Oxfordshire County Council Mobility Hub Strategy

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OXFORDSHIRE COUNTY COUNCIL

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Contents

Executive summary

Introduction

There are a number of challenges associated with Oxfordshire's transport network. Our [Local Transport and Connectivity Plan](#) (LTCP), adopted in July 2022, seeks to address these challenges. It outlines our long-term vision for transport and travel in the county and the policies required to deliver this. The need to improve multi-modal travel and better integrate different transport modes is key to addressing all of our challenges.

This strategy outlines how we will develop mobility hubs to improve multi-modal travel. This is key to implementing the LTCP, particularly policies 22 and 23 which outline our proposal to make multi-modal travel as a central option for transport planning and to develop a network of mobility hubs across the county.

Policy context

There are a number of key policies and workstreams that provide context for why we have developed this strategy and have helped to shape the content. The key policies and workstreams are:

- **Local Transport and Connectivity Plan (LTCP)** – The LTCP mobility hub policy outlines our proposal to develop a network of mobility hubs across the county.
- **Bus Service Improvement Plan (BSIP)** – The BSIP sets out plans for mobility hubs alongside the introduction of some new rural bus routes.
- **Oxfordshire Bus Summit** – The summit developed a manifesto that outlined a vision for Oxfordshire. Ambition 1 of the manifesto is to create a network of mobility hubs.
- **Park and Ride Strategy Group** – This is a stakeholder group that considers operational improvements and develops strategy for Oxford's park and ride sites. This strategy will help to inform how these sites evolve.
- **Bus Enhanced Partnership** – This is a legal agreement between the county council to Oxfordshire's bus operators to improve joint working.

Mobility hub context

Mobility hubs are an existing concept with examples of ongoing and complete hubs both within the UK and across Europe. We have sometimes used the term 'transport hub' in Oxfordshire. The underlying concept remains the same, but we have chosen to use 'mobility hub' moving forward as it aligns with national work and better captures the overall experience of travelling.

During development of this strategy, we have reviewed mobility hub work by other local authorities and organisations, to develop an Oxfordshire mobility hub proposal. This incorporates many aspects from elsewhere but redefines and tailors them to the Oxfordshire context.

Following this review of existing work, we have developed an Oxfordshire mobility hub definition. We define mobility hubs in the following way:

"A mobility hub is an area in which a variety of transport modes and community assets are co-located for seamless interchange. These facilities provide added benefit to communities and combined they make up an easy-to-use transport network."

Benefits of mobility hubs

Developing a mobility hub network will deliver a range of benefits to residents in Oxfordshire. They will also help to support delivery of our ambitions in a range of different areas such as transport and healthy place shaping. Key benefits of mobility hubs are:

- Support the prioritisation of sustainable transport modes
- Improve health and well-being of residents
- Support the development of an integrated public transport network
- Support the development of an inclusive transport system
- Support the development of 20-minute neighbourhoods
- Improved public realm
- Raise profile of shared services
- Management of emerging services
- Help to tackle rising cost of living

Development process

This document sets out our principles behind mobility hubs. However, it does not identify proposed mobility hub locations or what will be included at each location. Further work will be required to take forward the principles from this document. This will be conducted as part of a 4-stage process:

- **Strategy** – Production of the mobility hub strategy to identify key principles, essential criteria, typologies and set a standardised approach.
- **Location identification** – Identification of feasible locations for different types of mobility hubs through LTCP area travel plans, the planning process and stakeholder engagement.
- **Business case development and detailed design** – Develop business cases and detailed designs for the locations identified.
- **Delivery** – Delivery of the mobility hubs identified and designed.

Essential criteria

We have outlined some essential criteria which all mobility hubs in Oxfordshire must meet. Our essential criteria are:

- Mobility hubs must facilitate transport interchange between at least two transport mode options.
- Mobility hubs must have at least one element from each of the 4 element groups.
- Mobility hubs must have visual, social and community appeal.
- Mobility hubs must be accessible and understandable to all.

Mobility hub typologies

To build on our essential criteria, we have defined 4 different types of mobility hubs that we will develop in Oxfordshire. These typologies have been developed to outline the different size mobility hubs we will be developing. The typologies also include the possible elements that could make up each mobility hub type. The 4 typologies we have developed are summarised below.

Major interchange hubs

Largest typology – busy railway stations, park and ride sites, high passenger numbers changing between various modes

Linking hubs

Busy town centres, busy urban high streets, business/retail/science parks - focus on services that link residents to key destinations

Suburban and rural hubs

Smaller-sized hub connecting residential areas to larger retail/employment centres, tailored to suit local issues – suburban high streets, housing developments, large village centres

Mini hubs

Smallest typology, designed with Oxfordshire's rurality in mind – bus stops along suburban/rural routes, small village centres, villages with limited bus services

Figure 1 – Summary diagram of mobility hub typologies

Location identification

Specific locations will primarily be identified through the LTCP area travel plans. Development of the area travel plans will include local engagement and evidence collection. They will therefore be well placed to identify suitable locations for mobility hubs utilising the guidance in this strategy. We will also work to identify locations through the planning process and stakeholder engagement.

To assist with identifying mobility hub locations and to provide a consistent approach to location identification we have identified the key factors that should be considered:

- Proximity to destinations
- Connectivity
- Planning constraints/opportunities
- Safety
- User base
- Feasibility

Detailed design

Once locations have been identified, work is required to develop business cases and detailed designs. This stage of work will consider the business case justification, exactly which elements the mobility hub will include, how the mobility hub will look and possible costs.

When developing detailed designs for a mobility hub there are a number of factors that should be considered. We have summarised these considerations in this strategy to ensure that they are incorporated from the outset when designing mobility hubs. The considerations during detailed design are:

- Future proofing
- Local users' needs
- Intentional design
- Accessibility
- Signage

Delivery processes

The final stage of our mobility hub development process is delivery of the detailed designs. There are a number of different ways mobility hubs could be delivered. Alongside traditional approaches, mobility hubs could also be delivered incrementally or in partnership. The approach taken will depend on a number of factors related to the individual location.

Funding

Funding will be required to deliver mobility hubs. The potential funding sources available to the county council to deliver mobility hubs are developer contributions, funding bids, partnership working, operator or private sector investment and income generated from mobility hubs.

Additional elements to support delivery

In order to support the delivery of a mobility hub network, there are several additional elements that should be considered. These additional elements are branding, ticketing, mobility as a service and communications. This strategy does not provide plans for these additional elements. They are included here to highlight what will be considered by the county council as we begin to deliver mobility hubs across the county.

Monitoring

Monitoring outcomes from this strategy will be covered as part of the overall LTCP monitoring process. The monitoring of the LTCP will include the headline targets and the key performance indicators (KPIs). The headline targets and KPIs have been designed to measure the impact of Oxfordshire's transport policies which includes mobility hubs.

Whilst monitoring of the overall strategy outcomes will be conducted as part of the LTCP monitoring process, we will also seek to monitor the specific outputs of this strategy, subject to funding and resource availability. For example, the number of mobility hubs delivered and usage of the services at a hub.

Introduction

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. It also affects residents' everyday experiences and health.

There are a number of challenges associated with Oxfordshire's transport system that we are working to address to enable all residents to have a high quality of life and create a healthy, sustainable county. One of the key challenges is private car use. We have seen a 36% increase in vehicle miles in Oxfordshire since 1993[1]. Many of these journeys by car could be taken by public transport or more sustainable modes.

The rising car use is having negative impacts on Oxfordshire. For example, congestion is disrupting journeys and accommodating and managing vehicles in our towns and villages has created environments that are less welcoming places for people. Transport is also responsible for the largest proportion of greenhouse gas emissions in the county (36%[2]).

Other challenges include planned housing growth in the county which will place further strain on the transport system, areas of poor transport connectivity, specific challenges in rural areas and barriers to an inclusive transport system.

Our Local Transport and Connectivity Plan (LTCP), adopted in July 2022, seeks to address these challenges. It outlines our long-term vision for transport and travel in the county and the policies required to deliver this.

The need to improve multi-modal travel and better integrate different transport modes is key to addressing all of these challenges. One way in which we plan to do this is through the development of mobility hubs. The LTCP mobility hub policy outlines our proposal to develop a network of mobility hubs across the county. This strategy is the first step towards implementing the LTCP policy.

