

# Culm Garden Village

## Future Mobility Strategy

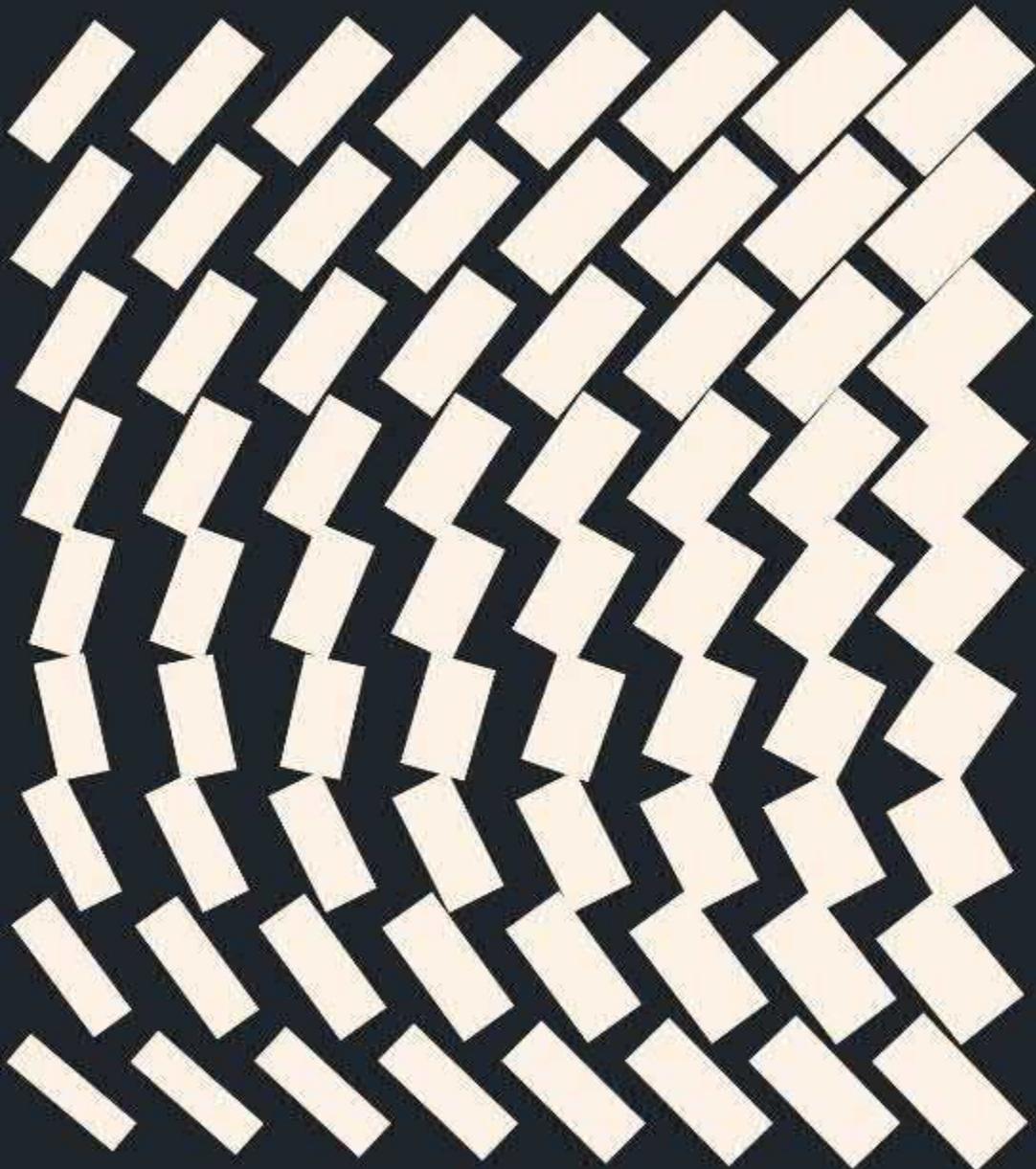
Mid Devon District Council

70068818

April 2021

Future Mobility





The Paris Agreement focuses on keeping the global temperature rise in this century to 1.5°C to avoid “severe, widespread and irreversible” climate change effects. If current trends continue, the world is likely to pass the 1.5°C mark between 2030 and 2052 unless it finds a way to reach net zero emissions. Our ‘domino effect’ graphic represents this tension.



# **Culm Garden Village Future Mobility Strategy**

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February 2021

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# Introduction



## Let's change the way we think. *Let's create change.*

### Report Context

This report sets out a Future Mobility Strategy for the proposed Culm Garden Village, situated to the east of junction 28 of the M5 motorway, itself adjacent to the Great Western Mainline (where a new station is proposed) and the Mid Devon town of Cullompton, 11 miles north of Exeter.

Culm Garden Village provides a once in a generation opportunity to create **a truly sustainable community in Mid Devon**, but to achieve this **a new way of thinking is needed**. A way that recognises the organic growth of the community, creates a unique sense of place, and supports the mobility needs of the community in a convenient, sustainable, and safe manner.

At the national level, the DfT's Decarbonising Transport Plan calls for **'place-based solutions'** and recognises different solutions will be needed for different places and locations.

Mid Devon has declared a Climate Emergency and the Devon Climate Emergency Response Group (DCERG) is made up of senior officers of about 25 organisations including councils, emergency services, businesses and voluntary organisations, established to provide the strategic coordination of a collaborative response to the county-wide Devon Climate Emergency.

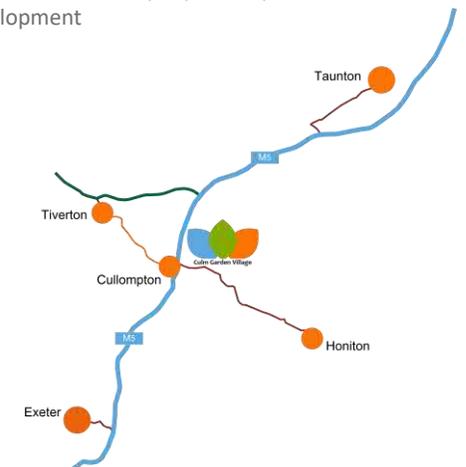
With mobility and transportation experiencing significant change, through the use of technology to enable new modes, services and solutions the opportunity exists to bake in existing, new and emerging mobility solutions which could help realise the vision for the garden village.

This strategy draws such thinking together with **an inherently people and place-centric narrative** and a list of specific activities and measures relevant to delivering future mobility and decarbonisation at Culm Garden Village.

The approach and primary recommendations are presented in the main section of the report, with supporting information and research presented through out a series of appendices.



Aspirations for early delivery of a country park at Culm GV set the tone for the people and place-centric nature of the development

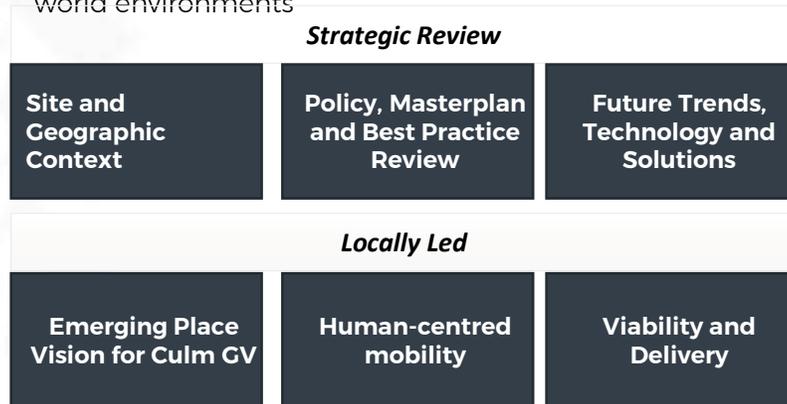




## Adopting a locally led approach

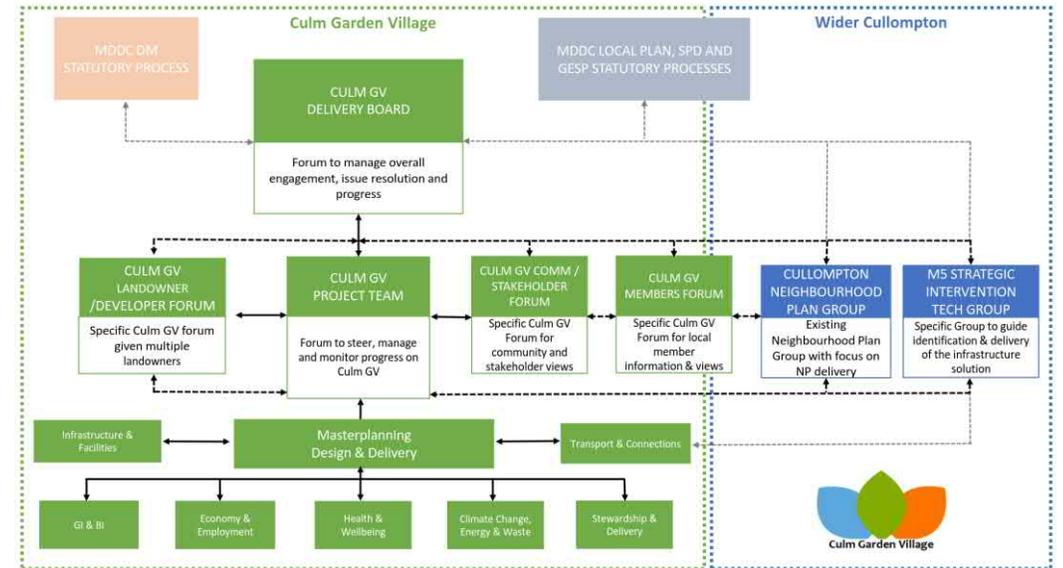
The Future Mobility Strategy for Culm Garden Village is grounded in the strategic review of future mobility and garden village design and then considers how this applies to Culm GV in a locally led strategy. The strategy is set out in the main report, with detail of this review and introduction to future mobility are provided within a series of **supporting appendices**. The strategic considerations include:

- **Site and geographic context** - recognising the strategic opportunities and constraints
- **Policy, masterplan and best practice review** - in particular responding to the climate crisis
- **Future trends, transport technology and solutions** - to be aware of changes in travel behaviour, and the emerging transport technology being deployed in different real-world environments



The locally-led perspective then covers:

- **The Emerging Place Vision for Culm GV** - recognising the placemaking aspirations for the development
- **Human-centred mobility** - ensuring proposals will meet mobility needs of the community in a convenient, sustainable and safe manner
- **Viability and delivery** - for early identification of the enabling conditions for success recognising the development planning control process and commercial viability of the scheme.



Culm GV Stakeholder Chart



## Overview of Approach

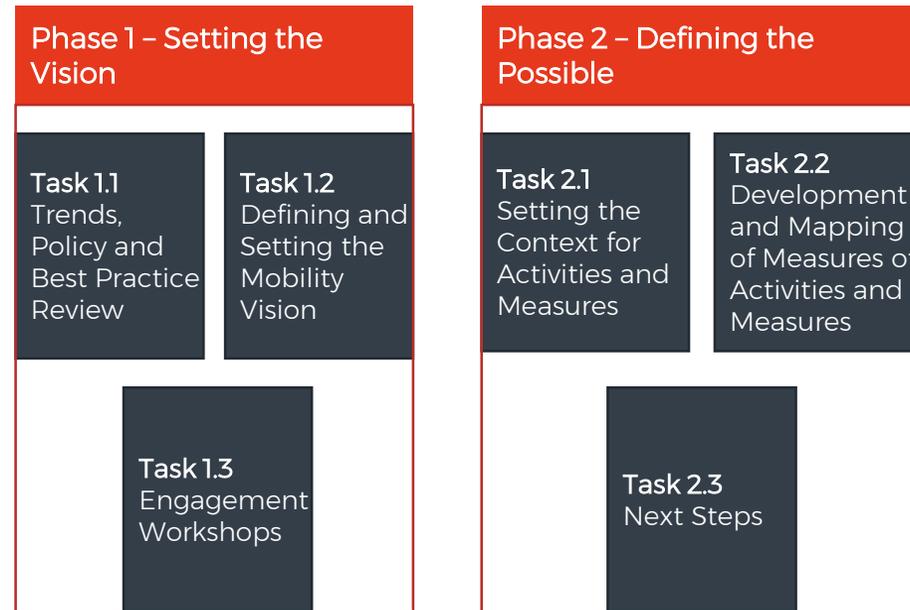
### **To establish the Future Mobility Vision and supporting objectives for Culm GV.**

The development of the strategy followed 2 phase approach to ensure the activities and measures identified were bespoke to Culm Garden Village. Each phase contained sub-tasks that combined formed the foundation of the strategy and it's measures.

- Phase 1 - Setting the Vision; To provide direction and a bespoke strategic focus, the first phase of the project sets out to answer the following question with the help of some key internal stakeholders. Targeted community engagement with a diagonal slice of local leaders, groups and individuals across all backgrounds
- Phase 2 - Defining the Possible - Utilising Phase 1 outputs to develop a future mobility strategy document, providing recommendations, conditions for success, and high-level mapping of the next steps.

This report presents the outcomes of each phase of process which forms the core strategy, with the underpinning details provided within the appendix.

***“What will Culm Garden Village be like to live in, how will transport and mobility help it be the best it can be and enrich people’s lives?”***





# Phase 1 - Setting the Vision

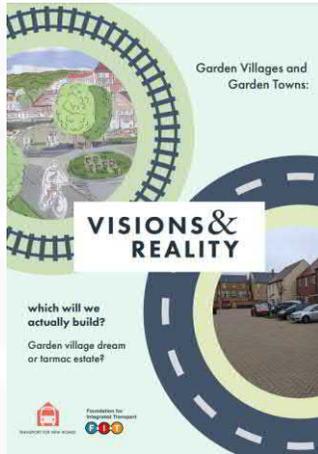


# Phase 1 - Setting the Vision

## Task 1.1 Trends, Policy and Best Practice Review

A Site and Geographic Context review was undertaken to identify opportunities relevant to Culm Garden Village. In parallel, the Policy, Masterplan and Best Practice review was undertaken to learn from previous deployments of garden villages and similar developments to inform the development of the vision as well as the guide the selection of activities and measures.

The outcomes of the review are presented as Appendix A, and a selection of the policy and best practice documents are presented below.



Transport for New Homes has published a report on Garden Villages and Garden Towns: Visions and Reality.

The report, aimed at a non-planning specialist audience, sets out to explore why garden village visions, once built out, rarely materialise.

<https://www.transportfornewhomes.org.uk/wp-content/uploads/2020/06/garden-village-visions.pdf>

Another key document is the **Garden Cities guidance from TCPA**; a suite of guidance with practical steps for all those interested in making C21st Garden Cities a reality. The guidance sets out several principles to help guide and deliver a successful garden village.

- Principle 1:** Location and connectivity should be the starting point
- Principle 2:** Set an overarching vision, focused on delivering sustainable transport
- Principle 3:** Collaboration is crucial
- Principle 4:** Sustainable transport systems must be inclusive
- Principle 5:** Transport must be future-proofed
- Principle 6:** Local Plans should establish mode share targets and networks
- Principle 7:** Build to the right density
- Principle 8:** Apply a user hierarchy
- Principle 9:** Consider key design features
- Principle 10:** Integrate green infrastructure and climate resilience within transport design

The most relevant section for future mobility and sustainable transport is Guide 13: Sustainable Transport (<https://www.tcpa.org.uk/guidance-for-delivering-new-garden-cities>).

The document outlines, from a transport perspective, how developments should be integrated, forward-looking and accessible. This should include promotion of public transport, walking, and cycling so that settlements are easy to navigate, and facilitate simple and sustainable access to jobs, education, and services. A common theme picked up in the review of where Garden Villages have failed to deliver on sustainable transport visions **results from adopting a predict and provide approach** to transport provision.

