial, environmental and social health of Oxfordshire's communities. They are crucial to delivering the outcomes associated with the key themes of the LTCP.

The National Bus Strategy has placed new requirements on local authorities to enter into formal partnership arrangements with bus operators and to set out an ambitious plan for the improvement of bus services and infrastructure in the short to medium term. We have entered into a legally binding enhance partnership agreement with Oxfordshire's bus operators and set out our Bus Service Improvement Plan for the short term.

This policy will set a high-level statement of intent for our longer term work and partnership working. More detail will be provided by our bus strategy later in 2022 and will develop over time as measures are achieved and more ambitious targets set.

What are the benefits for people in Oxfordshire?

A significant proportion of residents do not have access to a car, particularly in Oxford and Banbury. It is therefore essential to ensure that attractive and relevant bus services can be provided to avoid locking people out of employment, education, leisure, cultural or social opportunities. Other benefits include:

- There are quantified health benefits to using the bus as users will walk on average 1.3km per round trip[51].
- Buses represent good value for money compared to car running costs.
- Buses help tackle loneliness and social isolation, keeping people in touch with their friends and families.
- Access to employment and education opportunities are significantly improved, especially for younger people.
- Lower car use helps to tackle congestion and results in better air quality.

Policy 18 – We will:

a. Work in partnership with bus operators, District and City councils to maintain a commercially sustainable and comprehensive network of services which is accessible to as many residents as possible.
b. Explore opportunities to accelerate the transition to a zero-emission bus fleet, building on work completed for the Zero Emission Bus Regional Areas (ZEBRA) scheme.
c. Seek to make the bus a natural first choice through development of infrastructure and network management measures which give priority over the private car and improve journey speeds.
d. Set challenging targets for improving bus use, customer satisfaction and bus journey times and review them regularly.
e. Ensure that all new strategic development is designed for bus access and provides suitable funding for high quality services and infrastructure.
f. Work with operators to improve the provision of bus information and multi-operator ticket schemes.
g. Work with operators to explore measures to improve affordability.
h. Ensure bus services are accessible and support community transport to address unmet local transport needs (further information in community transport policy).
i. Work to improve personal security on public transport including taking account of recommendations from the Transport Champions for Tackling Violence Against Women and Girls.
j. Work to improve bus services in rural areas including consideration of flexible services where relevant.

Community transport

As part of the LTCP, it is also important to consider how we address unmet local transport needs. In order to support residents and create a fully integrated transport system, there still needs to be local connectivity where there are gaps in public transport services.

In Oxfordshire, community transport helps to provide local connectivity solutions. Community transport is part of the voluntary sector and plays a key role in filling gaps in service where public transport is not available. It can provide a lifeline in both rural and urban areas offering safe, accessible, cost-effective, flexible transport run by the community for the community.

[51] Research commissioned by Greener Journeys and conducted by Dr David Lewis of Mindlab International (2011).

There are many types of community transport including car clubs, community minibuses and dial-a-ride. Innovations such as Connected and Autonomous Vehicles have the potential to transform these services in the future.

Community transport can help disabled people who are unable to use conventional bus services or have difficulty accessing bus stops by providing door to door services such as dial-a-ride. Some local community transport operations have minibuses available for community groups to use, while others provide registered local bus services that are open for all to use.

We provide more information about community transport on our website, including publishing an annual community transport directory to help those that find it difficult to access public transport find a service near to them.

Why is this policy needed?
Disabled and older residents may not be able to use conventional bus services or have difficulty accessing them. Community transport is an important alternative form of transport to support these residents.

For some rural areas it is not sustainable to provide a bus service both in terms of demand and financial cost. Alternatives therefore need to be considered and community transport can be used to fill these gaps. Local communities can work together to set up their own operation, or work with an existing operator.

What are the benefits for people in Oxfordshire?
Community transport can help improve inclusivity and remove isolation in communities by enabling residents to access services and keeping their independence. It will also contribute to delivery of our broader goals such as improved connectivity and creation of an integrated transport system.

Policy 19 – We will:

a. Work with local communities in the development of any new community transport schemes (including expanding existing schemes).
b. Work with transport operators (public buses, community transport and rail) to encourage co-ordinated transport solutions.
c. Work with community transport operators (bus and car schemes) to ensure vehicles used contribute to the Council's aims for carbon reduction.

Park and ride

Park and Ride (P&R) is another integral part of Oxfordshire's public transport network. P&R has been a part of Oxford's transport strategy for almost 50 years and is the longest-standing and one of the most successful schemes in the UK.

There are currently 5 sites with over 5,000 spaces around Oxford as well as a site at Bicester and a new site currently being progressed at Eynsham. Of the Oxford P&R sites, Oxford City Council are responsible for operating Redbridge, Seacourt and Pear Tree with the County Council responsible for operating Oxford Parkway and Thornhill. However, it is important to recognise that the P&R services themselves are commercially operated.

LTP4 proposed 5 new remote P&R sites to intercept traffic further out of Oxford, improve connectivity and enable a switch to bus earlier in the journey. This was considered necessary due to delays which occur on all approaches to the ring road.

5 new sites were proposed at Eynsham (A40), Cumnor (A420), London Oxford Airport (A44), Sandford (A4074) and Lodge Hill (A34 near Abingdon). Some expansion of the existing sites at Oxford Parkway and Thornhill was also proposed in order to accommodate future growth. Since then, a significant expansion has been constructed and opened at the existing Seacourt site.

The new proposed P&R sites were closely linked to the concept of developing a rapid transit network for Oxford. Three rapid transit lines were identified, linking a network of new P&R sites with the major employment and housing growth areas of Oxford city centre, North Oxford and Oxford's Eastern Arc.

Case study – Eynsham Park and Ride

Work is currently progressing to deliver the Eynsham P&R identified in LTP4. The 850 space P&R is located on the A40 eastbound and will cost approximately £51.2 million. It is anticipated that construction will be complete in late summer 2024.

The P&R will help improve congestion on the A40 and provide regular and reliable public transport services into Oxford. A new roundabout will make the P&R easy to access from either direction on the A40.

The P&R site is planned to operate as a multi-modal hub linking other travel modes with buses. Users will benefit from 24-hour security, dedicated cycle storage, public toilets and parking/charging bays for electric vehicles. New and upgraded bus and cycle lanes on the A40 will also make the journey into the city quicker.

Figure 25 – Eynsham park and ride plan

LTCP approach to Park and Ride

We will continue to support the provision of P&R and recognise its importance as part of an integrated countywide transport network. This will include addressing short term challenges to ensure the future viability of P&R services. However, due to the changing policy context and changes to broader areas such as the impacts of COVID-19 on travel, there is a need to reconsider our approach to P&R.

In the short term, LTP4 proposals will guide ongoing work on a case by case basis. This includes progressing work on potential outer P&R sites and continuing to develop our bus rapid transit proposals, subject to development of business cases and consideration of any impacts on existing P&R sites or bus services more widely.

Beyond this, further work is required to establish an updated strategy, and a Stakeholder working group has been set up to oversee this. This is because:

- We need to review our overall strategic approach to P&R and how it contributes to Climate Action, decarbonisation and reducing car use.
- P&R needs to be considered as part of a wider approach to integrating transport modes and ensuring easy and sustainable access to the bus network, including development of Mobility Hubs.
- COVID-19 has significantly impacted on the use of P&R and there is a need to gather further data about this. This approach will ensure decisions are future-proofed and best respond to the needs of users.
- There is a need to fundamentally review the P&R operating model, including charging and ticketing.

As part of this review, we will also consider new approaches to P&R such as smaller, 'pocket', P&R sites / mobility hubs, and potential ways to enhance existing sites such as freight consolidation or electric vehicle charging facilities.

This more detailed review will inform the development of 'Part 2' of the LTCP such as informing the development of the area and corridor transport strategies.

Policy 20 – We will:

a. Continue to support the development of Park and Ride and future bus rapid transit in the county, on a case by case basis and subject to careful consideration.
b. Work with partners and Stakeholders on a more detailed review of Park and Ride in order to establish an updated strategy that accounts for the impacts of COVID-19 and considers potential new approaches, including how it fits with development of mobility hubs across Oxfordshire.

Rail strategy

Oxfordshire occupies a pivotal point in the UK rail network, with rail lines heading north, south, east and west passing through the county. The railway is a national network but a vital local asset helping to transport both people and goods. Rail only accounts for 1.4% of UK transport emissions[52] and so could play a significant role in contributing to a net-zero transport system.

[52] UK Government: Transport Decarbonisation Plan

The rail network is also a vital component in supporting Oxfordshire's economic development by linking key locations in the Oxfordshire Knowledge Spine both with each other, with key regional destinations in the OxCam Arc and EEH areas and with the rest of the United Kingdom.

Delivery of the East West Rail project linking Oxford to Cambridge will be a key part of this. Phase 1 of the project has already been delivered improving connectivity between Bicester and Oxford, with the next phase to Bletchley / Milton Keynes currently being constructed. We will continue to support the development and delivery of future phases, recognising the rail service connections and improvements that this scheme will enable.

Figure 26 – Photo of Bicester Village Station which was delivered during Phase 1 of East West Rail

Rail also has a critical role in supporting planned housing and employment growth and there are significant opportunities to develop and enhance the rail network in Oxfordshire.

Improvements to the county's rail network will also help to increase capacity for rail freight. An increased amount of rail freight will tackle many of the issues associated with freight movement. Further detail about this can be found in the accompanying Freight and Logistics Strategy.

Rail usage explainer
Rail usage has been consistently increasing in the county since 1997. There were 21.7 million entries and exits to Oxfordshire rail stations in 2019-2020[53]. This is a 197% increase since 1997 and a 26% increase since 2015-16.

[53] Office of rail and road: Time series of passenger entries and exits by station

This trend was disrupted by the COVID-19 pandemic which resulted in an 82% decrease in the number of entries and exits to Oxfordshire rail stations in 2020-21. We will continue to monitor these trends and work with the rail industry to support increased rail usage.

In order to identify these opportunities to enhance rail usage in Oxfordshire, the Oxfordshire Rail Corridor Study (ORCS) was conducted in 2020-21. The study was funded and progressed as a partnership between the Department for Transport, local stakeholders and the rail industry.

The study identified the need for a 70% increase in services as well as improved calling patterns and service coverage by 2028. Key proposals from the study are:

- The majority of passenger services are extended through, rather than terminating at, Oxford station.
- Provision of new direct services to Bristol and Swindon routing through from East West Rail.
- Strengthening of connections with Birmingham, Worcester, and the South Coast to support Oxfordshire's economic growth.

The Oxford Phase 2 works have been identified as the critical next step to delivering the 2024 ambitions. A portfolio of interventions is required to deliver the 2028 ambitions, some of which can be associated with individual service enhancements, but the majority represent a comprehensive system upgrade between Oxford North Junction and Didcot.

Further examination of capacity improvements in the Oxford area is currently being progressed as part of the Oxfordshire Connect project. We plan to use these projects to guide our approach to rail in Oxfordshire. We will also build on these studies and use them as the basis for updating our overall rail strategy.

We will publish a separate rail strategy in 2022, as 'part 2' of the LTCP. This will build on the ORCS and Oxfordshire Connect projects and identify potential future rail projects, feasibility studies and opportunities across Oxfordshire. It will also take into account:

- Decisions on rail priorities and funding set out in the government's Williams-Shapps plan for rail and Integrated Rail Plan.
- National rail policy direction on decarbonisation, operating models and funding (in the context of a still-uncertain world for post COVID-19 rail travel).
- Local priorities and opportunities as part of our area and corridor transport strategies also being developed in LTCP 'part 2'.

Why is this policy needed?

Developing a detailed rail strategy is important to establish clear priorities and guide future development of the network. Rail is a genuine alternative to roads for regional connectivity and strategic longer distance trips. With further targeted work, Oxfordshire can become a welcoming crossroads for rail services across the country.

What are the benefits for people in Oxfordshire?
Implementation of the rail strategy will help to improve capacity and connectivity between our major employment hubs, providing a step change in rail travel options. These improvements will encourage rail use by making services more attractive and increasing access to them.

Increased rail use will reduce the number of private vehicle journeys, contributing to delivery of our vision and delivering the associated benefits. Improving rail connectivity, including local connectivity arising from projects such as the Cowley Branch Line, will also increase access to jobs, education and training. It can therefore help to tackle inequality in the county and improve opportunities for local people.

Policy 21 – We will use the Oxfordshire Rail Corridor Study and Oxfordshire Connect projects to guide our approach to rail and priorities for rail investment in Oxfordshire. We will publish a separate rail strategy in 2022 that builds on these projects and identifies potential future rail projects and opportunities across and through Oxfordshire.

Multi-modal travel

Having outlined our plans for the individual public transport modes, it is important to bring the thinking back to how these modes are integrated. Ultimately, if we are to increase the use of public transport, journeys need to be easy and attractive. Enabling viable multi-modal journeys is a key part of this.

Multi-modal travel (or multi-modality) refers to the combination of different modes of transportation in the course of a journey. This can include private motorised vehicles, public transport, walking and cycling.

Multi-modal travel underpins our thinking about the various modes of public transport forming one connected system and recognises that these modes are not mutually exclusive and, in many cases, support one another.

For example, public transport usage also supports walking and cycling. Walking is often a critical stage in enabling a longer journey, such as walking to the bus stop or train station[54]. Cycling to train stations has already experienced a major growth and needs further development and encouragement. Residents using public transport are therefore more likely to walk or cycle which will help to improve their health.

Multi-modal journeys require thinking about infrastructure and service times in a coordinated way. Adequate cycle and motorcycle parking at train stations, synchronised departure times between trains and buses or combined ticketing are all examples of factors that affect the convenience of multi-modal options.

Because most trips already include a combination of different modes of travel, and because of the possibilities of achieving sustainable travel behaviour in an integrated transport network, multi-modality will be a key approach in delivering the LTCP.

[54] Government Office for Science, Walking in the UK transport system: how and why is it changing?, 2018

Multi-modal journeys may be made easier in the future by the development of Mobility as a Service (MaaS). MaaS is the integration of various forms of transport services into a single mobility service accessible on demand[55]. Therefore, people may be able to plan, book and pay for all stages of their journey via one app. MaaS is an emerging service that we will continue to monitor and explore with partners.

Why is this policy needed?

In the absence of good multi-modal provision, car journeys tend the be the easiest and quickest option. This policy aims to break down any physical barriers to providing a seamless travel experience.

It is essential to improve the integration between different sustainable transport modes to increase available options, reduce journey times and provide residents attractive alternatives to the private car.

What are the benefits to people in Oxfordshire?

Improved transport integration has a direct benefit for all people and businesses in terms of increasing travel options, improving journey times and making it easier to travel by sustainable modes. It will particularly those unable to access or use a car, helping to tackle inequalities and accessibility issues.

By encouraging more usage of public transport, walking and cycling, multi-modality will also benefit the whole of the county in terms of climate change mitigation, air pollution, physical and mental health, improved traffic management for all road users, the local economy and the built environment.

Policy 22 – We will:

a. Consider multi-modal travel as a central option for transport planning and planning for new developments to achieve greater integration of the transport system.
b. Seek to improve physical access and interchange facilities as well continuing to monitor and explore opportunities for MaaS with partners.
c. Undertake assessments of the facilities for people walking and cycling at stops and stations on our core public transport corridors, so that we can identify opportunities for improvements in more detail.
d. Work with stakeholders, including the rail and bus industry, to improve access to existing railway stations on foot, by cycle and bus.
e. Work with stakeholders to ensure new railway stations are delivered with appropriate walking, cycling and public transport access.
f. Work with stakeholders as part of our bus enhanced partnership to improve real-time information and multi-operator ticketing.

Mobility hubs

Interchange is a key aspect of the multi-modal travel experience. Seamless, easy and attractive interchange between sustainable modes is key to encouraging their use. Building on our multi-modal travel policy, we believe there are opportunities to

[55] https://maas-alliance.eu/homepage/what-is-maas/

consider new approaches to multi-modal interchanges. We are focusing on the mobility hub concept as a way to create and improve existing transport interchanges.

The term mobility hub refers to a recognisable place where there is a range of different shared and public transport modes. Mobility hubs also include additional facilities and information features to both attract and benefit the traveller[56]. For example, mobility hubs may combine shared bikes, shared cars, package delivery lockers and a bus stop in one location.

Mobility hubs can be developed in a range of contexts. There is not one solution for all areas, instead mobility hubs are developed for a specific location. In Oxfordshire, this could range from rural hubs to better connect communities to public transport through to strategic interchanges at existing park and ride sites, railway stations or highway service stations. The guidance table in appendix 4 provides a summary of the different types of mobility hub, typical location and typical facilities we would expect to develop in Oxfordshire.

There has already been work done to investigate potential mobility hubs in Oxfordshire. This includes a study of Hanborough Station by West Oxfordshire District Council and vision for the station to be a mobility hub by 2031 and identification of 6 potential sites as part of the Bus Service Improvement Plan.

Mobility hubs are a key part of how we propose to improve rural transport connectivity and reduce the length of car trips. We recognise it is not feasible to provide a high frequency bus service in all rural areas. Therefore, our approach is to locate mobility hubs that rural residents can easily travel to by a range of modes before completing the majority of their onward journey by public transport.

As noted previously, hubs will contain a range of facilities such as cycle parking to encourage active travel. Some car trips may still be required from rural areas to access a mobility hub, however by significantly shortening the trip length there will be less emissions and reduced congestion on strategic routes.

[56] CoMoUK mobility hubs guidance

Figure 27 – Example of mobility hubs in a suburb of Bremen[57] (left) and central Vienna[58] (right)

Why is this policy needed?

Mobility hubs will help to encourage walking, cycling, public and shared transport by linking up the existing active travel and public transport routes, creating a comprehensive transport network.

They also support several other policy areas and help to integrate them into an effective countywide transport network. For example, mobility hubs can support 20-minute neighbourhoods by locating other services at or near hubs and improving access to high quality public transport options

Locating more services in one location will reduce journeys in terms of both frequency and length. Designing integration of mobility hubs into new development will also help ensure uptake of more sustainable travel choices by new occupants.

What are the benefits for people in Oxfordshire?

Mobility hubs will help to improve everyday lives by providing more travel choices and making it easier to switch between modes. Due to the adaptability of mobility hubs, they can be applied across the county to improve rural residents' transport options and reduce car trip lengths. This will help to tackle rural isolation, accessibility issues and reduce emissions.

Mobility hubs will create well designed interchanges that are people-friendly environments and accessible to all. This will help to improve inclusivity, ensure all users feel safe and improve interchange for people of all ages and abilities.

Furthermore, mobility hubs will help to reduce reliance on the private car by providing more options to use active or shared transport. This will deliver benefits such as reduced congestion and improved air quality.

[57] https://commons.wikimedia.org/wiki/File:Mobil.punkt_in_Bremen.jpg
[58] https://www.bildstrecke.at/picture.php?/22964

Policy 23 – We will:

a. Support the development of mobility hubs in a range of locations and sizes in order to improve interchange opportunities, connectivity and accessibility. Appendix 4 summarises the type of facilities and services that could be provided at different scales and locations within Oxfordshire.
b. Carefully consider the following matters when developing plans for any new mobility hubs:
    - The identification and safeguarding of suitable land.
    - The character and needs of the local area.
    - The proximity of proposals to strategic rail, bus and active travel networks.
    - The potential to achieve more walking and cycling, including the need for suitable cycle parking.
    - The ability to develop and improve existing assets or facilities such as stations, bus stopping areas or Park and Rides.
    - The potential to tie in with high quality digital and renewable energy networks.
    - The opportunity to provide complementary facilities and services such as flexible workspaces, shops and refreshment options.
c. Encourage developers to design mobility hubs into development where appropriate.

Digital connectivity

Alongside more walking, cycling, public and shared transport use, reducing the need to travel will play an important role in tackling private vehicle use and the associated negative impacts.

Reducing the need to travel will be delivered in two primary ways. The first is through planning the location of services within walking distance of residents. The LTCP includes policies which address reducing the need to travel in this way such as the policy to support creation of 20-minute neighbourhoods.

The other way the need to travel can be reduced is by improving digital connectivity. Digital connectivity is the collective term for full fibre broadband connectivity, 4G and 5G mobile data connectivity. It also covers potential next generation technology such as 6G mobile data connectivity.

Digital connectivity can help to reduce the need to travel by providing residents with the ability to work, shop and access services such as medical appointments from home. In doing so we can reduce the number of trips made by car, improving air quality and creating more welcoming places for people to walk and cycle.

Work conducted on behalf of England's Economic Heartland predicts that if people who used to commute by car continue to work from home for two days per week, between 10% to 12% of peak hour traffic would be removed[59]. Flexible working patterns may also help to spread travel demand peaks, helping to manage the impacts of proposed growth on the transport network.

When travel is required, digital connectivity is important for supporting Connected and Autonomous Vehicles (CAV) which need 5G connectivity to safely navigate our highways. It also improves the journey experience for travellers using mobile phones for navigation, real time journey information or booking tickets.

Digital connectivity explainer

Oxfordshire currently has good levels of superfast broadband connectivity. Between 2014 and 2021 the Better Broadband for Oxfordshire programme has increased superfast broadband availability from 69% to 98% of premises across the county[60].

In March 2022, approximately 22% of premises in the county had full fibre connectivity. However, this is significantly lower than many of the region's global competitors.

The digital infrastructure program aims to achieve 99% superfast coverage and 23.5% full-fibre coverage by the end of 2022.

[59] England's Economic Heartland: WFH Propensity & Capacity Release Model (2021)
[60] https://digitalinfrastructureoxfordshire.co.uk/progress-so-far

Digital infrastructure

Full fibre will see older cables replaced with fibre optic cabling. This is considered the highest standard for internet connections as it is fast, reliable and futureproofed. This infrastructure will be able to cope with growing demands and will not need to be replaced or upgraded for at least 20 to 30 years.

Full fibre connections are now considered as basic a requirement for new homes along with other utilities such as water and electricity. Delivering good digital infrastructure is important to support our aspirations for reducing the need to travel and private car use.

Why is this policy needed?

The roll out of digital infrastructure has opened up opportunities for services to be delivered at a local level. We continue to support the roll out of full fibre across the county to support remote working and digital access to services.

We also have a unique programme to roll out full fibre to village halls and community/neighbourhood centres and provide assistance with rental fees. This offers the ability to significantly change how services are delivered, by bringing them into local communities.

The reliance on digital technology, exacerbated by the pandemic, also means we need to do more to reduce digital exclusion and remove the barriers for individuals to access services on-line. Barriers may include affordability, connectivity, skills and access to a modern device.

What are the benefits for people in Oxfordshire?

Full fibre infrastructure built into the fabric of homes, offices, highways, signage, street furniture, public buildings and medical facilities can connect, integrate and enable many applications.

This will provide an important contribution to achieving our vision, creating healthy places and supporting the economy in an environmentally friendly manner. Key benefits to people in Oxfordshire will include:

- Increased ability to work from home, reducing the need for commuting and transport costs
- Real-time integrated public transport information
- Traffic sensors to capture data leading to safer and more efficient journeys
- Attracting high tech businesses to the area by facilitating good connectivity
- Facilitation of a Living Labs environment to trial new technology

Developing accessible ‘Local Community hubs’ where a range of services, activities, and opportunities are focussed, will lead to greater social cohesion, reduce the need to travel, and support the 20-minute neighbourhood initiative.

Policy 24 – We will:

a. Promote fibre broadband connectivity for all new residential or business developments.
b. Support delivery of District Council policies on fibre broadband provision as set out in relevant Local Plans.

c. Require all civil engineering partners to ensure appropriate ducting for the use of fibre cabling, and that it is designed and laid during the construction of new, or during major upgrading schemes to existing, roads, footpaths or cycleways as appropriate.
d. Continue to roll out of full fibre and provide support with rental fees to public buildings, village halls and community/neighbourhood centres to enable the opportunity for services to be delivered locally.
e. Work with partners to initiate change to bring services to local community halls and centres, to reduce the need to travel and support the creation of "Local Community Hubs".
f. Provide support services to reduce digital exclusion.

5G

Developments with very high-speed mobile broadband (under the banner of 5G), also help to create a connected world. Improved mobile connectivity is an important consideration for reducing the need to travel, supporting emerging transport technologies and improving operation of the transport network.

5G is the new generation of wireless technology. It follows previous generations of mobile technology such as 3G and 4G. 5G is much faster than previous generations of wireless technology and also offers greater capacity, allowing thousands of devices in a small area to be connected at the same time[61].

This technology cannot be separated from the full-fibre subject. 5G depends on traditional mast-mounted equipment and also small cell deployment. Small cell technology is dependent on mobile transmitters, most of which require a fibre connection.

Why is this policy needed?

Oxfordshire County Council wants to develop 5G IoT applications across the county which will help provide practical improvements to the lives of our residents and enhance economic growth whilst assisting with delivery of the LTCP vision.

As 5G rollout across the county will take some years to achieve full coverage and there are still "not spots" of 4G coverage in some locations, it is also important that existing 4G services are improved and supported via the roll out of the Shared Rural Network initiative from central government and network operators.

What are the benefits for people in Oxfordshire?

The roll out of 5G across the county will help to support the deployment of Connected and Autonomous Vehicles (CAV). These will help to improve road safety and reduce the number of accidents, contributing towards our vision zero target. It will also enable more environmentally sustainable street lighting to be deployed.