Oxfordshire pioneered improving multi-modal travel in 1973 with the creation of the UK's first Park and Ride at Redbridge in the southeast of Oxford. This was the start of the comprehensive P&R network in place today. This strategy sets out our ambitions to continue to be transport pioneers, to go beyond the success of the Park and Ride and expand connectivity across a range of transport modes.

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[1] https://www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra
[2] University of Oxford Transport Studies Unit: Pathways to a zero-carbon Oxfordshire

Policy context

This chapter provides background information about why we are developing a mobility hub strategy, how the strategy fits into the broader transport policy context in Oxfordshire and what work has informed the strategy's content.

Local Transport and Connectivity Plan

The Local Transport Connectivity Plan (LTCP) was adopted by the county council in July 2022. 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 also includes a set of headline targets to track delivery of the vision.

By 2030 our targets are 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 targets are 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

In order to deliver these targets and deliver our vision for transport, the LTCP identified the need to improve multi-modal travel and better integrate different transport modes. One way in which we plan to do this is through the development of mobility hubs. The LTCP mobility hub policy (policy 23) outlines our proposal to develop a network of mobility hubs across the county.

This strategy is the first step towards implementing the LTCP policy. It builds on the high-level considerations in the policy and provides more detail about how we plan to develop mobility hubs across Oxfordshire.

Bus Service Improvement Plan

The strategy has also been informed by the county council's Bus Service Improvement Plan (BSIP), approved in 2021 and updated for 2022. The BSIP sets out plans for mobility hubs alongside the introduction of some new rural bus routes.

The BSIP outlines that mobility hubs can serve as an interchange point for rural residents who travel to the bus stop by other modes such as by car, walking or cycling. Whilst not all of the proposals in the BSIP received funding to progress, the outline concepts have informed this strategy.

Oxfordshire Bus Summit

In June 2022, Oxfordshire held a Bus Summit which was attended by a wide range of partners from the bus and public transport sector. The output of the summit was the development of a manifesto that outlined a transport vision for Oxfordshire.

Ambition 1 of the Bus Summit Manifesto is to create a network of mobility hubs. The delegates highlighted that this does not need to include building new facilities as existing infrastructure can be expanded. The manifesto prioritises three aspects of mobility hubs:

- accessible by a variety of transport modes
- free, secure bike storage
- shared facilities to improve user experience

Figure 2 – Oxfordshire bus summit logo

Public transport groups

This strategy has also been informed by the work of two key public transport stakeholder groups. These are:

- Park and Ride Strategy Group – This is a stakeholder group that includes the county council, Oxford City Council, bus operators and universities. The group discusses and develops strategy for Oxford's park and ride sites.

- Bus Enhanced Partnership - The National Bus Strategy requires the county council to enter into an enhanced partnership (EP) with Oxfordshire's bus operators. This is a legal agreement to improve joint working. The draft EP was consulted on in June 2022.

The Mobility Hub Strategy seeks to expand on the work of these groups and provide a broader consideration of connectivity in Oxfordshire. The strategy will move our thinking beyond the provision of good bus services, to a more comprehensive and interconnected variety of transport modes.

Mobility hub context

This chapter provides context about what mobility hubs are and the benefits of them. Mobility hubs are an existing concept with examples across Europe and the UK. During development of this strategy we have reviewed mobility hub work by other local authorities and organisations such as CoMoUK, to develop an Oxfordshire mobility hub proposal. This incorporates many aspects from elsewhere but redefines and tailors them to the Oxfordshire context.

This chapter will explain the origins of the concept, how we are defining the concept in Oxfordshire and why we are pursuing this approach. This will help to raise awareness and understanding of the concept across Oxfordshire.

Mobility hub concept

Mobility hubs are an existing concept with examples of ongoing and complete hubs both within the UK and across Europe. We have sometimes used the term 'transport hub' in Oxfordshire. The underlying concept remains the same, but we have chosen to use 'mobility hub' moving forward as it aligns with national work and better captures the overall experience of travelling.

London presents the best example of a hub network model, however the governmental, financial and geographical differences between London and the rest of the UK have prevented this model from being easily expanded to other parts of the country.

Over the past 10 years cities such as Manchester and Birmingham have been developing their own mobility hub models. More recently, Plymouth and Nottingham received significant funding from the Department for Transport to support the delivery of mobility hub network infrastructure. More details about these UK case studies can be found in appendix 1. There are also notable examples in Europe, particularly Bremen in Germany and Vienna in Austria.

Mobility hub definition

Following review of existing work we have developed an Oxfordshire mobility hub definition. We define mobility hubs in the following way:

> *"A mobility hub is an area in which a variety of transport modes and community assets are co-located for seamless interchange. These facilities provide added benefit to communities and combined they make up an easy-to-use transport network."*

This means that mobility hubs will be a recognisable place where there is a range of different shared and public transport modes. They will also have additional facilities and information features to both attract and benefit the traveller. For example, mobility hubs may combine shared bikes, shared cars, package delivery lockers, freight consolidation and a bus stop in one location.

Benefits of mobility hubs

Developing a mobility hub network will deliver a range of benefits to residents in Oxfordshire. They will also help to support delivery of our ambitions in a range of different areas such as transport and healthy place shaping. The key benefits of mobility hubs are summarised below.

Support the prioritisation of sustainable transport modes

Mobility hubs support the prioritisation of sustainable modes of transport, by making them easily available to local communities. Users will be able to seamlessly change between transport modes such as bus, cycling, train and car travel. This will help to deliver the LTCP vision to make walking, cycling, public and shared transport the natural first choice and deliver a net-zero transport system.

Improve health and well-being of residents

Mobility hubs will support the health and wellbeing of Oxfordshire residents by enabling easy access to active modes of transport, and by reducing private car use and the associated negative impacts on air quality.

Support the development of an integrated public transport network

We know that bus patronage has declined since the COVID-19 pandemic, with Bus patronage returning to 85% of pre-covid levels as of October 2022. Mobility hubs will support the shifting purpose of public transport journeys and integrate bus services into a network that better caters for all types of journeys and different transport modes.

Mobility hubs may also help to fill some gaps in the existing public transport network. For example, hubs in rural areas could help facilitate interchange between a major bus route and the surrounding villages.

Support the development of an inclusive transport system

Different communities experience transport differently and some communities are excluded from transport because of affordability, accessibility or geography. The LTCP recognises this is a key challenge that needs to be addressed and sets out our vision for an inclusive transport system for all residents.

Mobility hubs will support delivery of an inclusive transport network in Oxfordshire. They will help to address barriers to public transport usage by making interchange easier and offering a variety of transport modes such as taxis, bicycles or e-scooters for onwards journeys. The criteria in this strategy will also ensure they are well-designed and accessible to all. There may also be opportunities for local stakeholders or users to be involved with design to ensure they reflect the local users' needs.

Support the development of 20-minute neighbourhoods

Mobility hubs will support the delivery of 20-minute neighbourhoods and form an important part of healthy place shaping in Oxfordshire. The 20-minute neighbourhood is a model of urban development that creates neighbourhoods where daily services can be accessed within a 20 minute walk (10 minutes out and 10 minutes back). By providing residents with relevant goods and services within a 20 minute walk they are more likely to walk or cycle.

Figure 3 – Summary of 20-minute neighbourhood features[3]

The LTCP 20-minute neighbourhood policy (policy 13) outlines our commitment to work with our District and City councils to apply the 20-minute neighbourhood concept. Mobility hubs will help

[3] Town and Country Planning Association: 20-minute Neighbourhoods guide

to deliver 20-minute neighbourhoods by improving connectivity to public transport. Mobility hubs may also include local features of a 20-minute neighbourhood.

Improved public realm

Mobility hubs allow public space to be repurposed for the benefit of local communities. They can help to reduce the dominance of the private car and create a more enjoyable, safer and healthier public realm.

Raise profile of shared services

Mobility hubs can help to introduce or raise the profile of shared and transport modes such as taxis, car sharing, shared bicycles and shared e-scooters. These services can improve access to a range of transport modes for residents and help to unlock more town for more people, addressing equality issues. These services also help to reduce reliance on private cars and deliver associated benefits such as improved air quality.