### Summary of Policy Document Review

#### National Context

- Decarbonising Transport: Setting the Challenge (DfT - 2020)
- Future of Mobility: Urban Strategy (UKG - 2020)
- (Call for Evidence) Future of Transport: rural strategy (DfT - 2020).
- Planning for the Future (UKG Whitepaper - 2020)

#### Regional Context

- Draft Local Industrial Strategy (South West LEP - 2020)
- Covid-19 Route Map to Recovery (South West LEP - 2020)
- South West Energy Strategy (South West LEP - 2020)
- Devon and Torbay Local Plan 3 2011 - 2026 (Devon County Council - 2011)

#### Local Context

- Mid-Devon Local Plan Review (MDDC -2020)
- Cullompton Neighbourhood Plan (Cullompton Town Council - 2020)



# Phase 1 – Setting the Vision

## Task 1.1 Trends, Policy and Best Practice Review

The access and mobility needs of our society in recent years have been increasingly influenced by mega trends that are impacting how, when, and where people will need to travel, particularly in the wake of Covid-19. These mega-trends will influence how future residents, workers and visitors of Culm Garden Village navigate and experience the village.

These mega-trends can be broadly categorised as follows; **Demographic challenges, Social change, Environmental focus, Economic shift and Political landscape**, and are shifting at varied rates. As such, considering wider journey types is central to a human-centric design, allowing a more holistic approach to understanding where people travel to. Some key movements may include :

- Education and learning
- Healthcare
- Retail (travelling to a location)
- Leisure (travelling to a location)
- Logistics and deliveries (serving most of the above)
- Utilities and maintenance

Changes in consumer behaviour have highlighted how modern society is underpinned by freight, e.g. the UK has grown to be one of the world's largest e-commerce markets. According to the University of Westminster this has generated 1.26bn UK deliveries annually across grocery, non-food retail, takeaway and home delivery. This change has contributed to van fleet numbers growing by 71% in the last 20 years to 3.2m with an increased focus on serving urban residential and commercial premises.

### Local Response

More locally, the Cullompton Town Centre Master Plan recognises the five keys points following the impacts of Covid-19 on transport movements now and in the future, and how these can be implemented into planning:

- 1) Greater **emphasis on remote/home working**, which will lower levels of commuting
- 2) The need to embed and **capitalise on the uptake in walking and cycling** during lockdowns, and to do so by including micro-mobility as a solution to improve access to cycling
- 3) The need to **support local public transport** which will experience decreased user confidence in the next few years, and to do so by influencing and improving the quality and setting of public transport stops
- 4) **Concerns over likely uptake of private cars** for commuting journeys in the short and medium term, and the need to pursue a *decide and provide* approach
- 5) An aim to **utilise the Emergency Active Travel funding to lead the way** with schemes to improve local constraints and build upon local opportunities

### Future Mobility Considerations for Culm GV

The resulting infrastructure and mobility interventions that should be considered for Culm Garden Village in a post-covid world are:

- Enabling highly walkable environments plus changes in leisure activities and behaviours\*
- Suitable provision of co-working to provide remote/home working options and thereby reducing commuter trips
- Commuters presented with excellent micromobility for first mile and last mile as well as Demand Responsive Transport (DRT) service to bridge perceptions over unhygienic public transport
- De-prioritising driveway parking provision to counter private vehicle demand
- Explore potential freight consolidation centre and contactless last mile delivery (for a site that could command over 0.5million parcels a year)
- Design for e-cargo bikes to support personal, shared and business use across the masterplan
- Multi-functional mobility hubs, which could have wider benefits in terms of community and network resilience in providing locations for critical assets.

\*Research carried out by Sports England found that 63% of adults in England say it's more important to be active since COVID-19, with walking being the most popular activity with 59% of adults using their daily activity (during initial lockdown) to go for a walk.



# Phase 1 - Setting the Vision

## Task 1.2 Defining and Setting the Mobility Vision

The initial mobility vision and supporting objectives were formed to reflect the key themes arising from the policy and best practice review, as well as wider trends in future and sustainable mobility.

A long-list of objectives and key themes were identified using the outcomes from Phase 1 and included to frame a group discussion. An iterative process then followed to refine and streamline the vision and objectives into a succinct and focussed statement with 6 key objectives.

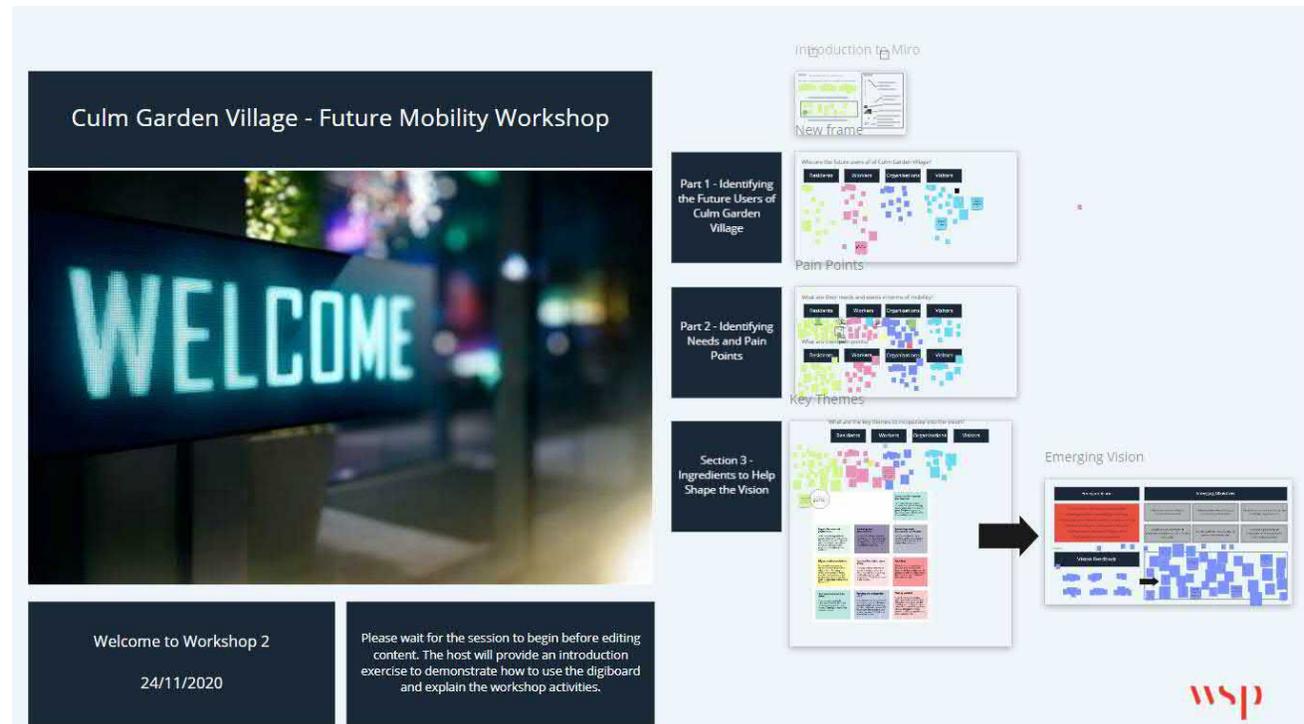
This was achieved as part of an project workshop where the long-list was reviewed and filtered against the research and data collected, as well as professional knowledge and experience of the future mobility landscape, to deliver an emerging vision and objectives.

To validate and test the emerging vision against local knowledge and experience, an interactive exercise was developed as part of the engagement workshops.

Workshop attendees were initially briefed on the Future of Mobility and what this means for a garden village and rural setting, inspired by case-studies and insights applicable to a garden village context (a copy of the presentation can be found in **Appendix C**).

It was important to provide this briefing to set the scene and to provide a consistent baseline for all contributors attending each session. In the same vein, the supporting information within the appendices to the strategy should be read in conjunction with the final set of activities and measures.

The interactive activity was then delivered via an online visual collaboration platform. The ultimate aim of the session was to identify and agree an over-arching mobility vision for the village and its relationship with Cullompton to inform the development of the final strategy.



An overview of the Culm GV Future Mobility workshop (hosted on Miro – a digital whiteboard)



## Phase 1- Setting the Vision

### Task 1.2 Defining and Setting the Mobility Vision

**“What will Culm Garden Village be like to live in, how will transport and mobility help it be the best it can be and enrich people’s lives?”**

A core focus of the workshops was to explore and answer this question.

To reduce personal confirmation and maximise inclusion of all types of users and scenarios, attendees were first asked to identify who they thought the future users of Culm Garden Village might be. This covered residents, workers, organisations, and visitors.

The second part of the activity selected some of those users and asked attendees to identify their potential mobility needs and pain points they might experience undertaking daily activities. This helped to tease out some of the considerations that would need to be reflected in the strategy.

The third part of the activity asked attendees to reflect on those needs and pain points to identify the ingredients or themes that would help shape the vision and its objectives.

The final part of the workshops displayed the emerging vision and objectives. Attendees were asked to think about the scenarios they had progressed in the earlier part of the activity and review the emerging vision and objectives. The platform allowed direct feedback on the overall vision, as well the individual supporting objectives. Feedback was collected both within the session, and platform was left open for ~ 1 week after the session to allow attendees to additional time to influence the vision and objectives.

The workshops were delivered twice to two different audiences to help refine, tweak, develop the final mobility vision and supporting objectives.

The first session was presented to the Culm Garden Village Delivery Board on the 9<sup>th</sup> November 2020. The second session was completed with the Stakeholder Forum Group on 24<sup>th</sup> November 2020 – consisting of a diagonal slice of representatives and key decision makers including local authority officers, large employers and healthcare services, charities, and environmental agencies.



# Phase 1 – Setting the Vision

## Task 1.2 Defining and Setting the Mobility Vision

The mobility landscape is evolving and changing at rapid pace, creating uncertainty in planning transport and mobility options for future developments. What might meet the needs of today's world, might not be sufficient for the needs of the residents and visitors of Culm Garden Village in the future.

By adopting a human-centric approach to mobility within the workshops, attendees were able to consider the emerging vision and objectives against the potential futures users of the village across a backdrop of future mobility solutions.



**Reduce reliance on sole-occupancy cars?**



**Encourage walking, cycling, 'wheeling'?**



**Increase connectivity and access to opportunities?**



**Bake-in Zero Emission Mobility?**



**Reduce energy consumption and impacts?**



**Embed all forms of mobility in the community?**



**Put residents' needs at the heart of the equation?**



**Deliver benefits wider than the garden village?**



***“What will Culm Garden Village be like to live in, how will transport and mobility help it be the best it can be and enrich people’s lives?”***



# Phase 1 – Setting the Vision

## Task 1.2 Defining and Setting the Mobility Vision

Feedback from both sessions was collated and considered against the emerging vision and objectives to form the final version - which the activities and measures of this strategy are based on.

The feedback was divided into 3 categories: 'validation and support', 'wording and phrasing', and 'challenge / things to consider'.

Some noteworthy contributions that were directly adopted include:

- Support connected communities in line with the garden village vision
- Community co-working hub / facilities are needed and will help reduce external trips
- if infrastructure is there, at the start, good habits of non car use will be built in

The internal project team reviewed the feedback and made relevant changes to the vision, whilst also noting the additional ideas that would be considered whilst developing the activities and measures.

The final vision and supporting objectives was then presented at the Delivery Board meeting on 11<sup>th</sup> December 2020 for final acceptance. The final vision is presented on the next page.

### Maximise opportunities to decarbonise mobility

Why not build a work hub? a building that could offer a computer stations. People could work with out travelling if living locally but would not be isolated working at home.

working at home - modern new houses will really need an extra room as office space

### Create an environment of sustainable behaviour (walk, wheel and cycle)

space for car share (like Exeter's)

If footpaths and cycle paths are attractive it will encourage people to buy properties in the GV

space to store/charge mobility aids

### Reduce dependency of single-occupancy vehicle trips

if infrastruce is there, at the start, good habits of non car use will be built in

good quality multi use cycle routes from Cullompton to Exter, to Killerton House, to Willand need to be off road

### Strive to deliver mobility equity across the community

and teach older people digital skills, a community centre with a work hub?

encouraging activity in older people through flat cycle paths for electric bikes, trikes, scooters, if you are building flats design storage and charging points .

no restrictive covenants on houses to stop people adapting them to fit what they need, or parking their work vehicle outside, remember the self employed

### Place the community at the centre of designing solutions

Being able to live local

Travel options to support health and wellbeing

Support connected communities in line with the garden village vision

Needs something to emphasise that the transport solution needs to efficiently support the travel needs of the development and town

### Developing phasing of interventions to support and maximise outcomes

We need to be forward-thinking so the community will last and be adaptable.

Coproduction of design to continue after initial development phase



## Mobility Vision:

**To create a thriving sustainable development embedding existing, emerging and new mobility solutions that deliver exemplar outcomes for the Cullompton Garden Village and communities**

## Mobility Objectives:

1. Maximise opportunities to decarbonise mobility

2. Reduce dependency of single-occupancy vehicle trips

3. Place the community at the centre of designing solutions

4. Create an environment of sustainable behaviour (walk, wheel and cycle)

5. Strive to deliver mobility equity across the community

6. Developing phasing of interventions to support and maximise outcomes



## **Phase 2 - Defining the possible**



# Mobility Components

## Addressing the Culm GV Mobility Objectives

This future mobility vision is not technology led. It has been driven by the needs, concerns and requirements of Culm GV Stakeholder Forum and Delivery Board.

The Culm GV Objectives are expanded here to detail which principles could inform the masterplan development, with many of these arising from the stakeholder workshops.

The vision advocates the site is developed in a way that promotes active travel and the use of public transport, whilst maximizing the opportunities for emerging new mobility services to be implemented. In doing so, the Culm GV will develop as a **place that reduces the need to travel by private car, and where people find alternatives or prefer to travel by non-car modes.**

The emphasis on community co-creation and inclusivity thinking will be followed through to engage with the representative groups of future users to ensure scheme designs are as best as possible not unvalidated assumptions.

These objectives are only achievable if the scheme and its components are commercially viable. It is therefore critical to consider how the planning system can help support the right outcomes and the resulting value can be fairly captured across landowner, development partners and end users.

### Maximise opportunities to decarbonise mobility

Masterplan design for **behaviour change**

**Land use planning** to reduce the need to travel (e.g. community co-working and other digital alternatives)

Encouraging **public transport, shared mobility and green freight**

**Decarbonising modes** (e.g. EV charging infrastructure, micromobility provision)

### Reduce dependency of single-occupancy vehicle trips

Develop **accessibility scoring** to inform parking provision levels and deter driveway parking / encourage remote (**car barn**) provision

A multi-modal service provision including excellent public transport (and exploring the case for DDRT and **increased connections to Cullompton Rail Station**)

**Flexible working patterns** and employment opportunities

A walkable 30 minute neighbourhood supported by centralised **mobility hubs** serving each parcel

### Place the community at the centre of designing solutions

Culm GV working groups **engaging with local community** throughout scheme design

**Develop personas** of representative future users and **test assumptions** to iterate scheme design

Build in **flexibility** to adapt service provision in line with community needs

Maximise opportunities for **community stewardship**

### Create an environment of sustainable behaviour (walk, wheel and cycle)

**Adopting best-practice** (e.g. for cycling, DfT Gear Change – Stepping it up a Gear, infrastructure design (LTN 1/20))

Maximise opportunities from **emerging modes** (e.g. e-bikes, e-cargo bikes and e-scooters)

**Walkability and placemaking** to prioritise the pedestrian experience and create safe interesting routes

### Strive to deliver mobility equity across the community

Adopt a **human-centric design approach** to consider the needs of all residents, workers and visitors to Culm GV

Explore the **planning and commercial enablers** to extend accessibility to all residents and businesses

Consider flexible, **on-demand and pop-up services** that could extend reach (residents should not have to travel further than 30-minutes to access essential services and opportunities)

Provide multiple **communication channels and outreach methods** to gather feedback on mobility equity

### Developing phasing of interventions to support and maximise outcomes

**Early delivery of shared mobility** and supportive components with innovative housing developers

**Delivery of key nodes** (density, function and accessibility) to set the direction for low carbon lifestyles

Agree a **trial period to validate lower trip rates, reduced parking provision** to reduce the need for over-provision of car-dominant infrastructure (with planning triggers and planning conditions that can be triggered at a later date)



## Place

# The role of mobility in linking the garden village, the town and the station

Strategically, a **public transport mobility spine across the M5 will be key** to linking the developments in West Cullompton to the town and the garden village.