A key benefit of 5G will be the ability to develop 5G IoT applications. These connected devices will enable new ways of monitoring traffic, air quality and other

[61] https://www.ofcom.org.uk/phones-telecoms-and-internet/advice-for-consumers/advice/what-is-5g

environmental factors. This will improve our management of the transport network, making everyday journeys more efficient and tackling areas of high air pollution.

The deployment of 5G and 5G IoT applications will also deliver non-transport benefits to people in Oxfordshire such as enabling remote health and social care capabilities, improving tourist attractions and supporting virtual reality applications.

Policy 25 – We will:

a. Work with district councils to promote proposals for the upgrading of existing or siting of new mobile infrastructure to provide faster, more reliable and more comprehensive coverage of both 4G and 5G mobile communications.
b. Encourage new developments to integrate and support 5G infrastructure, in line with the Innovation Framework.

Remote working

As discussed, improving digital connectivity to support remote working will help to achieve our vision for transport in Oxfordshire. Remote working reduces the need for residents to travel and so reduces the number of private vehicle trips, particularly at peak times. This will contribute to delivery of net-zero carbon aspirations, improve air quality and free up road space for walking and cycling.

We have seen the rapid growth of flexible and remote working in recent years. This has been accelerated by the COVID-19 pandemic which demonstrated the capability for many people to work from home or local hubs.

We will continue to monitor the trends related to remote working; however, we expect that there will continue to be a growth in the proportion of people working remotely compared to pre-pandemic levels.

We recognise that not everyone can work from home and there will always be some residents who need to travel to work by car. Reducing the number of car trips through the policies proposed in the LTCP will help to reduce congestion and benefit those that do need to travel by car or van.

<u>Why is this policy needed?</u>

This policy seeks to capitalise on the improvements to digital connectivity and encourages remote working in order to reduce the need to travel.

We will continue to recognise the value of travelling and emphasise that it is important for those working at home to reach physical activity recommendations. Through a combination of other policies, we hope that increasingly, residents will choose to walk and cycle for other everyday journeys.

<u>What are the benefits for people in Oxfordshire?</u>

Reducing the number of car journeys will improve air quality and create more relaxing and welcoming streets. It will also help to improve road safety and free up road space for walking and cycling.

Remote working may also reduce the need for car ownership, which helps to free up space for other uses like green and communal space and will allow current parking to be repurposed as it becomes less needed.

Policy 26 – We will work with stakeholders to ensure high quality internet connectivity and other necessary facilities are provided to all residents in order to reduce the need to travel and support remote working.

Environment, carbon and air quality

Reducing carbon emissions and improving air and environmental quality across the county are essential for the health of Oxfordshire residents. It will also help to protect our rich and varied natural and historic environment.

As part of the LTCP we have set the target to deliver a net-zero Oxfordshire transport network by 2040. In order to contribute towards this target, it is firstly important for us as an organisation to consider how we can contribute to reducing emissions.

A key way in which we can do this is by considering embodied carbon in our decision making processes.

Embodied carbon
As part of the LTCP we have set the goal of delivering a net-zero Oxfordshire transport network by 2040, prioritising reducing the emissions produced by vehicles in Oxfordshire.

As a transport authority, we are also able to influence the carbon emissions associated with the construction and maintenance of the transport infrastructure (such as roads and cycle paths). This chapter outlines our policies to reduce such emissions.

Embodied carbon are the greenhouse gas emissions related to:

- Extracting, manufacturing and transporting the materials used to build the transport infrastructure
- Constructing the transport infrastructure
- Maintaining the infrastructure
- Disposing of end-of-life materials.

In a typical road development project, the production of materials represents about 70% of the embodied carbon, with concrete and asphalt being the main emitters.

Minimising embodied carbon is critical to avoiding the worst impacts of climate change because these emissions occur immediately and will have more effect on global heating than potential tailpipe emission reductions, which occur over decades.

Why is this policy needed?
To contribute towards a net-zero transport system, our decisions about new transport infrastructure will be informed by the embodied carbon reduction hierarchy (figure 28).

We will start by asking whether it is possible to meet the identified transport need without building new infrastructure e.g., by increasing digital connectivity or public transport provision. If that is not possible, we will seek to adapt or refurbish the existing infrastructure to meet the identified need e.g., by reprioritising road space for public transport or active travel. If construction is required, we will seek to reduce material consumption, reuse materials, and specify low carbon options.

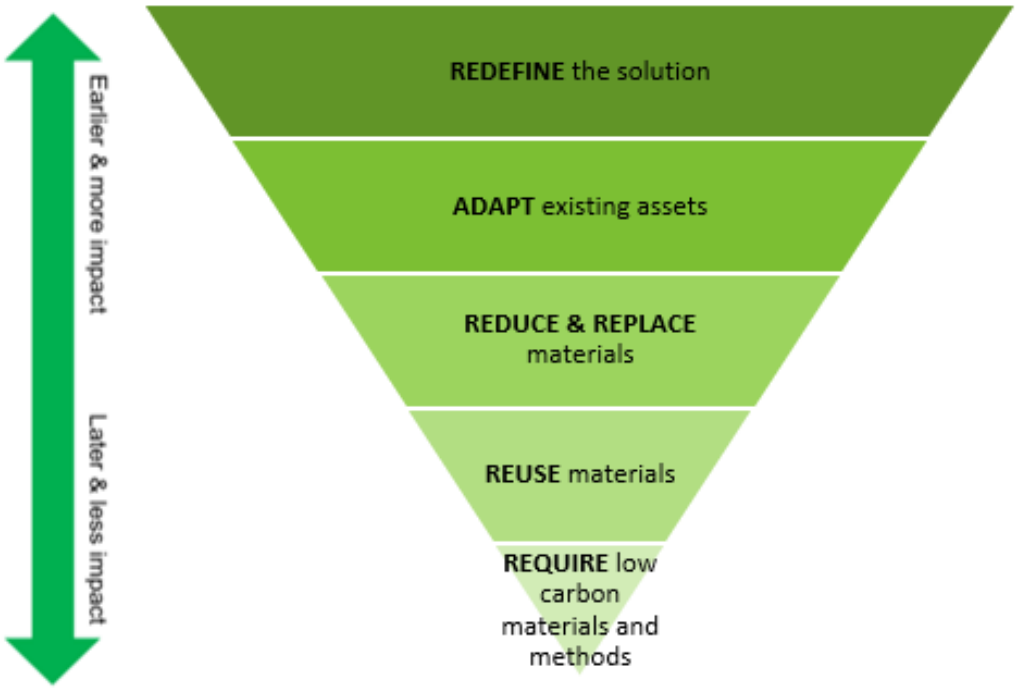

Figure 28 – Embodied carbon reduction hierarchy

When assessing a potential transport scheme, we will consider its contribution to Oxfordshire's carbon budget[62] and delivery of a net-zero transport network by 2040, taking into account embodied, operational and user net emissions. We will also consider the need for a just transition and transports role in addressing inequalities.

Once a decision has been made to develop a transport scheme, we will require a science-based percentage of embodied carbon emissions reduction from the carbon accounting baseline, to be achieved through design, procurement, construction and maintenance, excluding offsets. The reduction percentage will be determined by the type of scheme and industry best practice.

We will use the PAS 2080 standard to assess and minimise the carbon emissions of our transport infrastructure projects. We will review our design and procurement policies to ensure alignment with our carbon reduction goals. In some instances low carbon materials and methods provide financial savings, however in others there might be a cost uplift to consider.

To achieve a net-zero transport network, a degree of offsetting will be required. Offsetting will be used as a last resort, only once all emission reduction options have been explored and implemented. Any offsets must be certified, additional, and deliver local benefits.

What are the benefits for people in Oxfordshire?

Reducing carbon emissions from our transport schemes will contribute to our ambitions for a net-zero transport network and reduce our contribution to climate

[62] Oxfordshire's carbon budget is the local share of the carbon emissions that can still be emitted while staying below 2 degrees of global heating, as stated in the Paris Agreement.

change. It will also help to improve air quality, improve public health and create healthier places.

Policy 27 – We will:

a. Follow the embodied carbon reduction hierarchy in our decisions about transport infrastructure.
b. Take into account embodied, operational and user emissions when assessing a potential infrastructure project and its contribution to Oxfordshire's carbon budget and to a net-zero transport network by 2040.
c. Require a science-based percentage of embodied carbon reduction from baseline in infrastructure projects.
d. Use PAS 2080 to assess, manage and minimise carbon emissions in transport infrastructure projects throughout the project lifecycle, including maintenance.
e. Any offsets needed to achieve net-zero must be certified, additional and deliver local benefits.
f. Work with contractors to reduce materials, source local and recycled materials, use less carbon-intensive transport options and building methods, and generate less waste.

Clean Air and Zero Emission Zones

In Oxfordshire transport is responsible for producing approximately 36% of all emissions in the county[63]. This is a larger proportion of greenhouse gas emissions than the national average of 27%[64].

Total CO_2 emissions in the county have declined by 27% since 2008, despite a 7.6% population increase over the same period. However, transport emissions have only declined 1.9% across the same time period.

Air pollution explainer

Air pollution is a mix of particles and gases of both natural and human origin. The main components of urban air pollution are particulate matter (PM) and nitrogen dioxide (NO_2). Road transport is the largest source of NO_2 and fourth largest source of PM[65]. Currently, there is no clear evidence of a safe level of exposure.

Poor air quality is the largest environmental risk to public health in the UK. Long-term exposure to air pollution can cause chronic conditions such as cardiovascular and respiratory diseases as well as lung cancer, leading to reduced health, wellbeing and life expectancy[66].

In Oxfordshire, it was estimated that 3,578 years of healthy life were lost due to air pollution in 2017[67]. Research by King's College London has found that roadside air pollution in Oxford stunts lung growth in children by 14.1%[68].

[63] University of Oxford Transport Studies Unit: Pathways to a zero-carbon Oxfordshire
[64] UK Government: Transport Decarbonisation Plan
[65] https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution
[66] https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution
[67] Oxfordshire Health and Wellbeing Joint Strategic Needs Assessment 2020
[68] Kings College London: Personalising the Health Impacts of Air Pollution – Summary for Decision Makers, 2019

Whilst we are aiming for walking, cycling, public and shared transport to be the natural first choice for journeys, we recognise that cars will still be a part of Oxfordshire's transport system.

It is therefore crucial that we encourage these to be zero-emission to contribute to our net-zero carbon aspirations and improve health. We have included strong polices that seek to promote zero-emission vehicles before internal combustion engine (ICE) vehicles.

The first policy to promote zero-emission vehicles is investigating the use of Clean Air Zones (CAZs) and Zero Emission Zones (ZEZs). CAZs and ZEZs will be important tools to reduce road transport emissions in Oxfordshire.

A CAZ is an area where vehicles with higher tailpipe pollutant emissions are restricted or charged for access. A ZEZ is an area where all vehicles except those with zero tailpipe emissions are restricted or charged.

Case Study – London ULEZ and Birmingham CAZ

The London Ultra Low Emission Zone (ULEZ) reduced nitrogen dioxide pollution by an estimated 29% after the first six months, compared to a scenario where there was no ULEZ. Modelling for the Birmingham Clean Air Zone indicates an average 12% reduction in nitrogen dioxide concentrations at the most polluted locations after the scheme has been in place for two years.

In addition to the core restrictions or charges, CAZs and ZEZs may also include supporting traffic management, sustainable transport or behavioural change schemes, electric vehicle charging infrastructure or funding to help individuals and businesses to upgrade their vehicles.

Why is this policy needed?

Oxfordshire's air pollution comes from a variety of sources, and the mix of sources varies significantly by location. For example, across Oxford city as a whole, road transport accounts for approximately 40% of NOx (nitrogen oxide) emissions and around 10% of particulate matter emissions. However, at roadside locations in the county with heavy traffic, road transport accounts for as much as 75% of NOx and 20% of particulate matter emissions.

Reducing exhaust emissions from road transport could therefore significantly reduce exposure to air pollution in the county, both close to busy roads and more widely, and CAZs and ZEZs could play a helpful role in this.

What are the benefits for people in Oxfordshire?

CAZs and ZEZs improve air quality and reduce carbon emissions. They may also reduce traffic levels and noise. These schemes will therefore support the council's wider public health and healthy place shaping objectives and our goal of achieving a net-zero transport network by 2040.

CAZ and ZEZ schemes could also help reduce carbon dioxide and other greenhouse gas emissions from transport that contribute to climate change.

Policy 28 – We will:

a. Continue to implement the Zero Emission Zone in Oxford.
b. Investigate CAZ and ZEZ schemes for other parts of Oxfordshire where traffic emissions are contributing significantly to air pollution problems.

Zero emission vehicles

The UK government has set out its ambitions to end the sale of new petrol and diesel cars by 2030 and two and three wheelers by 2035 (subject to consultation). From 2035, all new cars and vans must be Zero Emission Vehicles (ZEV).

A ZEV is defined as one which emits 0g of carbon dioxide from the tailpipe per kilometre travelled and typically refers to Battery Electric Vehicles (BEVs) and Hydrogen Fuel-Cell Vehicles (FCEV). It should be noted that whilst ZEVs do not have any tailpipe emissions, they will still produce particulate matter emissions from brake a tyre wear.

Battery Electric Vehicles explainer

BEVs are the most commonly available ZEVs. BEVs include cars, motorcycles, scooters, buses and trucks. Large BEVs such as buses and medium/large trucks are less common, but development is ongoing, and vehicles of this type are likely to become more common on Oxfordshire's roads over the coming years.

In the short to medium term, electric vehicle charging infrastructure is the most pressing requirement. In 2020 there were over 3,800 BEVs registered in Oxfordshire, and by 2030 we may see up to 80,000 on Oxfordshire's roads. In total there were 381,000 cars registered in Oxfordshire in 2020[69].

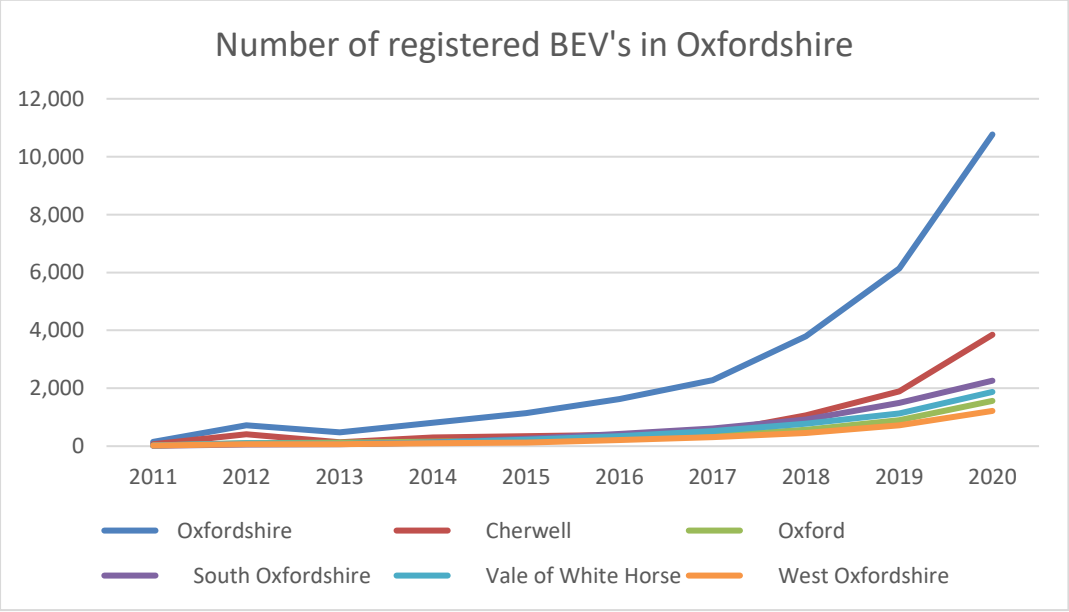

Figure 29 – Number of registered BEV's in Oxfordshire[70]

[69] Department for Transport: Licensed vehicles at the end of the year by body type and upper and lower tier local authority, including diesel cars and vans, United Kingdom, 2020
[70] Department for Transport: Battery Electric Vehicles licensed at the end of the quarter by upper and lower tier local authority 2, United Kingdom from 2011 Q4

ZEVs are likely to form an important component of achieving the vision for a net-zero Oxfordshire transport system. Where car travel cannot be avoided, ZEVs significantly reduce emissions of carbon, nitrogen oxides and other pollutants, both at the tailpipe and upstream in the energy system. This is particularly important for rural areas where fewer alternatives to cars exist.

Comprehensive, accessible and efficient charging and fuelling infrastructure is essential in enabling the rapid adoption of ZEVs. As the local transport authority, Oxfordshire County Council can support the transition by making sure that ZEV infrastructure is integrated into developments and transport infrastructure.

We are working to ensure charging infrastructure is accessible to disabled people. When commissioning installations the county council procure to meet accessibility standards set out by the Institution of Engineering and Technology. We are also part of a project to develop more rigorous standards for EV charger accessibility.

Case study - Oxfordshire Electric Vehicle Infrastructure Strategy

Oxfordshire County Council, along with our partners in the District and City Councils, have developed the Oxfordshire Electric Vehicle Infrastructure Strategy[71] (OEVIS), which sets out 17 policies and associated key actions for the short term (2020-2025).

To date the OEVIS has been adopted by Oxfordshire County Council, Cherwell District Council, West Oxfordshire District Council, South Oxfordshire District Council and the Vale of White Horse District Council.

Key policy areas of the OEVIS are the standards for BEV charging infrastructure in new developments and in infrastructure assets such as highways and car parks which should be applied to the planning of new developments and infrastructure, so that they are future-proofed for the growth of BEVs.

Hydrogen fuel-cell vehicles are less common at present, and the scale of their role in the future net-zero transport system is uncertain. However, infrastructure for fuelling FCEVs must also be considered to support their deployment as the technology becomes more readily available. Oxfordshire County Council is currently developing a hydrogen strategy, which will provide further insights into the requirements for integrating FCEVs into the transport system.

There is also uncertainty around the phase out date for non-ZEZ two and three wheel vehicles and what the future fuel type will be for these vehicles. We will continue to monitor developments in this area and ensure suitable infrastructure is provided.

Our District and City councils may also produce their own strategies and delivery plans to support ZEVs. For example, Oxford City Council are currently working an Electric Vehicle Strategy. Supporting the delivery of these strategies will also be critical to supporting the uptake of ZEVs.

[71] Oxfordshire Electric Vehicle Infrastructure Strategy

Why is this policy needed?
As technology develops, ZEVs of all types will continue to require appropriate infrastructure to ensure they can play their role in decarbonising road transport. This will include the provision of new accessible charging infrastructure as well as retrofitting existing developments, car parks and roads.

Further development is required to develop a longer-term strategy for ZEVs, which takes into account future technology and larger vehicle classes. Oxfordshire County Council will continue to monitor and support the development of ZEV infrastructure, to ensure that Oxfordshire's infrastructure meets user needs now and in the future.

What are the benefits for people in Oxfordshire?
Futureproofing development and infrastructure now will help to avoid costly and complex retrofitting of infrastructure to meet the recharging or refuelling needs of ZEVs and their users in the years to come.

Future-proofed ZEV infrastructure will also help to ensure ZEVs can fully integrate into the development of the future energy system, acting as energy storage units to support the grid in times of high demand and allowing greater integration of renewables.

By supporting the integration of ZEVs and ZEV infrastructure into Oxfordshire's transport system, we will deliver a net-zero transport system and the associated benefits for health such as improved air quality described previously.

We will also ensure that charging and refuelling infrastructure is accessible to all and deployed in a fair and affordable way to support all communities.

Policy 29 – We will:

a. Work in association with our district councils to integrate the Oxfordshire Electric Vehicle Infrastructure Strategy into the planning process, ensuring that new developments and infrastructure make appropriate future-proofed provision for EV charging infrastructure.
b. Develop a longer-term strategy to meet the infrastructure requirements of ZEVs of all propulsion types and classes, integrating these into planning of developments and infrastructure to support the vision for Oxfordshire's net-zero transport system.
c. Support the delivery of ZEV strategies developed by our District and City councils.

Green infrastructure

Oxfordshire has a rich and varied natural and historic environment, which makes it an attractive place to live, visit and work. The county contains three Areas of Outstanding Natural Beauty (AONB) located wholly or partly within Oxfordshire, 111 Sites of Special Scientific Interest (SSSI) and 4 National Nature Reserves (NNRs). Oxfordshire also has a rich heritage and archaeological resource.

However, transport and the associated emissions are having negative impacts on this natural and historic environment. Transport emissions can have a corrosive

impact on buildings and also damage natural habitats. Transport also has significant impacts on biodiversity through ecosystem destruction and fragmentation.

Improving air quality will help to protect our natural and historic environment. There are also opportunities to develop green infrastructure to contribute towards delivery of our vision and tackle some of the issues outlined previously. Green infrastructure (GI) is a network of multi-functional green space and other green features, urban and rural, which can deliver quality of life and environmental benefits.

GI includes parks, open spaces, public rights of way, playing fields, roadside verges, woodlands – and also street trees, allotments, private gardens, green roofs and walls, sustainable drainage systems (SuDS) and soils. It includes rivers, streams, canals and other water bodies, sometimes called 'blue infrastructure'.

Developing GI adjacent to infrastructure has the potential to deliver many ecosystem services. For example, road and railway verges and canal banks form important wildlife corridors. GI can also help to increase transport infrastructure's resilience to extreme weather events and natural disasters. The delivery of biodiversity enhancements within GI can also contribute to countywide ecological networks such as the current system of Conservation Target Areas and a future Nature Recovery Network.

Why is this policy needed?

The protection, maintenance and enhancement of GI is required in Oxfordshire if we are to deliver our vision for air and environmental quality, healthy places and increased walking and cycling. The GI network is multi-functional and a core part of Oxfordshire's 'living landscape' of attractive and healthier places.

What are the benefits for people in Oxfordshire?

The key features of GI are that it is a network of integrated spaces and features, not just individual elements; and that it is 'multi-functional' – it provides multiple benefits simultaneously. These benefits can be to:

- Support people's mental and physical health
- Encourage walking and cycling
- Cool urban areas during heat waves
- Attract investment
- Reduce water run-off during flash flooding
- Carbon storage
- Deliver biodiversity enhancements
- Provide ecological linkages
- Provide sustainable drainage

Policy 30 - We will:

a. Embed the protection, maintenance and enhancement of Green Infrastructure (GI) into relevant guidance and decision-making processes in order to improve connectivity of the GI network, its environmental and community value.
b. Work to achieve a transport network that delivers biodiversity net gain.

Network, parking and congestion management

Oxfordshire County Council as the highway and streetworks authority is responsible for a range of management functions. This includes working to manage congestion, highways infrastructure and on-street parking.

All of these functions will play a role in helping to deliver our vision and encouraging the use of walking, cycling, public and shared transport. It is important that our transport user hierarchy is reflected in these management functions to complement the policies outlined previously.

Many of the policies in this document have outlined incentives to make alternatives to the private car more attractive. However, there may also be situations where it is necessary to actively discourage private vehicle use. There are various management tools available to do this that may be needed in some parts of the county.

Alongside managing the existing network, Oxfordshire County Council are also responsible for overseeing the delivery of new highways infrastructure. Whilst our priority is on reducing car use and the need to travel, we recognise that in some cases new roads, or widening roads and junctions may be necessary, to ensure a reliable and effective transport network.

However, we have found that road schemes often generate new demand and quickly reach capacity again. It is therefore not a sustainable long term solution for Oxfordshire's transport network. As part of this chapter, we have outlined a new approach to the development of road schemes to ensure they contribute towards delivery of our vision and do not reinforce traditional transport planning approaches.

Case study – Core transport proposals for Oxford

We are already conducting some of the work proposed in this chapter through the Oxford Core Schemes. The Core Scheme proposals were agreed by Oxfordshire County Council and Oxford City Council cabinets in January 2020.

The Core Schemes have three key components:

- A better, faster and more comprehensive public transport network.
- A complete, high-quality, spacious walking and cycling network.
- Reclaiming road space from vehicles to provide more spaces for buses and people walking or cycling.

In order to achieve this the plan proposes new traffic restrictions in the city centre and eastern arc and a workplace parking levy. These will be supported by a range of schemes across Oxford.

Work on some aspects of the Core Schemes has already started. The aim is to have the workplace parking levy and traffic filters in place from 2023.