Management of emerging services

Mobility hubs can help solve the issue of 'street clutter' from emerging modes of transport such as dockless bicycles and e-scooters. Mobility hubs provide a storage area for these modes of transport so that they are not left on pavements where they negatively impact older and disabled people. They may also provide a suitable location for electric vehicle charging infrastructure, drone docking or autonomous vehicle idling locations.

Help to tackle rising cost of living

In 2022 the cost of living rose by 9.4%[4], adding strain to household budgets across the county and leading to Oxfordshire declaring a cost-of-living crisis in October 2022. Recent research highlights that many residents would gain significant financial benefit from being able to switch their car travel for bus travel[5]. Mobility hubs will form part of a wider initiative to make bus and active travel easier and more attractive for residents.

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[4]https://www.moneybright.co.uk/personal-finance/cost-of-living-statistics
[5]https://www.experienceoxfordshire.org/campaign-launched-to-encourage-people-back-to-bus/

Development process

Having outlined the context behind this strategy and why we are developing mobility hubs, the remainder of this strategy provides more detail about how we will develop and deliver a mobility hub network in Oxfordshire.

This document sets out our principles behind mobility hubs such as the different types, potential elements and criteria for choosing locations. However, it does not identify proposed mobility hub locations or what will be included at each location.

Further work will therefore be required to take the principles from this document, identify locations and then develop detailed designs. This will be conducted as part of our 4-stage process. Further information about how each stage will be conducted and considerations required in each stage are included in the following chapters.

The 4-stage process that we will be following to develop mobility hubs is summarised below:
- **Strategy** – Production of the mobility hub strategy to identify key principles, essential criteria, typologies and set a standardised, modular approach.
- **Location identification** – Identification of feasible locations for different types of mobility hubs through LTCP area travel plans, the planning process and stakeholder engagement.
- **Business case development and detailed design** – Develop business cases and detailed designs for the locations identified.
- **Delivery** – Delivery of the mobility hubs identified and designed.
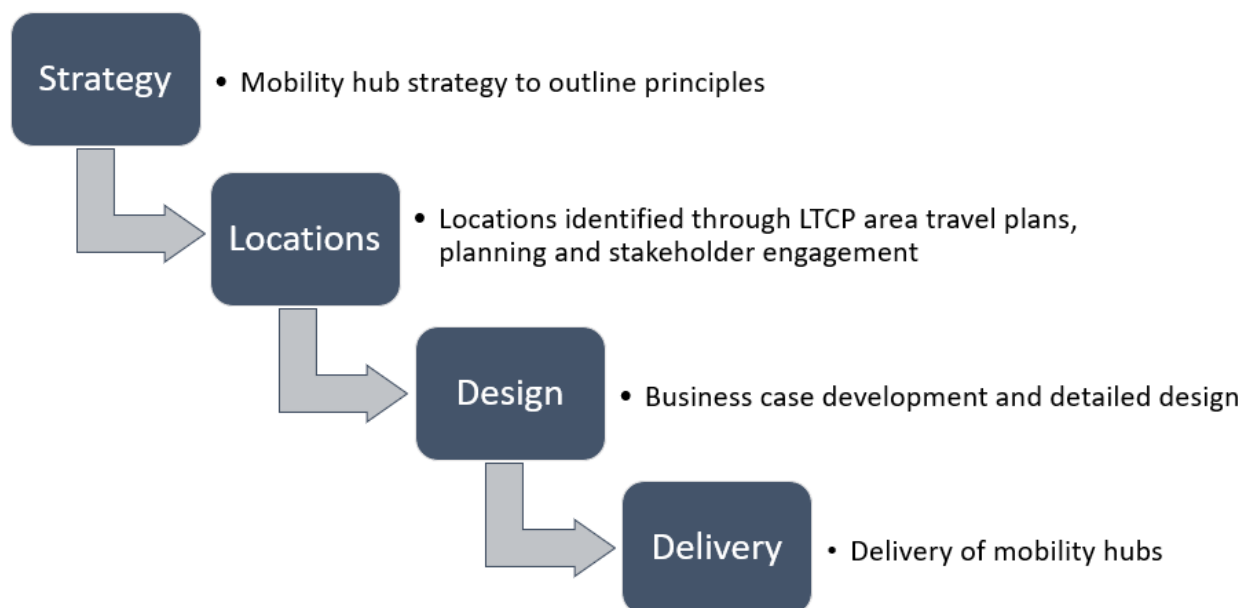

Figure 4 – Mobility hub development process flow diagram

Criteria and typologies

This chapter builds on the definition and outlines our essential mobility hub criteria, and the different types of mobility hub we will develop. It also provides an overview of the 4 element categories and possible elements that could be included at each mobility hub.

The guidance of CoMoUK has been invaluable when developing the information in this section. The CoMoUK Mobility Hub Guidance[6] sets out different types of mobility hub, purposes and infrastructure requirements. We have reviewed and simplified this guidance considering the context of Oxfordshire.

Essential criteria

We have outlined some essential criteria which all mobility hubs in Oxfordshire must meet. Our essential criteria are:

- Mobility hubs must facilitate transport interchange between at least two transport mode options.
- Mobility hubs must have at least one element from each of the 4 element groups.
- Mobility hubs must have visual, social and community appeal.
- Mobility hubs must be accessible and understandable to all.

Mobility hub typologies

To build on our essential criteria, we have defined 4 different types of mobility hubs that we will develop in Oxfordshire. These typologies have been developed to outline the different size mobility hubs we will be developing. They have loose definitions that can flex to the needs of the local area. The 4 typologies we have developed are summarised below.

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[6] https://www.como.org.uk/documents/comouk-mobility-hubs-guidance

Major interchange hubs

Largest typology – busy railway stations, park and ride sites, high passenger numbers changing between various modes

Linking hubs

Busy town centres, busy urban high streets, business/retail/science parks - focus on services that link residents to key destinations

Suburban and rural hubs

Smaller-sized hub connecting residential areas to larger retail/employment centres, tailored to suit local issues – suburban high streets, housing developments, large village centres

Mini hubs

Smallest typology, designed with Oxfordshire's rurality in mind – bus stops along suburban/rural routes, small village centres, villages with limited bus services

Figure 5 – Summary diagram of mobility hub typologies

The typologies also include the possible elements that could make up each mobility hub type. Mobility hubs work most effectively when their design is matched to the needs of the local community. The precise combination of elements will be different from hub to hub depending on the purpose of the mobility hub and the needs of the local area. Therefore, this document does not prioritise the elements in each typology.

More detail about each typology and the possible elements that could be included are provided in the following sections. Appendix 2 provides a short summary of some elements to explain what they are and how they will function in the mobility hub model.

Major interchange hub

The major interchange hub would be the biggest type of mobility hub in Oxfordshire. They are primarily at major interchange sites such as busy train stations, park and rides and coach stations.

The park and ride sites that serve Oxford provide a strong basis for developing a wider major interchange network. These sites are valuable transport interchange points, but the provisions will need to be reviewed and improved in line with this strategy. The ambition of mobility hubs goes beyond the provision of parking and a regular bus service, these sites can serve a variety of purposes that will contribute to delivery of our transport and climate ambitions.

Context
- Space availability will vary. At park and ride sites, there is a relatively large amount of space whereas in city centres, there may be limited space.
- Frequented by tourists so need for clear signage and information points.

Purpose
- Essential transport interchange point for longer journeys, many of these hubs will serve as a key intersection with car journeys to shift to sustainable modes.
- Very high passenger numbers changing between modes of transport.
- Would serve a variety of purposes including transport interchange, inner city connectivity, travel between large towns, tourism journeys and commuting for work.

Vision
- Largest of the typologies - attractive central point for a variety of transport modes including regional and national connectivity.
- Potential to support freight consolidation.
- Potential for complementary uses such as flexible working pods.
- Potential to serve as service areas for cars travelling on longer journeys through Oxfordshire.

Examples in Oxfordshire
- Park & Ride sites on the edge of Oxford.
- Busy train stations (Oxford, Didcot, Banbury & Bicester).
- Gloucester Green coach station.