The town and rail stations will be the major mobility hubs where onward journeys can be made by rail, coach and bus to Exeter, Taunton, Bristol, Plymouth and beyond.

A series of **satellite and community mobility hubs in the garden village** and ultimately in the western extension will provide access to sustainable modes such as **car share (ridesharing and car clubs), on demand bus services, e-scooter and e-bike hire** to provide a focus for sustainable mobility.

Further hubs at major attractors and anchored at key land uses such as healthcare, education and sporting facilities will help to enable end to end journeys avoiding the use of sole occupancy cars.

The spine itself could be the focus for **on-demand electrified bus services** providing door to door connectivity across the greater Cullompton area.

**Ultimately an automated shuttle could link between the major hubs** of the town, the major superstore, the station and the garden village providing low cost, reliable transportation for people. Such a foundation could then explore how goods movement could be facilitated through the same asset.

Recognising the decarbonisation challenge further **EV charging hubs** could be established across the area to provide rapid charging alternatives to home charging (especially for those who don't have private parking) whilst capitalising upon abundant local sources of solar electricity.



ArrivaClick on-demand bus service covering a wide area in Leicester and connecting the New Lubbesthorpe development into wider networks.



There is a strong car sharing community in Devon including the (Liftshare) Devon County Council Car Share Community



# Phase 2 – Defining the Possible

## Task 2.1 Setting the Context for Activities and Measures

To develop the Strategy the vision and supporting objectives are underpinned by a set of activities and measures. These activities and measures have been informed from a wider set of analysis relating to mobility and in the context of what is suitable for Culm Garden Village.

In addition to the Trends, Policy and Best Practice already summarised, the following themes have been explored which also influence the Mobility Activities and Measures for Culm Garden Village :

- Thinking about Place
- Thinking about People
- Viability and Delivery
- Future Mobility Components

Each of these are presented adjacent with a short description, and the relevant Appendix reference.





# Phase 2 – Defining the Possible

## Task 2.1 Setting the Context for Proposed Activities and Measures

The following pages set out the proposed Activities and Measures for the Culm GV Future Mobility Strategy'. They are described in terms of three categories;

- Enabling Actions
- Infrastructure and Masterplan Design
- Service Planning

### Enabling Actions

These are the strategic measures that rely on political buy-in or require coordination across a wider set of stakeholders or masterplan workstreams. Failure to progress these items could lead to failing to deliver the Culm Garden Village vision.

### Infrastructure and Masterplan Design

More specifically related to transport and mobility, these measures need to be captured in the scheme design and more directly relate to the six Culm Garden Village mobility objectives.

### Service Design

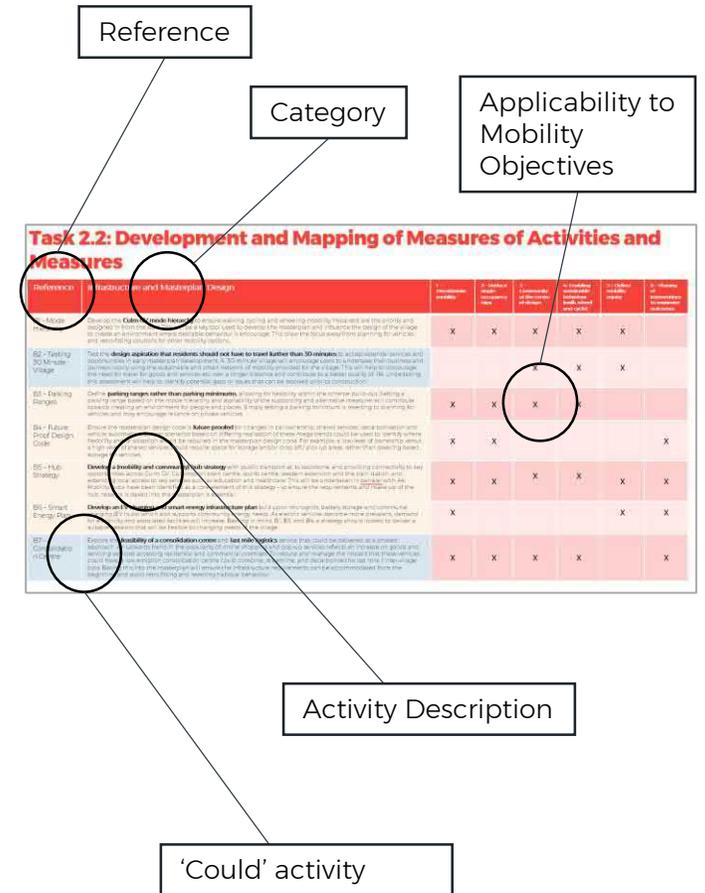
Responding to the identified weakness in the traditional approach to transport masterplan design (particularly for garden villages), these measures emphasise the need to consider desirability and viability. Also included are innovative mobility services such as a DDRT and an automated shuttle service.

Each Activity or Measure is presented with a 'should' or 'could' priority level and colour coded appropriately. A description of each is provided below.

Should – measures that considered to be core to the strategy and should be undertaken.

Could – aspirational measures and activities that could support core measures

The measure reference, description, and applicability to each of the six Culm Garden Village mobility objectives is provided in table layout. An annotated example is provided adjacent to enable easy interpretation of the subsequent pages.





# Phase 2: Defining the Possible

## Task 2.2: Development and Mapping of Measures of Activities and Measures

Reference	Phase	Enabling Actions	1 - Decarbonise mobility	2 - Reduce single-occupancy trips	3 - Community at the centre of design	4- Enabling sustainable behaviour (walk, wheel and cycle)	5 - Deliver mobility equity	6 - Phasing of interventions to maximise outcomes
A1 - Plan, Monitor and Manage Buy-in	Site selection, Feasibility and Concept	Secure buy-in from key stakeholders on a <b>Plan, Monitor and Manage approach</b> . This represents a key change in approach, as explained within the viability and delivery considerations summary in Appendix B. It is important this is secured as these key stakeholders will have significant influence over the success of the strategy and need to understand and be supportive of the approach to underpin all the other measures and activities. Such buy-in, could enable a trial period for validating lower trip rates, reduced parking provision and reduce the need for over-provision of car-dominant infrastructure.	X	X				X
A2 - Definition of Operating Model	Concept/ Planning Consent/ Detailed Design	Define the <b>operating model for long term stewardship</b> of the site to ensure there is a sustainable arrangement and early provision of the proposed mobility services. Defining and setting this out earlier contributes towards the long-term success of the site, but also allows early interventions to be applied before habitual behaviours set in.			X		X	X
A3 - Encourage Diversified Housing Offer	Concept/ Planning Consent/ Detailed Design	Aim for a <b>diversified housing offer</b> through early engagement with <b>innovative development partners</b> that support car-lite development, communal car barn concepts and unallocated parking (and capture this in the investment plan). This will help influence and deliver a desirable make-up of the site that acts as the foundations to deliver the objectives - avoiding having to retro-fit solutions, or having to tackle issues identified in the best practice review.	X	X		X	X	X
A4 - Mobility Hubs Model	Concept/ Planning Consent/ Detailed Design	<b>Define the operating and business model for mobility hubs</b> (and associated services including community co-working space) or specify for a 3 <sup>rd</sup> party operator. Mobility hubs will be a core tool to connect the village internally, as well as in the adjacent area, and the co-working offer will provide remote/home working options and thereby reducing commuter trips. The operating/business model concept will need to be considered and defined as part of the masterplan to ensure it's deliverability and requirements are catered for within the design to avoid retro-fitting the concept once built. Operators and/or suppliers will need to be analysed and assessed to identify the feasibility, suitability, and deliverability of the hub network. This can be developed in parallel with B5.	X	X			X	X
A5 - Net Zero Pathway	Site selection, Feasibility and Concept	Define the <b>Culm GV net zero pathway for transport</b> to 2050. This will set out the developments roadmap on how it will achieve net zero by 2050. It is unlikely that this will be achieved upon the first opening of the village, but this should be a golden thread that runs through all measures and activities. The roadmap can document how mobility and related measures will evolve to contribute towards the 2050 target.	X	X		X		X
A6 - Planning Approval Consideration	Site selection, Feasibility and Concept	Consider the <b>planning approval</b> and buy-in required to facilitate <b>low traffic neighbourhood and ultra-low emission zones</b> (e.g. necessary for consolidation centre, parking enforcement). Creating a neighbourhood with low traffic and emissions will make a significant contribution towards delivering the vision. To ensure this is built in to the masterplan from the beginning, an assessment to review requirements within local planning context should be undertaken to identify the extent of the challenge and plot how best to incorporate this within the masterplan design.	X	X	X	X	X	X



# Phase 2 – Defining the Possible

## Task 2.2: Development and Mapping of Measures of Activities and Measures

Reference	Phase	Infrastructure and Masterplan Design	1 - Decarbonise mobility	2 - Reduce single-occupancy trips	3 - Community at the centre of design	4- Enabling sustainable behaviour (walk, wheel and cycle)	5 - Deliver mobility equity	6 - Phasing of interventions to maximise outcomes
B1 – Mode Hierarchy	Site selection, Feasibility and Concept	Develop the <b>Culm GV mode hierarchy</b> to ensure walking, cycling and wheeling (mobility impaired) are the priority and designed in from the start. This will be a key tool used to develop the masterplan and influence the design of the village to create an environment where desirable behaviour is encouraged. The adoption of best-practice (e.g. for cycling, DFT Gear Change – Stepping it up a Gear, infrastructure design (LTN 1/20)) will be key to draw the focus away from planning for vehicles and retro-fitting solutions for other mobility options.	X	X	X	X	X	
B2 – Testing 30 Minute Village	Concept/ Planning Consent/ Detailed Design	Test the <b>design aspiration that residents should not have to travel further than 30-minutes</b> to access essential services and opportunities in early masterplan development. A '30-minute' village will encourage users to undertake their business and journeys locally using the sustainable and smart network of mobility provided for the village. This will help to discourage the need for travel for goods and services etc over a longer distance and contribute to a better quality of life. Undertaking this assessment will help to identify potential gaps or issues that can be resolved prior to construction.	X	X	X	X	X	
B3 – Parking Ranges	Concept/ Planning Consent/ Detailed Design	Define <b>parking ranges rather than parking minimums</b> , informed by accessibility scoring that allows for flexibility within the scheme build-out. Setting a parking range based on the mode hierarchy and availability of the supporting and alternative measures will contribute towards creating an environment for people and places. Simply setting a parking minimum is reverting to planning for vehicles and may encourage reliance on private vehicles.	X	X	X	X		
B4 – Future Proof Design Code	Concept/ Planning Consent/ Detailed Design	Ensure the masterplan design code is <b>future proofed</b> for changes in car ownership, shared services, decarbonisation and vehicle automation. Several scenarios based on differing realisation of these mega trends could be used to identify where flexibility and/or adaption would be required in the masterplan design code. For example, a low-level of ownership versus a high-level of shared services would require space for storage and/or drop off / pick up areas rather than dwelling based storage for vehicles.	X	X				X
B5 – Hub Strategy	Site selection, Feasibility and Concept	<b>Develop a (mobility and community) hub strategy</b> with public transport at its backbone, and providing connectivity to key opportunities across Culm GV, Cullompton town centre, sports centre, western extension and the train station, and extending local access to key services such as education and healthcare. This will be undertaken in parallel with A4. Mobility hubs have been identified as a core element of this strategy ensuring the requirements and make up of the hub network is baked into the masterplan is essential.	X	X	X	X	X	X
B6 – Smart Energy Plan	Site selection, Feasibility and Concept	<b>Develop an EV charging and smart energy infrastructure plan</b> built upon microgrids, battery storage and communal charging (EV hubs) which also supports community energy needs. As electric vehicles become more prevalent, demand for electricity and associated facilities will increase. Bearing in mind, B1, B3, and B4, a strategy should look to deliver a suitable network that will be flexible to changing needs of the village.	X		X		X	X
B7 – Consolidation Centre	Site selection, Feasibility and Concept	For a site that could command over 0.5million parcels a year, explore the <b>feasibility of a consolidation centre and last mile logistics</b> service that could be delivered as a phased approach. An upwards trend in the popularity of online shopping and pop-up services reflects an increase on goods and servicing vehicles accessing residential and commercial premises. To reduce and manage the impact that these vehicles could have, a low emission consolidation centre could combine, streamline, and decarbonise the last mile / inter-village trips. Baking this into the masterplan will ensure the infrastructure requirements can be accommodated from the beginning and avoid retrofitting and reversing habitual behaviour.	X	X	X	X		X



# Phase 2 – Defining the Possible

## Task 2.2: Development and Mapping of Measures of Activities and Measures

Reference	Phase	Service Planning	1 - Decarbonise mobility	2 - Reduce single-occupancy trips	3 - Community at the centre of design	4- Enabling sustainable behaviour (walk, wheel and cycle)	5 - Deliver mobility equity	6 - Phasing of interventions to maximise outcomes
C1 – Persona Research	Site selection, Feasibility and Concept	Develop <b>Culm GV personas</b> and attribute insights through a travel behaviour survey. A range of personas have been defined as part of the development of the strategy to shape the measures and activities offered. However, it is likely the personas and make up of the real-world site will differ to these. To contribute towards A1, as well as validating service planning, real-world personas should be generated and used to refine and update the strategy based on the actual village population.			X		X	
C2 – Future PT Network	Concept/ Planning Consent/ Detailed Design	Specify a <b>future public transport network plan</b> (including linear routes, rail to Bristol, Taunton & Exeter, bus routes to Tiverton & Exeter) and on-demand nodes (so DDRT would serve fixed hubs as well as a floating) as overlapping networks	X	X	X	X	X	X
C3 – Automated Shuttle	Concept/ Planning Consent/ Detailed Design	Undertake a <b>feasibility study for an automated shuttle</b> running from Culm GV hubs to the rail station to Cullompton and western extension hubs – linking key amenities and opportunities the feasibility should also consider alternative shuttle options to be deployed as part of an interim period and phasing introduction of the automated solution.	X	X				X
C4 – Mode Desirability	Concept/ Planning Consent/ Detailed Design	<b>Forecast the relative attractiveness (demand side) of different mobility interventions</b> (e.g. car clubs, e-bikes, demand responsive bus, community co-working) for different Culm GV personas, to define mode share targets as part of the Plan, Monitor and Manage (A1) approach. This will help form the on-going make-up of the mobility offer for the village population and can help inform the business case for deploying services and modes. (C5)	X	X	X	X		X
C5 – Mobility Viability	Concept/ Planning Consent/ Detailed Design	<b>Forecast the relative viability (supply side) of different mobility interventions</b> (e.g. car clubs, e-bikes, demand responsive bus, community co-working) recognising market conditions and potential service operators e.g. DRT across Cullompton to link into hubs and longer distance transit.	X				X	X
C6 – Last Mile Provision	Site selection, Feasibility and Concept	<b>Define first mile and last mile service provision</b> (e.g. short & long term rental and secure private parking at hubs for bikes, e-bikes, e-scooters). This would investigate the service provision, types of vehicles, parking, and maintenance operations.	X	X	X		X	X
C7 – E-cargo Services	Site selection, Feasibility and Concept	<b>Specify indicative e-cargo services from proposed hubs</b> and identify the potential reduction in van miles for deliveries. This will be undertaken in conjunction with B7 to identify a suitable strategy to move goods to their final destination. For example, a neighbourhood hub rather than door-to-door service, or e-bikes, land drones or e-quads.	X	X			X	

# Recommendations and Next Steps

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## Progressing the Culm Garden Village Mobility Vision

This report sets out a blueprint for mobility at Culm Garden Village, comprising a vision, objectives and key activities and measures.