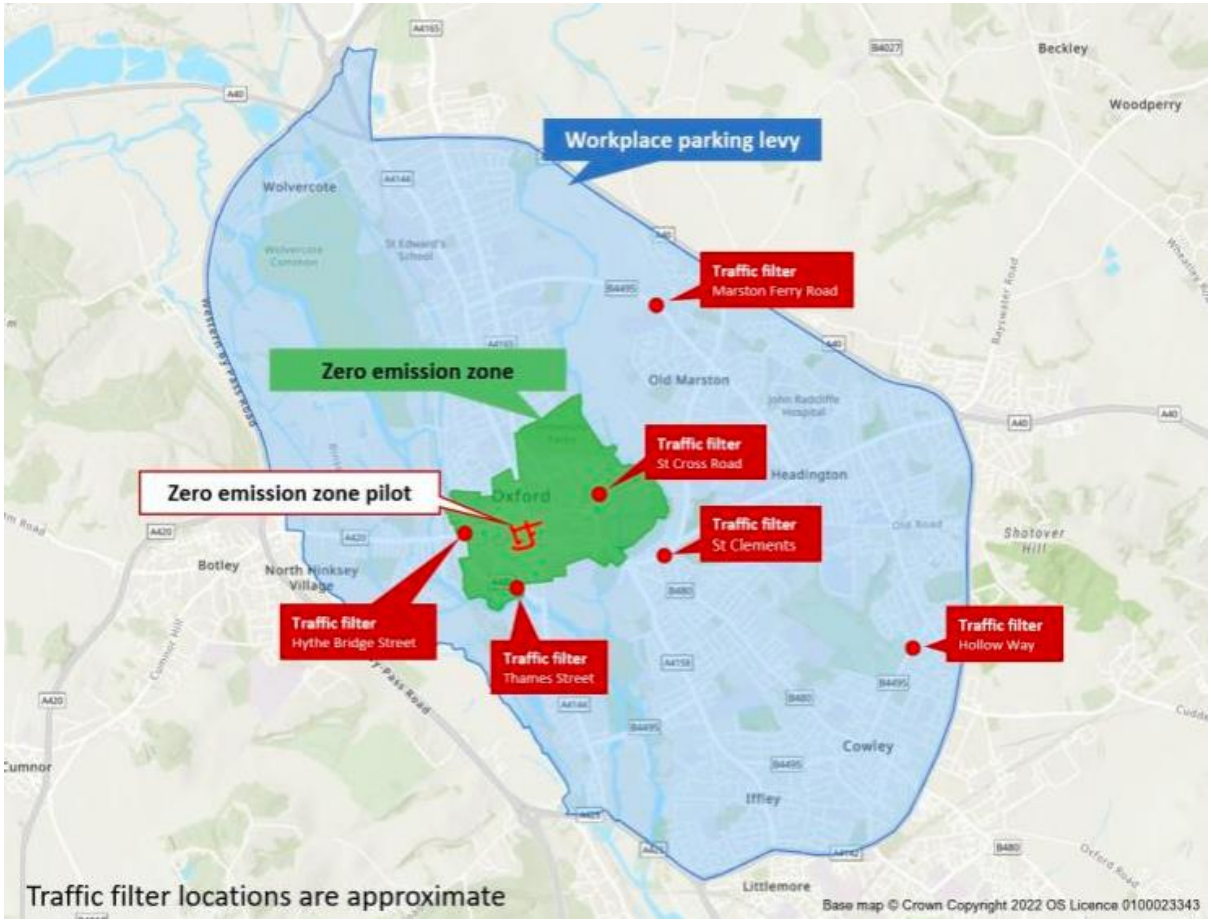

Figure 30 – Map of Oxford Core Scheme proposals

Network management

The core purpose of network management is to tackle congestion and ensure the safe, free-flowing movement of traffic, people and freight across the Oxfordshire road network. However, it also has the potential to influence travel choices by prioritising public transport, walking and cycling.

Network management explainer

The Traffic Management Act (2004) places a duty on the council as highways authority to reduce and manage congestion and to collaborate effectively with other traffic authorities to achieve this. Oxfordshire County Council is also responsible for ensuring a co-ordinated approach to maintaining public safety through approval of all works on the public highway.

Our key network management objectives are to:

- Promote economic activity in and through the county.
- Enable access to employment, leisure and educational facilities for all.
- Reduce traffic congestion, air and noise pollution.
- Reduce accidents and promote public safety.

The UK government is proposing to review the Network Management Duty and statutory guidance, to reflect more clearly the current imperatives of decarbonisation,

encouraging healthier forms for transport and emphasis on technology[72]. The County Council will need to respond positively to changes in law where applied to prioritise and facilitate walking, cycling and public transport movement.

Network management plays a key role in monitoring and managing traffic on all parts of the network, from strategic routes such as the M40 and A34 to local roads and town centres. It is important to balance the requirements of all communities and stakeholders in decisions which affect Oxfordshire residents' ability to access employment, social and educational facilities.

Why is this policy needed?

Car traffic has increased since the COVID-19 restrictions were relaxed in July 2021 to levels close to those experienced before the pandemic. Furthermore, housing and employment growth in the county could lead to even higher levels of traffic unless more trips are made by walking, cycling, public or shared transport modes. As a result, it is important to manage the network efficiently, to avoid greater levels of congestion.

What are the benefits for people in Oxfordshire?

Effective network management brings about benefits for residents, promoting connectivity to employment, leisure and education facilities, and reducing the impact of roadworks, accidents and incidents on the network.

The prioritisation of walking, cycling and public transport will make journeys by these modes easier and more attractive. Encouraging these modes will in turn help deliver our vision and the associated benefits to health and wellbeing.

The deployment of advanced technologies allows the public to plan their journeys more effectively, for example providing real time travel information via social media and satellite navigation systems.

Network management can also act as a hub for transport pollution monitoring, publicising where roads exceed legal thresholds, and providing real time information services which help the public to make more sustainable travel choices.

Policy 31 – We will:

a. Undertake Network management as part of an integrated approach, utilising emerging technologies to maximise its ability to tackle congestion issues in the county.
b. Continue to work closely with all stakeholders, partners and communities to minimise the adverse impact of disruptions on the entire road network within Oxfordshire and beyond.
c. Balance the needs of all network users, whilst promoting and prioritising walking, cycling and public transport at every opportunity.

[72] Department for Transport: Traffic Management Act 2004: network management to support recovery from COVID-19

Asset management

Oxfordshire County Council, as the highway authority, is also responsible for the maintenance of all carriageway, footway, verges, trees, structures and other infrastructure within the highways boundary excluding motorways and trunk roads.

A well-maintained transport network is vital to the economic, social and environmental wellbeing of Oxfordshire. It particularly essential for disabled people who are additionally disadvantaged by poorly maintained pavements and highways. We seek to deliver an efficient and effective approach to the management of infrastructure assets through longer-term planning.

Good maintenance is also important for encouraging walking and cycling. 2 wheeled modes such as bicycles, motorcycles and e-scooters are more at risk from surface defects Therefore effective maintenance helps to protect these vulnerable road users contributing to delivery of vision zero and creates attractive, accessible environments for walking and cycling.

We are currently in the process of updating our highways asset management strategy. The policies in this section are therefore subject to a separate approval process and will be updated accordingly later in 2022.

Highway maintenance explainer

Oxfordshire County Council manages 2,994 miles of road network in the county. The network is made up of A roads (15%), B roads (10%) and C or unclassified roads (75%)[73]. The high proportion of C and unclassified roads, which are often not built to modern standards and in rural areas, makes highway maintenance a challenge. The A34, M40 and A43 are managed and maintained by National Highways.

47% of roads in Oxfordshire are assessed as being in 'Good' condition, this is lower than the national average of 54%. However, Oxfordshire has fewer roads in 'Poor' condition than the national average (10% compared to 18%) and significantly more roads in 'Fair' condition than the national average (43% compared to 28%)

[73] Oxfordshire County Council: Highway Maintenance Factsheet Summer 2018

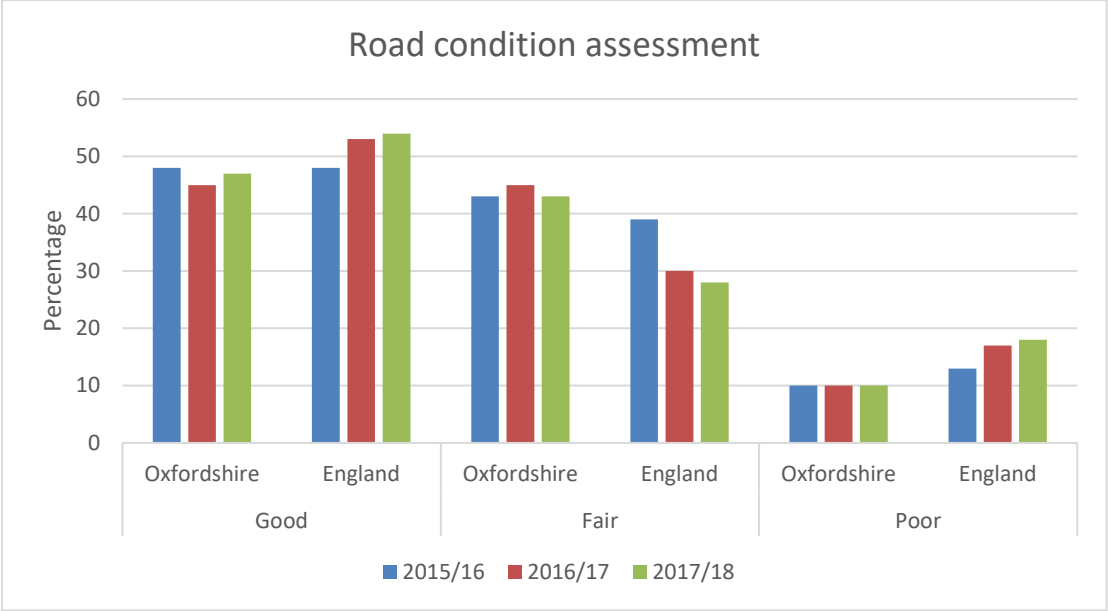

Figure 31 – Road condition assessment[74]

Our approach to asset management involves a needs-based assessment to identify priority routes for maintenance. This considers the number and type of users and safety. Factors such as premium bus routes and high frequency active travel routes are given a stronger weighting in the final score, reflecting the LTCP priorities.

Why is this policy needed?

Oxfordshire County Council is committed to making the best use of its budgets and advocates an asset management approach for the maintenance of its highway network, in order to help deliver the best long-term outcomes for local communities.

Having an effective asset management policy and well maintained network is essential to support disabled people and vulnerable road users. It is also a key part of creating safe, attractive environments for walking and cycling.

What are the benefits for people in Oxfordshire?

A well-maintained highway network is key to future economic prosperity and the quality of life. This is because highways assets provide access to jobs, services, schools and allow for the delivery of goods to industry and retail.

Good maintenance will also protect vulnerable road users, improve accessibility and help residents to feel safe when walking or cycling, thereby contributing towards delivery of our vision.

Policy 32 – We will:

a. Manage, maintain, and operate the network to the advantage of the Council's Corporate Priorities.

[74] Oxfordshire County Council: Highway Maintenance Factsheet Summer 2018

b. Manage and maintain the highway network fairly and equitably without the undue preclusion or disadvantage of any individuals or groups.
c. Extend maintenance functions wherever possible to include for the betterment of walking, cycling, and other active/more sustainable transport choices.
d. Engage with, and where appropriate devolve decisions down to local communities to ensure the delivery of a highway service that reflects their needs and aspirations.
e. Make special and particular provision for ensuring credible and demonstrable environmental and sustainable best practice in the delivery of the service.
f. Make improvements to minimise disruption and delay, increasing the availability and reliability of the network.
g. Take an evidence-led and risk-based approach to proportionate decision making, using a formalised asset management approach which considers the asset over the whole life of its ownership / operation.
h. Maintain and manage assets to a point considered optimum commensurate with the resources available, the asset's intended outcomes, and those of other competing demands on the network.
i. Decline the acquisition of non-statutory assets with a low or negative network utility and seek to decommission / transfer existing such assets to protect limited resources.

Parking management

The county council is responsible for the management of a range of parking functions. This includes considering modes such as bicycles and motorcycles, as well as private motor vehicles.

The management of parking is an effective way to tackle congestion and its negative consequences. It is also an essential factor affecting the convenience and subsequent attractiveness of different transport modes.

The availability of free or low-cost parking at destinations is a major factor in generating car journeys. Reducing and restricting car parking availability and introducing parking charges are evidence based tools to reduce car usage. They are therefore essential measures for helping to deliver our vision.

Providing more convenient, secure and accessible cycle parking will also be a critical part of increasing cycling in the county and making it a natural first choice for journeys. Considering different users and types of cycle parking will be an essential part of this.

<u>Why is this policy needed?</u>

Parking management is an important transport planning tool, enabling us to influence how people may choose to travel, with the aim of encouraging them to use more sustainable forms of transport, including Park and Ride facilities.

We also recognise the importance of providing blue badge parking to enable those who are less mobile to access key facilities and services where they are less accessible by public transport, walking and cycling.

If left unmanaged, parking would soon become disruptive to the transport networks and services, as people would park for convenience, rather than considering other people's needs. This could lead to increased pressures on neighbourhoods, and movement could be affected to the detriment of road safety. There could also be an impact on emergency service response times.

If we are to deliver our vision and targets we also need to make alternatives to the private car more attractive. Parking is a key part of this and can help to make alternative modes just as convenient, if not more convenient than the private car. This policy will ensure the parking requirements of all modes of transport are considered.

What are the benefits for people in Oxfordshire?

Ensuring that the parking requirements of all modes of transport are considered will help to create a more balanced transport system. It will make journeys more convenient and enable people to move around the county without the need to rely on private cars.

Alongside reducing and restricting car parking availability, this will contribute to reduced reliance on private cars and delivery of our vision and the associated benefits for health, well-being and air quality. The removal of car parking spaces will also help us to create more attractive places for residents to live. This includes freeing up space for cycle parking, greenery or seating.

Policy 33 – We will:

a. Ensure the parking requirements of all modes of transport are considered, in line with our transport user hierarchy.
b. Work to embed our parking guidance (Appendix 5) into relevant guidance and decision making processes and progress the associated actions.
c. Take measures to reduce and restrict car parking availability. As part of developing LCWIPs and in LTCP area strategies, the following measures will be assessed:
    - Introduce parking charges in Council-managed car parks.
    - Introduce parking costs for businesses such as a workplace parking levy.
    - Introduce on-street restrictions and control such as double and single yellow lines via decriminalised parking enforcement powers.
    - Control on-street parking in neighbourhoods via Controlled Parking Zones (CPZs).
    - Changes to car parking to allow the introduction of bike hangars.

Parking enforcement

One of the key objectives of managing the highway network is to manage traffic congestion. The enforcement of parking restrictions plays an important part in effective traffic management and improving traffic flow.

The effective enforcement of parking restrictions is also essential if we are to implement the management measures outlined in the previous policy and deliver the associated benefits.

Since April 2022, all civil parking enforcement is being conducted by Oxfordshire County Council. This means parking offences in those areas typically enforced by the police become the responsibility of Oxfordshire County Council. This will ensure consistent enforcement that meets our objectives.

The expansion of decriminalised parking enforcement powers will allow us to expand the use of neighbourhood CPZs and support measures to tackle pavement parking.

Why is this policy needed?

Our approach to enforcement aims to balance the needs of all road users, at a time when demands continue to increase. The key objective is to maintain an appropriate balance between the needs of residents, visitors, businesses and access for disabled people, thereby contributing to the county's economic growth and success.

We will also apply for the powers to enforce pavement parking which is a hazard and barrier to people walking. It also adversely affects vulnerable protected groups, including those with visual impairments, those using mobility aids, those in wheelchairs, those needing the help of a carer or parents with pushchairs.

To ensure our policies and objectives are aligned with shared priorities of city and district councils, we will work in partnership through officer and member lead working groups. Further information about parking governance can be found in Appendix 5.

What are the benefits for people in Oxfordshire?

The effective enforcement of parking restrictions will be an essential part of parking management and delivering the benefits outlined in the previous policy such as improving road safety in neighbourhoods and making alternatives to the private car more attractive.

Parking enforcement will also support effective traffic management, helping to improve everyday journeys and tackle issues such as congestion and air quality.

Policy 34 – We will:

a. Conduct civil parking enforcement across the county.
b. Maintain strategic partnerships with the District and City Councils to ensure a joined-up approach to enforcement and car parking management.
c. Work to tackle pavement parking by:
    - Applying for the powers to enforce pavement parking with support of district authorities
    - Supporting enforcement to ensure that all footways (pavements) and cycleways are clear of pavement parking, except where legally marked out
    - Taking measures to reduce parking pressures on road space which result in pavement parking, such as CPZs.

Demand management

If we are to achieve our vision, there will also be situations where it is necessary to actively discourage private car use. This may include consideration of demand management measures to help tackle local traffic and the associated issues.

These measures are closely related to the management functions we have outlined in this chapter. Demand management could include traffic reduction schemes, traffic filters, road user or congestion charging, workplace parking schemes, changes to the availability or price of parking and low traffic neighbourhoods.

Why is this policy needed?

Encouraging more walking, cycling, public and shared transport is the key principle underpinning much of the LTCP. The previous chapters of the LTCP have outlined a number of policies that will help to improve the attractiveness of these modes.

However, these measures alone are unlikely to be enough. Therefore, some measures will be required that directly discourage private vehicle use.

Any demand management schemes are carefully considered, with engagement with our district councils, local businesses and local residents during development. We will work to ensure that any scheme is coordinated with other measures to provide viable alternatives to the car and increase their effectiveness.

What are the benefits for people in Oxfordshire?

Whilst demand management would make private car use less attractive in the short term, it could form an important part of helping to deliver our vision. Reducing private car use is essential to delivering many of the benefits outlined elsewhere in this document such as improved air quality, reduced noise and the creation of more welcoming places to live and spend time.

Similarly, reducing private vehicle use will further help to create safe, attractive environments for walking and cycling, enhancing delivery of the associated benefits described elsewhere.

Policy 35 – We will investigate demand management measures, where appropriate, in order to discourage private car use, engaging with key stakeholders during the development of any schemes.

Road schemes

As highlighted in the introduction to this chapter, Oxfordshire County Council is also responsible for overseeing the delivery of new highway infrastructure. There are situations where new roads, or widening roads and junctions may be necessary, but this is not a sustainable long term solution because we have found that road schemes often generate new demand and quickly reach capacity again

There is substantial national and international evidence of motor traffic ‘disappearance’, when road capacity is reduced, particularly where there are viable alternatives and in areas of excessive demand on road space.

Traffic ‘disappearance’ research shows that large percentages of motor traffic are not just displaced to other roads, but ‘disappear’ through a range of behavioural changes. These changes achieve the same objectives in ways that do not require car travel, for example changing mode or pooling journeys.

However, there are examples where road schemes may be required and will deliver improvements. This includes where access is needed to new developments or where the existing road is unsafe.

We will always require careful modelling for major schemes to ensure that the likely effects on the wider network are fully understood. To ensure that any road schemes align with our transport vision, we will take a 'decide and provide' approach rather than the traditional 'predict and provide' approach.

Predict and provide

The predict and provide approach to transport planning uses past or historical traffic and socio-economic trends to determine the future need for infrastructure. Traditionally, transport planning has used this approach to forecast the transport needs of the future.

However, this approach largely replicates and reinforces the status quo. With the changes to transport that are arising due to digital connectivity, new transport modes, the COVID-19 pandemic and the need to achieve a net-zero transport system, there is an increasing risk that infrastructure is provided that does not meet or shape the transport needs of the future[75].

Decide and provide

The decide and provide approach to transport planning decides on the preferred future and then provides the means to work towards that which can accommodate uncertainty. This offers the opportunity for more positive transport planning and helps implement a transport user hierarchy by considering walking and cycling up-front[76].

Why is this policy needed?

Ensuring that Oxfordshire's transport network remains reliable and effective is key to supporting the local economy and everyday journeys. Some road capacity enhancements may be required to enable this. In accordance with our transport user hierarchy, road capacity schemes will only be considered after all other options, including opportunities for traffic reduction, have been explored.

It is important that a 'decide and provide' approach is taken during the development of new schemes to ensure that they contribute towards delivery of our vision and do not reinforce traditional transport planning approaches.

What are the benefits for people in Oxfordshire?

Where appropriate, road capacity schemes will help to tackle congestion and pollution providing benefits to health and everyday journeys. It will also support the economy and ensure the county remains an attractive place to work and live.

Adopting a decide and provide approach to planning new infrastructure, including alongside proposed new development will mean that any road capacity enhancements align with our transport user hierarchy, prioritising the most space

[75] TRICS Decide and Provide Guidance 2021
[76] TRICS Decide and Provide Guidance 2021

efficient modes of walking, cycling and public transport. This will help to create attractive environments for residents to walk and cycle in.

The decide and provide approach will also help us to deliver infrastructure that caters for future transport needs.

Policy 36 – We will:

a. Only consider road capacity schemes after all other options have been explored.
b. Where appropriate, adopt a decide and provide approach to manage and develop the county's road network.
c. Assess opportunities for traffic reduction as part of any junction or road route improvement schemes.
d. Require transport assessments accompanying planning applications for new development to follow the County Council's 'Implementing 'Decide & Provide': Guidance for Transport Assessments' document.
e. Promote the use of the 'decide and provide' approach in planning policy development to support site assessment.

Smart infrastructure

It is possible to improve the effectiveness of the management functions outlined in this chapter through the use of smart infrastructure. This will help to enhance the benefits outlined previously and further contribute to delivery of our vision.

Smart infrastructure includes both physical and digital infrastructure, which provides the capacity to use a feedback loop of data to provide evidence for informed decision-making.

Truly smart infrastructure should be able to respond intelligently to environmental changes, such as levels of demand and inputs from other infrastructure, in order to facilitate improved performance. This can work on a number of different levels:

1. At its most basic, smart infrastructure can monitor use and performance information which can then be used by people to make design or operational decisions or improvements.
2. At the next level, it might also process the data and present it to human operators to take decisions.
3. At the most advanced level, it uses the collected data to take action without human intervention.

Smart Infrastructure

Smart Infrastructure refers to the application of digital technology to our physical assets. This offers the potential to use our assets more intelligently and enables us to get more from existing assets. We can therefore improve our understanding and decision making[77].

In transport terms, examples of smart infrastructure could include smart parking sensors, which provide live parking capacity data; traffic signals which can respond

[77] https://www-smartinfrastructure.eng.cam.ac.uk/system/files/documents/the-smart-infrastructure-paper.pdf

to levels of congestion and prioritise sustainable transport modes and transport volume monitoring sensors which can provide information on the use of different modes, journey time or tracking data.

All the elements which support or can interact with these kinds of use cases also constitute smart infrastructure. Examples include connectivity platforms undertaking analysis of data collected such as the 5G network, and connected devices which interact with sensors such as Connected and Autonomous Vehicles (CAVs) or smart phones.

Why is this policy needed?

Smart infrastructure can support and improve our network management ability. It can also help to facilitate more efficient use of transport networks and support easier deployment of CAV's.

Without a clear and comprehensive understanding of how the transport networks are being used, they risk being inefficiently used and managed. Smart infrastructure can therefore help to facilitate use of alternatives to car, as well as better managing the traffic which is generated.

The better understanding of transport that smart infrastructure can provide will also help to inform future policies, making them more tailored and effective to the needs of all road users. This is especially important in the wake of COVID-19, when future travel trends are uncertain, and with new modes of transport emerging such as CAV.

What are the benefits for people in Oxfordshire?

Improved monitoring and management of transport brings about benefits for residents, making journeys easier, quicker and more seamless. The information gathered by smart infrastructure can often be used by consumer apps to help people plan their journeys, how long it will take and if there are issues along their route.

This empowers people to make more informed decisions about, timing, route or transport modes, as well as potentially opening up more options to travellers of different kinds, including those experiencing disabilities.

Policy 37 – We will:

a. Securely allow access to data feeds from smart sensors for use by relevant 3rd parties to facilitate MaaS and journey planning applications providing a service to Oxfordshire travellers.
b. Deploy appropriate smart sensors within transport infrastructure, following the guidance in the Innovation Framework.
c. Provide development with guidance on deployment of smart infrastructure as part of the Innovation Framework.
d. Seek to ensure easy inter-operability of smart assets, including with existing assets where possible.
e. Maintain oversight of the smart infrastructure network to ensure safety and security.

Innovation

The previous chapter began to highlight ways in which technology can improve the way in which we operate and contribute towards delivery of our vision. This chapter builds on this and identifies other innovations which will help us to make walking, cycling, public and shared transport more attractive.

There have also been a number of innovations in the transport industry in recent years. It is important that we consider these changes, how to harness them and prepare for future changes.

We recognise that technology alone will not solve many of the challenges identified. However, we believe technology can play a role in contributing to our ambitions and addressing some issues. It is also important to ensure our transport system is fit for the future and able to accommodate technological changes.

Innovation explainer
Innovation is a term which could potentially mean a number of things depending on context. For the purposes of the LTCP, 'innovation' refers to anything which is new, or being applied in new ways or contexts to traditional approaches. This can range from new technologies through to new processes or approaches.

Passenger micromobility
One recent form of innovation that can help to support our walking and cycling ambitions is passenger micromobility. Micromobility refers to a range of small, lightweight vehicles that are driven by users personally[78]. Practically, in most areas today, micromobility means shared scooters and bicycles. It can also include private e-scooters, rollerblades and 'hoverboards'. Ultimately, we hope that micromobility will become embedded as part of the wider individual and public transport system.

Case study – Oxford E-scooter trial
An e-scooter trial was launched in Oxford in February 2021 in partnership with Swedish e-scooter operator Voi Technology. This follows the government's decision to legalise rental e-scooters in 2020.

As part of the trial over 200 e-scooters were available for hire in the Headington, Marston and Eastern Arc areas of Oxford. Rental scooters could use roads and cycle lanes within the trial area but are banned on pavements.

Scooters could be unlocked via a smartphone app and cost £1 to unlock and then 20p per minute of usage. There were also special rates for students, and those on low incomes and Voi offered free rides to NHS and emergency service staff.

The trials finished in September 2021. Voi and Oxfordshire County Council are now evaluating the data based on previously agreed-upon terms. The DfT will evaluate all the trials separately through its own monitoring and evaluation exercise. We will publish a report on the County Council website about the future of the programme.

[78] https://www.itdp.org/multimedia/defining-micromobility/

Figure 32 – Photo of a Voi e-scooter in Headington

Why is this policy needed?

Making cycling a natural first choice for everyone is also about making it simple to access a bicycle. The availability of shared bicycles and e-bikes will help to make cycling a convenient option for all residents. Simple, low cost access to e-bikes will also open this mode up to a wider range of people, including those with disabilities.