Figure 6 – Artist's impression of new Western Entrance at Oxford Station

Mobility hub elements:

Public transport components	Non-public transport components	Transport related components	Community assets
Railway station	Bike share services (electric and conventional, e-cargo bikes, accessible cycles)	EV charging facilities with on-site renewable energy generation where feasible	Indoor/covered waiting area with potential for renewable energy generation
Variety of bus services, including rapid transit routes	Car club bay (s) with appropriate types of vehicles	Digital pillar/app/QR code with transport info, ticketing, way finding, walking and cycling distances to local services	Improved public realm: green spaces/community art/pavement repairs/safer road crossings
National coach connections	High quality pedestrian and cycle routes to and from the surrounding area	Freight consolidation & transfer / package delivery facilities	Wi-Fi/phone charging Also consider allocating space for 5G base units and integration with full fibre
	Micro-mobility offer	Combination of cycle parking and secure cycle storage (for all bicycle types)	Potential for a remote working space
	Car parking prioritised for disabled users	Bike tyre pumps and repair stations	Toilets, showers, changing areas
	Taxi services	Hydrogen fueling capabilities	Package lockers
			Kiosk for refreshments
			Public water fountain

Case study – Eynsham Park and Ride

Eynsham Park and Ride is currently being constructed and will be identified as one of the first of the new style of mobility hubs in the County. The 850-space park and ride, located on the A40 eastbound, will help improve congestion on the A40 and provide regular and reliable public transport services into Oxford. It will be supported by bus priority infrastructure and a new junction to improve access from the A40.

Users will benefit from 24-hour security, dedicated cycle storage, public toilets and electric vehicle parking bays. The site will be accessible 24 hours a day and is designed for easy use with dedicated access and exit routes.

Figure 7 – Eynsham park and ride plan

The table below highlights in green the elements of a 'major interchange hub' that Eynsham Park and Ride will deliver. Highlighted in amber are elements which are compatible with the design, although not currently included in the scope of the project. Future proofing elements were considered in the design and are subject to Homes England supplemental funding agreement.

Public transport components	Non-public transport components	Transport related components	Community assets
Railway station	Bike share services (electric and conventional, e-cargo bikes, accessible cycles)	EV charging facilities with on-site renewable energy generation where feasible	Indoor/covered waiting area with potential for renewable energy generation
Variety of bus services, including rapid transit routes	Car club bay (s) with appropriate types of vehicles	Digital pillar/app/QR code with transport info, ticketing, way finding, walking and cycling distances to local services	Improved public realm: Green spaces/community art/pavement repairs/safer road crossings
National coach connections	High quality pedestrian and cycle routes to and from the surrounding area	Freight consolidation & transfer / package delivery facilities	Wi-Fi/phone charging Also consider allocating space for 5G base units and integration with full fibre
	Micro-mobility offer	Combination of cycle parking and secure cycle storage (for all bicycle types)	Potential for a remote working space
	Car parking prioritised for disabled users	Bike tyre pumps and repair stations	Toilets, showers, changing areas
	Taxi services	Hydrogen fueling capabilities	Package lockers
			Kiosk for refreshments
			Public water fountain

Linking hubs

Linking hubs would be situated at key destinations, on the route of a regular bus, coach or train route.

Context
- Frequented by tourists so need for clear signage and information points.
- Situated near or embedded within key destinations.
- Often limited space at key locations, need to balance priority of various different modes.

Purpose
- Access to high frequency bus services or rail services for the key destinations identified: high streets, libraries, leisure facilities, community centres, workplaces, education centres.

Vision
- Residents and tourists will have access to well-connected destinations, these journeys will therefore be more attractive which will reduce the need for car journeys and congestion around these destinations.
- These hubs will improve the function and appeal of destinations that benefit the wellbeing of our residents such as health centres, community hubs, entertainment centres and leisure facilities.

Examples in Oxfordshire
- Busy high streets and large district centres.
- Key road corridors, e.g. A420, A4074 and A44.
- Smaller rail stations e.g. Culham and Hanborough.
- Business parks, retail parks, science parks and large hospital sites.

Figure 8 – Example of a potential linking hub location in Oxford city centre

Mobility hub elements:

Public transport components	Non-public transport components	Transport-related components	Community assets
Railway station	Car club bay (s) with appropriate types of vehicles	Secure cycle parking (for all bicycle types)	Covered waiting area with potential for renewable energy generation
Local bus – inter-urban routes	Bike share services (electric and conventional e-cargo bikes, accessible cycles)	Digital pillar/app/QR code with transport info, ticketing, way finding, walking and cycling distances to local services	Improved public realm: green spaces/community art/pavement repairs/safer road crossings
National/regional coach services	Micro-mobility offer	EV charging facilities with on-site renewable energy generation where feasible	Wi-Fi/phone charging Also consider allocating space for 5G base units and integration with full fibre
	High quality pedestrian and cycle routes to and from the surrounding area	Freight consolidation & transfer / package delivery facilities	Toilets and public water fountains
	E-cargo bike share	Bike tyre pumps and repair stations	Package lockers
	Car parking prioritised for disabled users (dependent on space)		Kiosk for refreshment
	Taxi services		Remote working space

Suburban and rural hubs

Suburban and rural hubs are the most varied category in terms of where they would be located. They primarily would be located in residential areas ranging from a suburban residential area to a market town centre or a village centre.

Context

- Smaller-sized hub, with limited space and scope for major infrastructure expansion.
- The level of local car usage will vary depending on the demographic and geographical differences.

Purpose

- Connecting existing and proposed residential areas to larger retail/employment centres.
- Support very local connectivity between residential areas and the surrounding area.

Vision

- Hub is designed to address local issues.
- These hubs will present new ways for residents to travel and connect with their surrounding area.
- These hubs should promote access to community assets such as community planters, local artwork, green spaces and bike repair tools to improve the economic, environmental and social wellbeing of local residents.

Examples in Oxfordshire

- Suburban busy high streets of larger settlements.
- Market towns.
- New housing developments.
- Large village centres e.g. Chinnor, Berinsfield and Benson.

Figure 9 – Example of a suburban hub in a new housing development in Wolvercote

Mobility hub elements:

Public transport components	Non-public transport components	Transport-related components	Community assets
Railway station (many rural hubs will have no train connection)	Car club bay(s) with appropriate types of vehicles (priority in area with less public transport connectivity)	Secure cycle parking (for all bicycle types)	Covered waiting area – potentially a public toilet
Local bus	High quality pedestrian and cycle routes to and from the surrounding area	Digital pillar/app/QR code with transport info, ticketing, way finding, walking and cycling distances to local services	Improved public realm: green spaces/community art/pavement repairs/safer road crossings
Demand Responsive Transport feeder service	Micro-mobility offer and e-bike hire	Bike tyre pumps and repair stations	Package delivery lockers
	Taxi services	EV charging facilities	Wi-Fi/phone charging Also consider allocating space for 5G base units and integration with full fibre
			Traffic calming measures
			Public water fountain

Mini hubs

Mini hubs are the smallest scale hub. They will primarily be located in rural places where there is limited transport connectivity. They are the most flexible category seeking to leverage existing offerings and support incremental modal shift.

Context
- Very small-scale hub with limited space for infrastructure.
- Located in rural places where there is limited transport connectivity.
- These hubs can leverage existing offers such as formalising a layby used as a drop-off point for a bus connection.

Purpose
- Enable local communities to shift their transport habits by making connections to transport corridors easier.
- Most flexible category that aims to support incremental modal shift in car dependent settings.

Vision
- Bus services may be very limited or unavailable. In this instance a hub may consist of interchange between walking, cycling and car travel particularly via car clubs.
- Oxfordshire County Council will work with local community organisations to re-purpose or improve current assets to develop mini mobility hubs.

Examples in Oxfordshire
- Bus stops along suburban/rural routes.
- Small villages.

Figure 10 – Example of a potential mini hub location along a suburban/rural corridor in Farmoor[7].

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[7] https://www.geograph.org.uk/photo/3699836

Mobility hub elements:

Public transport components	Non-public transport components	Transport-related components	Community assets
Local bus stops (many rural hubs will have no bus connection)	High quality pedestrian and cycle routes to and from the surrounding area	Digital pillar/app/QR code with transport info, ticketing, way finding, walking and cycling distances to local services	Covered waiting area
Demand Responsive Transport feeder service	Layby for pick-up and drop-off	Secure cycle parking (for all bicycle types)	Improved public realm: green spaces/community art/pavement repairs/safer road crossings
	E-bike hire	Bike tyre pumps and repair stations	Outdoor water fountain
		Layby for drop-off	Wi-Fi

Location identification

Having identified the different types of mobility hub and possible elements, the next step is to identify feasible locations for the different types. As highlighted previously, this strategy does not identify specific locations. Specific locations will primarily be identified through the LTCP area travel plans. Some locations may also be identified through local plans, planning applications and stakeholder engagement.