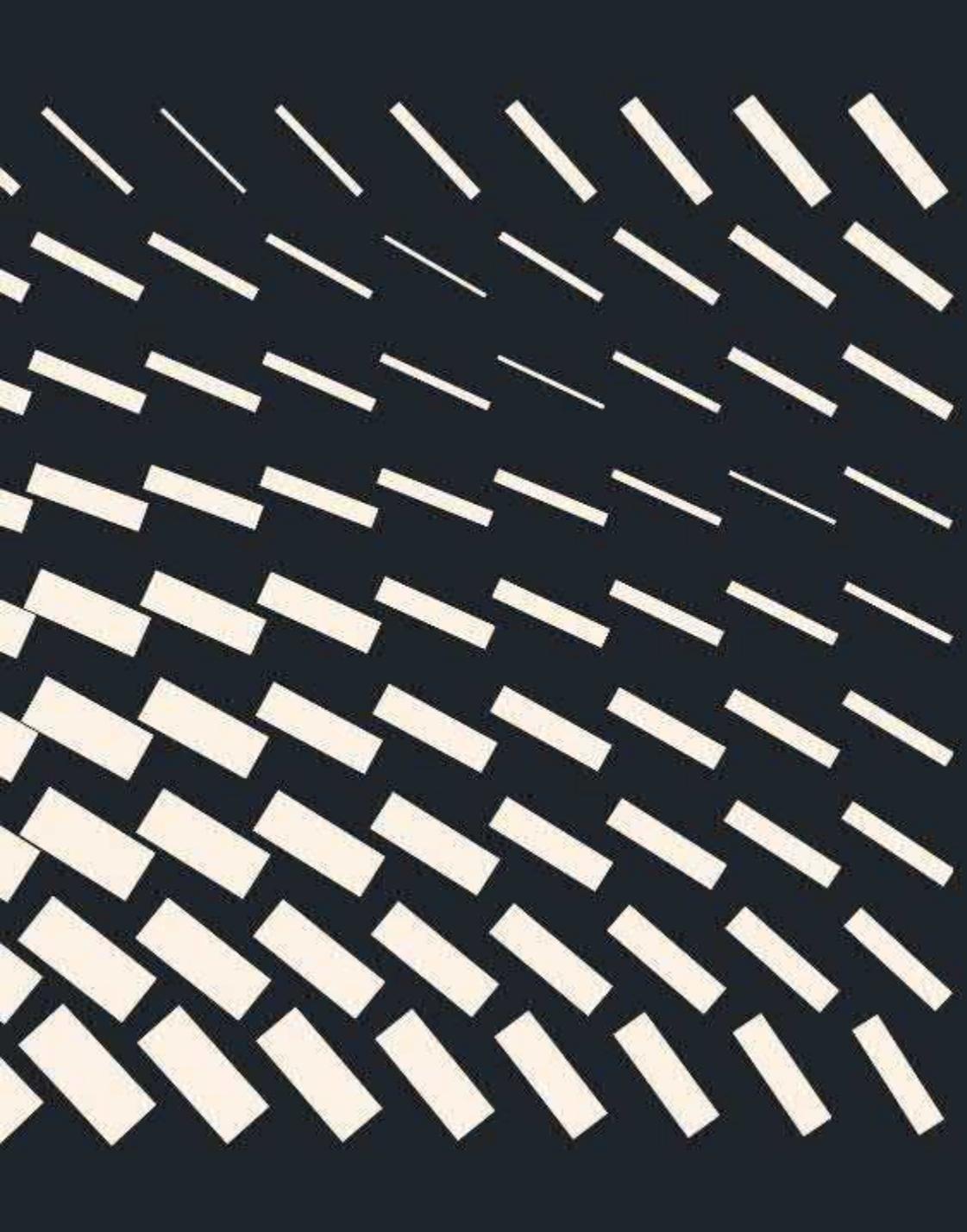
The Mobility Vision has been developed through close engagement and refinement with key stakeholders. The recommendations presented (as 'should' or 'could' measures and activities) set out the next steps for enabling the masterplan development in meeting the Mobility Vision.

The task to drive and deliver on that vision does not fall to just one party or authority. The **Culm Garden Village Delivery Board** does however have the remit to ensure relevant stakeholders are committed to the vision, and demonstrate that through the following roles and responsibilities:

- **Culm GV Stakeholder Forums** – Consult upon emerging initiatives, and challenge the Delivery Board and Project Team where the masterplan development appears to be moving away from delivering on the agreed vision.
- **Landowners** – Adopt a long-term stewardship model that enables development and behaviours aligned to the Culm Garden Village Mobility Vision. The challenge will be on how can these models create and capture long-term value, particularly from the future mobility interventions posed.

- **Local Authorities** - Political support will be critical across the local planning and highway authorities to move away from a complete reliance on a 'Predict and Provide' approach. A move towards 'Vision and Validate' (or Plan, Monitor and Manage) is needed and opens up the possibility of flexible designs and targets for parking.
- **Developer(s)** – The developer offering at Culm Garden Village will need to respond to the desirable mobility behaviours being targeted. New lifestyle offerings (including residential-led Mobility as a Service, co-working space, micromobility and automated shuttle services) will only work if the housing design and car park provision are aligned to reduce the reliance on the private car. This will need to be varied to respond to the different needs and levels of accessibility across the masterplan.

- **Project Team** – This Mobility Vision has identified that the activities and measures are multi-disciplinary. They therefore rely on coordination across energy, digital and mobility strategies. Each project team discipline should have a greater emphasis on recognising the future residents and site users and ensuring the scheme design reflects their needs. Finally, early soft-market testing together with the human-centred design approach will help to challenge design standards where necessary and result in highly mobility solutions highly tailored for Culm Garden Village.



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**Future Mobility**

<https://www.wsp.com/en-GB/campaigns/future-mobility>





# Appendix A



## Site Considerations

Culm Garden Village is situated in rural Mid Devon, close to the town of Cullompton and its local amenities. Whilst the site is to the east of the M5 motorway, the town being on the west, its position provides opportunities to sustainably capitalise upon its connectivity potential.

The town of Cullompton provides local shopping amenities, a large retail store as well as a number of local services including library, healthcare (including dentistry) and veterinary, sports facilities, schools and colleges.

Cullompton is approximately 11 miles north of Exeter, the county seat, and around 16 miles south of Taunton in Somerset. Tiverton to the north west of the town provides further services and Tiverton Parkway, at Junction 27 of the M5, currently provides access to Great Western and Cross Country rail services.

A new rail station is proposed at Cullompton, close to the proposed new link road and the M5 junction, a site equidistant between the Culm Garden Village and the town centre. Long distance coach services from Plymouth to Bristol and the airport, as well as to London stop at the Weary Traveller just adjacent to the motorway junction.

The 1 bus service operates approximately every 15 minutes from Exeter to Tiverton via Cullompton provide easy access north and south.

**The Garden Village site has the potential to be anchored with the hub of the rail station,** which itself could provide a multi-modal interchange with bus and coach services, and the town, providing an access of connectivity from the Garden Village, across the motorway and through the town to earlier developments to the west.

**Creating such a “mobility spine” could deliver significant, sustainable transport benefits across the wider Cullompton area,** linking the majority of the greater Cullompton area to opportunities and services, as well as increasing sustainable longer distance public transport trips.

With further embedding of new, emerging and future mobility solutions for both people and freight / logistics within the garden village, **it could be a catalyst for best practice in a rural community.**



An early spatial plan for Culm GV showing key land parcels and connectivity

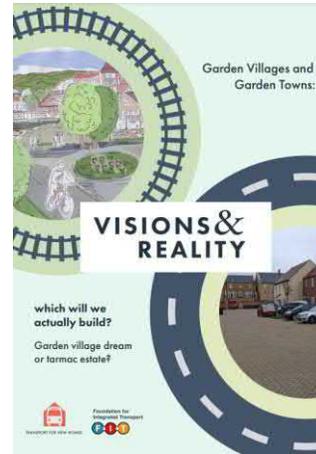
## Best-practice guidance in garden village mobility.

Culm Garden Village will take the best of best-practice guidance and international precedent for low-impact sustainable mobility design.

Culm Garden Village seeks to demonstrate best practice and advance the standard for mobility and transport provision in a Garden Village setting. A useful critique of garden villages is **Transport for New Homes “Garden Villages and Garden Towns: Visions and Reality”** which assesses how today’s Garden Village schemes stand up against the aspirational scene for vibrant, mixed-use communities as set out in the Government’s Garden Communities prospectus 2018.

The document outlines, from a transport perspective, how developments should be integrated, forward-looking and accessible. This should include promotion of public transport, walking, and cycling so that settlements are easy to navigate, and facilitate simple and sustainable access to jobs, education, and services. A common theme picked up in the review of where Garden Villages have failed to deliver on sustainable transport visions results from adopting a predict and provide approach to transport provision.

**In this context, we believe there is an opportunity for Culm Garden Village to set the UK standard and be considered as best practice in garden village design.**



Transport for New Homes has published a report on Garden Villages and Garden Towns: Visions and Reality.

The report aimed at a non-planning specialist audience sets out to explore why garden village visions, once built out, rarely materialise.

<https://www.transportfornewhomes.org.uk/wp-content/uploads/2020/06/garden-village-visions.pdf>



*Inspiration from further afield: Amersfoort a small historic city in The Netherlands, with its three new suburbs: Kattenbroek, Nieuwland and Vathorst. Amersfoort hosts safe walking and cycle routes through the site reduce car dependency*



## Best-practice guidance in garden village mobility Garden Villages and Garden Towns: Visions & Reality

### Overview

The 'Garden Villages and Garden Towns: Visions & Reality' report produced by Transport for New Homes calls into question how closely the forecast travel behaviour for garden towns matches the reality. Recognising the evidence-based approach of reviewing masterplans, visions, transport assessments, D&A statements and bids for funding, there are some useful observations as to why a number of Garden Village proposals fall short of the initial visions and expectations.

The Government's Garden Communities prospectus 2018 objectives remain valid, in particular emphasising the importance of integrated and forward looking transport, which can help to enable *vibrant, mixed-use, communities where people can live, work, and play for generations to come.*

Following detailed review, the report identified that many garden towns and cities are car dependent, contribute to congestion, are unlikely to be self-sufficient, and with rail services too far and/or infrequent and cycling underfunded.

The report outlines the contributory factors for failed visions of garden villages, including;

- Building close to new or existing motorway junctions is not sustainable development
- Layout needs to be around walkability from the start

- Rapid or mass transit can't be 'future aspirations'
- Stations can't be miles away and with few trains
- Cycling and walking: severance by major roads is a real problem
- mixed walkable communities Poundbury-style will not be built if it's all about car access
- Housing targets are not everything

As such, the report identifies ten key consequences of continuing to approach and develop garden towns and villages with the current proposals, shown in the coloured boxes across.

On a practical level, the report recommends some key principles for addressing the failures;

- Right location for new homes is absolutely key.
- Project management, publicly accountable, to deliver visions intended.
- Funding for the right transport is essential – not major road capacity
- You need to specify streets, cycleways and public transport infrastructure at outline planning stage
- Build local amenities early on; with financial incentives if needed, to get local shops, offices, cafes etc to move in.
- Change the way we assess the benefits of transport infrastructure.

#### Layout for cars not pedestrians

With car parking and car access dominating the estate, the layout becomes 'identikit' and orientated around link roads, roundabouts and junctions. Not attractive for walking!

#### Higher carbon emissions

More and more people realise that we need to live differently in the future, within environmental limits. Garden communities need to look to the future not the past. Sustainable transport is important!

#### You have to be able to drive

Non-drivers or people who don't want to drive are not able to move into new homes. Teenagers have little independence.

#### Expensive for those on low incomes

For those who are on low incomes the costs of running one or more cars may be too great. People who want a new home can't afford to live in car-reliant places.

#### Local shops and businesses don't open

Without the footfall of a walking community, people don't use local shops and cafes. They drive out.

#### Isolation

No bus, train or rapid transit to jump onto to travel into town or further afield. Lack of places to walk to adds also to feeling of being cut off from the rest of society.

#### Money wasted

Road building associated with new homes costs money. The billions could be used to fund the sustainable transport networks to match the garden village and garden town visions, including rapid transit, stations and so on.

#### Parking city not garden city?

New homes risk being islands of housing in a sea of tarmac as parking takes the place of garden and public space. We have seen this on many visits to new housing. Parked cars also block buses.

#### Lack of green environment

With so much land devoted to parking, no room for urban trees, gardens, grass verges etc. Pavements may not be included everywhere.

#### Inactive life styles; more stress

Car dependence means an inactive lifestyle, sitting in jams, worries about parking, and parking wars with neighbours. This kind of travel is not healthy.

## Best-practice guidance in garden village mobility

### Other Policy and Guidance

The project team have identified and considered further guidance and emerging policy that we feel will also help the garden village proposals deliver on their low car aspirations and sustainable low carbon futures. Since the research was conducted, the policy agenda has continued to evolve and respond to the climate crisis and more recently the global coronavirus pandemic, with potentially significant societal changes in travel behaviour.

#### Garden Cities Guidance from TCPA

The first is the Garden Cities guidance from TCPA; a suite of guidance with practical steps for all those interested in making C21st Garden Cities a reality. The guidance provides detail and case studies on a wide range of key issues, including planning, investment, land assembly, delivery, and long-term stewardship. The most relevant section for future mobility and sustainable transport is Guide 13: Sustainable Transport (<https://www.tcpa.org.uk/guidance-for-delivering-new-garden-cities>). The document sets out how planners should consider the wider objectives that a sustainable transport system can help to achieve - including reducing the impact of climate change, improving health and wellbeing, and increasing social inclusion, job opportunities, trade. and access to services.

The vision should consider three core aims:

1. Promote active travel.
2. Establish excellent public transport from the outset.
3. Reduce the use of private cars.

The following ten principles are also very useful and have been considered in the Culm Garden Village proposals:

- Principle 1:** Location and connectivity should be the starting point
- Principle 2:** Set an overarching vision, focused on delivering sustainable transport
- Principle 3:** Collaboration is crucial
- Principle 4:** Sustainable transport systems must be inclusive
- Principle 5:** Transport must be future-proofed
- Principle 6:** Local Plans should establish mode share targets and networks
- Principle 7:** Build to the right density
- Principle 8:** Apply a user hierarchy
- Principle 9:** Consider key design features
- Principle 10:** Integrate green infrastructure and climate resilience within transport design

#### Further Policy and Guidance

Further findings from the DfT roundtable on garden village are shown across.



BioRegional and CABI have jointly produced this report in response to the eco-towns proposals, as guiding principles to help achieve these quality aspirations, and is intended to assist the consortia involved in the development of those schemes and provide more detailed information for government, which is charged with delivering the policy

<https://www.designcouncil.org.uk/sites/default/files/asset/document/what-makes-an-eco-town.pdf>



Produced by PRP, URBED and Design for Homes, this report summarises the aims of the Eco-Towns initiative, sets out the conclusions drawn from similar developments in Europe (addressing concerns about deliverability, economic viability, building new communities and creating a sense of place) and finally draws conclusions for the way ahead.