This has been demonstrated in CoMoUK's annual bike share report which found that 55% of bike share users said that bike share was their catalyst to start cycling again after an absence of at least a year, an increase from 44% last year[79].

Similarly, access to shared e-scooters will increase the transport options available and contribute towards reducing private vehicle use.

As micromobility is an emerging sector it is important that we have a policy in place to monitor and manage the impacts of new modes. This includes ensuring shared e-scooters and bicycles do not negatively impact on disabled people and making sure less active micromobility modes don't detract from more active ones.

What are the benefits for people in Oxfordshire?

Micromobility can help to improve access to bicycles for residents. More people cycling will deliver the health and environmental benefits outlined previously. It will also help to unlock more town for more people, addressing equality issues.

Passenger micromobility can be seen as an extension of the public transport system. A good public transport experience means catering for the whole journey.

[79] https://como.org.uk/wp-content/uploads/2021/03/CoMoUK-Bike-Share-Survey-2020.pdf

Micromobility helps to achieve this by providing a convenient, sustainable transport solution for last mile-journeys.

This will increase the travel choices available and improve everyday journey experiences. It will also help to reduce reliance on private cars and make the most of existing space creating more welcoming places for people.

Policy 38 – We will seek to manage, monitor and support the use of passenger micromobility in order to compliment the wider active and public transport network. We will develop an operator code of conduct to help achieve this.

Car clubs

Shared mobility is another form of innovation that will help us to deliver our goals such as a reduced private car use and improved air quality. Shared mobility refers to vehicles which are used collectively by owners rather than owning them.

There are a range of services covered by shared mobility including car clubs, shared cars, carpooling, Demand Responsive Transport and micromobility. We have developed a policy primarily focused on car based services.

A car club provides cars for short term hire on a pay per trip basis. This allows individuals and businesses affordable access to a vehicle without the need for ownership. Car clubs offer clear benefits for individuals, with cost savings and access to a range of low carbon, well maintained, flexible use vehicles.

There has been a growth of shared car services in recent years and they are playing an increasingly large role in how residents travel. If well managed and integrated as part of a wider public transport system, they have the potential to reduce car ownership and increase connectivity, particularly for those unable to walk or cycle.

A key element of car sharing is its ability to support road space reallocation. As highlighted in previous sections, we need to reduce the dominance of the private car and improve the human experience of being on streets. In combination with other measures, car sharing will help to do this by reducing the number of vehicles on our streets and allowing more space for people to walk and cycle in.

Figure 33 – Car sharing station in Bremen[80]

Why is this policy needed?

We recognise that cars will still be required for some journeys and so the provision of zero-emission shared cars and the appropriate charging or fuelling infrastructure to support them, will increase access to these vehicles, replacing more polluting models. Members of car sharing programmes also tend to drive fewer miles.

Members of car share programmes may also reduce their reliance on the private car. Experiences in Copenhagen show that people who are part of a car sharing programme both cycle and take trains and buses more[81]. This will create more space for walking and cycling and contribute towards delivery of our vision.

To support the introduction of new car club initiatives we aim to develop policies that promote viable and sustainable alternatives to car ownership by ensuring appropriate localities are considered before being introduced.

We will also work to develop alternatives to the traditional car club bays which are expensive to introduce and maintain and will consider the use of zonal permitting in controlled parking zones. This approach will allow operators more flexibility to introduce vehicles with low setup costs and with a wider range of area.

What are the benefits for people in Oxfordshire?

Car clubs offer residents an attractive, convenient alternative to private car ownership. This encourages more use of public transport, walking and cycling, whilst giving access to a car when needed.

This reduction in the number of cars and the miles driven will improve air quality and make local areas more relaxing. Similarly, by reducing the dominance of the private

[80] Michael Glotz-Richter - http://stars-h2020.eu/2018/04/11/bremen-a-city-in-love-with-car-sharing/
[81] https://kk.sites.itera.dk/apps/kk_pub2/pdf/1123_dM2NAXVaGm.pdf

car and reallocating road space to walking and cycling we will further enhance public health and create streets that are welcoming places for people.

Car sharing will also improve accessibility by supporting those who are unable to buy a car or cannot walk and cycle. By combining car sharing with public transport interchanges, such as mobility hubs, there are opportunities to improve connectivity and create a more balanced transport network that supports all users.

Residents in rural areas face specific transport challenges and are more likely to use a car. There are challenges associated with introducing car share facilities in these areas, however the provision of zero-emission car sharing would help to increase transport choices and reduce the impact of private cars.

Policy 39 – We will support the provision of zero emission shared cars and car clubs, in combination with other measures, to reduce the dominance of private motor vehicles and create a more balanced transport network. This will include working proactively to encourage zero emission shared cars and car clubs in rural areas, smaller towns and villages.

Connected and Autonomous Vehicles

There are also more emerging technologies that could significantly change the transport system and contribute to delivery of our vision. The primary technologies we are focusing on as part of this section are Connected and Autonomous Vehicles (CAV) and Unmanned Aerial Vehicles (UAV).

Both of these technologies have the potential to contribute towards our ambitions such as improved road safety, improved air quality and reduced motor vehicle traffic.

Whilst the future of these technologies is uncertain, our overall approach is to support them and seek to shape them in the right way so that they contribute positively to our vision for transport in Oxfordshire.

Connected vehicles can be defined as those equipped to exchange information between vehicle and surrounding environment, either through local wireless networks or the internet[82].

Autonomous vehicles operate in a mode which is not being controlled by an individual[83]. There are several different levels of autonomy as defined by the Society of Automotive Engineers (SAE) up to level 5, full autonomy:

[82] Lengton et al., 2015
[83] Automated and Electric Vehicles Act 2018

Figure 34 - Levels of driving automation[84]

Connectivity is not a prerequisite for automation, but its combination with automation can significantly increase efficacy and safety of operation. CAVs can be any type of vehicle, including pods, wheelchairs, motorcycles, cars, buses and lorries.

According to Transport Systems Catapult, the UK market for CAVs could be as much as £42bn by 2035[85]. The same projections see level 4 to 5 autonomous cars making up 40% of total UK car sales by 2035. It is therefore necessary to consider how CAVs may deliver benefits to the transport system and integrate with the network.

Why is this policy needed?

The UK is anticipated to be the epicenter of CAV innovation and uptake, based on market observations. Oxfordshire is world-leading in the CAV field, with numerous fast-growing companies, such as Oxbotica, Streetdrone, Arrival and most recently Waymo, located in the county, as well as numerous related facilities.

Oxfordshire County Council has an important role in fostering growth of a new emerging industry and the economic benefits it may bring to the region. In helping facilitate CAV enterprise, this will allow us to better understand the impact CAVs will have on our road network and develop policy to ensure appropriate and safe deployment of the technology by commercial entities in the future.

To reach the intermediate and higher levels of autonomy and facilitate connectivity, a few features ideally need to be in place, such as high-definition digital mapping of

[84] https://www.sae.org/standards/content/j3016_202104/
[85] Transport Systems Catapult, Market Forecast, February 2020

roads and assets, and connected infrastructure provision. We therefore need to consider CAVs and their requirements.

Benefits can be gathered from CAVs, notably safety benefits contributing to our vision zero target, as currently around 85% of accidents are caused by human error.[86] But there is also potential for disbenefits to be generated such as encouraging individual car trips and we will need to closely monitor the interaction between CAVs and vulnerable road users such as cyclists, motorcyclists and disabled people. Clear policy direction is needed to lead adoption and avoid negative implications whilst maximising the positive impacts.

What are the benefits for people in Oxfordshire?
Supporting CAV uptake has several potential benefits, principally increasing road safety. As discussed previously, improved road safety will help to create attractive environments for residents to walk and cycle in. Connected vehicles can also help optimise the traffic network, leading to increased productivity, reduced congestion and reduced emissions.

Integrating the needs of CAVs into new infrastructure and maintenance programmes will help to avoid the requirement for later, potentially costlier retrofit as automation becomes more commonplace. It may also facilitate access to lower level automation in a wider range of locations.

Supporting automation for shared and freight forms of transport will bring about the greatest benefits to end users, ensuring clean air by avoiding traffic generation, whilst improving access for disabled and older people.

Research and development into CAVs, supported by Oxfordshire County Council will help deliver new policies and accelerate roll out of technologies including digital road infrastructure, which will stand to benefit all road users.

Policy 40 – We will:

a. Look to ensure new infrastructure is futureproofed for use by connected vehicles.
b. Embed deployment scenarios for shared and freight CAV deployment into infrastructure delivery, place shaping design and maintenance programmes and into relevant guidance for development design, through the Innovation Framework.

Unmanned Aerial Vehicles
UAVs, sometimes referred to as drones, are remote-controlled aircraft or small aerial devices which do not have an on-board pilot.

UAVs are a transport innovation that can contribute towards our vision and, through rigorous testing and feasibility, we will identify appropriate use cases for deployment within Oxfordshire.

[86] https://www.gov.uk/government/news/government-paves-the-way-for-self-driving-vehicles-on-uk-roads

UAVs currently provide capability to conduct inspections and surveys of locations that may be difficult to reach or dangerous for a human to access. UAVs are also being used for the unique imagery they can provide in surveying and efficiency they can generate in certain forms of cargo delivery.

In the near future, it's anticipated that UAVs could be used for activities such as traffic and asset monitoring. There is also the possibility for passenger transfer in the longer term.

Why is this policy needed?

It is projected that UAVs could account for £42 billion of the UK's GDP by 2030[87]. Their applications are also widespread, meaning potential impact in multiple fields. Whilst having potential to bring about benefits, there are also potential down-sides to UAVs such as noise, privacy and safety concerns, which should be controlled via policy.

There is also concern from communities around disbenefits of drone usage. To help ensure an appropriate role for UAVs, Oxfordshire County Council must assess how drones suitably fit within the transport system.

What are the benefits for people in Oxfordshire?

UAVs could bring about a number of potential benefits, in particular, use of UAVs by emergency services can allow for more rapid response, access to remote locations and assessment of incidents that would otherwise pose a risk to the responders' safety.

UAVs also have the potential for application within delivery services to reduce the need for freight vehicles helping to reduce congestion and the associated negative impacts of Heavy Goods Vehicles.

For residents, where the interaction between UAVs and communities are acceptable, use of delivery UAVs will bring about benefits such as faster delivery of small items, including medical prescriptions. Cargo delivery by UAV is also more cost effective meaning potentially cheaper delivery charges for people.

The application of UAVs to transport network monitoring can be beneficially applied in a number of possible ways:

- Monitoring assets, allowing defects to be picked up more easily and quickly, meaning less disruption for people
- Monitoring the network, to support better network management
- Monitoring construction or maintenance works, to check on compliance

Policy 41 – We will:

a. Embed futureproofing for UAV usage into infrastructure delivery and maintenance programmes and into relevant guidance for development design, including new UAV-specific infrastructure, where appropriate, through the Innovation Framework.

[87] PWC Skies without limits report (2018)

b. Assess the potential impact of UAV activity on residents and communities.
c. Seek to ensure oversight of UAV use in the county, including via reviewing data requirements to facilitate future integration of UAV oversight with traffic management control systems.
d. Review data with a view to opening up data, such as mapping data, which will facilitate beneficial use of UAVs.

Living Lab

Development of the innovations in this chapter will be primarily taken forward by the county councils Innovation Hub (iHUB). The iHUB was created in 2015, initially focussed on transport innovation. It has since broadened out into a wide range of other areas including energy, modelling, air quality and infrastructure.

iHUB explainer

The iHUB has been working collaboratively with world leading organisations to trial new ideas and models, helping to position Oxfordshire at the forefront of public space innovation.

iHUB has been instrumental in developing links to business and academia, as well as securing external funding for projects. In 2018 and 2019, the team secured more than £6m of income to the council, and more than £100m to the region.

It has helped the growth of companies like Oxbotica, Latent Logic, Zipabout and Arrival. The innovation HUB at Oxfordshire County Council has been one of the most successful innovation teams in local government.

We are seeking to capitalise on iHUB's experiences and ensure Oxfordshire remains at the forefront of transport innovation. One way in which this can be achieved is by supporting Oxfordshire's Living Lab approach.

A living lab is an open innovation ecosystem, which is user-centred, and operates within a given geographical location. It integrates different types of organisation together to facilitate research and innovation processes in real-world settings. The aim of a living lab is to support the accelerated design, prototyping, evaluation and testing of technologies in a real world environment.

Oxfordshire has already adopted a living lab approach, hosting many projects and tests of innovative technologies and approaches. CAV deployments have been or are being tested in partnership with stakeholders, infrastructure developed for electric vehicles and collaboration with industry and academics is ongoing to help improve the energy ecosystem across the county.

<u>Why is this policy needed?</u>

Oxfordshire's Local Industrial Strategy 2019 (LIS) put forward the development of Oxfordshire as a living lab to help solve the UK's Grand Challenges, with the explicit ambition for Oxfordshire to become one of the top 3 innovation ecosystems in the world by 2040. The LTCP aims to support this ambition.

Furthermore, there are opportunities to capitalise upon Oxfordshire's significant research, development and innovation assets. Working in partnership with

stakeholders such as the University of Oxford and Oxford Brookes, there are opportunities to trial technologies which will contribute to delivery of our vision and future proof Oxfordshire's transport infrastructure.

What are the benefits for people in Oxfordshire?
As a co-creative approach, the living lab model gives people the opportunity to collaborate in developing future mobility solutions. This means that the solution providers can ensure that they are meeting the real needs of people in Oxfordshire. It also means that the needs of different kinds of people with different needs can be better considered, such as those with disabilities.

The living lab approach also has the benefit of attracting more investors and businesses working in research and development into the region, creating jobs which will benefit the local economy and Oxfordshire residents.

Policy 42 – We will continue to support a living lab approach to transport innovation, delivering projects and supporting tests of innovative solutions, in partnership with other organisations and the public, ensuring an open, transparent and inclusive approach.

Innovation Framework
In order to consider all of these changes, Oxfordshire County Council has been developing an Innovation Framework. The framework is intended to guide both the integration of innovations within development and infrastructure, and to provide a consistent approach to futureproofing for the mainstreaming of current innovations, such as CAV, UAV and 5G.

The framework, which is a supporting document of this LTCP, sets out a series of principles which should be applied to the integration of innovation into new development and infrastructure, so that innovation is used to further policies and strategies such as those within this LTCP.

It also sets out a trajectory of anticipated uptake of different innovations over the coming years and provides some guidance on how these can be futureproofed for. In addition, case studies and information evidencing viability of planning for and integrating innovation into development are also provided.

Why is this policy needed?
The Innovation Framework will ensure solutions are considered during planning and construction, so that developments and transport infrastructure are futureproofed.

As well as serving a purpose, the innovation also needs to be fit for that purpose; the framework therefore looks to guide the kinds of innovation which should be considered and in what contexts. This will help to ensure the transport innovations in the LTCP are considered and delivered in a way that helps to deliver our vision.

What are the benefits for people in Oxfordshire?
Futureproofing will help to avoid the kind of situation which has occurred in the past, where the connectivity infrastructure put in place in new developments is no longer fit for purpose by the time it is occupied.

By supporting the use of innovation to further strategic aims and goals, the framework can help facilitate many of the benefits described in the LTCP. Ultimately, the Innovation Framework seeks to ensure developments and infrastructure are fit for the future, meeting the needs of users.

Policy 43 – We will work with our District and City councils to integrate the Innovation Framework into the planning process. This will ensure relevant futureproofing is undertaken and appropriate innovations are integrated into infrastructure development where feasible, practical and beneficial to do so.

Data

Transport data is closely related to many of the innovations in the previous chapter and also has close links to several other policies such as digital infrastructure. As with innovation, transport data in isolation will not solve many of our issues. However, it has the potential to support many of the policies outlined elsewhere and contribute to delivery of our vision.

The transport sector has always collected and analysed data. However, new ways of collecting and analysing large quantities of data are presenting opportunities to provide a smarter and more efficient transport network.

There has been a move towards local authorities publishing their data openly. Release of open data for use by public and private enterprise is intended to help inform the public and reduce friction businesses may face when innovating with data by eliminating restrictions around access and ownership.

Open data

Open data is data that is available to everyone to access, share and use[88].Open data is a government priority and is seen as a key enabler for the government's digital transport strategy. Transport Systems Catapult estimated that not sharing, and not making transport data open, could result in £15bn in lost direct and indirect benefits to the UK between 2017 and 2025[89].

The use of data analytics has also driven the growth of user-focused services. People increasingly expect the transport sector to match other sectors in terms of convenience and personalisation. The increased levels of data available will help us to achieve this by better understanding travel patterns.

Data

Data has also become available from a range of different sources and at larger quantities. New data sources include edge devices (devices that provide data between a local network and a wide network, such as routers), Internet of Things and 5G.

We need to ensure that data is reliable, consistent, comprehensive, secure and up-to-date to bring the best benefits. We also need to follow changes to ensure our approach is best supporting the opportunities presented by transport data.

Why is this policy needed?

We are seeking to improve our approach to data because it can be leveraged to ensure we're meeting residents' needs, measure progress, understand future needs and improve our awareness of changes.

We can leverage the benefits of data by using it in a range of council functions. These include modelling, network management, monitoring, infrastructure planning and policy making.

[88] https://theodi.org/
[89] The case for government involvement to incentivise data sharing in the UK Intelligent Mobility sector —Transport Systems Catapult 2017

Data will also play a role in helping to facilitate the establishment of a highly connected, intelligent transport system. Where data is collected, we will need to ensure compliance with standards, including protection of personal data and that cybersecurity risks are assessed for all devices use to collect, store and share information

What are the benefits for people in Oxfordshire?

Data will help to improve our understanding of travel patterns and enable us to provide a safer, cleaner and more personalised transport network. In this way it will help to encourage alternatives to the private car and create a more efficient transport network for all users.

Collecting data through a variety of means will support us in assessing the needs of different kinds of citizens. This can be used to help reduce inequalities and cater for different accessibility requirements by understanding where gaps in data may exist and how new collection methods are able to promote greater representation.

As outlined previously, better real time data will improve our network management. This can allow near real time adaption to changes on transport networks, helping to minimise disruptions to journeys. It can also help us to prioritise walking, cycling and public transport making these journeys easier for residents.

Policy 44 – We will:

a. Implement a consistent approach to gathering, using and sharing data, in accordance with Innovation Framework guidance, which will be applied across monitoring, management and modelling.
b. Assess data collection activities to identify risks of bias, unequal representation and exploitation.

Modelling

One application of transport data is through transport modelling. Transport modelling refers to the use of data in order to forecast anticipated future transport movements. Traditionally, modelling has been undertaken on a number of different levels, from strategic models through to more detailed microsimulation models.

We have been working in partnership with a number of organisations to create a new kind of model. The Oxfordshire Mobility Model (OMM) combines features of different types of models to provide the geographical spread of a strategic model, with the level of detail provided by microsimulation models. It is also multimodal allowing modelling of cars, public transport and active travel.

This combination of features means that the model can be more widely applied to a variety of different needs, providing consistent information for decision making. Modelling will be used when developing and assessing schemes related to the LTCP. The OMM will ensure we have the best data available and a consistent approach. The limitations of modelling in predicting wider behavioural changes will be factored in where schemes seek to provide for active travel and public transport.

Why is this policy needed?
Models are primarily used to assess likely impacts of developments, schemes and projects and help to choose more favourable options. By developing the OMM we will have a model which incorporates better data and will provide improved information for decision making on these matters.

The OMM will also enable us to calibrate the baseline data against comprehensive monitoring data. This will improve the data which underpins our model and modelling outputs. It is important that we establish this feedback loop in order to:

- Create consistency in modelling outputs
- Improve decision-making
- Incorporate all current models and data
- Provide a single point of truth for planners, developers and other council teams

What are the benefits for people in Oxfordshire?
The primary benefit of developing and applying the OMM will be improved decision making which will in turn deliver better outcomes in support of our vision.

Another benefit to promoting use of the OMM is that there will be a consistent approach to modelling so that all developments and schemes are being assessed using the same data.

Policy 45 – We will:

a. Promote the use of OMM for both developers and planners as the first option.
b. Continue to develop OMM including:
    - The integration of monitoring tools when ready
    - Expanding the OMM capabilities and use cases as needed rather than create new isolated models
c. Use modelling to support a 'decide and provide' approach rather than 'predict and provide' to support our transport vision.

Monitoring
It is important to consider how we monitor the LTCP and other transport interventions in the county. Monitoring interventions improves our understanding of their impacts. This data can be used to make improvements and inform the development of future solutions.

There are currently a number of issues associated with monitoring and evaluation. These include inconsistent data collection, monitoring durations and a lack of joined up methodology.

We are therefore seeking to improve the transport monitoring and evaluation process. We plan to achieve this through four primary actions:

- Establishing a systematic monitoring and evaluation methodology
- Conducting a data mapping and linking exercise within the county council
- Develop long term data strategies for all key policies
- Development of a monitoring tool

Why is this policy needed?

Improving monitoring and evaluation will enable us to collect data to improve our understanding of interventions and better inform the design of future solutions. Effective monitoring and evaluation is integral to enhance our transparency and accountability.

We are committed to delivering the LTCP and our transport vision for Oxfordshire. In order to achieve these aspirations, it is important that progress is monitored, and we are held to account in areas that are not on track.

Development of a monitoring tool will be a key aspect of improving our approach to monitoring and evaluation. We are developing this tool in order to combine a variety of data inputs into one place for a single point of cross-departmental reference and use. The tool will also integrate Key Performance Indicators allowing comparison of real life against targets.

What are the benefits for people in Oxfordshire?

Improving monitoring and evaluation will help us to improve how we design future schemes and assess performance. This will support us in providing better transport infrastructure for Oxfordshire residents.

Improved monitoring and evaluation will help us to see what transport schemes support alternatives to the private car. This will push forward our vision and deliver the benefits associated with reduced private car use.

Policy 46 – We will:

a. Work towards creating a monitoring and evaluation methodology and tools which bring together a variety of datasets that can be consistently applied to monitoring development, schemes and infrastructure.
b. Use monitoring and evaluation tools to support policy formation and other relevant guidance to ensure learning is disseminated and acted on in future schemes and developments.
c. Identify the impact of transport schemes on people with protected characteristics to improve inclusivity.
d. Map and link existing data sources to make the best use of previous investment. Further investment will be investigated to ensure ongoing data-based monitoring for key policies.

Freight and logistics

The movement of goods is essential to supporting many aspects of our lives at both the local and national level. However, there a number of complex challenges surrounding the freight system, particularly at the local level.

The movement of goods in Heavy Goods Vehicles (HGVs) and Light Goods Vehicles (LGVs) contributes to emissions, congestion and impacts on our environment. It is therefore necessary to ensure that goods are moved in a zero-carbon, efficient and safe manner if we are to achieve our vision.

This will involve encouraging cleaner vehicles as well as shifting the way in which goods are currently moved. By encouraging alternative modes of transport there is an opportunity to reduce the number of HGVs and LGVs on the county's roads.

Reducing the number of HGVs and LGVs will contribute to addressing congestion in urban areas. This will enable us to make better use of road space and create attractive places for people to walk and cycle in. It will also help reduce conflicts with vulnerable road users and improve road safety.

In order to address these challenges, we have produced a more detailed Freight and Logistics Strategy which has been published alongside the LTCP.

The Freight and Logistics Strategy identifies our key principles for the management of freight and the supporting actions required to deliver these. The document includes three distinct sections. These are:

- Long distance movement
- Local movement
- Last mile movement

This approach has been taken to reflect the complexity of the freight system and that different solutions will be required to address the issues at each level. The proposals in each section are all seeking to deliver our key principles. We have identified high level policies in this chapter to outline our priorities for each type of movement.

Freight and Logistics Strategy

A dedicated freight and logistics strategy is required to address the complex challenges associated with moving goods in Oxfordshire. In order to guide the strategy, we have identified a set of key principles which it will be structured around.

The supporting freight and logistics strategy includes more detail about the proposed policies and actions required to support delivery of our key principles.

What are the benefits for people in Oxfordshire?

Developing a delivering a freight and logistics strategy around our key principles will deliver a range of benefits to people in Oxfordshire. For example, ensuring that goods are moved using appropriate routes will help to improve health and wellbeing by reducing noise pollution, air pollution and vibration.

Efficient movement of goods through Oxfordshire will help to support the national economy and local economy. Measures to improve efficiency will likely help to tackle congestion, benefitting residents and operators by keeping costs down and helping to meet customer expectations.

Supporting low emission vehicles and measures to reduce local air pollutants from freight will contribute to delivery of a net-zero transport network and will help to improve health in Oxfordshire.

Policy 47 – We will develop and deliver a freight and logistics strategy based around the principles of:

- Appropriate movement
- Efficient movement
- Net-zero movement
- Safe movement
- Partnership working

Long distance movement

Long distance movements are defined as those that pass through but do not stop if Oxfordshire. For example, movements between the Solent ports and the Midlands which pass through Oxfordshire using the A34.

Currently the majority of this movement is on roads by HGVs. This increases the number of vehicles in the county contributing to congestion, emissions and air quality issues. There may also be times when these vehicles do not use the strategic road network and move through our towns on inappropriate roads.

These long distance movements are not accessing destinations in Oxfordshire. Our goal is therefore to move them through the county in the most appropriate, efficient and safe manor. The main way we will seek to achieve this is by encouraging the use of alternative modes. Primarily, encouraging more goods to be moved by rail. This is safer, helps to reduce emissions and reduces impacts on our roads.