The area travel plans are being produced as supporting documents to the LTCP. They will outline how the LTCP policies are applied in practice across Oxfordshire. Development of the area travel plans will include local stakeholder engagement and evidence collection. They will therefore be well placed to identify locations for mobility hubs and establish a comprehensive network.

The Central Oxfordshire Travel Plan was the first area travel plan published by the county council. The document outlines the importance of mobility hubs and identified various locations across the central Oxfordshire area.

We will also work to identify suitable locations through the planning process and stakeholder engagement. This work will seek to capitalise on opportunities arising in the short term such as new housing developments. In all cases, locations will be identified   utilising the guidance and criteria in this strategy.

Key factors for choosing mobility hub locations

To assist with identifying mobility hub locations and to provide a consistent approach to location identification we have identified the key factors that should be considered. These factors apply to all of the mobility hub typologies identified in the previous chapter and will be considered when choosing any mobility hub location. The key factors and an explanation of each are provided below.

Proximity to destinations

It is important to prioritise locations that residents frequently access for the mobility hub network to be well-used. We want the mobility hub network to provide a convenient alternative to car use, to transport people to their most regular destinations. Mobility hubs can also be areas where lots of transport services intersect, making them a key destination in their own right.

Key destinations that mobility hubs could be situated in proximity to or embedded within are:
- Community centres
- Employment centres

- o Science/business parks
- o Retail parks
- o Shopping districts
- High streets
- Hospitals
- Housing clusters
- Libraries
- Park and Charge EV charging sites
- Schools
- Tourist/entertainment attractions
- Car parks
- Existing transport interchanges

Connectivity

When identifying mobility hub locations, we will consider their proximity to key transport corridors, pre-existing bus routes and other forms of travel connectivity. This provides a base of transport connectivity, which can be built on by the mobility hub.

We will also consider what gaps there are in the existing network. There are some areas of Oxfordshire, for example in rural locations, where there is not regular connectivity by bus. Mobility hubs will help to fill these gaps.

Planning

The planning system will be a key enabler to delivery of mobility hubs, particularly in new housing developments. It is important to cross check any mobility hub proposals with local plans and engage with relevant stakeholders.

Safety

Key to the success of mobility hubs is that residents feel safe using them. Therefore, when considering locations, it is important to take into account how well-lit the area is, whether there is any CCTV serving the location and the ease of access.

The accessibility of a location should be considered from a variety of perspectives, including parents with young children in pushchairs and disabled users (ensuring consideration of all types of disability such as mental health conditions, learning disabilities and physical disability). Road safety should also be considered when assessing a location. This is important to support the county council's commitment to Vision Zero.

User base

There needs to be sufficient density of residents and business to ensure sufficient users. The density necessary will depend on the scale of the mobility hub. This flexibility is important to cater for mobility hubs both in urban and rural areas.

When designing hubs, it is important to engage with the community in which they are going to be constructed. Especially with regards to smaller mobility hubs, gaining a sense of community ownership of the hubs reduces the risk of vandalism, and addresses some of the safety concerns associated with self-service transport modes.

Feasibility

The feasibility of delivering a mobility hub should be considered when identifying locations. This includes considering of all of the factors above, as well as identifying any potential barriers such as land ownership or planning constraints. This will help to ensure it is achievable to deliver mobility hubs in the locations identified.

Business case development and detailed design

Once feasible locations have been identified, work is required to develop business cases and detailed designs. This stage of work will consider the business case justification, exactly which elements the mobility hub will include, how the mobility hub will look and possible costs.

Business case development

Business cases are produced by the county council to provide the justification for undertaking a project. They evaluate the benefit, cost and risk of alternative options and provide justification for the preferred option. Business cases are often required by the government to help evaluate funding bids.

Defining a business case for mobility hubs is challenging for various reasons. Mobility hubs contain a variety of elements which makes it challenging to create a single business case incorporating all individual elements. Mobility hubs are also variable, meaning the combination of elements may be different at each hub. This makes it challenging and more resource intensive to create business cases for different locations.

Operating models of mobility hubs will also vary and the numerous organisations that can be involved with the creation, maintenance and operation of mobility hubs makes development of a business case complex. Organisations that can be involved include local authorities, transport infrastructure providers, transport operators, private sector organisations and community groups.

Moving forward, we will draw on business case work conducted elsewhere to inform development of our mobility hub business cases. Key work has been conducted by CoMoUK who have done work on the business case for individual elements[8] and England's Economic Heartland who are developing rural mobility hub business case guidance. As this is a new approach, we will evaluate and refine our approach as we begin to develop mobility hub business cases.

Detailed design

When developing detailed designs for a mobility hub there are a number of factors that should be considered. We have summarised these considerations in this section to ensure that they are incorporated from the outset when designing mobility hubs.

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[8] https://www.como.org.uk/documents/the-design-process-mobility-hubs-realised

Future proofing

When designing a mobility hub site, all desired elements should be included and planned for, even if they can't all be delivered initially. This will allow further elements to be added at a later date, for example if new funding becomes available. This phased approach will help to increase the deliverability of mobility hubs.

Similarly, future proofing should also include the potential impacts of future technologies. This may include unmanned aerial vehicles (UAV) or connected and autonomous vehicles (CAV). The LTCP is supported by an Innovation Framework which will assist with designing for the future.

Local users' needs

The components at each mobility hub need to correspond to local users' needs, the purpose of journeys in the area and the context of the space available. A sense of community ownership and local connectivity is also central to the concept of mobility hubs. It is therefore important that local evidence is collected and engagement is conducted with local stakeholders during design.

Adding facilities to a mobility hub over time will help to facilitate local engagement. This approach will enable mini mobility hubs to be initiated at a community level with potential funding from local groups or town and parish councils. This will put local users' needs at the heart of the design process, and potentially enable more mobility hubs to be created than the county council could deliver alone.

Intentional design

A key aspect of mobility hubs is their intentional design. Mobility hubs must deliver easy interchange between transport modes, as well as supporting residents to feel safe and confident in choosing sustainable transport modes. The hubs should also be designed to bring benefit to their local community such as green spaces for socialising.

Accessibility

Mobility hubs will follow accessibility guidance for disabled users. In addition to kerb heights and tactile paving, it is important to ensure that the modular elements of the mobility hub do not create obstacles for users who have visual or physical impairments.

Signage

For a mobility hub network to be successful, the public transport routes, walking and cycling routes should be displayed in a network map for users that clearly highlights the interchanges. The map should be physically displayed at mobility hubs as well as being available on websites and journey planning apps.

Delivery

The final stage of our mobility hub development process is delivery of the detailed designs. There are a number of key considerations at this stage including funding and different delivery models. An overview of the possible funding and delivery processes is provided in this section.

Delivery processes

As highlighted previously in this document, mobility hubs can be developed and delivered incrementally. They do not need to deliver all possible elements at the same time to be a successful mobility hub.

Similarly, there are a variety of organisations that can be involved with the design, delivery, maintenance and operation of mobility hubs. This creates new possibilities for how we plan for and deliver mobility hubs when compared to traditional transport infrastructure.

The approach taken will depend on a number of factors related to the individual location. As well as traditional delivery approaches, we have summarised the possible alternative delivery processes in this section. The appropriate approach will then be considered on a case-by-case basis.

Incremental delivery

Creating a mobility hub network in Oxfordshire won't necessarily involve constructing large amounts of new infrastructure. There are smaller upgrades that can improve existing transport interchanges or informal interchanges. Similarly, small mobility hubs could be built and then expanded as funding becomes available.

Part of an incremental approach will include enabling Town and Parish councils and local community groups to initiate small and modular additions to mobility hubs in their area. It is likely that an approach blending incremental and full delivery will be required in reality. We will therefore plan our mobility hubs to enable incremental and large-scale upgrades.