<https://www.eukn.eu/fileadmin/Lib/files/EUKN/2013/Beyond%20Eco-towns-Appling%20the%20lessons%20from%20Europe.pdf>



## Place-based inclusive solutions to decarbonising transport.

The ambitious vision for sustainable living outlined by the Culm Garden Village sits against a policy context with an ever-increasing focus on decarbonisation and accessibility.

### National Context

The Department for Transport's **Decarbonising Transport: Setting the Challenge** (March 2020) recognises that measures to reduce overall travel demand and increase the use of sustainable transport modes must accompany technological change, such as vehicle electrification, in order to meet the UK's carbon emissions reduction commitments. The DfT has defined '**place-based solutions**' as one of the strategic priorities for its forthcoming Transport Decarbonisation Plan.

The Future of Mobility is one of four Grand Challenges identified by Department for Business, Energy & Industrial Strategy at placing the UK at the forefront of industries of the future. The mission is to *"Put the UK at the forefront of the design and manufacturing of zero emission vehicles, with all new cars and vans effectively zero emission by 2040"* which is of obvious importance to the Culm site.

In 2019, the Government published the **Future of Mobility: Urban Strategy**, and highlighted that

the wave of change in transport technologies and business models is **creating an opportunity to support the UK's ambitions for decarbonisation and net zero**. New types of travel and new business models, enabled by data and connectivity, automation and electrification are starting to transform how people and goods move. Whilst 'urban' in its focus, similar principles apply to rural i.e. **new forms of mobility are user-centric in their design and service offering**, aiming to meet the needs of customers and increasing the range of available travel solutions.

In December 2020, DfT provided a call for evidence on the **Future of Transport: rural strategy**.



New modes

Koloni is a micro-mobility service provider. In the rural town of Pocahontas, Iowa (population 1,800), the company has deployed a public dockless bike share scheme, with plans to extend this to e-bikes.



Automation

A self-driving Navya shuttle has been tested on a 1.4-kilometer long track in the village of Koppl, Austria (population 3,200). The focus of this trial was to evaluate the driving capabilities compared to a human operator, and to understand user responses to the technology.

240 test drives were carried out, transporting 874 passengers and covering 341 test kilometres. The trials showed that self-driving shuttlebuses can increase the attractiveness of public transport services by improving first/last mile connectivity.

*"...we must seize the benefits as we begin to explore how future transport solutions and interventions can tackle rural mobility issues, improve connectivity and accessibility, increase low carbon travel options and deliver more integrated transport services."*

**Rachel Maclean**  
Parliamentary Under-Secretary of State for Transport

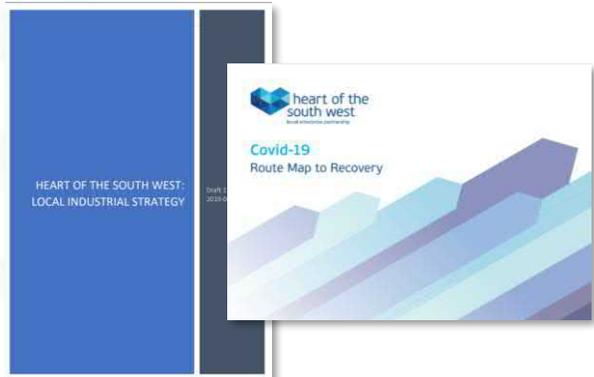


# Policy Context

## Regional Context

The Culm Garden Village fits the narrative at the regional level; "Clean and Inclusive Growth" underpins the Heart of the South West LEP's **Draft Local Industrial Strategy**. This is reinforced in the vision outlined in the **Covid-19 Route Map to Recovery** publication, that aims to help people and businesses in the south west adapt and grow in the 'new normal'.

There is a recognition of the unique high quality natural and built environment that underpins the economic opportunities and strengths of the area. The Local Industrial Strategy proposes a new approach to growth, where economic growth is decoupled from emission growth and where the proceeds of economic growth are shared across people and communities. The strategy points to opportunities improving the resilience of the network, enhancing the network efficiency and flexibility, as well as reducing the need to travel through initiatives such as improved digital connectivity.



The **South West Energy Strategy** points to several key opportunities to reduce emissions from transport. These include increasing the use of ultra-low emission vehicles (e.g. biogas and hydrogen and increasing the deployment of electric vehicles and associated charging infrastructure.

**Peninsula Transport**, which is seeking approval from the Secretary of State to become a Sub-National Transport Body, is also committed to working to:

- Improve the strategic corridor connections between our major urban centres; and
- Provide rural mobility solutions to support our rural communities and businesses.

The **Devon and Torbay Local Transport Plan 3, 2011-2026**, outlines the vision for transport in Devon and Torbay as:

*A transport system [that] will help to deliver a low carbon future, a successful economy and a prosperous, healthy population living in an attractive environment.*

This vision is to be achieved by making the best use of existing transport assets by prioritising maintenance, working with communities to provide safe, sustainable and low carbon transport choices and to strength the public transport network. .

## Local Context

Within the district of Mid Devon, the **Mid Devon Local Plan Review** was adopted in July 2020. The review identified what the MDLP aims to achieve for Mid Devon up to 2033. This places particular importance on promoting sustainable transport by delivering appropriate infrastructure, reducing the needs to travel by car, integrating public transport and active travel, and providing safe environments whilst recognising Mid Devon's rural locality.

Aligned to the MDLP, the **Cullompton Neighbourhood Plan** outlines the vision for the town to take advantage of its location, with aspirations to be a communications hub with good links by rail, road, paths and broadband to the surrounding region and beyond.





## Planning For The Future

The Government recently announced changes to the current planning system through the “Planning for the future” White Paper (August 6th 2020).

The White Paper suggests draft changes to planning policy through 3 pillars;

Pillar 1: **planning for development**

Pillar 2: **planning for beautiful and sustainable places**

Pillar 3: **planning for infrastructure and connected places**

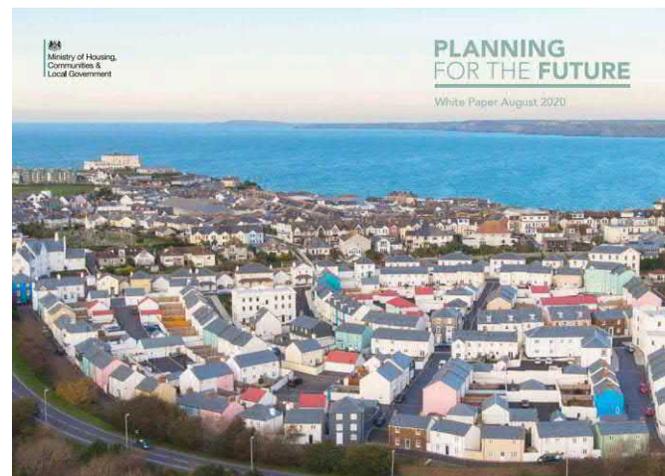
These changes seek to enable simpler decision-making, that is faster and more certain, with firm deadlines, and making greater use of digital technology.

The White Paper states Local Plans should be subject to a single statutory “sustainable development” test, replacing the existing tests of soundness.

**“The homes we need in the places we want to live in at prices we can afford, so that all of us are free to live where we can connect our talents with opportunity.”**

Amongst many proposals within the White Paper, the following are of particular relevance to Culm Garden Village;

- “be more ambitious for the places we create, expecting new development to be beautiful and to create a ‘net gain’ not just ‘no net harm’”
- “support home ownership, helping people and families own their own beautiful, affordable, green and safe homes, with ready access to better infrastructure and green spaces”
- “create a virtuous circle of prosperity in our villages, towns and cities, supporting their ongoing renewal and regeneration without losing their human scale, inheritance and sense of place”





## Net Zero Transport

Place-based solutions is one of six strategic priorities of DfT's Transport Decarbonisation Plan. It recognises that solutions and needs will be different in different places.

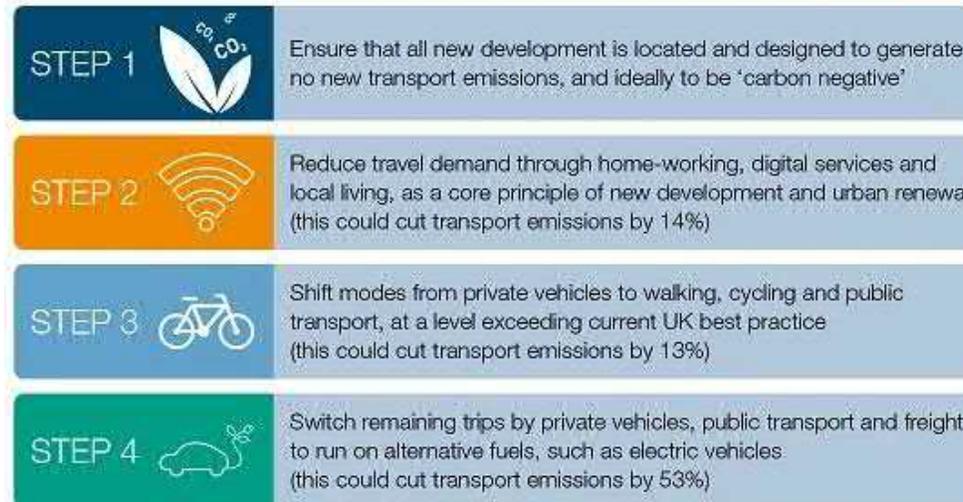
In January 2021, RTPI launched the 'Net Zero Transport - The role of spatial planning and place-based solutions' report. This research explores how different places can achieve an 80% reduction in surface transport emissions by 2030. Across the different place typologies, it describes the relative impact of different interventions to that pathway (as demonstrated by the four-step approach) adjacent.

It provides a holistic view and is one of the best visual and practical examples of what taking a 'place-based-approach' means and providing an order or magnitude for how important different mobility interventions are.

The research doesn't however capture the focus on the end user and how desirable different interventions might be, which will also be an important consideration for Culm Garden Village.



### A four step place-based approach to reducing surface transport emissions by 80%





# Megatrends and Shock Events

## Planning for resilience and shock events Covid-19

The undesirable arrival of a **shock event** such as the recent Covid-19 Pandemic has required a fundamental shift in how society and business functions to advance through a difficult period of uncertainty. Under the resulting lockdown, some mobility trends have accelerated (e.g. working from home, active travel, increased freight and more local deliveries) others have been paused or moved in the other direction. Whilst some of these trends will be short lived, such a fundamental pause in everyday life will undoubtedly lead to some longstanding lifestyle changes in consumer behaviour.

### National Response

In combating the spread of COVID-19, the UK government has taken a number of significant actions that have placed restrictions on individuals, areas and the wider economy. Whilst these restrictions have caused very significant disruption to people's lives, they have also resulted in changes of behaviour which, if continued, could help to resolve some transport-related issues.

A summary of the key responses (and their status, accurate at the time of writing) are provided here.

### Government actions to manage travel demand

- Closure of businesses except for key work (significantly relaxed with some businesses remaining closed)
- Workplaces closed (significantly relaxed with some businesses remaining closed)
- Work from home where possible (ongoing)
- Stay local (no longer in place)
- Stay at home (no longer in place)
- Schools closed except for key workers' and vulnerable children (being relaxed)

### Government actions to manage travel modes

- Key workers only on public transport (no longer in place)
- Reallocating of road space (ongoing)
- MOT temporarily paused (no longer in place)
- Re-purposing parking (no longer in place)
- E-scooter trials (ongoing)
- Relaxed delivery/driver hours (no longer in place)
- Removal of NHS staff parking charges (no longer in place)
- Reduced public transport fares (no longer in place)

As a response to the Covid-19 pandemic, and particularly the noticeable short-term shift towards private mobility, the Department for Transport announced an **Emergency Active Travel Fund in May 2020**. This grant funding intended to support local transport authorities with producing walking and cycling facilities for the installation of both temporary projects during the Pandemic and longer-term projects. Funding was also made available to protect and create transport services, and level-up infrastructure.

**The organisational and business actions are a snapshot of those taken by individual organisations and whole industries to cope with the ongoing pandemic and its impacts on how organisations operate:**

- Investing in IT systems to support remote working
- Expansion of capacity of home delivery services
- Contactless payment preference
- Community groups to help with local capacity
- Bus services reduced in medium to long term
- Reduced local services due to closing down



## Appendix B



**Thinking about  
place**

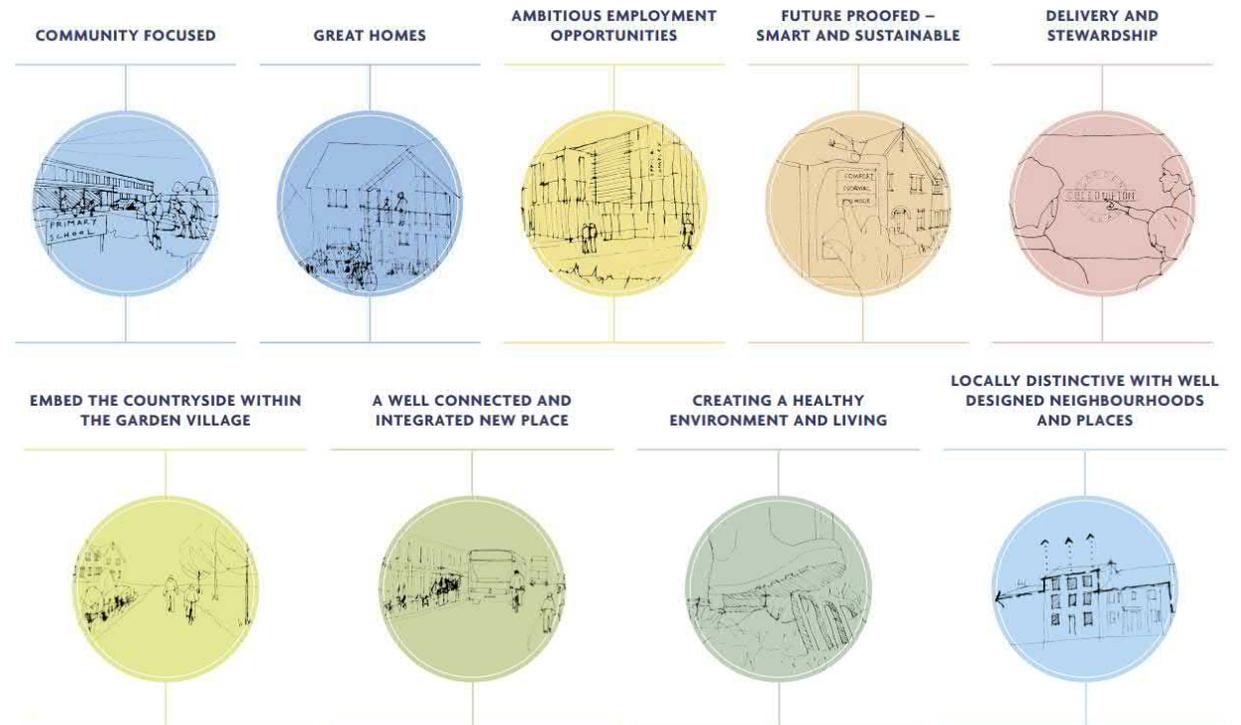


# Place

## Mobility and place-led thinking to deliver healthy, inclusive and connected living

Culm Garden Village has the potential to deliver up to 5,000 sustainable new homes in a country park landscape, with jobs, community facilities and transport, all integrated with Cullompton itself. The Key Visions and Principles of the development are summarised adjacent.