Why is this policy needed?

The long distance movement of goods by road contributes to a number of issues in Oxfordshire as outlined previously. We therefore need to encourage the use of alternative modes and this policy sets out a clear priority to encourage rail freight to guide future working.

Furthermore, whilst our priority is to support the mode shift of freight to rail, it is important that this does not affect our passenger rail network. The lack of spare capacity on Oxfordshire's rail network is currently a key constraint that will need to be addressed to enable more rail freight.

Upgrades to the rail network are beyond our control. We will therefore need to lobby and work with the DfT and Network Rail to upgrade Oxfordshire's rail network and free up capacity for freight. Having a clear policy direction to encourage rail freight will help to strengthen this partnership working.

What are the benefits for people in Oxfordshire?

Supporting the mode shift from road to rail will help to reduce the number of HGVs. In 2018/19, 7 million road haulage journeys were avoided as a result of rail freight movements[90]. This is equivalent to 1.6 billion road vehicle kilometres. This will free up road space for people walking and cycling and reduce congestion creating a more efficient network for all users.

Rail freight currently produces 76% less carbon dioxide per tonne of cargo relative to road haulage[91]. It can therefore contribute to reduced emissions and health benefits. Electrification of the rail network will also contribute to achieving net-zero transport emissions by 2040.

Policy 48 – We will:

a. Promote rail freight as our priority for the long distance movement of goods.
b. Support a range of additional measures to improve the safety and efficiency of long distance goods movement.

Local movement

Local movement is defined as those movements to and from destinations in Oxfordshire. For example, deliveries to local businesses, warehouses and construction sites. It doesn't consider the final stage of a goods journey and delivery to individual homes.

As with long distance movement, the majority of this movement is currently on roads by HGVs. Whilst there are opportunities to encourage the use of other modes, these are more limited, and it is important to recognise that HGVs will remain the primary mode for local movement.

As noted previously, there are issues with HGVs passing through our towns and villages on inappropriate roads. This has negative impacts on residents health and wellbeing and on freight operators.

Our priority for this type of movement is therefore to encourage use of the most appropriate routes, improve safety and encourage the uptake of zero emission modes.

Why is this policy needed?

The local movement of goods by road contributes to a number of issues in Oxfordshire. Local movement will continue to be by HGV as this is the most feasible way to access many warehouses and businesses in the county. We therefore need to set out how we will keep these vehicles on the most appropriate routes, improve safety and encourage the uptake of zero emission modes.

[90] Department for transport: Number of freight train movements, impacts on road haulage and Freight Performance Measure: annual from 2005/06

[91] Network Rail (2017) Freight Network Study

What are the benefits for people in Oxfordshire?

Encouraging HGVs to use appropriate routes will help to improve resident's health wellbeing by reducing noise, air pollution and vibration. It will also minimise disruption to resident's everyday lives.

Reducing inappropriate movement in our historic county towns will also improve road safety and contribute to delivery of the vision zero target. This is because roads in historic county towns were not designed to accommodate HGVs and so there is limited space for the vehicles to manoeuvre, posing a road safety risk to people walking and cycling.

Encouraging the use of appropriate routes for local movement will also benefit freight operators as any small increase in delay could drive a large increase in freight costs. Maintaining efficiency is important to both keep costs down and meet customer expectations.

Policy 49 – We will:

a. Develop and deliver measures to encourage use of the most appropriate routes for HGVs.
b. Support a range of additional measures to improve the safety of local goods movement and encourage uptake of zero-emission vehicles.

Last mile movement

Last mile movement is the final stage of a product's journey. For example, the movement of a package from a delivery warehouse to a customer's home.

The majority of this movement is currently by road. However, it is more commonly conducted by LGVs rather than HGVs. There has been a significant growth in the number of LGVs, with the number of LGVs increasing by 29% between 2004 and 2014[92]. LGV traffic has increased by 67% over the last 20 years and currently makes up 15% of all traffic, with HGVs making up 5%.

LGVs are smaller than HGVs and therefore do not cause issues associated to inappropriate route usage. However, the significant increase in the number of LGVs contributes to congestion and emissions. The increased number of vehicles also creates environments that are less welcoming to walk and cycle in.

Our priority for this type of movement is therefore to reduce the number of LGVs in our towns and encourage the uptake of the zero-emission vehicles. We are focusing on freight consolidation and encouraging the uptake of cycle freight to achieve this.

Freight consolidation explainer

Freight consolidation centres are operations that receive multiple small deliveries and convert them into fewer deliveries to the destination. This is often done in zero-emission vehicles or by cargo bike.

[92] RAC Foundation: Van Travel Trends in Great Britain

Freight consolidation centres can vary in scale and there are different operating models. Many consolidation centres are used by one company to improve the efficiency of their operation. However, other models exist where centres are used by multiple operators. The most common examples are urban consolidation centres, micro-consolidation centres and construction consolidation centres.

It is recognised that there are few examples of self-sustaining urban consolidation centres. However, many of those in operation have shown evidence of benefits. For example, the 'Distropolis' micro-consolidation centres in Paris have reduced the number of vehicles by 20%[93] and at its peak the Bristol Freight Consolidation Centre saw a 70% to 80% reduction in the number of onward trips[94].

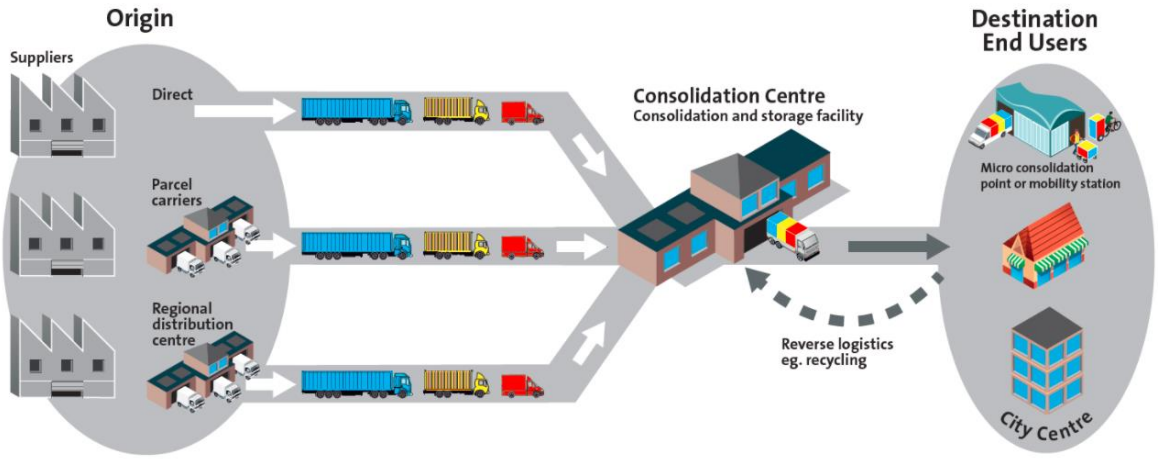

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Figure 35 – Summary diagram of freight consolidation[95]

<u>Cycle freight explainer and Pedal and Post case study</u>

Cycle freight refers to the transportation and delivery of goods using bicycles or electric bicycles. There is an existing cycle freight service which operates successfully in Oxford called Pedal and Post.

Pedal and Post have various partnerships including with Baxter Healthcare and OUH Trust. As part of this partnership, more than 25,000 products were delivered between August 2020 and February 2021. This service has halved the time it takes for products to travel from Baxter's compounding facility in Cowley to the hospital site[96].

[93] PBA and WYG (2018) Draft London Freight Consolidation Feasibility Study
[94] Travel West: Bristol Freight Consolidation Centre Case Study
[95] Travel West: Bristol Freight Consolidation Centre Case Study
[96] http://www.pedalandpost.co.uk/pedal-post-pedal-power-drives-improved-medical-service-and-greener-deliveries/

Figure 36 – Cycle freight operated by Pedal and Post in Oxford[97]

Why is this policy needed?

Last mile movement presents different challenges and requires different solutions to long distance and local movement. The rising number of LGVs associated with last mile delivery is contributing to emissions, congestion and creates places that are not welcoming for people walking and cycling. Freight consolidation and cycle freight will help to address these issues and contribute to delivery of our vision.

This policy will ensure that freight consolidations requirements are considered and that opportunities to link freight consolidation centres and new developments from the outset are realised.

It may also be possible to establish rural consolidation centres to reduce the number of vehicles directly accessing rural towns and villages. This will deliver air quality improvements, as well as helping to protect the rural environment of Oxfordshire.

What are the benefits for people in Oxfordshire?

Both freight consolidation and cycle freight will help us to reduce the number of LGVs. This will help us to create safe, attractive environments where a wide range of people choose to walk and cycle. It will also reduce congestion and improve resident's health and wellbeing by reducing noise and air pollution.

Freight consolidation will also deliver benefits to freight operators by improving efficiency. This will reduce costs, supporting the local economy, businesses and jobs. Similarly, cycle freight could also deliver benefits to local businesses through improved journey time reliability and reduced costs.

[97] http://www.pedalandpost.co.uk/

Policy 50 – We will:

a. Promote freight consolidation and cycle freight as our priorities for the last mile movement of goods.
b. Support a range of additional measures to improve the safety of last mile goods movement and encourage uptake of zero-emission vehicles.

Regional connectivity and cross-boundary working

Having outlined our policies for discouraging unnecessary individual private vehicle use and encouraging walking, cycling, public and shared transport, the final two chapters consider the principles for how we will deliver these measures.

The first of these, is considering regional connectivity and working with the cross-boundary partners outlined in the Oxfordshire context chapter. It is important that we consider how we work with these partners to deliver improvements that support our vision.

This chapter is also important because transport is not confined by county boundaries and we recognise that residents travel to surrounding counties for work and leisure and residents from neighbouring areas travel into Oxfordshire. Working with partners will help to improve travel choices and journey experiences for these residents.

What do we mean by regional strategy and cross-boundary working?
Regional strategy considers similar themes to local policies and strategies but gives greater focus to where solutions to transport issues can benefit from shared approaches or best practice.

Strategies that are linked to typically longer travel flows, can be more suited to being considered at a regional scale. Such strategies can include freight, rail and longer-distance coach/ bus travel.

Cross-boundary working refers to the relationships developed between neighbouring local highway and unitary authorities to achieve joint ambitions or to collaborate, including in the context of our duty to cooperate obligations. It also frequently involves those organisations and partnerships who work at a regional scale e.g. England's Economic Heartland (EEH) sub-national transport body and OxCam Arc.

Cross-boundary working can also involve infrastructure providers such as National Highways and Network Rail whose transport networks invariably cross many administrative boundaries.

As well as strategy development, these organisations and partnerships develop detailed evidence base work and studies that are very relevant to Oxfordshire and delivery of the LTCP policies. For example, EEH are developing connectivity studies and National Highways are developing Route Strategies which will influence the LTCP area and corridor strategies.

Why does Oxfordshire County Council champion partnership working?
Oxfordshire County Council recognises the value and benefits of cultivating good working relationships with surrounding local authorities, regional/ sub-national and statutory bodies. These benefits include:

- More efficient and effective use of resources.
- A single voice to funding bodies creating a unified and stronger message.

- Local and regional issues can be understood together, ensuring greater compatibility in the development of policies and projects.

When working with neighbouring authorities, sub-national transport bodies, infrastructure providers and statutory bodies, there will be a particular focus on the LTCP policy commitments and our objectives to reduce private car use and deliver a net-zero transport system.

Policy 51 – We will:

a. Commit to working collaboratively with sub-national transport bodies and other relevant partnerships and will seek to influence regional work being led by Network Rail and National Highways on the development of the rail, road, public transport and active travel networks. Our collaboration will be guided by relevant policies included in the LTCP.
b. Continue to work with neighbouring authorities to improve walking, cycling, public and shared transport connectivity in cross-boundary locations to support the needs of those local communities affected.

Local connectivity

Local connectivity is a key aspect of many everyday lives. The ease of journeys, choices available and experience of travelling all affect health, wellbeing and equality in the county.

The policies outlined in the LTCP have been identified to help to address these issues and improve local connectivity, whilst creating a healthier and more attractive Oxfordshire.

However, in addition to the high level policies outlined in the LTCP, we recognise that there is a need to create more detailed plans for specific towns, road corridors and areas. These strategies will be the main way in which the LTCP policies are developed into specific scheme proposals.

Area transport strategies
As noted in the LTP4 review section, a set of area and route strategies were published in support of LTP4. A summary of the progress made on delivering these strategies since their adoption is available in Appendix 1.

Our review of the LTP4 area and corridor strategies has identified the need for them be redeveloped. The primary reasons for this are to consider changes since LTP4 such as changes to population and the changing priorities outlined in the LTCP. Our proposed approach to development of the LTCP area and corridor strategies is outlined in the following policies.

Why is this policy needed?
The LTCP area strategies will outline how the LTCP vision and outcomes are delivered in locations across the county. They will create more detailed plans that can be used to guide future scheme development, funding bids, responses to planning applications, developer contributions and will support and enable sustainable growth.

We anticipate that the policies in the LTCP will form a ‘toolkit’ for the area transport strategies. The area transport strategies will reflect the LTCP priorities and provide an indication of how LTCP policies might be applied in different geographic areas. Where developed, LCWIPs will be incorporated into area strategies to identify walking and cycling schemes.

We are seeking to increase the geographic coverage of the area strategies through a blending of geographic scopes. This will be achieved through a tiered approach, with some strategies covering broader areas in less detail.

The LTCP area strategies will be produced as a ‘part 2’ in 2022. This will allow more time to develop the detail and will allow for the area strategies to better fit with:

- Oxfordshire Plan 2050
- Local Plan development
- EEH Regional Connectivity Studies

The proposed LTCP area strategies are:

- **Central Oxfordshire Travel Strategy** – including Oxford, Kidlington, Eynsham, Botley, Cumnor, Kennington and Wheatley.
- **Cherwell Area Strategy** – including urban focus areas of Banbury, Bicester and Heyford and surrounding villages.
- **South Oxfordshire and Vale of White Horse Area Strategy** – including urban focus areas of Didcot, Henley, Wallingford, Wantage, Abingdon, Thame and Faringdon.
- **West Oxfordshire Area Strategy** – including urban focus areas of Chipping Norton, Woodstock and surrounding parishes, Carterton and Witney.

What are the benefits for people in Oxfordshire?

Producing updated area transport strategies will outline how the LTCP policies are delivered across the county. The area transport strategies will put our transport user hierarchy into practice and deliver schemes that consider human health first. This will improve walking, cycling public and shared transport infrastructure and help us to create healthy communities across Oxfordshire.

Policy 52 – We will develop and deliver area transport strategies that align with the LTCP vision and translate the LTCP policies into schemes for use in bidding, funding and developer negotiations.

Transport corridor strategies

In terms of road links, the county relies heavily on the A34 for internal trips which carries up to 70,000 vehicles per day. However, there are several other key road links for local connectivity including the A40, A420, A41, A44 and A4074.

Identifying improvements to these corridors that align with the LTCP, will address inter-urban journeys and link the area transport strategies together as part of an integrated countywide transport network. They will also help to improve regional connectivity, building on the connectivity studies being conducted by EEH.

Why is this policy needed?

As with the area transport strategies, there is a need to develop more detailed strategies for key transport corridors to outline how the LTCP will be delivered in practice.

We recognise that journeys in Oxfordshire are mixed, with movement both within and between towns. It is therefore necessary to consider how we can improve journeys on key corridors between towns.

Previously, approaches to key transport corridors have largely been focused on the motorised vehicles. Therefore, we need to consider how our approach needs to change in the context of the LTCP to promote walking, cycling, public and shared transport, whilst acknowledging the rural nature of the county.

What are the benefits for people in Oxfordshire?

Producing updated transport corridor strategies will help to deliver the LTCP in practice and deliver many of the benefits described elsewhere in this document. This includes improving facilities for walking and cycling and increasing the attractiveness

of public transport on key corridors to improve health, wellbeing, journey time reliability and reduce transport's impact on the environment.

Policy 53 – We will produce transport corridor strategies that align with the LTCP vision and translate the LTCP policies into schemes for use in bidding, funding and developer contributions. Strategies will be developed for:

a. A40
b. A420
c. A41
d. A44
e. A4074
f. M40/A34

Rural journeys

As highlighted in the challenges section, Oxfordshire is the most rural county in the south east with 2.6 people per hectare compared with the regions average of 4.8 people per hectare. 40% of the population live in smaller towns and villages[98].

Existing transport patterns show that in rural villages, the car and van are used significantly more than other modes of transport. In 2016 to 2017 they accounted for 76% of trips, compared to 53% in urban locations[99]. Tailored solutions to account for this are required.

Furthermore, the Office for National Statistics projects that from 2016 to 2041 over 80% of population growth will be within the over-65 age group, with those in the over-85 age category almost doubling in the same period.

When we consider that almost 50% of over 80s are unable to travel easily to their nearest supermarket[100] and that much growth will be in rural areas and peri-urban areas by necessity, this issue is likely to worsen. This further highlights the need for specific consideration of rural journeys.

We recognise that eliminating car journeys is not realistic for rural residents where there are not sustainable alternatives at present. However, we have highlighted throughout the document how the policies in the LTCP will be tailored to support rural communities to reduce car use. This will help to improve rural travel options as well as delivering the benefits for health and wellbeing described elsewhere.

This policy provides a summary of those key approaches recognising the need for a targeted approach to rural connectivity issues.

[98] https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2017
[99] Government Office for Sciences, A time of unprecedented change in the transport system, January 2019
[100] Holley-Moore and Creighton, 2015

Why is this policy needed?

We have summarised below which LTCP policies will be central to addressing the challenges facing rural residents.

Poorer provision of and access to digital connectivity

- *Digital infrastructure and 5G policies* – These policies seek to expand digital connectivity across the county and will enable rural residents to work, shop and access services such as GP appointments from home.

Reduction and removal of public transport services

- *Bus strategy* – The principles outlined in the bus strategy policy will apply across the county. The policy outlines we will work to improve bus services in rural areas including consideration of flexible services where relevant.
- *Community transport* – Working with local communities to develop community transport solutions will help to tackle isolation, improve connectivity and provide a transport option in rural areas without a traditional bus service.
- *Mobility hubs* – We are supportive of and will explore the development of rural mobility hubs to improve connectivity. The types of facilities we expect at rural hubs are summarised in appendix 4.

Fewer dedicated walking and cycling routes

- *Local Cycling and Walking Infrastructure Plans* – We will support rural areas and smaller settlements to develop their own walking and cycling plans.
- *Strategic Active Travel Network* – The SATN will identify inter-town routes and provide us with a strategic approach to planning walking and cycling interventions in rural areas.
- *Public Rights of Way* – We will work to protect, expand and improve the Public Rights of Way network.
- *Greenways* – Many Public Rights of Way in Oxfordshire are in our rural areas. Developing these into high quality multi-user routes will help to improve walking and cycling routes in rural areas.

Fewer local facilities and services, increasing the need to travel

- *20-minute neighbourhoods* – The 20-minute neighbourhood approach can be tailored to rural areas. This includes:
    - Developing our market towns as 20-minute neighbourhoods.
    - Improving walking and cycling connectivity between small villages so that a range of services are accessible locally. Measures such as the SATN, Greenways and Slow Ways can help to achieve this.
    - Look at providing access to a frequent public transport route or mobility hub within 20 minutes.
- *Digital infrastructure and 5G policies* – Will support people to access services from home, as outlined previously.
- *Zero Emission Vehicles* – As part of work to develop a long term ZEV infrastructure strategy we will consider ways to support rural residents so that when travel is required it can be done so in a zero-carbon way.
- *Car clubs* – We will work to encourage zero emission shared cars and car clubs in rural areas, smaller towns and villages to encourage reduced car ownership and fewer trips.

Roads that are less intensively managed than urban and main roads

- *Asset management* – With adoption of the LTCP we are updating our approach to asset management.

Public rights of way that could be better connected and managed

- *Strategic Active Travel Network, Public Rights of Way and Greenways* – As highlighted previously, these policies will help us to plan for, improve and better connect public rights of way in rural areas.

Older average population with different mobility needs

- *Healthy Streets Approach and Health Impact Assessment* – These are applicable in both rural and urban areas. Embedding them into our guidance and decision making will ensure future work in rural areas considers different mobility needs and health inequalities.
- *Connected and Autonomous Vehicles (CAV)* – Supporting the deployment of CAV's will help to improve the future accessibility of older people in rural areas.

<u>What are the benefits for people in Oxfordshire?</u>

By delivering tailored solutions in rural areas we can encourage and increase the use of walking, cycling, public and shared transport modes. This will ensure we are delivering the vision across the county and that everyone is receiving the health benefits of physical activity and clean air.

It will also help to improve connectivity in rural areas, providing more choice for everyday journeys, as well as tackling isolation and inequalities.

Policy 54 – We will work with partners and stakeholders to develop tailored solutions for our smaller market towns and rural areas that reduce through traffic, improve connectivity, accessibility, and contribute to delivery of our transport vision.

Policy summary table

The table in this section provides a summary of the policies introduced in the previous chapters, how they align with our key themes and which will contribute to decarbonisation.

Policy	Environment	Health	Healthy Place Shaping	Productivity	Connectivity	Inclusivity	Decarbonisation
Walking and cycling							
Transport user hierarchy							
Cycling and walking network							
LCWIPs							
Strategic Active Travel Network							
Public rights of way							
Greenways							
Community activation							
Healthy place shaping							
Healthy Streets Approach							
Health Impact Assessment							
Safe streets							
Travel to school and work							
Guidance for new developments							
20-minute neighbourhoods							
Integrated planning							
Road safety							
Vision zero							
20mph zones							
Equestrians							
Public transport							
Bus strategy							
Community transport							
Park and Ride							
Rail strategy							
Multi-modal travel							
Mobility Hubs							
Digital connectivity							
Digital infrastructure							
5G							
Remote Working							
Environment, carbon and air quality							
Embodied carbon							
Clean air / Zero Emission							

Zones							
Zero emission vehicles							
Green Infrastructure							
Network, parking and congestion management							
Network management							
Asset management							
Parking management							
Parking enforcement							
Demand management							
Road schemes							
Smart infrastructure							
Innovation							
Passenger micromobility							
Car clubs							
Connected and Autonomous Vehicles							
Unmanned Aerial Vehicles							
Living Lab							
Innovation framework							
Data							
Data							
Modelling							
Monitoring							
Freight and logistics							
Freight and logistics strategy							
Long distance movement							
Local movement							
Last mile movement							
Regional connectivity and cross-boundary working							
Regional connectivity and cross-boundary working							
Local connectivity							
Area transport strategies							
Transport corridor strategies							
Rural journeys							

Funding and implementation

The LTCP outlines a clear vision to deliver a net-zero Oxfordshire transport system that enables the county to thrive whilst protecting the environment and making Oxfordshire a better place to live for all residents.

As outlined throughout the document, we plan to achieve this by reducing the need to travel, discouraging unnecessary individual private vehicle and making walking, cycling, public and shared transport the natural first choice. The policies included in the LTCP are the tools that we believe are necessary to achieve this.

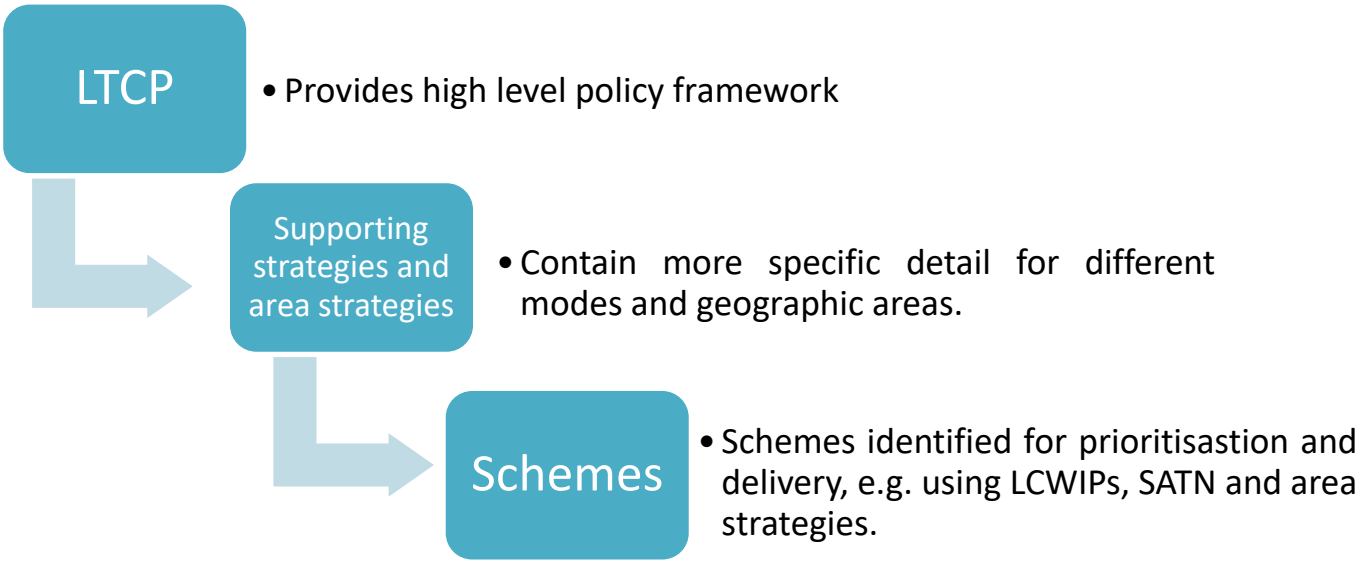
This chapter of the LTCP builds on the local connectivity chapter to outline how we will deliver the policies and overall vision. This includes identifying potential funding sources and timescales.