Delivery in partnership

Due to the numerous different organisations that lead on developing and delivering different aspects of mobility hubs, it may be possible for the county council to deliver mobility hubs in partnership with others. This approach may have benefits for all of the partners involved.

When considering this approach, it will be important for us to consider both the leadership of hub delivery and the ownership as these may be different. The diagram below was developed by CoMoUK to illustrate the range of delivery models available for mobility hubs.

- The procurement model defines who specifies the hub components.
- The management structure defines which organisational structure is used to deliver the hub and provide its services.

When considering the delivery of mobility hubs we will evaluate and explore the different delivery models available.
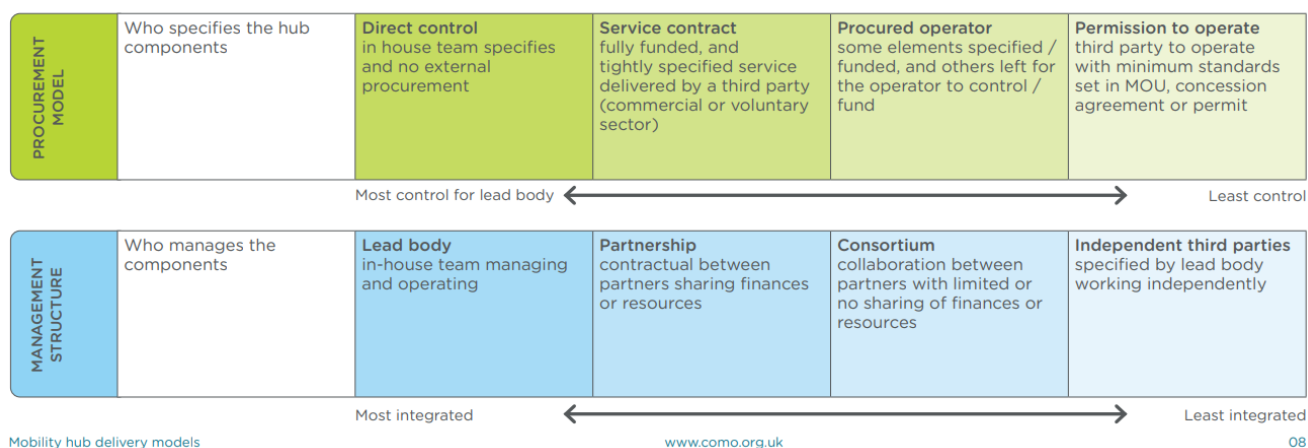
PROCUREMENT MODEL	Who specifies the hub components	Direct control in house team specifies and no external procurement	Service contract fully funded, and tightly specified service delivered by a third party (commercial or voluntary sector)	Procured operator some elements specified / funded, and others left for the operator to control / fund	Permission to operate third party to operate with minimum standards set in MOU, concession agreement or permit
		Most control for lead body ←		→	Least control

MANAGEMENT STRUCTURE	Who manages the components	Lead body in-house team managing and operating	Partnership contractual between partners sharing finances or resources	Consortium collaboration between partners with limited or no sharing of finances or resources	Independent third parties specified by lead body working independently
		Most integrated ←		→	Least integrated

Mobility hub delivery models   www.como.org.uk   08

Figure 11 – Diagram showing different mobility hub delivery models[9]

Funding

Funding will be required to deliver and maintain mobility hubs. This section provides an overview of the potential funding sources available to the county council. Appendix 1 provides an overview of funding secured and work being done by other local authorities. As highlighted in the previous section there are different delivery models available for mobility hubs which could open up some potential new sources of funding.

Developer contributions

Developers 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.

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[9] www.como.org.uk

Through this it may be possible for developers to deliver mobility hubs or contribute to the development and maintenance of them. We will continue to work with developers to secure contributions which help to deliver the LTCP.

The mobility hub strategy will also complement other LTCP policies such as the guidance for new developments (policy 12) which lay out considerations developers should incorporate when designing new residential areas.

Funding bids

There are opportunities for the county council to submit bids to specific grant funding opportunities. These funding opportunities come from a range of sources including central government and the Department for Transport. Once mobility hub proposals have been developed, we will seek to bid for every suitable opportunity to deliver elements of the network.

Partnership working

As highlighted previously, a partnership approach can be taken to delivering mobility hubs. Funding or delivery opportunities may be available to our partners such as the Local Enterprise Partnership (LEP), district and city councils, or parish and town councils. We will work with these partners to take account of the various funding sources available.

Operator / private sector investment

Mobility hubs may also be delivered in partnership through operator or private sector investment. For example, the bus or train operators in Oxfordshire could contribute towards the development of a mobility hub.

Similarly, business parks and large employers could contribute towards the establishment of a mobility hub in their local area. We will continue to work with these partners to consider potential funding sources for mobility hubs.

Mobility hubs generating income

There are elements of mobility hubs that could generate revenue such as EV charging, refreshment kiosks or profit share agreements. This funding could be used by the county council for subsidisation, maintenance or expansion of hubs.

In terms of subsidisation, some elements of mobility hubs could be delivered by the private sector. However, an over reliance on the private sector could lead to elements being withdrawn

if they don't make a profit. Surplus revenue from profit making elements could therefore be used to support loss-making but desirable elements[10].

For many mobility hubs their maintenance will become part of business-as-usual infrastructure maintenance. However, there could be some challenges if significant workload is added to existing county council or landowner maintenance budgets. Therefore, any revenue generated could be used for maintenance costs.

Additional elements to support delivery

In order to support the delivery of a mobility hub network, there are several additional elements that should be considered. These will help to increase the success of mobility hubs and maximise the benefits to residents.

This strategy does not provide plans for these additional elements. They are included here to highlight what will be considered by the county council as we move forward and begin to deliver mobility hubs across the county.

Branding

A clear mobility hub brand needs to be recognisable to frequent and non-frequent users. An example of strong transport branding is the London Underground network which is recognisable and creates trust that the 'hubs' on the network will be connected to a variety of transport modes.

Figure 12 – Transport for London branding[11]

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[10] https://www.como.org.uk/documents/comouk-mobility-hub-delivery-models
[11] Transport for London

Similar to the effect that has been achieved in London, we want residents and visitors of Oxfordshire to feel confident that their journey can be made by public transport connections. A strong and consistent brand will help to support this trust between transport users and transport providers.

As highlighted, this strategy will not lay out the detail of the branding for Oxfordshire's mobility hub network. This work will be conducted in the future and will include our key public transport providers.

Ticketing

Having one simple ticketing system that works for numerous modes of travel is another additional consideration that will increase the appeal and success of mobility hubs. This builds on the National Bus Strategy which seeks to encourage multi-operator ticketing and outlines the benefits: increased passenger satisfaction, greater usage of bus services and scope to reduce costs and carbon emissions[12].

In Oxford we already have the 'SmartZone'[13] that enables multi-operator bus travel. Working with the bus operators to expand such a system to incorporate multiple areas and different transport modes is essential to encouraging high usage of mobility hubs.

However, ticketing developments will need to take into account digital inclusion and the possibility that some residents will not have access to a mobile phone, or the capabilities to use it for ticket purchases. We will work with our bus operators to encourage consideration of inclusivity with ticketing developments.

Mobility as a service

Mobility as a service (MaaS) is the integration of various forms of transport services into a single mobility service accessible on demand[14]. 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 have committed to monitoring and exploring with partners through the LTCP (policy 22).

MaaS has the potential to support mobility hubs and further enhance their success by making it easier for residents to plan, book and pay for multi-modal journeys. We will therefore continue to monitor and explore opportunities for MaaS in a mobility hub context.

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[12] UK government – Bus Back Better
[13] https://www.oxfordbus.co.uk/smartzone/
[14] https://maas-alliance.eu/homepage/what-is-maas/

Communications

All mobility hub infrastructure projects should consider their communications plan at the earliest possible stage. It is essential to keep local communities informed of the changes in their area and why. This communication should highlight the implications of any construction work and disruption and the benefits of developing a mobility hub network. CoMoUK have produced mobility hub marketing guidance that we will consider during our supporting communications[15].

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[15] https://www.como.org.uk/documents/comouk-mobility-hubs-communications-case-study

Monitoring

Monitoring outcomes from this strategy will be covered as part of the overall LTCP monitoring process. The monitoring of the LTCP will include the headline targets and the key performance indicators (KPIs). The headline targets and KPIs have been designed to measure the impact of Oxfordshire's transport policies which includes mobility hubs.