The high level mobility aspirations of the scheme will create a community that is well connected and integrated both within the boundaries of the settlement, but also with the existing community of nearby Cullompton and areas beyond such as Exeter and Taunton.



Culm Garden Village: Key Visions and Principles



## Place-based inspiration from further afield.

Whilst Vauban is a fairly established development in Freiburg, which is often referenced for its human-scale, it is still worth mentioning here since it has successfully deployed a number of interventions to enable car-free development.

A more recent example is the proposals at Culdesac Tempe in the US. Despite its semi-urban context not being directly comparable with Culm Garden Village, the level of ambition is similar. Delivering car-free development in the US, and especially Arizona will be challenging. The developer is hoping to validate the latest consumer preferences for convenience and community living over car-dependent lifestyles and will be an example of working through the multi-layered provision of mobility and lifestyle services.



Child friendly "play-streets in Vauban (Source: Cycling Christchurch)

The Vauban district in Freiburg, Germany, is a world renowned car-free development with an ethos rooted in supporting an environmentally-conscious living at 'human-scale'. The development is centred around a highly accessible tramline, and configured to encourage active travel over private car usage. Vehicle parking is only provided in consolidated parking, freeing streets of cars and enabling initiatives like 'play streets' where cars are guests.



Culdesac Tempe – a car-free development under construction in Tempe, Arizona

Culdesac Tempe is a car-free rental apartment community in Tempe, AZ, which provides a convenient, sustainable, flexible way of living. For example, residents can extend their home on-demand by booking additional space temporarily. Additionally, the 5-minute city concept adopted makes active travel the only suitable way of moving around the development. In support of this, there are scooters, ridesharing, delivery services and ample bike parking available, further substantiated by on-site light rail and car share for trips further afield.



## The role of mobility in enabling a sense of place.

### Applying a 30-minute neighbourhood concept

Culm GV should have an aspiration to design for a neighbourhood that underpins a 'living locally' lifestyle. *For Culm GV, this could equate to a design aspiration that residents should not have to travel further than 30-minutes to access essential services and opportunities.*

The walking and cycling connectivity between different land uses and residential locations will be key for inclusive design. Recognising the potential for organic and polycentric delivery, a mode hierarchy and access strategy should limit the permeability of the communities for vehicle traffic.

While fixed land uses require multiple sustainable transport options to meet all users needs. Mobile (vehicle-based) assets such as mobile food trucks, mobile libraries, mobile hairdressers could further meet community needs through temporary deployment. Finally the mobility assets themselves must be shared and accessible in a way that promotes their use over the private car.

While there will be a place for car use, possibly at the edge of village car barns, it should be seen as a last resort for all of those functions provided within the neighbourhood.



mobile hairdressers in Eddington



Local food market at Urban Villages Project by Effekt



Plan Melbourne 2017–2050



15-minute city. Paris en Commun



## Considering the unintended consequences of design.

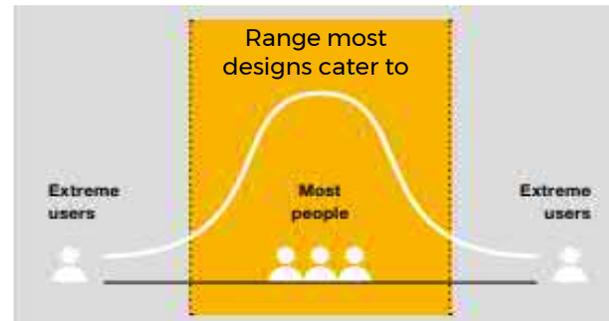
The human-centric design approach will ensure adequate interventions are implemented for the future residents, workers and visitors of Culm Garden Village.

To mitigate the unintended consequences of design, an agile Monitoring & Evaluation Framework will be put in place, allowing for changes to levels of provision, service quality and other changes to be made. This process includes the following milestones:

1. Preparation of Scheme design and development of the M&E Framework
2. Monitoring post-occupation
3. Real-time service optimisation

As such, the M&E Framework will be a 'live' document with an iterative 'monitor and manage' approach that tries to outline a more accurate representation of who might use the site and how might they wish to travel; also demonstrating the practical mechanisms required to adjust with changing needs, technology advancements and other factors which will ultimately ensure meeting end user requirements in the future.

Traditionally, transport planning has catered to the 'majority user', typically based on the commuter during peak hour travel. Recognising the limitations of this, it is imperative to widen the lens with which transport is planned, delivered and assessed. That is, **considering diverse identities of gender, physical ability, race and more, enables a more inclusive understanding of how people navigate transport systems.** It is important to consider how the varying intersections of these identities can shape one's experience of mobility options. This can be understood to be **intersectionality**: the layered intersection of 'disadvantaged' identities – particularly those diverging from the 'white-male' norm – and where the layers overlap, a unique type of discrimination is experienced.



In alignment with the principles outlined in the Network Rail's ThinkStation Report, the extreme users should help set the parameters of design to ensure spaces and services are inclusive.

People with additional needs	Night time users
Carers	Night time walks for charities
Elderly	Late night and early morning clubbers
Mentally disabled users	Shift workers
Person with colour blindness	Revellers
Person with a hearing impairment	
Person with visual impairments	
Person with a mental health condition	
Person with anxiety	
Person with temporarily reduced mobility	
Person with mobility aids	
People with access/mobility needs	
Person on a mobility scooter	
Person with permanent reduced mobility	
Person with visual impairment	
Pregnant women	
Temporarily impaired	
Single parent with young kids	
Wheelchair users	

In a series of workshops held by Network Rail and Design Council, within the **ThinkStation Programme**, stakeholders were invited to share ideas and insights on stations and the processes through which new stations are designed, planned and delivered. Adopting a Design Thinking approach, the workshop provided an opportunity to explore the 'problem statement' at great depth, yielding a deeper understand of who stations are designed for. The extract above provides an indication of the user groups identified, showcasing the helpful divergence towards 'extreme users'.



# Villages with integrated energy, digital and mobility.

With the growing electrification of transport systems and the environmental pressures to tackle climate change, **the interconnectedness of energy, digital and mobility are apparent.**

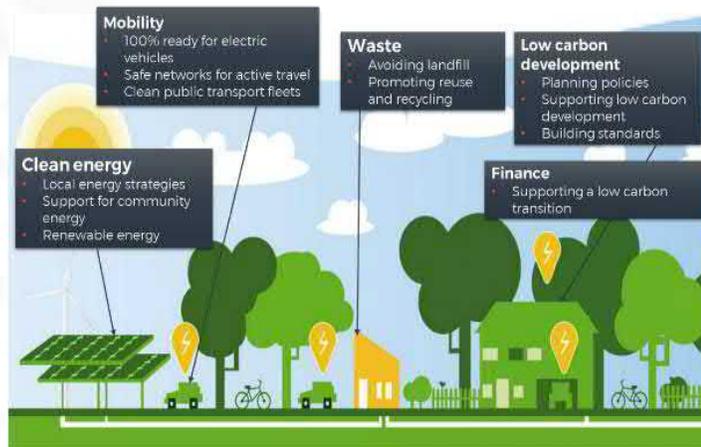
The integration between places, energy needs, digital landscape and mobility provide technology optimising, carbon cutting opportunities, with wider environmental and social benefits. The figure below illustrates the possible interdependencies in a local system, where carbon trade-offs can be made between activities/ services. **Efficiencies arise from the generation, storage and use within the home, consumers and between asset owners.**

Looking locally, there are existing hotspots of renewable energy generation such as the solar farms West of Bradninch and north of Cullompton at Five Bridges. **The regional challenge is to match up energy generation with energy consumption and particularly aligning this to support mobility needs.** Digital technology can also be the enabler; in terms of smart algorithms that find the right balance between generation, storage and supply back into the grid, as well as providing visibility of energy usage.

A large cohort of future residents attracted to the Culm GV lifestyle and will be increasingly self-aware of their ecological, CO2 and GHG emission footprint. Digital technology can also enable the measurement, and visualisation of this data in an open and transparent way. Measures such as this will be key for wider behaviour change initiatives.



Winham Solar Farm at Westcott near Bradninch



WSP Energy 360 Approach

	Ecological footprint		Carbon dioxide emissions		Greenhouse gas emissions (in CO <sub>2</sub> equivalents)	
	Gha/cap	Per cent	Tonnes/cap	Per cent	Tonnes/cap	Per cent
Housing	0.46	8%	0.97	8%	1.04	8%
Home energy	1.01	18%	2.78	23%	2.94	22%
Transport	0.83	15%	2.73	23%	2.86	21%
Food	1.23	23%	0.99	8%	1.64	12%
Consumer goods	0.75	14%	1.48	13%	1.70	13%
Private services	0.48	9%	1.18	10%	1.34	10%
Government	0.37	7%	0.93	8%	1.07	8%
Capital assets	0.31	6%	0.80	7%	0.84	6%
<b>Total</b>	<b>5.45</b>	<b>100%</b>	<b>11.87</b>	<b>100%</b>	<b>13.43</b>	<b>100%</b>

Average ecological footprint, CO2 and GHG emissions of a UK resident. BioRegional Development Group and the Commission for Architecture and the Built Environment (CABE).



**Thinking about people**



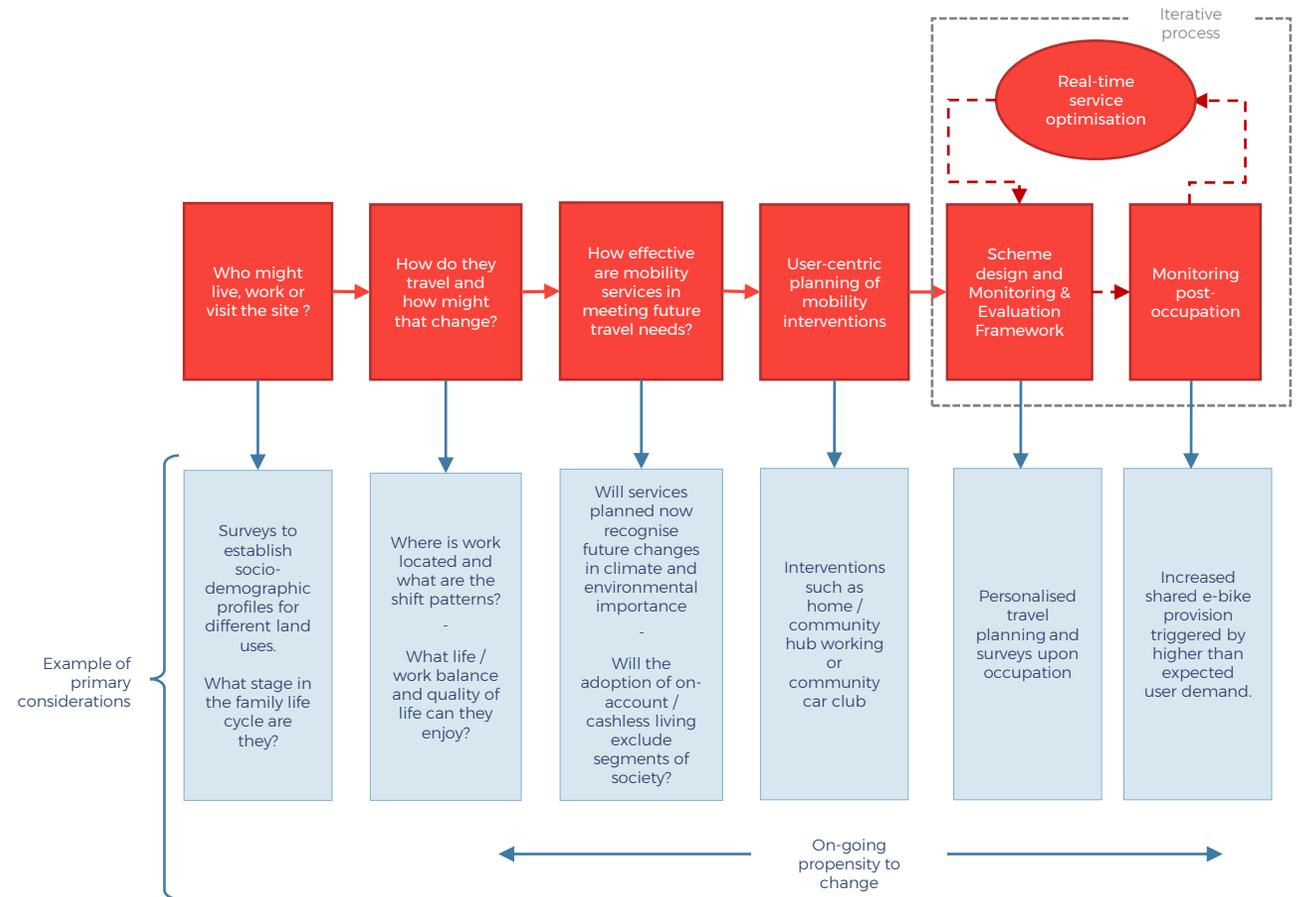
# Human-centred design

## Putting the human at the centre of the design process to embed positive experiences

Human-centred design (HCD) is an approach to problem-solving that puts the people we are designing for at the heart of the process. The goal of employing HCD is to **develop solutions that meet the needs of all potential users**, particularly those who will live, work and visit Culm Garden Village. This inherently needs to be an iterative process, allowing for continuous adjustments to levels of provision, service quality and other changes in order to better meet current and changing needs of end users.

The **iterative refinement** of service provision will be key to meeting the needs of different users (all residents and visitors), considering the subtleties of **intersectionality**, and how needs will change through individuals' life cycles or maturation across different family units.

The diagram adjacent presents a human-centred design approach (as proposed for Culm Garden Village transport and mobility) focusing on the primary considerations of users and how these might change.

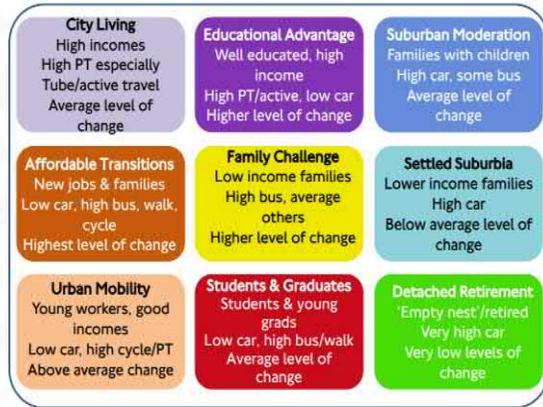


WSP – A Human-Centred Design approach for a new Garden Village



# User Personas

More powerfully, validating our assumptions and building behavioural insights on top of these personas can lead to better informed decision making. Transport for London have in recent years used their Transport Classification of Londoners (TCoL) tool which allows a **multi-modal customer segmentation and a high-level understanding of travel choices and motivations** for making those decisions. Seven key variables are used to help determine the TCoL segmentation, which ultimately group Londoners into nine high level segments (as outlined below), with 32 lower level segmentations.



There is a need to adopt a similar methodology but ensuring it is reflective of the different offers of Culm Garden Village and associated personas. This is important in informing the Mobility Vision as well as helping to test the housing product which will emerge from Culm GV development partners (and ultimately will attract different segments).

## Experian Mosaic

Experian Mosaic is a dataset that can be used to understand the different demographic groups that make up localities in the UK.

Experian's consumer classification data provides an understanding of the demographics, lifestyles and behaviour of all different communities across the UK. It divides the UK population into 15 different groups, with information about the dominant characteristics of each group. It can therefore be used to understand the potential interactions of different segments of the population with different methods of transportation and be used as a basis from which hypotheses can be made about uptake of different mobility modes and services.