Policy to scheme process

The LTCP provides the high level policy framework to guide future work on transport in the county. Many of these policies will ultimately be delivered as transport schemes.

The supporting strategies and area transport strategies will reflect the LTCP priorities and provide an indication of how LTCP policies might be applied in different geographic areas. These will then be used to create more detailed plans and identify specific schemes.

Some schemes will then be assessed via the Oxfordshire Infrastructure Strategy framework. This will ensure proposals are meeting broader council policy and help with prioritisation. They will then progress through the development pipeline as suitable funding arises and be included in relevant strategies such as local plans and their associated infrastructure delivery plans.



Implementation

The LTCP will be delivered in a number of ways. This includes physical infrastructure improvements and the creation of new infrastructure. However, the LTCP will also be delivered through the planning process and other means. An overview of all delivery processes is outlined in this section.

Delivery of physical infrastructure and services

In order to deliver some policies in the LTCP there will need to be new and improved services and infrastructure. These improvements will be funded in a range of ways. Further detail about funding is provided later in this chapter.

Influencing development

Working closely with the district councils there is an opportunity to shape the Oxfordshire Plan 2050. The Oxfordshire Plan 2050 will contain policies about where housing is allowed and how developments are built. Embedding LTCP policies such as 20-minute neighbourhoods, will help to shape these developments from the outset and contribute to delivery of the vision.

The county council also responds to planning applications and negotiates with developers regarding contributions. The transport user hierarchy policy will guide how the county council addresses these situations. In this way, walking and cycling will be prioritised, and new developments will contribute to delivery of the LTCP.

Council decision making processes

The LTCP will also be implemented by changes to the county council's guidance and decision making processes. Application of the transport user hierarchy and Healthy Streets approach will guide how the county council approach transport. This shift will prioritise walking and cycling and ensure that all decision making is contributing to delivery of the LTCP.

As outlined in policy 11, we will make Health Impact Assessments a requirement for future schemes. This will further help to deliver the LTCP policies by ensuring consideration of human health.

Incorporation with other highway works

Wherever possible we seek to incorporate walking and cycling or other improvements when doing road maintenance work. Coordinating these improvements will help to deliver some of the small scale physical improvements required to deliver the LTCP.

Funding

Many of the policies identified in the LTCP will require funding to deliver. However, councils no longer receive funding directly to spend on transport improvements and we do not currently have funding for all of the proposals identified. We will therefore work hard to identify alternative funding sources to enable delivery of the LTCP. Key potential funding sources are outlined below.

Funding bids

From time to time, there are opportunities to submit bids to specific grant funding opportunities. These funding opportunities come from a range of sources including central government and the DfT.

With tightening local authority budgets, these opportunities are particularly valuable, allowing us to carry out work no longer affordable from Council budgets. We will seek to bid for every suitable opportunity.

Case Study - Active Travel Fund

The Department for Transport's Active Travel Fund supports plans to reallocate road space to cyclists and pedestrians and create an environment that is safer for walking and cycling.

The fund has so far been allocated in 2 phases. Oxfordshire County Council submitted and successfully received, over £3 million in funding from our phase 1 and 2 submissions. This has led to the delivery of a range of walking and cycling schemes across the county. Further details can be found on the Active Travel Fund page on our website.

In August 2021, we submitted a bold funding bid containing over £21 million of schemes to the third round of the Active Travel Grant.

Developer contributions

Developers either contribute towards improvements to mitigate their transport impacts either through direct legal agreements or carry out works themselves under S278 Agreements with the Council.

In some situations, a Community Infrastructure Levy is also payable to the district or city council, and the County Council may be able to agree with the relevant authority to use some of those funds for transport schemes.

Through this it is possible for developers to deliver infrastructure, provide for new or extended bus services or contribute towards larger schemes. We will continue to work with developers to secure contributions which help to deliver the LTCP.

Partnership working

Funding or delivery opportunities may also be available to our partners such as the Local Enterprise Partnership (LEP), district and city councils. We will continue to work with these partners to take account of the various funding sources available.

There may also be funding opportunities available through neighbouring local authorities. We will seek to work strategically with other local authorities, where applicable, to secure and develop further funding opportunities.

Demand management

We are proposing several demand management measures including the workplace parking levy and zero emission zone. Further CAZs or ZEZs will also be considered. These measures will provide a funding stream which could be used to deliver other transport schemes outlined in the LTCP.

Operator / private sector investment

Some improvements may also be funded by operator or private sector investment. For example, the bus operators of Stagecoach and Go-Ahead Group contributed £43.7m towards the Zero Emission Bus Regional Areas (ZEBRA) scheme.

Similarly, business parks and large employers may contribute towards the establishment or subsidisation of services in their local area. We will continue to work with these partners to consider potential funding sources.

Monitoring

Monitoring of the LTCP is important for us to track progress and ensure we are on track to deliver the vision. Monitoring will also help to inform future decision making by assessing the performance of schemes and the benefits they deliver.

In order to monitor the LTCP we have identified a set of key performance indicators (KPIs). An initial set of proposed measurables was included in the LTCP vision document. Feedback on these has been used to create the KPIs in this chapter.

As outlined in the monitoring policy, we will also work to create a tool which allows for the monitoring of individual housing developments and transport schemes to help to inform our understanding.

We intend to review the LTCP on an annual basis. As part of this, we will publish monitoring reports to demonstrate progress on delivering the LTCP, progress made against the headline targets and performance against the KPIs. This process will ensure that we are delivering the level of change required. Monitoring of KPIs will take into account the impacts of population growth.

We have not identified specific targets for all of the KPI's. Instead, all policies and schemes are working towards delivery of our headline targets and mode specific targets in supporting strategies. The KPIs will help to provide more detail and identify potential areas for further work. As part of the review process, we will assess the effectiveness of the KPIs and look at other ways of reviewing data.

Key Performance Indicators

Focus area	KPI
Transport emissions	Road transport emissions (Mt CO2)
Walking and cycling	Percentage of residents walking / cycling
	Number of walking / cycling trips
Physical activity	Percentage of adults / children meeting physical activity recommendations
Healthy Place Shaping	Healthy Streets score improvements
	20 minute neighbourhood index improvements
Road safety	Total number of KSI
	Number of KSI per mode
Public transport	Number of bus passenger journeys
	Number of rail passenger journeys (rail station entries and exits)
	Number of park and ride passenger journeys
Digital connectivity	Percentage of premises with superfast broadband
	Percentage of premises with full fibre broadband
Air quality	Transport emissions in Oxfordshire
	Years of healthy life lost due to air pollution
Private car	Car vehicle miles in Oxfordshire
	Number of car trips

	Number of registered battery electric vehicles
	Car ownership
Road highways maintenance condition	Percentage of roads in good/fair/poor condition
	Percentage of pavements and cycleways in good/fair/poor condition.

Glossary

A

Areas of Outstanding Natural Beauty (AONB): A designated exceptional landscape whose distinctive character and natural beauty are precious enough to be safeguarded in the national interest[101].

Automatic number plate recognition (ANPR): Technology that reads vehicle registration plates.

B

Battery Electric Vehicles (BEVs): A vehicle that uses an electric motor with energy stored in rechargeable battery packs.

C

Clean Air Zones (CAZs): An area where vehicles with higher tailpipe pollutant emissions are restricted or charged for access**.**

Community Safety Assessment (CSA): Assess the potential impact of schemes on community safety.

Connected and Autonomous Vehicle (CAV): Vehicles equipped to exchange information with surrounding environment and can operate in a mode which is not being controlled by an individual[102].

COVID-19: An infectious disease caused by a newly discovered coronavirus. Responsible for a global pandemic in 2020-21.

D

Demand responsive transport (DRT): A flexible mode of transportation that adapts to the demands of its user groups[103].

Department for Transport (DfT): The government department responsible for the English transport network.

E

Electric bike (e-bike): Bicycles with a battery-powered assist.

Electric scooter (e-scooters): Motorised stand up scooter with an electric motor.

[101] https://landscapesforlife.org.uk/
[102] Automated and Electric Vehicles Act 2018
[103] Interreg Europe: Demand Responsive Transport

Electric vehicle (EV): A vehicle that uses an electric motor for propulsion, comprising BEV's, as well as plug-in hybrid electric vehicles that have an attached petrol or diesel engine to power the battery engine.

England's Economic Heartland (EEH): Partnership authority group, which functions as a non-statutory sub-national transport body.

Equalities Impact Assessment (EqIA): Process designed to ensure that a policy, project or scheme does not unlawfully discriminate against any protected characteristic.

F

Hydrogen Fuel-Cell Vehicles (FCEV): Electric vehicles with a hydrogen fuel cell system instead of a battery pack.

Future Oxfordshire Partnership: A joint committee of the six councils of Oxfordshire together with key strategic partners.

G

Green infrastructure (GI): A network of multi-functional green space and other green features, urban and rural, which can deliver quality of life and environmental benefits.

Gross Domestic Product (GDP): Monetary measure of the market value of all the final goods and services produced in a specific time period.

H

Habitats Regulation Assessment (HRA): Refers to the several distinct stages of Assessment which must be undertaken to determine if a plan or project may affect the protected features of a habitats site[104].

Health Impact Assessment (HIA): Practical approach used to judge the potential health effects of a policy, programme or project on a population[105].

Heavy Goods Vehicles (HGV's): Commercial trucks that feature a gross combination mass of over 3500kg.

Hydrogen Fuel-Cell Vehicles (FCEV): Electric vehicles with a hydrogen fuel cell system instead of a battery pack.

I

Innovation Hub (iHUB): Oxfordshire County Council's innovation team.

[104] https://www.gov.uk/guidance/appropriate-assessment
[105] https://www.who.int/health-topics/health-impact-assessment#tab=tab_1

Integrated Sustainability Appraisal (ISA): Assessment that combines the SEA, HIA, EqIA, CSA and HRA processes.

Internal combustion engine (ICE): Vehicle that is powered using a traditional petrol or diesel engine.

Internet of Things (IoT): System of interrelated, internet-connected objects that are able to collect and transfer data over a wireless network without human intervention[106].

K

Key performance indicators (KPI's): A quantifiable measure of performance over time for a specific objective.

Killed or Seriously Injured (KSI): Standard metric used to measure road safety.

L

Light Goods Vehicles (LGV): Commercial trucks that feature a gross combination mass of under 3500kg.

Local Cycling and Walking Infrastructure Plans (LCWIPs): Strategic policy documents that identify improvements to active travel infrastructure at the local level.

Local Enterprise Partnership (LEP): Voluntary partnerships between local authorities and businesses.

Local Industrial Strategy (LIS): Documents that aim to increase regional economic productivity.

Local Transport and Connectivity Plan (LTCP): Oxfordshire County Council's new Local Transport Plan.

Local Transport Plan 4 (LTP4): Oxfordshire County Council's previous Local Transport Plan (2015-2031).

Low Traffic Neighbourhood (LTN): Residential areas where through motor traffic is prevented by traffic filters, whist still allowing access for cycling and other forms of micromobility.

M

Mobility as a Service (MaaS): The integration of various forms of transport services into a single mobility service accessible on demand[107].

N

[106] https://www.aeris.com/in/what-is-iot/
[107] https://maas-alliance.eu/homepage/what-is-maas/

National Nature Reserves (NNRs): Established to protect important habitats, species and geology, and to provide 'outdoor laboratories' for research.

New Roads and Streetworks Act (NRSWA): Provides a legislative framework for street works by contractors and works for road purposes.

O

Oxfordshire County Council (OCC): The county council for Oxfordshire.

Office of Rail and Road (ORR): The independent safety and economic regulator for Britain's railways and monitor of National Highways[108].

OUH Trust: Oxford University Hospitals NHS Foundation Trust

Oxford to Cambridge Arc (OxCam Arc): The Oxford to Cambridge Arc has been identified by the Government as a national economic priority. The Arc is formed of five ceremonial counties: Oxfordshire, Northamptonshire, Buckinghamshire, Bedfordshire and Cambridgeshire.

Oxfordshire Electric Vehicle Infrastructure Strategy (OEVIS): Strategy jointly produced by the Oxfordshire councils which sets out the policies and plans to realise our vision for EV charging in Oxfordshire.

Oxfordshire Knowledge Spine: Key north-south corridor that covers Bicester, Oxford and Science Vale.

Oxfordshire Mobility Model (OMM): The new strategic transport model for Oxfordshire.

Oxfordshire Rail Corridor Study (ORCS): Rail study that was funded and progressed as a partnership between the Department for Transport, local stakeholders and the rail industry.

Oxfordshire Strategic Model (OSM): The previous strategic transport model for Oxfordshire.

P

Park and Ride (P&R): Parking facilities with public transport connections that are located outside of city/town centres.

Public Rights of Way (ProW): Network of routes where public use is legally protected.

S

[108] https://www.gov.uk/government/organisations/office-of-rail-and-road

S106 Agreements: A section of the town and country planning act that allows local authorities to enter into a legally-binding agreement or planning obligation with a landowner as part of the granting of planning permission.

S278 Agreements: A section of the Highways Act that allows developers to enter into a legal agreement with the council to make permanent alterations or improvements to a public highway, as part of a planning approval.

Strategic Active Travel Network (SATN): Oxfordshire County Council project aimed at providing a county-wide approach to walking and cycling connectivity.

Strategic Environmental Assessment (SEA): Assessment that aims to ensure environmental and other sustainability aspects are considered effectively in policy making.

Strategic Road Network (SRN): Roads managed by National Highways comprising motorways and some A roads.

Sustainable drainage systems (SuDS): Designed to manage stormwater locally (as close its source as possible), to mimic natural drainage and encourage its infiltration, attenuation and passive treatment[109].

T

Transport Systems Catapult (TSC): One of eleven elite technology and innovation centers established and overseen by the UK's innovation agency, Innovate UK. Now known as the Connected Places Catapult.

U

Ultra-Low Emission Zone (ULEZ): The charging low emission zone in central London.

Unmanned Aerial Vehicles' (UAV): Remote-controlled aircraft or small aerial devices which do not have an on-board pilot.

Z

Zero Emission Vehicles (ZEV): A vehicle which emits 0g of carbon dioxide from the tailpipe per kilometre travelled.

Zero Emission Zones (ZEZs): An area where all vehicles except those with zero tailpipe emissions are restricted or charged.

[109] https://www.local.gov.uk/topics/severe-weather/flooding/sustainable-drainage-systems#:~:text=Sustainable%20drainage%20systems%20(SuDS)%20are,infiltration%2C%20attenuation%20and%20passive%20treatment.&text=With%20this%20in%20mind%2C%20the,SuDS%20should%20always%20be%20considered.

Appendix 1 – LTP4 review

Witney Area Strategy

Policy	Published Text	2022 Update / Context / Situation
N/A	This Area Strategy is being developed alongside the emerging West Oxfordshire Local Plan. Growth proposals from the WODC Pre-submission Draft Local Plan 2011-2031 (March 2015) comprise 3,700 new homes in the Witney sub area by 2031. Three Strategic Development Areas are identified: 1,000 homes at West Witney, 400 at East Witney and 1000 homes at North Witney.	West Oxfordshire Local Plan was adopted in 2018. Comprise 4,702 new homes in the Witney sub area by 2031. Update to the Strategic Development Areas are identified: 450 at East Witney and 1400 homes at North Witney.
Policy WIT 1	An all-movement at-grade junction on the A40 at Downs Road, related to the West Witney strategic housing and employment site to provide a new access to the A40 for businesses and residents to the west of the town;	An all-movement at-grade junction on the A40 at Downs Road was completed as part of the West Witney Strategic Housing and Employment development site in August 2018.
	West-facing slip roads at A40 Shores Green junction and improvements to the B4022 Oxford Hill junction with Jubilee Way and Cogges Hill Road to be delivered by housing development at East Witney. Complementary measures in the surrounding rural area may also be sought to support this scheme.	A40 Shores Green West Facing Slips - Growth Deal Scheme Years 2 to 5. During 2021 the preferred option was identified and consulted upon.
	A feasibility and viability assessment of West End Link Road 2 (WEL2), a new road bridge crossing the River Windrush.	No change.
Policy WIT 2	Re-designating the A4095 via Jubilee Way, Oxford Hill, A40, Ducklington Lane and Thorney Leys so through traffic travels around the edge of the town rather than through it;	No change.
	Implementing schemes to deter through traffic from using Bridge Street and the Woodstock Road.	No change.
	Improving the environment in the town centre by reducing congestion, and enhancing the Air Quality Management and Conservation Areas.	No change.
	Discouraging undesirable routing of traffic by improving directional signs.	No change.
Policy WIT 3	Protecting the line of the Shores Green Slip Roads and promoting its safeguarding in the Local Plan.	No change.
	Continuing to safeguard land for the proposed West End Link stage 2 pending adoption of the WODC Local Plan.	West Oxfordshire Local Plan was adopted in 2018 and safeguards the land for West End Link stage 2.

	Ensuring development at North Witney is served by a Northern Distributor Road running from Woodstock Road to Hailey Road.	No change.
Policy WIT 4	Improving the frequency of bus services by using pump priming funding from new developments: i. Between Witney to Oxford; including City Centre, Oxford rail station, hospitals and Oxford Brookes University; ii. Between Woodstock and Burford via Hanborough rail station and Witney; iii. Between Witney's main residential and employment areas;	No change.
	Implementing measures to reduce delays to bus services i. through Witney particularly along Corn Street, Market Place, Bridge Street and Newland; ii. joining the A40 eastbound at B4044 Shores Green	No change.
	Improving the environment and quality of bus stops along these routes, pedestrian and cycle paths to them and the facilities available such as cycle parking.	No change.
Policy WIT 5	Providing a cycle premium route between Witney and Carterton, as part of the B4477 improvement scheme.	No change.
	Seeking funding from new development sites to ensure they are served by high quality walking and cycling routes to access off-site amenities.	No change.
	Conducting walking and cycling network assessment studies/Cyclability Audits to: a) Develop a network of high quality, continuous cross town cycle routes linking residential and employment areas; b) Improving local cycle routes from residential areas to schools; c) Improving conditions and infrastructure for pedestrians and cyclists in Bridge Street, the town centre and Station Lane areas.	No change.
Policy WIT 6	Secure strategic transport infrastructure contributions from all new development based on the contribution rate per dwelling or per m2 for non-residential developments.	No change.
Policy WIT 7	Secure strategic public transport service and infrastructure contributions based on the contribution rate per dwelling or per m2 for non-residential developments	No change.

*Policy WIT6 was previously removed as it was the A40 Science Transit 2 Policy which is now contained in the A40 Route Strategy chapter

Carterton Area Strategy

Policy	Published Text	2022 Update / Context / Situation
N/A	This Area Strategy is being developed alongside the emerging West Oxfordshire Local Plan. Growth proposals from the WODC Pre-submission Draft Local Plan 2011-2031 (March 2015) comprise 2,600 new homes by 2031 in the Carterton sub area.	West Oxfordshire Local Plan was adopted in 2018. Comprise 2,680 new homes in the Carterton sub area by 2031.
Policy CA1	Improve the B4477 between Carterton and A40 at Minster Lovell, which includes provision of cycle premium route, and upgrade from B classification road to A classification.	No change.
	Promote west facing slip roads at A40/B4477 Minster Lovell junction	No change.
	Continue to work with RAF Brize Norton to establish the implications of Programme Gateway on the existing transport network.	No change.
Policy CA2	Improving the frequency of bus services between Carterton, Witney and Oxford; including City Centre, Oxford rail station, hospitals and Oxford Brookes University;	No change.
	Providing bus stops close to the RAF Main Gate;	No change.
	Improving the environment and quality of bus stops along these routes, pedestrian and cycle paths to them and the facilities available such as cycle parking.	No change.
Policy CA3	A high quality cycleway from the employment and residential areas in the north and east of the town to Carterton town centre via Brize Norton Road;	No change.
	High quality cycle links from the west of the town to the town centre;	No change.
	Establishing a network of high quality local cycle routes throughout Carterton;	No change.
	Work with RAF Brize Norton to improve traffic flow for all modes at RAF Brize Norton's Main Gate including pedestrian and cycle routes;	No change.
	Support for the redevelopment of Ministry of Defence housing stock within Carterton to provide excellent pedestrian access throughout the redeveloped site and clear pedestrian links to facilities across the town, including, where financially practical, the removal of the Upavon Way pedestrian subway;	No change.
	Providing a high quality cycle premium route between Carterton and Witney as part of the B4477 improvement scheme; and	No change.
	Seeking funding from new development sites to ensure they are served by high quality walking and cycling routes to off-site amenities	No change.
Policy CA4	Reduce queuing traffic and improve the environment in the town centre;	No change.
	Discourage undesirable routing of traffic by improving directional signs and traffic calming	No change.

	measures.	
Policy CA5	Secure strategic transport infrastructure contributions from all new development based on the contribution rate per dwelling or per m2 for non-residential developments.	No change.
Policy CA6	Secure strategic public transport service and infrastructure contributions based on the contribution rate per dwelling or per m2 for non-residential developments.	No change.

A40 Corridor Strategy

Policy / Section	Published Text	2022 Update / Context / Situation
Paragraph 5	The A40 strategies are being developed alongside the emerging West Oxfordshire Local Plan. Growth proposals from the WODC Pre-submission Draft Local Plan 2011-2031 (March 2015) comprise provision of at least 10,500 homes between 2011 and 2031.	The WODC Local Plan was adopted in 2018 and committed at least 15,950 homes between 2011 and 2031.
Paragraph 6	Following the Examination in Public (EiP) of West Oxfordshire's Local Plan in 2015 the District are considering options to increasing the level of housing growth, as recommended by the Inspector. These proposals will be considered within the context of transport schemes for the A40.	Following the Examination in Public (EiP) of West Oxfordshire's Local Plan in 2015 the district did increase the level of housing growth across the district, as identified in the adopted West Oxfordshire's Local Plan 2018.
Paragraph 7	Following the publication of the Oxfordshire Strategic Housing Market Assessment (SHMA), which identified a need for 28,000 new homes for Oxford within the period 2011-31, the Oxfordshire councils have agreed a working assumption of 15,000 homes as the scale of Oxford's unmet need to be planned outside the city.	The SHMA led to an allocation of Oxford's unmet housing need being allocated in the West Oxfordshire Local Plan 2018.
Paragraph 8	Two strategies are outlined below for the A40. The first, A40 Science Transit 2, will deliver a package of schemes providing short term relief to the A40 by 2021. These improvements are unlikely to wholly resolve the current capacity issues on A40. Therefore a long term strategy for improving the A40 is currently being developed.	Two strategies have now been adopted by the council the A40 Science Transit 2 package (funded from Local Growth Fund) and the A40 Smart Corridor (funded from Housing Infrastructure fund) and referenced in the WODC Local Plan 2018.
Paragraph 10	In the short term we have been provisionally awarded £35 million from the Government's Local Growth Fund for public transport improvements in the A40 corridor for delivery between 2019 and 2021.	A40 Science Transit funded by the LGF time frames have been revised to align with the A40 Smart Corridor Project from 2021 to 2024
Policy A40	A Park and Ride car park on the A40 corridor at a location to be determined through the county council's Park & Ride study, due to be published in spring 2016;	A Park and Ride car park on the northside of the A40, west of Cuckoo Lane corridor has been identified.
Policy A40	Junction improvements along the A40 corridor between Witney bypass and Eynsham roundabout, including bus priority on the approach to Swinford Toll bridge;	Superseded by A40 Smart Corridor; and bus priority on the approach to Swinford Toll bridge has been dropped as it is not feasible.

POLICY A40	The County Council has secured City Deal funding to improve Wolvercote roundabout and Cutteslowe roundabouts in north Oxford (to be completed winter 2016).	City Deal funding was used to improve Wolvercote and Cutteslowe roundabouts in 2016.
Paragraph 14	Some funding has also been secured for a new link road between the A40 and A44, which will provide improved access from west Oxfordshire to the A44 & A34, avoiding Wolvercote roundabout.	Funding reallocated to other projects.
Investing in the A40 - Long Term Strategy	The Council has committed to investigate in detail a combined scheme for further feasibility comprising a package of measures: i) a dual-carriageway from Witney to a park and ride at Eynsham ii) bus lanes in both directions along the A40 from a park and ride at Eynsham to the Duke's Cut canal bridge approaching Wolvercote roundabout iii) provision of high quality cycleways along the length of the route.	Package of measures revised to: i. A dual-carriageway from Witney to a park and ride at Eynsham; ii. Bus lanes in both directions along the A40 from a park and ride at Eynsham to the Duke's Cut; canal bridge approaching Wolvercote roundabout iii. Bus priority eastbound at Duke's Cut canal bridge; iv. Provision of high quality cycleways along the length of the route.
Figure 2: Investing in the A40 corridor long term strategy.	See figure.	In addition – we anticipate the strategic development sites to provide additional infrastructure to this strategy, namely the Salt Cross Western Roundabout Access, and the Cuckoo Lane walking and cycling underpass between Saltcross and Eynsham. Both have a significant impact on how the A40 functions going forward.