The headline targets include our car trip reduction targets which mobility hubs will contribute towards. The LTCP will be monitored on an annual basis with update reports provided to the county councils cabinet. The first report is scheduled for July 2023.

Whilst monitoring of the overall strategy outcomes will be conducted as part of the LTCP monitoring process, we will also seek to monitor the specific outputs of this strategy, subject to funding and resource availability. For example, the number of mobility hubs delivered and usage of the services at a hub.

The exact methodology for this will vary from location to location depending on the local objectives, the elements that are included in the mobility hub and available funding. This monitoring will likely require a combination of qualitative and quantitative measures. Some examples of possible objectives and measures are included on the below table.

Objective	Measure
Increased take-up of shared transport services	• Average monthly hires of each shared car/bike/scooter
Improved traveller experience	• Satisfaction surveys from public transport users
Improved connectivity to key destinations	• Trip purpose data • Journey time analysis • Ratings on travel survey for local residents
Community cohesion	• Ratings on travel survey for local residents • Feedback from town and parish councils and local councillors
Increased sustainable transport use	• Public transport, walking and cycling counts in local area • Travel survey feedback from local residents

Appendix 1 – Case studies

The following examples provide an overview of some of the work being done by other local authorities on mobility hubs. These examples have been reviewed to help inform the development of this strategy. CoMoUK also provide details of some European examples[16].

Plymouth City Council

Plymouth City Council has received funding from the government's Transforming Cities Fund to install 50 multi-modal mobility hubs across the city. These hubs will consist of 300 electric vehicle charge points, 400 e-bikes, a car club, 0.5 megawatts of solar carports and a smart journey planning system. The programme prioritises the installation of electric vehicle charging hubs.

Figure 13 – Visualisation of a small-scale Plymouth mobility hub[17]

These mobility hubs will connect existing transport across Plymouth. This will include connectivity to key employment markets, education, health and leisure facilities and services. There is also a focus on low carbon transport options for last mile journeys, intercity travel or to areas not covered by public transport. The hubs will therefore support a reduction in private car use, improve the surrounding area, meet local needs and be recognisable across the city.

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[16] https://www.como.org.uk/guidance?location=International
[17] https://new.plymouth.gov.uk/mobility-hubs

Figure 14 – Visualisation of a large-scale Plymouth mobility hub[18]

Plymouth City Council have outlined plans for how the mobility hubs will be maintained beyond the timeframe of the funding. Long term sustainability is planned to be achieved through a combination of a ring-fenced recycled revenue fund, strategic partnerships and local training. Plymouth City Council is planning to work with local communities, so they feel a sense of ownership of the mobility hubs.

Nottingham City Council and Derby City Council

Nottingham City Council and Derby City Council have jointly been awarded £16.7m for future transport zones. The grant will be invested in joint projects to improve connectivity and further encourage the use of public transport[19].

The three areas of focus are all related to mobility hubs and the supporting considerations outlined in this strategy. The focus areas are:

- Creating electric mobility 'hubs' – There will be three types: neighbourhoods, campuses, and depots. Each will aim to encourage the take-up of alternative travel methods and offer electric car club hire, electric bike sharing, vehicle charging points, digital information screens, and real-time public transport information.
- New website and smartphone app – This will allow users to plan for, book and pay for trips on public transport, bike hire, car share, taxi journeys, car parking, and vehicle charging.
- Data platform – This will pool various transport data sources owned and collected by the Council into a single place. It will be used to provide a complete picture across the network to improve the efficiency of the traffic control centre and keep residents informed of the latest information.

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[18] https://new.plymouth.gov.uk/mobility-hubs
[19] https://www.transportnottingham.com/city-council-secures-16-7m-for-future-transport-zones/
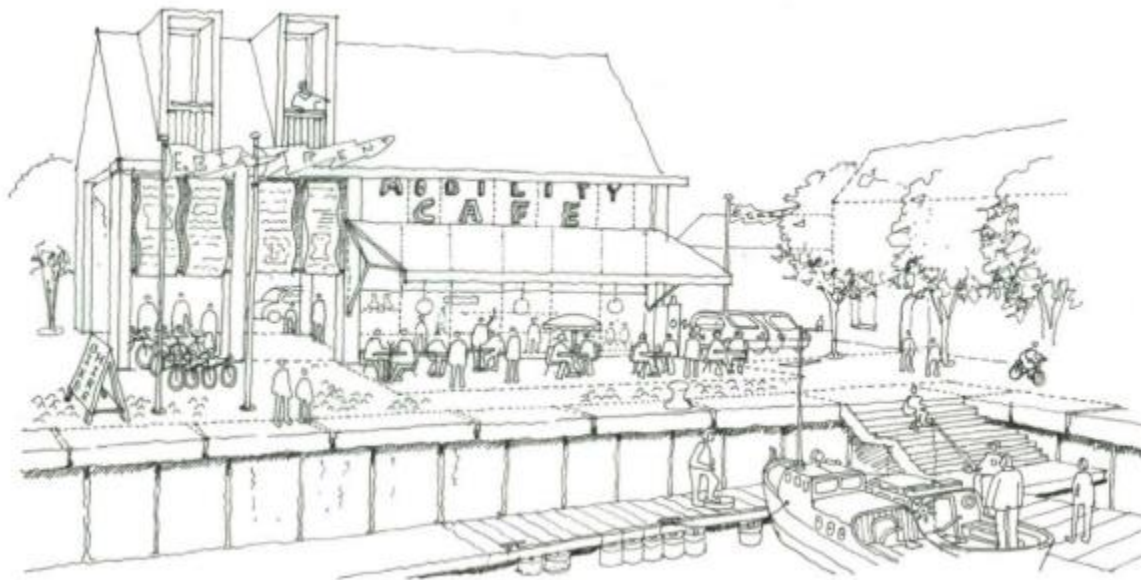
Figure 15 – Trent Basin e-mobility hub sketch[20]

Staffordshire County Council

Staffordshire County Council is working to develop a network of mobility hubs. They are currently trialing a range of solutions through the SIMULATE programme[21].

The programme is being funded by the ADEPT Smart Places Live-Lab programme and Department for Transport. It seeks to combine research and feasibility with collaborative incubation and trialing.

An initial pilot site of the first mobility hub has been defined at Keele University and its surrounding area. Staffordshire County Council have also identified 10 small and medium size businesses that can fulfil different parts of the mobility hub ecosystem.

The businesses include e-scooter and e-bike operators, electric vehicle charging providers and air filtration technology. They will now conduct trials in the pilot area to test the logistics of Hub implementation and the solutions derived from it.
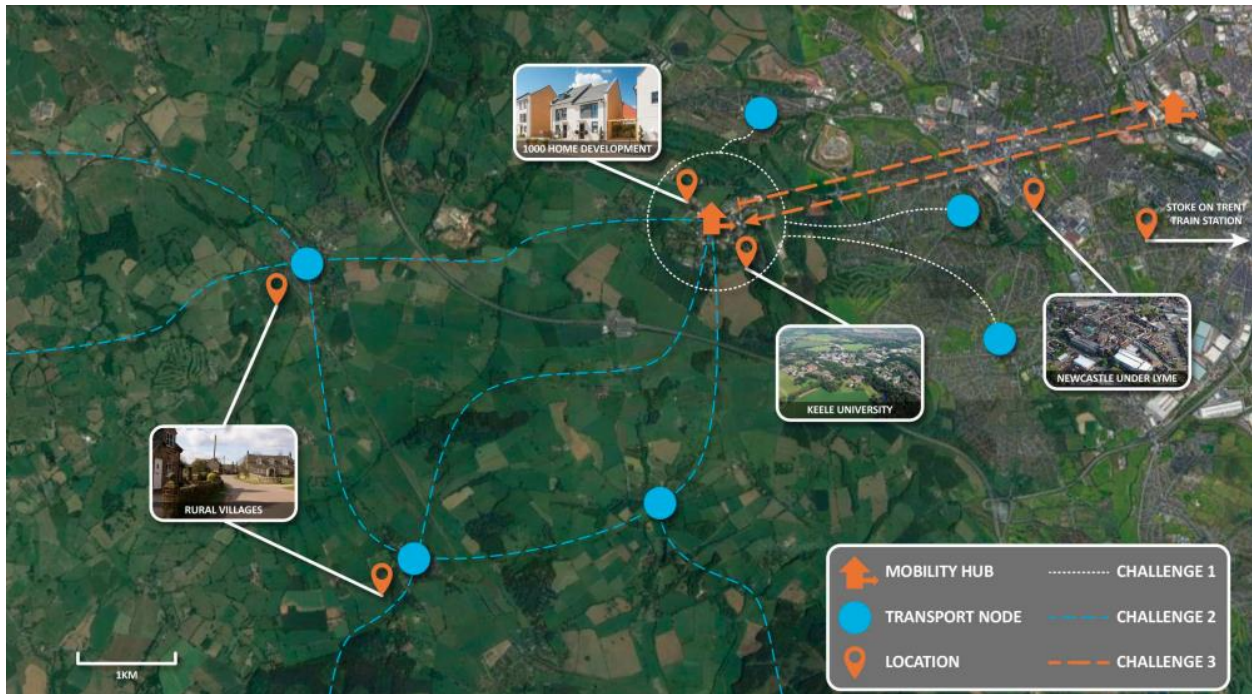