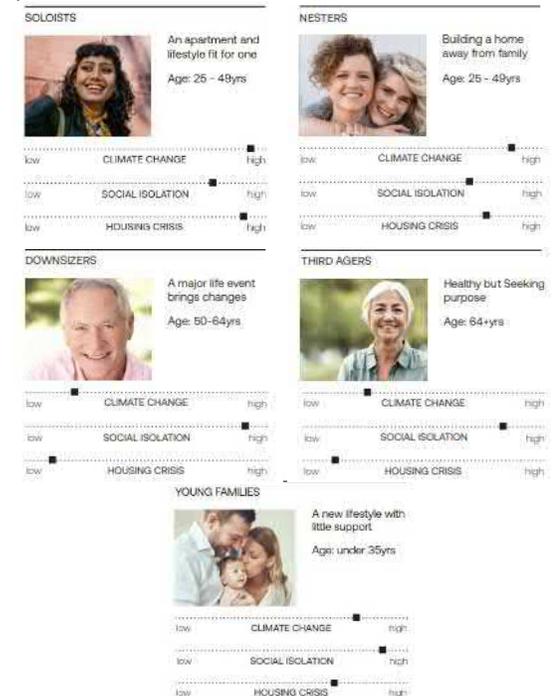
Such an approach **should be conducted in addition to any traditional transport assessment methods** (e.g. trip rates forecasted from transport survey databases) undertaken.

## Garden Village Representative Personas

There is a need to consider the persona groups as representative of future site users including:

- Existing residents
- New residents
- Existing businesses and local organisations and associated staff
- Visitors across all land uses including retail and other functions

A representative sample of future user personas for another garden village housing provider are provided below (source SNRG).





# A people and place-centric perspective

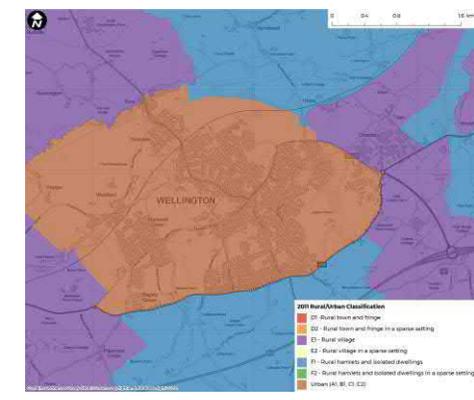
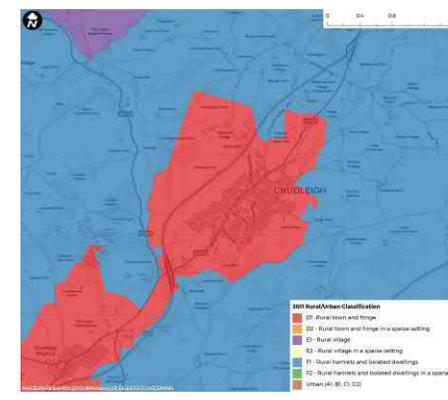
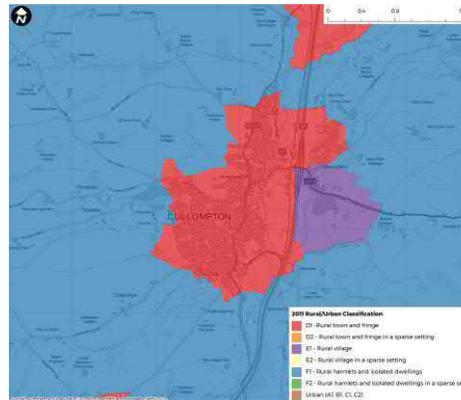
In addition to user personas to understand peoples' needs, reflecting on the 2011 Rural-Urban Classification data can also advance understanding of the place typology and likely transport environment and network that serves that location.

The 2011 Rural-Urban Classification categorises a range of statistical and administrative units on the basis of physical settlement and related characteristics.

A place-based comparison of local centres is not intended to suggest Cullompton is similar in nature to either Chudleigh or Wellington. What instead is useful is to consider how these places function (within the A38 / M5 corridor) and what is the socio-demographic of that location. While Culm Garden Village will bring a new local centre, elements of these local places could be representative of the future fabric of Culm Garden Village and the future users residing there.

The summary of Cullompton, Chudleigh and Wellington is provided below

- Cullompton is primarily D1 Rural Town and Fringe and E1 Rural Village, with an element of F1 Rural Hamlets and Isolated Dwellings
- Chudleigh is primarily D1 Rural Town and F1 Rural hamlets and isolated dwellings
- Wellington is primarily urban (A1, B1, C1 and C2)



**Future Mobility Considerations for Culm GV**

- Develop Culm GV personas
- Attribute behavioural insights and socio-demographic characteristics against the proposed housing tenure types and the corresponding Experian Mosaic profiles.



# Experian Mosaic Analysis

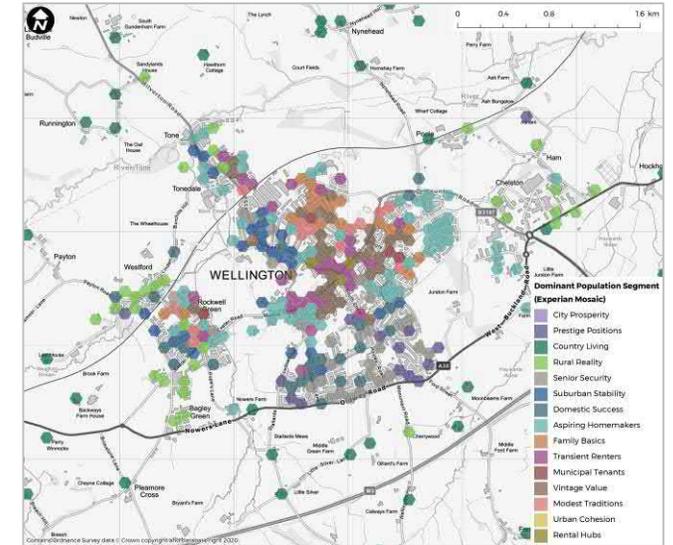
## Experian Mosaic - Local Composition

As illustrated in the table below, the most dominant Mosaic population segments across the local areas are **Rural Reality** and **Aspiring Homemakers**.

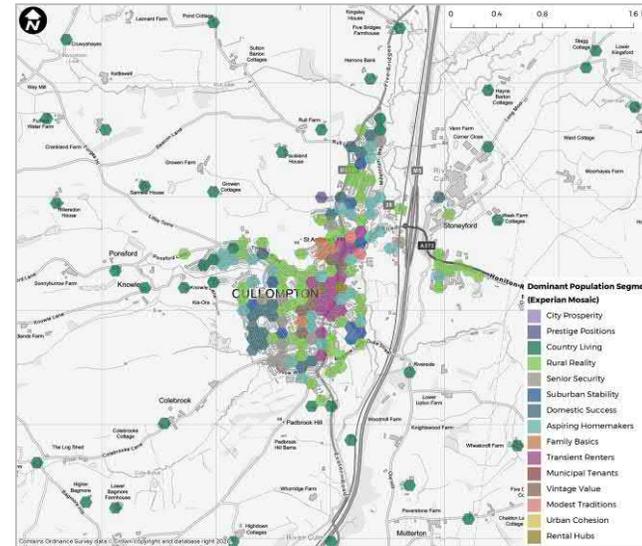
		Cullompton		Wellington		Chudleigh	
Mosaic Segments		Popn	Percent age	Popn	Percent age	Popn	Percent age
A	City Prosperity	0	0%	0	0%	0	0%
B	Prestige Positions	23	0%	741	4%	494	11%
C	Country Living	507	5%	38	0%	140	3%
D	Rural Reality	3,659	37%	1,381	8%	1,847	42%
E	Senior Security	299	3%	1,503	9%	62	1%
F	Suburban Stability	576	6%	1,736	10%	56	1%
G	Domestic Success	955	10%	1,259	7%	951	22%
H	Aspiring Homemakers	1,898	19%	4,236	25%	702	16%
I	Family Basics	431	4%	1,622	9%	27	1%
J	Transient Renters	913	9%	1,571	9%	19	0%
K	Municipal Challenge	42	0%	258	2%	0	0%
L	Vintage Value	347	4%	1,769	10%	119	3%
M	Modest Traditions	128	1%	874	5%	0	0%
N	Urban Cohesion	0	0%	0	0%	0	0%
O	Rental Hubs	115	1%	127	1%	0	0%

The proportion of each of the Mosaic segments highlighted significantly exceeds the national average, denoting the characteristic rural nature of these places. A more extended analysis for CGV should outline the future residents (by Mosaic segment) as would be attracted by the proposed housing mix.

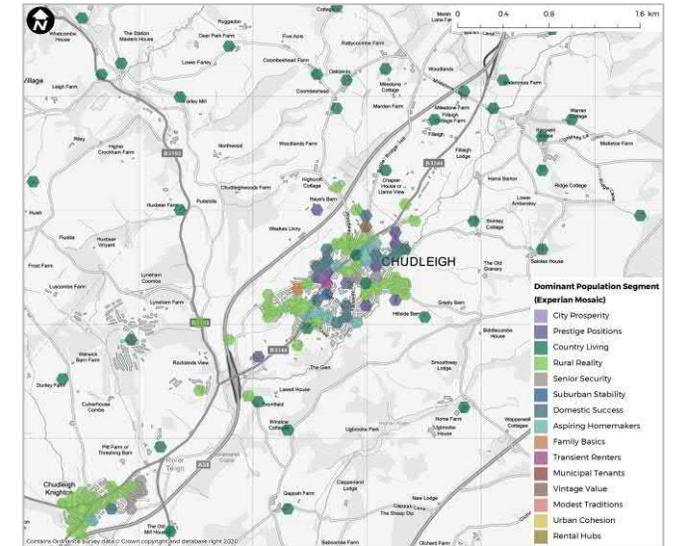
Mobility insights (derived from surveys) could be attached to each of these Mosaic segments to understand how mobility needs and travel behaviour differ between each group.



Wellington



Cullompton



Chudleigh



## Target Audience

# The target audience for those living and working at the Culm Garden Village

The use of user personas in design is associated with enabling a **greater understanding of user needs**. It allows us to better view the users, their behaviours and to open our eyes to new opportunities. For the Culm Garden Village, it will help us to generate meaningful **solutions that are human-centred rather than technology focused**. It is particularly relevant given the context of the DfT's Decarbonising Transport Plan in the promotion of **'place-based solutions'** which acknowledge that different areas will need different combinations of solutions to reduce emissions (and meet human needs). The plan highlights that methodologies informed by behavioural science to encourage people to make more environmentally friendly choices is key.

It is expected that the personas attracted to Culm Garden Village given its high quality, well designed and affordable homes could comprise **Aspiring Homemakers** migrating from Exeter whilst bringing their affinity for shared mobility and lower car ownership. Importantly the affordability will ensure there will be a diverse and inclusive community across socio-demographic segments with different needs.

**Rural Reality** also dominate the local areas and could create both young and older generation demand through empty nesting.



Co bikes, Exeter – on-demand electric bike hire



SNRG car-free housing product for a UK Garden Town



Co cars, Pinhoe



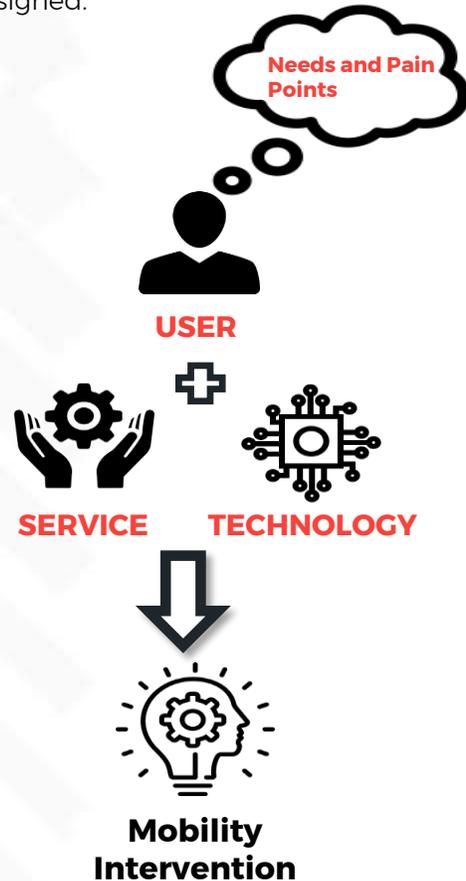
Silva cycles, handcrafted wooden bicycles, Devon



# Human-centric design

## Supporting the mobility needs of residents, workers and visitors to the Culm Garden Village

The diagram below identifies that mobility interventions must be grounded in user needs and pain points and only then can the appropriate mobility service or technology be designed.



Focusing the mobility design on expected and future needs of different user segments requires various methods of engagement to gather insights; from **stakeholder workshops, surveys, focus groups to interviews**. These engagements should, where possible, be undertaken with local users as well as across a wider reaching catchment that represents where future users might be moving from (i.e. Bristol, Exeter and London).

Validation of the sustainable lifestyle and associated mobility strategy will be key for the Culm Garden Village. An example output from a similar user-centric survey exercise (encompassing over 2,500 respondents) to support garden village proposals in Southeast England is provided below.

**50%**  
of survey respondents would be open to having their vehicle parked in a **nearby central, secure and covered location** instead of at their doorstep, if it saved them money

The mobility provision and movement strategy will be tailored respond to different user's needs. A persona-led example is provided below;

Mr and Mrs Oakham are moving to Culm Garden Village as a young family with two small girls (aged below 10 years).

They are moving from being a two-car household to a single-car household as they feel the Culm Garden Village mobility options can support their current lifestyle. They have expressed values that reflect the following needs, with an articulation of appropriate solutions might be developed.

These could be met through:

**Flexibility:** a mobility credit package that can be used across different transport modes, including a demand responsive bus service to provide access to key centres including Cullompton station

**Safety:** an active travel network that prioritises walking and cycling

**Choice:** access to car sharing, bicycles, e-bikes, e-scooters, parcel lockers

**Value for money:** improved mobility provision at a lower cost than at their previous home

### Future Mobility Considerations for Culm GV

- Forecast the relative attractiveness of different mobility interventions (e.g. car clubs, e-bikes, demand responsive bus, community co-working) for different socio-demographic segments.

# Viability and Delivery





## Viable alternatives to the private car in a semi-rural context

The key challenges and opportunities are outlined here to identify how Culm GV can consider viability into the next stage of the masterplan development.

### The challenge

Rural and semi-rural typologies have developed primarily around the use of the car for a number of factors:

- Transport is a relatively high cost for existing rural households
- Cheap and plentiful car parking will always encourage and weigh the attractiveness of private car usage over public transport or alternative modes
- Covid-19 has exacerbated the age-old problem of bus services not being commercially viable and serving disparate consumer groups
- Digital connectivity is poor in remote areas
- Private investment for new mobility services will always favour the profitable conditions of urban demand levels.

Solving the viability challenge for rural and semi-rural is a key focus for DfT into 2021, evidenced by the forthcoming Future of Mobility: Rural Strategy and the Transport Decarbonisation Plan.

### The Opportunity for Culm GV

Included in the below are issues raised by industry stakeholders through WSP's participation across DfT's exploratory workshops and they have been framed in how they could benefit Culm GV :

- The inequity of access could be overcome by bringing more services to people, creating a different view of the 15-20-30 minute community. **All residents should not have to travel further than 30-minutes to access essential services and opportunities**
- Digital connectivity is key in helping to create local centres sustain activity and spending in the local area.
- Funding for charging infrastructure is key – with range and energy supply still key barriers for EVs in rural areas
- National government (e.g. BEIS) could support rural businesses in decarbonising transport (i.e. greener fleets, extended services that support the switch away from private car)
- A new legislative and commercial environment to enable innovative models of delivery and operation (e.g. across Healthcare, Education, Planning, cross-subsidy)
- Organic and potentially concentric expansion of Culm GV could support a local circular ecosystem of freight logistics farming (crops, products), supplies (including household fuel) and deliveries (food, medicine, discretionary goods etc.)
- Models for car sharing could be viable in rural areas. A closed system (i.e. known demand) for micromobility, parcel lockers could enable commercially viable service models for a specified level of service
- Fixed services heavily complemented by flexible mobility and physical pop-up services used to improve access in a targeted way
- Possible early delivery of a country park to be delivered in a way that encourages active travel and sustainable access from visitors further afield.