Banbury Area Strategy

Policy	Published Text	2022 Update / Context / Situation
BAN1	Promotion of Bankside.	Chicanes have been removed. Full strategy review will consider the role of various roads in the town.
	Traffic management along A361 the South Bar Street/ Horsefair corridor.	Removed from current strategy but will need to be reconsidered in the strategy review.
	Bridge Street/ Cherwell Street eastern corridor improvements.	No change.
	Bloxham Road (A361)/ South Bar Street improvements.	No change.
	Provision of A361 Bloxham Road to A4260 Oxford Road Spine Road.	Eastern end is now in place.
	Relief to Hennef Way – north-facing slip roads off Southam Road.	No change.
	Hennef Way/ Southam Road improvements.	No change.
	Hennef Way/ Concord Avenue improvements.	No change.
	Hennef Way/ Ermont Way improvements.	No change.

	Ermont Way/ Middleton Road improvements.	No change.
	Increasing the capacity of junctions along Warwick Road (B4100).	Consultants currently working to investigate.
	Bloxham Road (A361) junction with Queensway and Springfield Avenue improvements.	These junctions are currently being looked at, along with complementary measures in other parts of Easington.
	A361 Southam Road junction with Castle Street and Warwick Road improvements.	Currently being delivered.
	Provision of a link road east of M40 Junction 11 (Overthorpe Road to A422).	Developers are looking to deliver the road.
	Investigating the impact of; (i) a link road crossing from Tramway Road to Higham Way, (ii) a link road from Chalker Way at central M40 site to Bankside (crossing either the railway, river and/or canal), (iii) a south east link road	Option (i) was assessed and removed as not deliverable. The South East Link Road and other options still remain ambitions.
	Reviewing the highway signage on routes into the town centre to sign north-south through-traffic away from sensitive areas of the town centre and promote appropriate route choices at key decision-making junctions.	No change.
	A car park review and improvements, and provision of car park matrix signs.	No change.
BAN2	Promoting a bus route serving Bretch Hill>Banbury Town Centre>Rail Station (at Higham Way)>Thorpe Way>Wildmere Road>Banbury Gateway Retail Park. This scheme will explore the option of opening a bus-only route from Alma Road to Thorpe Way in order to provide bus journeys direct to the employment site. New bus stops will be introduced along the route.	Initial attempt failed as didn't have a solution in Thorpe Way but remains a key route to achieve.
	Undertaking feasibility work into the costs and benefits of routing buses through the pedestrianised town centre.	No change.
	Conducting, in line with the Banbury Masterplan, a comprehensive review of bus interchange facilities including the functionality of the bus station.	No change.
	Conducting, in partnership with bus operators, a comprehensive review of town wide bus services to identify short, medium- and long-term route changes (including any infrastructure requirements) to provide direct commercial bus routes from residential areas, via the town centre to the employment areas.	No change.
	Identifying suitable routes into and through the town centre.	No change.
	Opening Tramway Road as an access for cars into and out of the station car park and access to the Canalside development.	Delivering through Growth Deal.
	Exploring opening Station Approach to through bus services via Tramway Road.	Delivering through Growth Deal.
	Developing inter-urban services through enhancement of existing bus services or new services.	No change.
	Seeking funding from new development sites to ensure they are served by high quality commercial public transport services.	No change.

BAN3	We will work with our strategic partners to develop Banbury Station as a transport interchange. This is likely to involve re-designing the station forecourt to create an interchange that will feature a taxi rank; better cycle access and facilities (including secure cycle storage); an improved route to the station for people on foot, and improved public realm giving a sense of arrival.	Supported through funding for cycle racks and some improvements through Tramway scheme.
	We will improve walking, cycling and public transport links to the station in order to meet future demand and to better connect the station to the town.	LCWIP, access to stations work and Wayfinding project will help to deliver improvements.
	Increase the variety of bus services passing the rail station, including exploring opportunities to route buses via Higham Way, and from Tramway Road to Station Approach.	This will be delivered through the Tramway, Bankside improvements and Salt Way link road.
	We will seek to maximise the opportunities national rail electrification proposals could bring to improving the transport networks, particularly at Bridge Street and around the rail station.	No change.
BAN4	Seek funding from new development sites to ensure they are served by high quality walking and cycling routes to off-site amenities.	A number of s278 schemes delivered.
	Conduct walking and cycling network assessment studies and prioritise improvements to deficiencies in the networks.	Town centre walking audit completed 2018; LCWIP being carried out at the moment.
	As identified in the Cherwell Local Plan 2011-2031 (part one) seek new pedestrian and cycle bridges, as part of the Canalside development, crossing the Oxford Canal and River Cherwell which will connect the rail station to the town centre.	One delivered by Longford Park; another secured through development on Canalside; on-going work to deliver the rest.
BAN5	This policy supports delivery of the Sustainable Transport Strategy.	N/A.
	We will seek mitigation from the impact of High Speed 2 (HS2) construction traffic across North Cherwell and Banbury.	Mitigation delivered at Wardington and Junction 11
BAN6	Oxfordshire County Council is working towards establishing a strategic Transport Contribution rate for developer funding, which will be adopted in a future update of this strategy.	No change.

Science Vale Area Strategy

Policy	Published Text	2022 Update / Context / Situation
SV 1.1	Delivering access and journey reliability improvements at Milton Interchange. To improve capacity, relieve congestion and accommodate additional traffic from planned development.	A ‘hamburger’ link was delivered under the A34, with widening across the roundabout, which opened in May 2015. The updated area strategy will consider further improvements at Milton Interchange given the significant growth planned for the area.

SV 1.2	Delivering north-facing slips at Chilton Interchange to provide a full movement junction. To enable more direct access to and from Harwell Campus from the A34, helping to attract investment.	The scheme was delivered and open to the public in November 2016. The updated area strategy will consider further improvements at Milton Interchange given the significant growth planned for the area.
SV 1.3	Delivering south-facing slips and investigating the provision of a new Park & Ride and bus priority measures at Lodge Hill Interchange, Abingdon. The provision of a full movement interchange will improve capacity and accommodate additional traffic from potential future development. A new Park & Ride will enable more trips into Oxford to be made by bus and alleviate congestion on Oxford's approach roads.	Funding has been awarded via Homes England along with S106 contributions in Abingdon to deliver the scheme. The scheme is currently in the design phase. The Lodge Hill Park & Ride is awaiting evaluation and review to establish commercial viability before a business case can be put together for this scheme.
SV 1.4	Developing Didcot Parkway station into a 'state-of-the-art' multi-modal interchange, to meet demand from new development and improved rail services. This includes a multi-storey car park, station access from the north, grade separation and a new station building.	The multi-storey car park was officially opened July 2019 and the cycle hub opened March 2021. We continue to work with the Didcot Garden Town team, further consideration will also be given to this policy in the updated Local Transport and Connectivity Plan once completed.
SV 1.5	Working with Network Rail and other partners to support the overhead electrification of the Great Western Mainline.	Electrification was delivered by end of 2017.
SV 1.6	Providing clear signage across Science Vale and establishing a clear hierarchy of routes to assist with way finding for all modes of transport.	This is being reviewed as part of several schemes in the area.
SV 1.7	Promoting the provision of a station at Grove, working with partners as part of a wider proposal to improve rail connectivity with Didcot and neighbouring areas, such as Swindon and Bristol, and in the longer term with East-West Rail to Milton Keynes.	On-going. Grove station identified as a potential infrastructure intervention in the Oxfordshire Rail Corridor Study (ORCS).
SV 1.8	Promoting an improved level of rail service at Didcot Parkway, seeking a minimum of four trains per hour to Oxford and Bicester, and securing future direct services to Birmingham and Heathrow airports as new rail infrastructure comes forward.	On-going. The ORCS has been completed to identify opportunities to enhance rail usage. The Oxford Phase 2 works have been identified as the critical next step to delivering the 2024 ambitions. A portfolio of interventions is required to deliver the 2028 ambitions, some of which can be associated with individual service enhancements, but the majority represent a comprehensive system upgrade between Oxford North Junction and Didcot.
SV 1.9	Promoting greater presence, accessibility and an improved level of rail service at Culham Station. To improve accessibility for the local area and Culham Science Centre and to encourage further business investment.	Ongoing. Supporting growth in seven Oxfordshire hubs by improving inter-connectivity is a key theme of the ORCS. The hubs identified include Culham.
SV 1.10	Promoting an improved and fully integrated public transport system with bus priority measures, linking Science Vale with innovation hubs and research locations in Oxford, in accordance with Science Transit and the Oxfordshire Bus Strategy.	On-going.

SV 1.11	Promoting the efficient transport of freight, using the most suitable routes as outlined in Oxfordshire's Freight Strategy and Oxfordshire Lorry Routes map.	On-going and to be picked up in the freight strategy part of LTCP.
SV 2.1	Delivering cycle route upgrades and maintenance on the existing network. This includes the provision of new routes, new substantial infrastructure (including bridges), branded signs and marketing measures to provide a high quality, safe and attractive network.	See cycle update below.
SV 2.2	Securing new strategic bus services and associated infrastructure between major residential sites at Didcot, Wantage & Grove, Wallingford, Abingdon, town centres / retail and the employment sites at Milton Park, Harwell Campus, Culham Science Centre, and Oxford. A minimum of two buses per hour during the morning/evening peak travel periods is required to provide a credible level of service.	On-going.
SV 2.3	Securing improvements to existing bus services and associated infrastructure between Oxford, Didcot, Wantage & Grove, Abingdon, Wallingford and employment sites in Science Vale.	On-going.
SV 2.4	Strengthening public transport links from Didcot Parkway through improved bus connections, including segregated priority sections of route, to improve bus reliability and journey times. Bus priority measures will be investigated on the A4130 from Science Bridge into Didcot, through the Valley Park development site located to the west of Didcot; and between Wantage & Grove, Milton Park and Didcot via Steventon.	On-going.
SV 2.5	Delivering the Wantage Eastern Link Road to support developments in Wantage and Grove and provide relief to central Wantage.	Wantage Eastern Link Road (WELR) is currently in the design stage and is currently estimated to be constructed by the end of 2022, however exact timescales are still being confirmed with the contractors. The various phases of WELR are being funded by money collected from Growth Deal, Homes England Marginal Viability Housing Infrastructure Fund and S106 contributions from developments in the vicinity of Wantage and Grove.
SV 2.6	Delivering Science Bridge and widening of A4130 to provide relief to Manor Bridge and support/enable development in the area including Didcot A, NE Didcot, Valley Park and NW Valley Park.	The infrastructure proposed in this policy is being delivered as part of the Housing Infrastructure Fund (HIF) project. The project is estimated to be completed by 2024.
SV 2.7	Completing the A4130 Didcot Northern Perimeter Road part 3 (NPR3), to relieve congestion on local roads, and to improve access to Didcot from the east. Supports and enables Ladygrove East development.	NPR3 is in the preliminary design phase. This scheme is linked to the delivery of the Ladygrove East housing allocation. Exact timing for delivery is still being considered.
SV 2.8	Delivering Harwell Link Road section 1 (B4493 to A417) and Harwell Link Road section 2 (Hagbourne Hill) to improve access and connections to Harwell Campus and Didcot, reduce congestion on the local network, and protect villages from unnecessary through traffic. Supports and enables Valley Park development.	Harwell Link Road was completed and opened for use on 29th March 2018. The Hagbourne Hill scheme was completed in July 2016.

SV 2.9	Improving Harwell Campus entrance to facilitate additional trips into/out of the site (at the three main entrances on the A4185) and supplement the improved Chilton Interchange.	The Thomson Avenue entrance was completed in August 2020. There are no immediate plans for upgrades to Fermi Avenue and Curie Avenue. The requirement for mitigation at these junctions will be continually reviewed through transport assessments for subsequent growth at Harwell Campus and through continued liaison with the campus.
SV 2.10	Delivering improvements along the A417 corridor to address congestion, safety and the conflict between the volume of traffic, east-west travel, and access to the villages along this route. Elements of the strategy include junction improvements, bus stop infrastructure, footpath and cycleway improvements and speed limit reviews.	No change - the updated area strategy will consider this further.
SV 2.11	Delivering improvements at Steventon traffic lights at the A4130 / B4017 junction and improvements to Featherbed Lane. To remove the 'bottle-neck' and improve journey times to the A34, Milton Park, other Didcot employment sites and to Wantage & Grove.	Parts of Featherbed Lane were widened in 2015. Oxfordshire County Council are currently at optioneering stage and are appraising potential interventions for Featherbed Lane and associated junctions (including Rowstock roundabout). Preferred options are to be identified within an Options Assessment Report due for completion in March 2022.
SV 2.12	Reducing congestion at Rowstock roundabout through measures to increase capacity of the junction.	See above.
SV 2.13	Delivering improved Access to Culham Science Centre (CSC) Phase 1 (new road from CSC entrance to the B4015 north of Clifton Hampden) to improve connectivity between Science Vale and the Eastern Arc of Oxford and direct access to CSC.	The infrastructure proposed in this policy is being delivered as part of the HIF project. The project is estimated to completed by 2024.
SV 2.14	Promoting schemes to provide relief to villages within Science Vale which are affected by high levels of through traffic.	No change - the updated area strategy will consider this further.
SV 2.15	Providing improvements to the A4130 between Didcot and Wallingford to reflect the volume of trips between the two towns. The ability to move reliably and safely along this corridor is important, particularly in helping to support planned employment growth in Science Vale.	No change - the updated area strategy will consider this further. Some S106 monies have been taken towards a scheme in this area.
SV 2.16	Delivering improved Access to Culham Science Centre (CSC) Phase 2 - new river crossing (between Didcot and CSC) to improve connectivity between Science Vale and the Eastern Arc of Oxford and direct access to CSC. This scheme also increases capacity for north/south movements across southern Oxfordshire and reduces pressure on the A34, whilst increasing network resilience across the Thames floodplain.	The infrastructure proposed in this policy is being delivered as part of HIF project. The project is estimated to completed by 2024.
SV 2.17	Delivering capacity improvements on the B4015 between Access to Culham Phase 1 and the A4074 to improve connectivity between Science Vale and the Eastern Arc of	The upgrading of this route is part of the scope of the optioneering exercise for the Golden Balls roundabout, this study is due to be

	Oxford.	commissioned late summer/early autumn 2021 and will take approximately 12 months to complete.
SV 2.18	Delivering capacity improvements at the Golden Balls Roundabout (junction of A4074 and B4015) to improve connectivity between Science Vale and the Eastern Arc of Oxford.	The optioneering exercise for the Golden Balls roundabout is due to be commissioned late summer/early autumn 2021 and will take approximately 12 months to complete.
SV 2.19	Delivering capacity improvements on the A4047 north of Golden Balls roundabout to improve connectivity between Science Vale and the Eastern Arc of Oxford.	The optioneering exercise for the Golden Balls roundabout is due to be commissioned late summer/early autumn 2021 and will take approximately 12 months to complete. The study will look at the need for bus priority measures north of the Golden Balls roundabout and consider the impacts of traffic growth along this corridor.
SV 2.20	Promoting capacity improvements to the A338 /A415 Frilford lights junction to improve accessibility between Wantage, Grove and Oxford.	The optioneering commenced in March 2021 and is due to conclude in April 2022. This optioneering exercise will consider all potential means of addressing the capacity issues at Frilford junction and the air quality issues within the Marcham AQMA.
SV 2.22	Providing new and substantially upgraded strategic cycle routes to Milton Park, Harwell Campus and Culham Science Centre through the Science Vale cycle strategy	See Cycle Strategy updates below.
SV 2.23	Securing safe and attractive walking and cycling routes as part of planning for new developments.	See Cycle Strategy updates below.
SV 2.24	Establishing links from new development to Public Rights of Way.	On-going.
SV 2.25	Establishing a bus route between Grove, Wantage, Milton Park and Didcot.	X36 linking Grove, Wantage, Milton Park and Didcot launched in January 2021.
SV 2.26	Promoting improved sustainable access to Culham Science Centre through enhanced bus connections and improved cycle routes to Abingdon and Didcot.	See Cycle Strategy updates below.
SV 3.1	Ensuring appropriate bus access, infrastructure and service patterns to complement plans for new development and suitably serve key destinations in Didcot town centre including Didcot Parkway station, the Orchard Centre and Broadway.	On-going.
SV 3.2	Securing the delivery of capacity improvements at Jubilee Way roundabout, to improve access to the town centre and support the on-going vitality of the Orchard Centre.	Jubilee Way roundabout now forms part of Didcot Central Corridor (DCC) scheme, therefore please see update below. This a standalone scheme will be removed from the updated strategy.
SV 3.3	Central Didcot Transport Corridors (Jubilee Way to Science Bridge and the Broadway) to transform the transport corridors through central Didcot, prioritising space for public transport, cyclists and pedestrians, address pinch point junctions and improve linkages between new development sites, the rail station and the town centre.	The DCC project is at the start of the procurement stage to commission a consultant to produce a placemaking strategy and options appraisal report for the project. The scope of this work has been widened to include a larger area for consideration.

SV 3.4	Pedestrian and cycle network enhancements providing improved routes with better signage to the town centre and Didcot Parkway together with better facilities at employment and residential sites, to encourage the use of sustainable, active modes of travel.	See below for cycling update. Better signage / wayfinding will be covered for certain routes in Didcot as part of the Didcot Central Corridor project.
SV 3.5	Promoting and delivering the Didcot Garden Town Green Corridors, we will work with the District councils to deliver green corridor routes for pedestrians and cyclists between the urban areas of Didcot and the surrounding countryside.	On-going.
SV 3.6	Promoting a strategic approach to planning for parking in Didcot to identify an appropriate balance of parking provision in the town and at the rail station to support town centre vitality.	On-going. Parking in the town centre will be picked up as part of the DCC study.
SV 4.1	Safeguarding and protecting the ability to provide a Southern Didcot road to relieve the B4493, southern residential roads and the town centre if significant additional development is allocated to the south of the town in the future.	Position to be reviewed in Area Strategy updates and with the District Council's Joint Local Plan work.
SV 4.2	Safeguarding and protecting the ability to provide a South Abingdon road if significant additional development is allocated to the south of the town in the future. This will provide a direct link from west Abingdon to the A415 to the east and relieve congestion in Abingdon town centre.	Position to be reviewed in Area Strategy updates and with the District Council's Joint Local Plan work.
SV 4.3	Safeguarding and protecting the ability to provide a Wantage Western Link Road if there is substantial additional development in west Wantage. This would complete the perimeter route for Wantage and provide relief to key roads within the town.	Position to be reviewed in Area Strategy updates and with the District Council's Joint Local Plan work.
SV 4.4	Safeguarding and protecting the ability to provide a station at Grove	Position to be reviewed in Area Strategy updates and with the District Council's Joint Local Plan work.
SV 4.5	Safeguarding and protecting the ability to provide A34 - Milton Park north facing slips if additional significant development comes forward in the Didcot area. This will provide a direct link between the A34 and Milton Park for traffic travelling to/from the north.	Position to be reviewed in Area Strategy updates and with the District Council's Joint Local Plan work.
SV 4.6	Safeguarding and protecting the ability to provide a Marcham bypass this may be required to help mitigate the Air Quality Management Area declared in Marcham village.	Position to be reviewed in Area Strategy updates and with the District Council's Joint Local Plan work. Further optioneering work is underway and this will inform what scheme comes forward.
SV 5.1	Secure strategic transport infrastructure contributions (including cycle schemes) from all new development based on the contribution rate per dwelling or per m2 for non-residential developments.	On-going.
SV 5.2	Secure strategic public transport service contributions for new or improved public transport services as well as bus stop infrastructure to support sustainable development.	On-going.

Science Vale Cycle Network	Our vision is for a world-class cycle network enabling users to make safe, efficient, connected journeys by bike." "Our ambition is to raise the status of cycling in the Science Vale area through the provision of innovative and high quality cycling facilities comparable with those found in the cycling countries of continental Europe, supporting the growth and investment being made in Science Vale.	See below for updates on specific routes within the Science Vale cycle network. The updated strategy will look again at the area and be formally known as the Science Vale Active Travel Network (SVATN) phase 2 and be expanded to take account of the additional allocated growth in the area (within SODC's Local Plan).
Science Vale Cycle Network - Route 1	Wantage to Harwell Campus.	This route (approx. 5000m) from West Lockinge, through Ardington Village to Hungerford Road, West Hendred is now completed as of December 2020 and allows cyclists traveling from Wantage to Harwell Campus to avoid the main roads of A417 and A4185. The rest of the route will be investigated as part of the SVATN stage 2 work.
Science Vale Cycle Network - Route 2	Wantage to Milton Park.	Steventon to Milton Park which forms part of this route, also known as the Cinder track, land has been safeguarded but landowner negotiations need to be undertaken. The route will be investigated as part of the SVATN stage 2 work.
Science Vale Cycle Network - Route 3	Abingdon to Milton Park.	3B1 (North Peep-O-Day-Lane) was opened on 24th April 2020, 3B2 (South Peep-O-Day Lane) was opened on 15th June 2020. Routes 3C and 3D have been delivered and include Improvements to an off-road section between Milton Park and Sutton Courtenay (3D) and signage improvements along Drayton Road, Brook Street, High Street and Milton Road (3C).
Science Vale Cycle Network - Route 4	Abingdon to Harwell Campus.	The route will be investigated as part of the SVATN stage 2 work.
Science Vale Cycle Network - Route 5	Didcot to Harwell Campus.	Route 5G has been delivered and includes a new stepped cycle track (approx. 900m) along Wantage Road, between Didcot Community Hospital and the B4493 Wantage Road Roundabout being constructed by Taylor Wimpey. The rest of the route will be investigated as part of the SVATN stage 2 work.
Science Vale Cycle Network	Didcot to Milton Park.	Routes 6A and 6B have been delivered and include street lighting along north side of Milton Road, Didcot, speed limit reduction to 40mph

- Route 6		and new traffic signals/speed limit signs. 6B includes conversion of the footway on the East side of Foxhall Road into a shared-use pedestrian/cycling facility. The rest of the route will be investigated as part of the SVATN stage 2 work.
Science Vale Cycle Network - Route 7	Abingdon/Oxford to Culham Science Centre.	Route 7A and 7C were delivered by December 2020 and include Improvements to existing off-road tracks along Abbey Meadows and Barton Fields. The rest of the route will be investigated as part of the SVATN stage 2 work.
Science Vale Cycle Network - Route 8	Didcot to Culham Science Centre.	Route 8G1 was delivered on the 5th November and include a new ramped cycle bypass lanes at two build-outs on the High Street in Long Wittenham (at the Red Barn and at No 35 High Street). The rest of the route will be investigated as part of the SVATN stage 2 work.
Science Vale Cycle Network - Route 9	Grove to Wantage.	The route will be investigated as part of a Local Cycling and Walking Infrastructure Plan (LCWIP) for Wantage and Grove.
Science Vale Cycle Network - Route 10	Didcot to Wallingford.	The route will be investigated as part of the SVATN stage 2 work.
Science Vale Cycle Network – not numbered	Steventon to Milton Park.	See Wantage to Milton Park above.
	Chilton to West Ilsley A34 Junction.	No change. The rest of the route will be investigated as part of the SVATN stage 2 work.
	Backhill Lane Tunnel.	Backhill Lane Tunnel was opened in November 2017.
	Berinsfield to Oxford.	The rest of the route will be investigated as part of the SVATN stage 2 work/ County strategic cycle routes work.
	Culham Village to Abingdon.	See Route 7 (Abingdon to Culham science Centre) above.

	A417 Cycle Path.	The route will be investigated as part of the SVATN stage 2 work.
	Didcot Station to Power Station Roundabout.	The Didcot LCWIP will look at potential options here.
	Cow Lane Underpass, Didcot.	The Didcot LCWIP will look at potential options here.
	Wantage Town Routes.	The Wantage and Grove LCWIP will look at potential options here.
	Other Towns and Local Schemes.	The routes will be investigated as part of the SVATN stage 2 work.
	Didcot – A Mini-Holland?	The Didcot LCWIP will look at potential options here.