Figure 16 – Map of Staffordshire mobility hub trial area[22]

[22] https://simulate-adeptlivelabs.co.uk/media/kqldmes5/simulate-mobility-challenges-document.pdf

Appendix 2 – Mobility hub elements glossary

This appendix provides a brief overview of some of the mobility hub elements included in the typologies section. This section has been included to explain what some elements are and how they will function in the mobility hub model.

Rapid transit routes

'Rapid transit' refers to system of traffic management that prioritises bus travel. In Oxfordshire this could mean a variety of things, including segregated bus lanes or 'express' bus routes that have fewer stops. Ultimately, we use the term 'rapid transit' to underline a commitment to support fast and efficient bus travel between key locations in Oxfordshire. Mobility hubs may be located on rapid transit routes or help to provide connections to them.

Cycle parking and storage

This strategy references both cycle parking and cycle storage. This is to differentiate between the different types of bicycle storage which will suit different types of usage. In both cases the facilities should be secure, clearly marked, overlooked and/or well-lit and integrated into the surrounding environment. Similarly, all types of bicycles need to be considered such as cargo bikes, tandems, tricycles and disability-adapted bikes. The exact type of cycle parking or storage at a mobility hub will be decided on a case-by-case basis and guided by our cycle design standards.

Cycle parking

We use cycle parking to refer to situations where the majority of trips are for a short period of time. Users will be concerned with convenience of access while having a safe place to park their bike. Examples of places where cycle parking is needed include mobility hubs in or near to town centres, high streets and shops.

The preferred and most common form of cycle parking is the tubular metal stand anchored to the ground, also known as a Sheffield stand. Sheffield stands are relatively cost-effective and provide stability for locked bicycles. Cycle parking constituting of Sheffield stands is commonly grouped together in close proximity to key journey destinations.

Figure 17 – Photo of sheffield stands[23]

Cycle storage

We use cycle storage to refer to situations where bicycles will be left for much longer periods of time. Users may be more willing to compromise some convenience for additional security. Examples of places where cycle storage is needed include mobility hubs at railway stations, park and rides or key road corridors.

Cycle hangars are the most common form of cycle storage. Cycle hangars are secure cycle parking storage units. They are approximately the size of one car parking space and can usually store 6 standard sized bicycles. They are usually unlocked via an app or a key that is provided to those who sign up for access. Cycle hangars have been successfully rolled out in cities such as London, Glasgow and Brighton and have been trialled in Oxford.

[23] Versa street furniture

Figure 18 – Photo of a cycle hangar in London[24]

Micro-mobility

Micro-mobility refers to a range of small, lightweight vehicles that are driven by users personally[25]. Practically, in most areas today, micro-mobility means shared scooters and bicycles. It can also include private e-scooters, rollerblades and 'hoverboards'.

Mobility hubs could provide a suitable location for the docking of micro-mobility services such as shared bicycles. Inclusion at mobility hubs would help to increase the range of transport options available to residents.

Package lockers

Package lockers are lockable storage boxes where packages can be left and stored for collection by delivery companies, residents and customers. Residents can choose to have their parcel delivered to the locker and will then receive a code to unlock the locker. Amazon hub lockers are a common example already seen in Oxfordshire.

Package lockers could be located at mobility hubs so that residents can collect parcels as part of their journey. Encouraging delivery to lockers at mobility hubs will also help to reduce the number of delivery vehicles on local roads.

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[24] Cycle hoop
[25] https://www.itdp.org/multimedia/defining-micromobility/

Freight consolidation

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.

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.

Freight consolidation could be included at mobility hubs, particularly major interchange hubs where there is likely to be more space available. Where mobility hubs are located on the edge of urban areas, such as park and rides, they provide an ideal location to consolidate deliveries and reduce the number of onward journeys into the urban area.
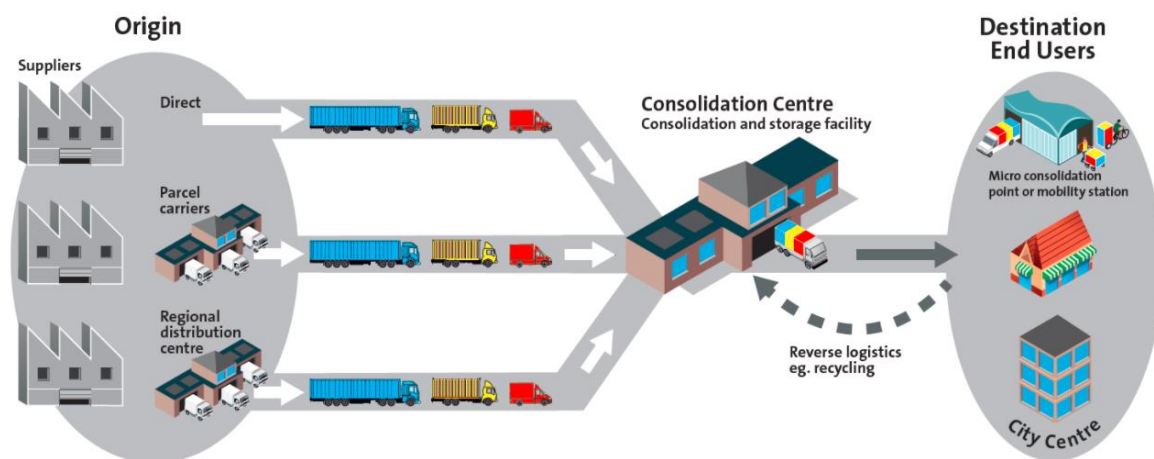

Figure 19 – Summary diagram of freight consolidation[26]

Car clubs

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.

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[26] Travel West: Bristol Freight Consolidation Centre Case Study

In Oxfordshire there are already a number of car clubs operating. These are primarily in Oxford, however there are good examples of car clubs operating in more rural locations such as Hook Norton near Banbury[27].

Car clubs could be included at mobility hubs to help reduce private car ownership, particularly in areas where car travel is more heavily relied upon. Enabling use of a car club car will also be a more sustainable option for residents who cannot make the trip necessary by any other mode.

Demand Responsive Transport

Demand responsive transport (DRT) is a flexible service that provides shared transport to users who specify their desired location and time of pick-up and drop-off. DRT can complement fixed route public transport services and provide a transport service in low-density areas or at low-demand times of day[28]. DRT can help to facilitate multi-modal travel by linking residents to a mobility hub where they can then access the variety of transport modes available.

Community Transport

Community transport is part of the voluntary sector and plays a key role in filling gaps in service where public transport is not available. There are many types of community transport including car clubs, community minibuses and dial-a-ride. 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.

Community transport could help to provide links to mobility hubs for disabled people or in areas where public transport is not available. Residents will then be able to access the variety of transport modes available at the hub.

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[27] Hook Norton Low Carbon (hn-lc.org.uk)
[28] https://www.gov.uk/government/publications/demand-responsive-transport-local-authority-toolkit/demand-responsive-transport-local-authority-toolkit

Thank you for reading

To find out more please contact:
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