Oxford Transport Strategy

Policy	Published Text	2022 Update / Context / Situation
MaaS Transit	Page 9 - Proposed Network - "In combination with work on the Oxfordshire Science Transit and Oxfordshire Bus Strategy, the Oxford Transport Strategy (OTS) helps to define the strategic transit network for the County (shown in the schematic plan). With Oxford as the central hub, the network will improve transport links within and beyond Oxfordshire; improve access for residents; and increase the connectivity to locations of major growth."	City & District Councils' Local Plans include new housing & employment allocations including Oxford unmet need sites. Network plans to be reviewed in light of this.
		Bus Service Improvement Plan (BSIP) required by October 2021, with Enhanced Partnership Plan to become effective from April 2022. Network plans to be reviewed in light of this.
	Page 13 - The future of Park & Ride - "Future housing and employment growth within Oxfordshire is set to further exacerbate congestion on the A34, the outer ring-road and other corridors that feed into the city, unless traffic can be captured before it reaches them. The expansion of the current city-edge Park & Ride sites to meet forecast levels of demand would add substantially to traffic levels on already congested routes. New outer Park & Ride sites are therefore proposed for the following corridors....."	Oxford Park & Ride study, which identified sites for outer P&R, was completed in 2016. The strategy needs updating to take into account adopted City & District Local Plans, and associated housing allocations, expansion of Seacourt Park & Ride, & potential longer term impacts of COVID-19 on travel demand & working from home as well as major behaviour change programmes in Oxford (Core Schemes & Zero Emission Zone), for example.
		Planning application for Eynsham Park & Ride now approved, with construction expected to start in early 2022 & end late summer 2024.
	Page 14 - Corridor prioritisation - "RT and buses will be prioritised to enable smooth, fast and reliable progress through: segregation (e.g. bus lanes); selective vehicle detection and prioritisation at traffic signals; traffic reduction; traffic management (e.g. queue relocation); and removal of obstacles such as loading and parking bays....."	Several corridor studies have been completed, or are underway, to consider the design of facilities for cycling and walking as well as bus services. These include radial & orbital routes within the city, such as Abingdon Road, the B4495, Banbury Road, Botley Road, Iffley Road,

		Woodstock Road, & approaches to Oxford including A44, A4165 & B480. Botley Road improvements (Phase 1) are already underway with scheme completion expected by May 2022. Funding, via the Oxfordshire Growth Deal, has also been secured for designing improvements on Banbury Road & Woodstock Road, including implementation on Woodstock Road. Core Scheme proposals allow for reconsideration of how highway space is redistributed and prioritised, given a low traffic environment.
		A40 'integrated bus lane' construction expected to be completed by March 2024 subject to gaining planning permission.
	Page 10 - Oxford Station Masterplan - "The City and County Councils and Network Rail have produced a joint master plan for Oxford Station (shown right). The master plan provides a bold vision and implementation strategy for the comprehensive redevelopment and improvement of the station...."	Adopted Supplementary Planning Document (SPD) for Oxford Station is being updated with the Oxford Station Masterplan at options development stage. A public consultation is currently programmed to launch in December 2021 / January 2022.
	Page 10 - Cowley Branch Line - "The Cowley branch line is currently used only for transporting freight by BMW. However, the line's proximity to the new and expanding employment area of the southern Eastern Arc, suggests that it could play a key role in future increased transportation of both freight and passengers...."	The Oxfordshire Rail Corridor published in June 2021; assesses the impact of planned growth in jobs and housing on Oxfordshire's rail system and identifies the role that rail can play to support the delivery of that growth. The Cowley Brach Line is within the scope of the study.
Walking and cycling	Page 21 - Enhancing the cycle network - "Cycle route enhancements are needed to provide safe and direct access to employment, educational and commercial destinations, but also to extend coverage across residential areas. Achieving this will require a combination of high quality routes providing access to key destinations, better cycle parking and other measures which make cycling easier and more attractive for short and medium-distance trips....We propose a network based on a hierarchy of Cycle Super Routes and Premium Routes (shown in the figure opposite) and Connector Routes linking major origins and destinations"	Several corridor studies have been completed, or are underway, to consider the design of facilities for cycling and walking as well as bus services. These include radial & orbital routes within the city, such as Abingdon Road, the B4495, Banbury Road, Botley Road, Iffley Road, Woodstock Road, & approaches to Oxford including A44, A4165 & B480. Botley Road improvements (Phase 1) are already underway with scheme completion expected by May 2022. Funding, via the Oxfordshire Growth Deal, has also been secured for designing improvements on Banbury Road & Woodstock Road, including implementation on Woodstock Road. Core Scheme proposals allow for reconsideration of how highway space is redistributed and prioritised, given a low traffic environment.
		The Oxford Local Cycling & Walking Infrastructure Plan (LCWIP), adopted by the county council in 2020, sets out a programme & specific measures to bring about a much more developed cycling and walking network for Oxford. In updating the OTS the Oxford LCWIP needs to be taken into account.
		Various schemes including Low Traffic Neighbourhoods, Quietway's & Quickways being introduced in Oxford, & funded by the Department for Transport's Active Travel Fund, to reallocate road space to cyclists and

		pedestrians and create an environment that is safer for walking and cycling.
		Several schemes have been introduced, or are underway, to improve & develop off-road quieter cycle routes in Oxford, including towpath & waterway upgrades, to provide alternatives to the main road network.
	Page 24 - Encouraging walking - "There is a need for major improvements to public realm and 'sense of place' in the city centre. In the short term, the pedestrianisation of George Street and Queen Street, as well as public realm improvements to St Giles, Magdalen Street and Frideswide Square will greatly improve the quality of public place within the city centre. By 2025, the establishment of the city periphery transit terminals and traffic control measures will allow Park End Street, New Road, Castle Street and Norfolk Street to become an extension of the low trafficked central core and will provide an almost uninterrupted walking route from the station to the centre. In the longer term, the ambitions for shifting bus movements underground will allow for more radical public realm improvements on High Street and St Aldates where opportunities are currently limited due to their key role as the only access to the centre from the east."	Pedestrianisation of city centre streets is dependent on effective traffic reduction which is already being investigated as part of the Core Scheme proposals, and to a lesser extent, the Zero Emission Zone (ZEZ). The strategy for city centre movement, including public realm, needs to be updated & further developed taking into account these proposals and their expected traffic reduction benefits. The county & city councils commissioned the City Centre Movement & Public Realm Strategy in 2018, which puts forward options for traffic movement and the public realm in Oxford city centre.
Managing Traffic & Travel Demand	Page 18 - Zero Emission Zone - "Through the application of a Traffic Regulation Condition, Oxford city centre is already a Low Emission Zone and operators have made great efforts in delivering vehicles which met Euro V emission standards, and are working on introducing even cleaner technologies in the near future. However, the ambition of the OTS is to start a city centre zero-emission zone for all vehicles by 2020, with the zone being gradually expanded over time as the required infrastructure and technology develops. This will support objectives to improve air quality and targets to reduce emissions from vehicles."	A final Zero Emission Zone (ZEZ) Pilot scheme was approved by the county & city councils in March 2021, with implementation expected later 2021. A wider ZEZ, covering most of Oxford city centre, is also planned subject to the outcomes of further technical work & consultation. The ZEZ will be enforced via an emissions-based local charging scheme.
		A "Euro VI" Low Emission Zone for local buses was agreed in 2019. This was due to come into effect in December 2020 but was delayed because of COVID-19. It may now be superseded by the Zero Emission Bus Regional Areas (ZEBRA) scheme if successful.
		In response to the climate emergency the county council has published its declaration '*Climate Action for a Thriving Oxfordshire*' setting out a commitment to be a zero-carbon organisation by 2030, and fully playing its part in creating a zero-carbon Oxfordshire. This includes publication of its Climate Action Framework. Oxford City Council's Air Quality Action Plan 2021-25 (approved by city Cabinet on 20 January 2020), which amongst other things, includes a local target to reduce nitrogen dioxide concentrations to 30 µg/m3 (significantly lower than the current legal limit value of 40 µg/m3) by 2025. Oxford City Council's Net Zero Action Plan (March 2021) sets out a net zero-carbon city by 2040 or earlier.

		The government released its Decarbonisation Plan in July 2021.
	Page 28 - Workplace Parking Levy - "...within Oxford it is proposed, subject to further work and consultation, that a city-wide Workplace parking levy (WPL) is introduced."	The Core Schemes, which include proposals for a workplace parking levy & traffic filters in Oxford city, was published in October 2019. Implementation is expected from 2023, subject to the outcomes of further technical work & consultation.
	Page 29 - Traffic Filters - "....it is proposed that traffic levels are reduced in the longer term by placing further restrictions on through traffic (whilst allowing unimpeded bus movements) by implementing access controls. These restriction points could be full or part-time closures – similar to the existing bus gates – or road user charging points."	
	Page 28 - Controlled Parking Zones - "Growth in the city, coupled with demand management measures – in particular WPL – will mean further expansion of Controlled Parking Zones (CPZs) is required in the city to ensure that parking is not just displaced to residential streets. Large parts of the city are already covered by CPZs and where these have been implemented they have been extremely successful in removing commuter parking. Further work will be required to understand where additional CPZs are needed along with consultation with local residents. Over time is likely that the majority of streets in the city will be covered by parking restrictions."	The Oxford Controlled Parking Zone (CPZ) programme was approved by the county's Cabinet Member for Environment in June 2019. Several CPZ schemes have since been introduced with a further 5 schemes planned for late 2021 or early 2022, subject to the outcomes of formal consultation.
	Page 30 - Freight/Deliveries - "Demand forecasting for 2031 indicates that around 2,500 HGV trips will be made to, from and within the city between 8am and 6pm per day, over a third of which would occur during the morning peak hour. To reduce the impact of freight on congestion, noise and air quality, the following measures will be developed: delivery & Servicing Plans; construction Logistics Plans; out of hours deliveries; freight will be expected to comply with increasing emissions requirements; local consolidation points; and freight consolidation centres for business, retail and construction."	Freight & deliveries in Oxford city centre will need to be reviewed, including consideration of freight consolidation, in light of Core Scheme & the Zero Emission Zone proposals. This will also need to take account of COVID-19 impacts & increasing use of the internet to access services and for purchasing goods etc.
	Page 27 - Highway Capacity Improvements - "The existing policy of improving the key ring road interchanges is consistent with the proposal to remove trips from the 'inner ring road' (the B4495) and other inner city routes. This will be continued in the short-term with the schemes at Cutteslowe and Wolvercote Roundabouts; whilst longer term plans at the A34 Botley and Peartree interchanges are being considered by National Highways, along with Intelligent Transport Systems (ITS) such as Variable Message Signs and variable speed limits to be applied along the A34 corridor. The proposed ring road improvements are shown on the plan opposite."	Upgrades to Cutteslowe & Wolvercote Roundabouts were completed in 2016.
		National Highways is in the early stages of exploring opportunities to reduce congestion and improve safety on the A34 between the M4 and M40. Peartree Interchange sustainable transport improvements are being bought forward through the Oxfordshire Growth Deal.

Appendix 2 - Health Impact Assessment of infrastructure schemes checklist

As outlined in policy 12, we are proposing to expand the use of Health Impact Assessments (HIAs). This checklist has been designed to support HIAs. It provides questions to consider when assessing a proposal. The questions are not exhaustive, and not all questions will be of relevance to all proposals.

These questions are included in an assessment tool which will be shared with relevant stakeholders for use at different stages of scheme development. The assessment should be undertaken as early as possible in the development process so that potential health gains can be maximised and any negative impacts mitigated.

When assessing schemes using the tool, schemes are scored from -1 to +4:

- -1 = Makes current situation worse
- 0 = No change to current situation, out of the scheme's control or not relevant
- 1 = Slight improvement
- 2 = Notable improvement
- 3 = Drastic improvement
- 4 = Gold standard

Where a full HIA is to be conducted, the scope should be agreed with the County Council public health team and be informed by local guidance on use of HIAs.

Checklist questions

Key requirements and principles of LTN 1/20	
Direct	Routes provide the shortest and fastest way of travelling from place to place and getting to the site.
	Cycle routes flow, feeling direct and logical.
	Access control measures, such as chicane barriers and dismount signs, are not used.
Safe	**Cyclists** are physically separated and protected from high volume motor traffic.
	Pedestrians are physically separated and protected from high volume motor traffic.
	There is a high level of safety **between active travel modes** (i.e. pedestrians and cyclists can coexist safely and with adequate space).
	The scheme area is perceived to be safe from a personal safety perspective e.g. crime.
Comfortable	Cycle infrastructure should be accessible to everyone, taking into account all age groups, disabilities etc.
	Routes are monitored and maintained to a high standard.
	Surfaces must be hard, smooth, level, durable, permeable and safe in all weathers.
	Schemes must be easy and comfortable to ride.
Attractive	Environment should be attractive and stimulating.
	Environment should be free from litter and vandalism.

Coherent	People must be able to reach their destinations easily.
	Schemes must be legible, understandable and easy to navigate.
	Schemes must be clearly and comprehensively signposted and labelled.
	Schemes must be consistent and of high quality.
Other	Cycle infrastructure caters for a significant number of cyclists, and for non-standard cycles.
	Cycle infrastructure must join together, or join other facilities together by taking a holistic, connected network approach.
	Provision of secure and accessible cycle parking.
Additional requirements taken from the Healthy Place Shaping Infrastructure Ranking Tool	
Other	Opportunities for active travel have been provided and/or enhanced.
	The needs of **children** are met.
	The needs of **older people** are met.
	The needs of **minority groups such as the LGBT and BAME communities** are met.
	The needs of **those with mental or physical disabilities** are met.
	The needs of users **from areas of deprivation** have been met.
	The scheme increases access to natural and green spaces, sports and recreational areas/land.
	The scheme adopts measures to tackle the impacts of climate change e.g. use of SUDS as flood protection and tree planting for shading.
	The scheme creates a safe environment which promotes good physical and mental health, **on approach to the scheme location** (where applicable).
	The scheme creates a safe environment which promotes good physical and mental health, **while within the boundary of the scheme.**
	Infrastructure enhances and protects connectivity between communities, destinations and places e.g. enhanced connectivity between homes, businesses and services, community spaces and the '20-minute neighbourhood'.
	The scheme promotes social interaction between a wide range of users at different times e.g. there are places to stop, rest and interact with other people.
	Integrates green and blue infrastructure, protects biodiversity, natural capital and climate resilience into scheme design and maintenance e.g. green walls, planters, water (where applicable).
	The impacts on health and wellbeing have been mitigated and reflected in the design.
	Health and health enabling infrastructure are referenced in the scheme objectives as something that will receive dedicated focus in the design.
	The **design contract** requires the delivery of Active Travel infrastructure (where applicable).
	The **construction contract** requires the delivery of Active Travel infrastructure (where applicable).

Appendix 3 – Guidance for new developments

As outlined in policy 36, we are promoting a 'decide and provide' approach to transport planning for new developments. This approach decides on the preferred future and then provides the means to work towards that which can accommodate uncertainty. This offers the opportunity for more positive transport planning and helps implement a transport user hierarchy by considering walking and cycling up-front

We have produced this guidance for residential developments to complement the 'decide and provide' approach and will work to embed it into relevant guidance and decision making processes.

Connectivity between new developments and existing settlements

- Plan at an early stage and deliver direct and safe connections which prioritise access on foot, bike or bus to/from neighbouring settlements and places of employment, retail, education and leisure facilities. This includes improving existing cycling and walking infrastructure that link the development to neighbouring communities and avoid severance, particularly where communities are located next to major roads.
- Roads and junctions (including signals and roundabouts) connecting to developments need to prioritise walking, cycling and public transport from the outset so that there is sustainable access for residents and businesses.
- New roads and junctions need to be futureproofed in line with the Innovation Framework.
- New roads should be designed in accordance with DfT's 'Manual for Streets', Oxfordshire County Councils Street Design Guide and Oxfordshire County Councils Walking and Cycling Design Guides.
- New streets should be designed in accordance with the Healthy Streets Approach, LTN 120 and the Department for Transports Inclusive Mobility.
- Implement traffic calming measures including 20 mph limits on sustainable routes to new developments to ensure safety.
- Excellent access to interchanges with other transport networks such as rail and park and ride hubs need to be designed and delivered early in the development.
- Plan ahead for future sustainable links where there are potential development extensions.
- Consider measures for deliveries to be deployed in a sustainable way e.g. freight consolidation to reduce impacts of larger vehicles in residential areas.

Connectivity within the new development

- Comprehensive networks for cycling, walking and public transport which offer direct, continuous and uninterrupted routes to facilities need to be delivered in Phase 1 of the development.
- Spatial planning should aim to deliver well connected, walkable 20-minute neighbourhoods with facilities within the development that reduce the need for travel.

- Walking and cycling routes should be safe (consider surveillance, sight lines, lighting, segregation), convenient (consider directness, design speeds, minimise need to stop or divert), well landscaped, and designed to provide an inclusive street environment that meets the needs of people from early to later life.
- Wayfinding should be installed to promote movement on foot/by bike and needs to be designed to encourage residents to use active travel for short trips.
- Filtered permeability and low traffic neighbourhoods should be included, making cycling and walking routes more direct and attractive than using a car.
- Ensure the needs of those walking, including older or disabled residents, are fully considered, such as the need for shade and shelter (e.g. trees), gradients and seating for rest on the way.
- Provide mobility hubs in a range of locations and sizes in order to improve interchange opportunities, connectivity and accessibility.
- Walking and cycling infrastructure should be designed to deliver LCWIP targets for modal shift.

Access to local facilities, services and employment

- Create easy access on foot/by bike to facilities within and close to the development that enable social interaction and reduce the need to travel.
- Provide effective digital connectivity to enable home working and include flexible work/office space.
- Cycle parking that meets our best practice requirements (Appendix 5) and considers different users and types must be built into all new developments as the first consideration so that it is at least as easy to use a cycle as use a car.
- Parking should be provided in accordance with Oxfordshire County Councils parking standards.
- Developments should be designed so that pavement parking does not occur.
- Where car parking is provided, an effective network of EV charging should be included following standards set out in OEVIS and access provided to an electric car club.
- Provide suitable parking for motorcycles that meets our best practice requirements.
- Limit car spaces for each household, including consideration of car free developments and encourage provision of well-designed parking courtyards with good surveillance.
- Consider the allocation of visitor parking spaces that can be used flexibly during the master planning stage.
- Restrict non-residential parking to a minimum, consider implementation of complementary parking restrictions and design so that they can be easily repurposed for other uses.
- Provide frequent, reliable and easily accessible public transport to local facilities, employment and nearby town centres.

- Create a positive bus environment, including real-time information at stops, accessible, safe and well-lit bus shelters which facilitate modal interchange by providing cycle parking at key bus stops.

Access to communal spaces, including green or blue spaces

- Provide easy access to a network of open and green spaces (within a 10-minute walk) to enhance health and wellbeing. These should provide a mix of formal play spaces and informal open space that promotes biodiversity.
- Integrate planting to provide shade and shelter into walking and cycling routes and on structures like bus stops.
- Consider the location of green infrastructure to help improve air quality and carbon sequestration.
- Provide seating so that there are regular opportunities to stop and rest and lighting to increase accessibility and safety of green spaces.
- Provide safe access to high quality communal spaces that have been inclusively designed and promote social interaction.
- Link footpaths and cycle routes within the development with existing rights of way to facilitate access to neighbouring countryside.

Appendix 4 – Mobility Hubs

Type of mobility hub	Typical activity	Typical locations in Oxfordshire	Typical Facilities and services
Major interchange	Large number of people changing between transport modes	Existing or planned Park and Ride sites around Oxford and busy rail stations. For example Oxford, Didcot, Banbury and Bicester	• High quality waiting and ticketing facilities, including travel information (digital and/or static), refreshments and toilets • Covered, secure cycle parking and motorcycle parking • EV charging, including for car club parking, motorcycles and freight vehicles • E-bike and normal bike rental options, including cargo bike options • E-scooter hire options • High quality pedestrian and cycle routes to the surrounding area • Freight consolidation/ package delivery facilities • Community art/ play facilities • Taxi rank • Convenience shopping
Transport Corridors	People accessing high frequency bus services or rail services	Key road corridors and smaller rail stations. For example A420, A4074. Cholsey and Culham	• High quality waiting facilities and travel information • Covered, secure cycle and motorcycle parking • High quality pedestrian and cycle routes to settlements nearby, including crossing points
Employment/ housing development	People arriving on and/ or accessing longer-distance public transport travel options	New local plan strategic sites and expanding business parks	• High quality waiting facilities and travel information • Covered, secure cycle and motorcycle parking • High quality pedestrian and cycle routes to surrounding development • Car club facilities, including EV charging • Freight consolidation/ package delivery facilities

Suburban, smaller settlements and rural areas	People arriving on and/ or accessing longer-distance public transport travel options	Suburban areas of larger settlements and central locations of smaller settlements or rural areas across Oxfordshire (particularly on bus routes)	• High quality waiting facilities and travel information • Covered, secure cycle and motorcycle parking • Bike repair stand • High quality pedestrian/ cycle routes to surrounding areas • High quality urban realm- e.g. play equipment. Parklets • Car club facilities, including EV charging • Package delivery facilities
Tourism hubs	People accessing leisure and tourist activities	Bicester Village Station, central Woodstock and parts of central Oxford	• High quality waiting facilities and travel information • Covered, secure cycle and motorcycle parking • Bike repair stand • High quality pedestrian/ cycle routes to surrounding areas • High quality public realm,- e.g. play equipment, public art

Appendix 5 – Parking guidance

Cycle parking
Providing more convenient, secure and accessible cycle parking will be a critical part of increasing cycling in the county and making it a natural first choice for journeys. Considering different users and types of cycle parking will be an essential part of this.

Cycle parking needs to be provided both at the start of a cycle journey from home and at the end of the cycle journey. Destinations include town and district centres, workplaces, shops, train stations, colleges or schools, local parks, places of worship, restaurants and other leisure centres such as cinemas. There should also be visitor cycle parking for people visiting residences, particularly blocks of flats.

Destination cycle parking is broadly divided into 2 types:

- Short term – people making short visits such as to shops
- Long term – people leaving bicycles unattended for most the day or overnight

Residential cycle parking is also key to promoting cycling. People using their cycles every day value convenience and ease of access, which means having cycles very near the front door. Those with more valuable bikes or who ride less frequently may put a higher value on security. In terraced streets and by blocks of flats, on-street cycle parking is one option. This may include the removal of car parking spaces to introduce on-street cycle hangars.

These types have different requirements and so different solutions are required. There are also different types of cycle that need to be considered. For example, children's cycles, tricycles, cargo bikes and bicycles with panniers or baskets.

We expect local district councils to set out appropriate levels of cycle parking provision for all residential and non-residential developments, in line with cycling targets and the need to encourage more cycling.

To ensure these considerations are made and that suitable cycle parking is provided, we are setting out the following requirements which will need to be met by any new cycle parking, be it new developments or retrofitting schemes. In line with our transport user hierarchy, cycle parking should be considered first and should be:

- **Convenient** – placed as close to main entry/exit points as possible and generally nearer than non-disabled car parking
- **Visible**
- **Easy to access**, so that one can easily ride all the way to the cycle parking
- **Secure and safe**, in terms of both the user and cycles, including lighting and surveillance
- **Protected from weather** – long stay parking should always be covered
- **Fit for purpose**
- **Well managed and maintained**
- **Suitable for all users** – including consideration of age, physical ability and type of bicycle

Motorcycle parking

In line with our transport user hierarchy, motorcycle parking should be considered ahead of private car parking. Motorcycle parking has the same considerations as cycle parking and should also meet the cycle parking requirements above. Future electric vehicle charging infrastructure should also consider motorcycle parking requirements such as the need for a secure ground anchor.

As part of our broader work on parking we will review and map current motorcycle parking. We will make the mapped data available publicly so that facilities can be easily located. This review will also help to identify gaps in provision and guide future work.

In the short term, we have provided a high level summary of existing motorcycle parking and costs below:

District	Marked bays	Cost
Oxford City	Oxpens	Free to use designated on-street parking and any car park except Gloucester Green underground car park
	Broad Street	
	St Ebbes	
	St Giles	
	Oriel Square	
	Thornhill Park and Ride	
Cherwell	Banbury	Free in designated motorcycle area
	Bicester	
	Kidlington	
South Oxfordshire	Didcot	Free to use any car park
	Henley	
	Wallingford	
Vale of White Horse	Abingdon	Free to use any car park
	Faringdon	
	Wantage	
West Oxfordshire	Witney	Free to use any car park
	Chipping Norton	

Other forms of micro-mobility

Depending on future legislation, we will expect provision for parking of other forms of micro-mobility. Kick scooter and E-scooter parking is space efficient. Many primary schools already provide for kick scooter parking.

Zero emission vehicle parking

Many households in Oxfordshire have no access to private off-road parking, and subsequently have limited or no access to home charging for BEV's. This is a significant barrier to BEV uptake for many households.

Oxfordshire County Council, as the local highways authority, recognises the need to enable safe access to BEV charging for residents who must park their car on the public highway.

In line with the OEVIS, our priorities for enabling this will be in the first instance seeking to create off-street charging hubs. Where this is not possible, we will explore low impact on-street charging solutions and then on-street charging bollards.

Private car parking

As outlined in our vision, we are seeking to reduce the number of unnecessary private vehicle journeys. Parking policy changes are one way in which this can be achieved, particularly for shorter journeys which residents could walk or cycle.

One example of this is the Oxford workplace parking levy (WPL) which is currently being progressed. Following implementation of the Oxford WPL we will consider further WPL's across the county. Other parking policy changes we will explore are the extension of controlled parking zones (CPZs), higher parking charges in town centres and the removal of on-street parking spaces for other purposes.

We also expect district authorities to set parking standards for residential and non-residential developments that support the LTCP objectives. This includes encouraging car free developments. For instance, in Oxford, all new residential developments in a CPZ will only provide disabled parking provision.

Governance

To ensure clear direction of emerging Parking Strategies and Policies, 2 tiers of governance are in place to provide oversight and co-ordination with other agencies. The first is a parking board attended which is represented by different departments and stakeholders from multiple agencies. The second is the Parking Steering Group represented by elected county councillors who review decisions and proposals presented by the Parking Board.

Fees and charges

The management of parking is one of the most effective means of tackling congestion and its worst effects. Well planned location, availability, price and enforcement of parking can contribute significantly to easing traffic flows, especially in the peak periods, making all journeys more reliable.

Fees and charges are reviewed on an annual basis to ensure they continue to meet the council's objectives by ensuring the parking service to remains financially secure.

Coach parking

Oxford's unique character as a leading university city and a historic centre sets it apart from the rest of the county and attracts much more travel than most towns or cities of comparable size. Tourism, business and academia are vital to the economy and 35% of the county's jobs are in the city

Throughout the year thousands of coach journeys are made into the city centre to drop off and pick up visitors to the historic parts Oxford.

There are currently three main drop-off and pick up points within the city centre, but these are less than ideal often with associated complaints around air quality and congestion where coaches do not move on and sit with their engines idling.

The county and city council face both short and long-term challenges to find a balance of welcoming coach visitors to the city but protecting the environment within the city centre.

We will develop a comprehensive coach parking strategy that takes into account all relevant factors and evidence. The identified solutions will link and complement existing core strategies such as the planned Zero Emissions Zone and Core Scheme proposals.