## Transitioning from Predict and Provide to Vision and Validate.

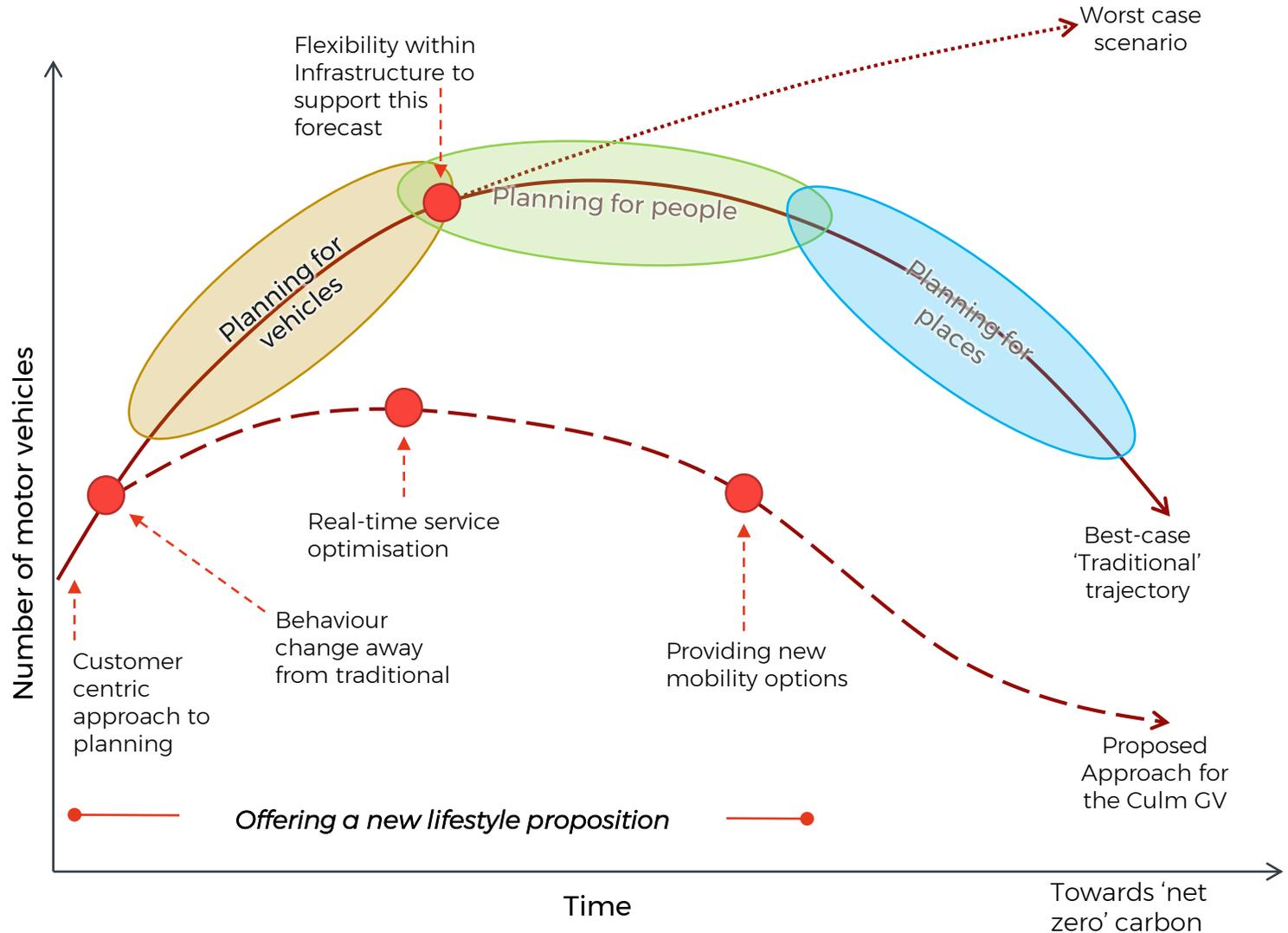
### The Vision and Validate Opportunity

The historical approach to transport planning is orientated in **planning for vehicles** and supplemented by a sustainable transport strategy. This is not always the case but an over-reliance on backward-looking car dominant trip rates can lead to the early and potential over-provision of significant transport infrastructure that reinforces a future of private car ownership.

A human-centered approach considers the mobility needs of future residents and visitors to the Culm GV and allows a move towards **planning for people**. The robust planning of highway infrastructure could still be provisioned for and only triggered by carefully set thresholds for trip generation agreed with the planning and highways officers (as part of a **Plan, Monitor and Manage approach**). The tailored provision of new mobility options can then more effectively reduce the reliance on the private car.

The validation of lower private car trip rates and sustainable travel choices importantly could be measured early on as a means of justifiably pushing out the trigger point for which highway infrastructure or car parking is delivered.

This progressive **Vision and Validate** strategy ultimately enables **planning for places** by putting the vision and design of the Culm GV ahead of the negative impacts commonly associated with accommodating dominant private car infrastructure.



Source: WSP 'Vision and Validate' 2020

A close-up photograph showing two curved, circular components. The top component is a bright blue plastic rim with several small, raised rectangular protrusions along its inner edge. The bottom component is a metallic rim, likely aluminum, showing significant wear, including scratches, scuffs, and a reddish-brown discoloration, possibly from rust or a specific material. The background is a plain, light gray.

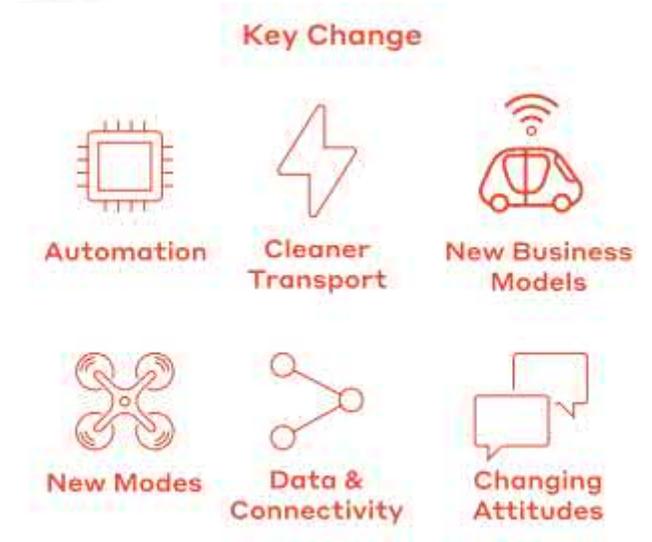
# Mobility components



## Applying the Six Key Future Mobility Changes to Culm GV

### What other Future Mobility related changes need to be considered in the masterplanning?

Future Mobility will have implications on scheme design given the delivery timeline for Culm Garden Village. The six key changes identified within DfT's Future of Mobility: Urban Strategy are deemed equally applicable to the garden village context. The 'six key changes' are highlighted below and their potential relevance for the Cullompton development design considered.



### Cleaner Transport

Initiatives that decarbonise transport should give consideration to avoiding the need to travel, zero emissions at the tailpipe as well as net zero from a whole lifecycle perspective.

**Design consideration:** The centralised provision of electric vehicle charging infrastructure across mobility hubs and car parking (or car barns) could be more pragmatic than plot-by-plot charging infrastructure that would in turn lock in single-car occupancy use.

### New Modes

New modes and forms of propulsion give rise to new forms of accessibility to services, products and opportunities in Cullompton and Culm GV.

**Design consideration:** First and last mile connectivity could be strongly supported by emerging modes such as e-scooters, e-bikes and demand-responsive transport. Automated vehicles/robots or e-cargo bikes could play a key role for facilitating last mile freight deliveries across the masterplan.

### Data & Connectivity

The increasing availability of data and improved connectivity are allowing travellers to plan journeys in advance and in real-time. Increasing vehicle and infrastructure connectivity, combined with advances in artificial intelligence

can bring improved information, optimised service planning and improved safety.

**Design consideration:** The smart/digital strategy should consider how digital twin can bring powerful operational and management benefits to manage vehicle access and public realm usage. E.g. micromobility parking locations or pop-up food stalls / parcel lockers.

### New Business Models

The emergence of new digitally enabled models of transport provision. The increasing maturity of residential-led mobility business models could further enable convenient and customised mobility services (that provide an alternative to private car usage).

**Design consideration:** Engage early with innovative residential development partners to embed the shared mobility services and EV charging infrastructure within the investment plan.



## Applying the Six Key Future Mobility Changes to Culm GV

### Changing Attitudes

Rising customer expectations are driving passenger transport and delivery services that are increasingly affordable, convenient and personalised.

**Design consideration:** Understanding the demographics of Cullompton would help determine the types of mobility services suited to the area.

### Automation

Improved sensing technology, computing power and software engineering are leading to increasing levels of automation in transport. The automation of jobs also has a significant impact on travel patterns. Commercial deployments in public service vehicles and private car ownership of automated vehicles are expected before the full completion of the development.

**Design consideration:** Vehicle automation changes where transport facilities will be located and how they are planned. Consideration of whether town car parking locations are resilient for an increasingly automated future.

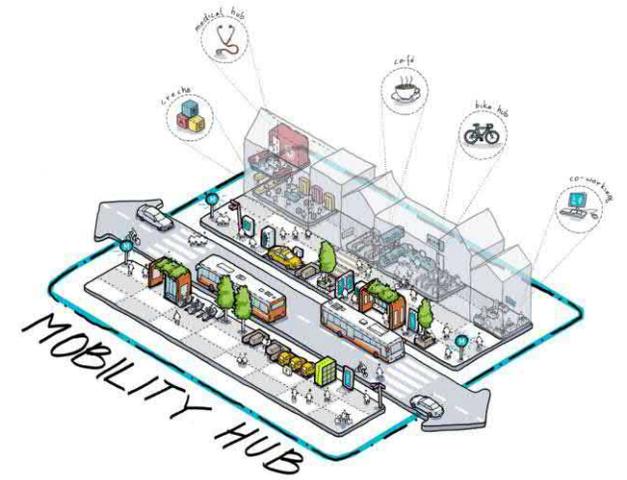
### The 'Seventh' Change - Aggregation

Increasingly there is a recognition for considering how the different elements of future mobility are aggregated together. A mobility hub can be understood as a 'place' or interchange providing different and connected transport modes supplemented with enhanced facilities to both attract and benefit the traveller.

The adjacent figures showcases typical mobility hub concepts. They include:

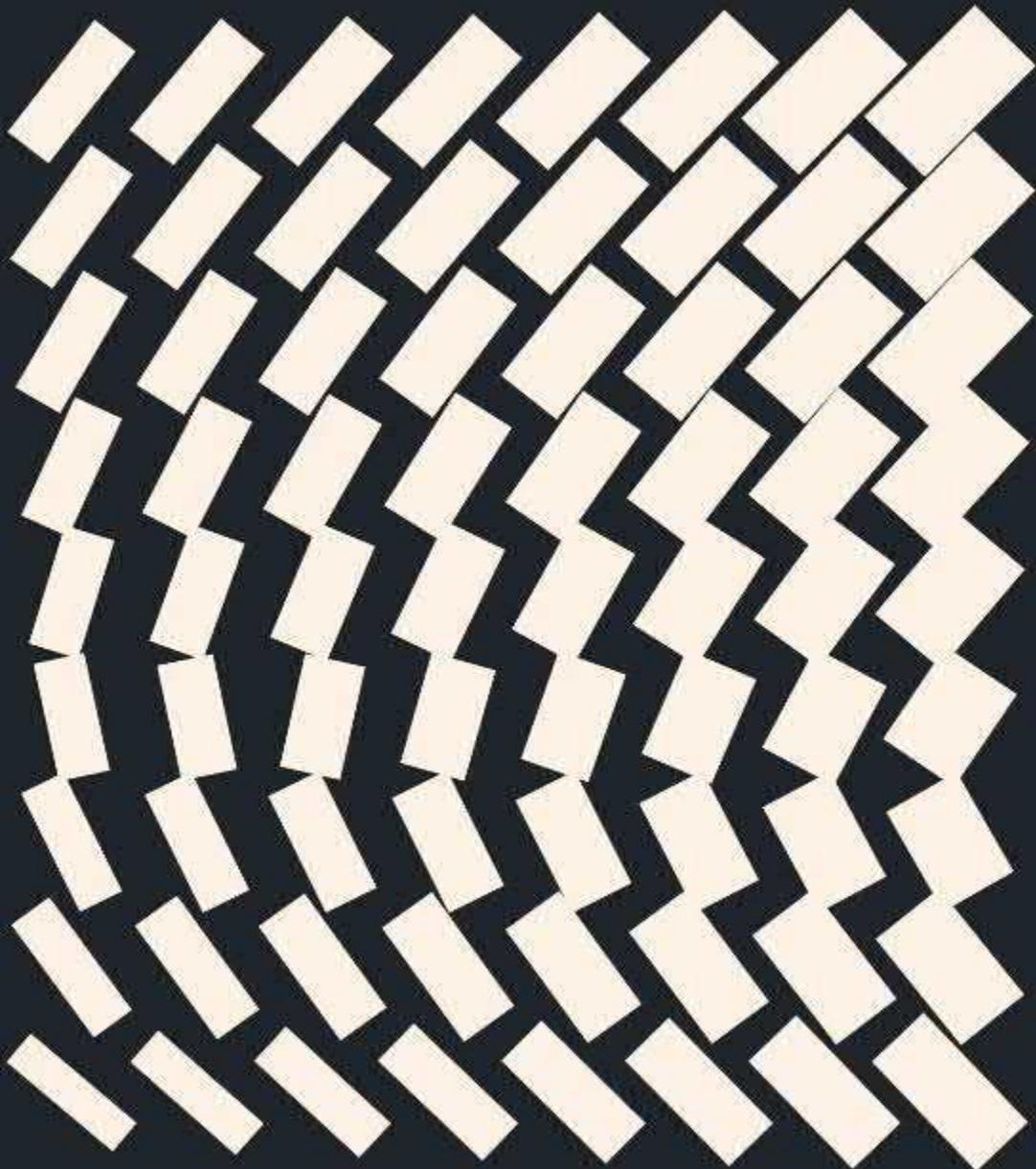
- mobility components (public) - the core public transport infrastructure or services
- mobility components (non-public) - the privately operated car club, shared cycling and e-scooter schemes (docked or undocked)
- mobility related components - EV charging facilities, rest areas, cycling and vehicle parking and parcel lockers
- non-mobility and urban realm improvements - creche, medical hub or co-working space

**Design consideration:** These hubs are not a 'one size fits all'. Tailor-made solutions need to be created for each location, considering type of components, scale and levels of service. A mobility hub typology should be developed recognising the different functions and anchoring land uses of each.





# Appendix C



# **Embedding Future Mobility at the heart of community**

**Giles Perkins**

*Head of Future Mobility*

November 2020

**Future Mobility**

<https://www.wsp.com/en-GB/campaigns/future-mobility>



*The future is already here—it's just not evenly distributed.*

—William Gibson



wsp

# Considering constant change

<https://www.wsp.com/en-GB/campaigns/future-mobility>

# 'The future of mobility'

Climate  
change

Societal  
change

Energy  
needs

Global  
trends

Retail  
change

Skills &  
education

Travelling  
or not

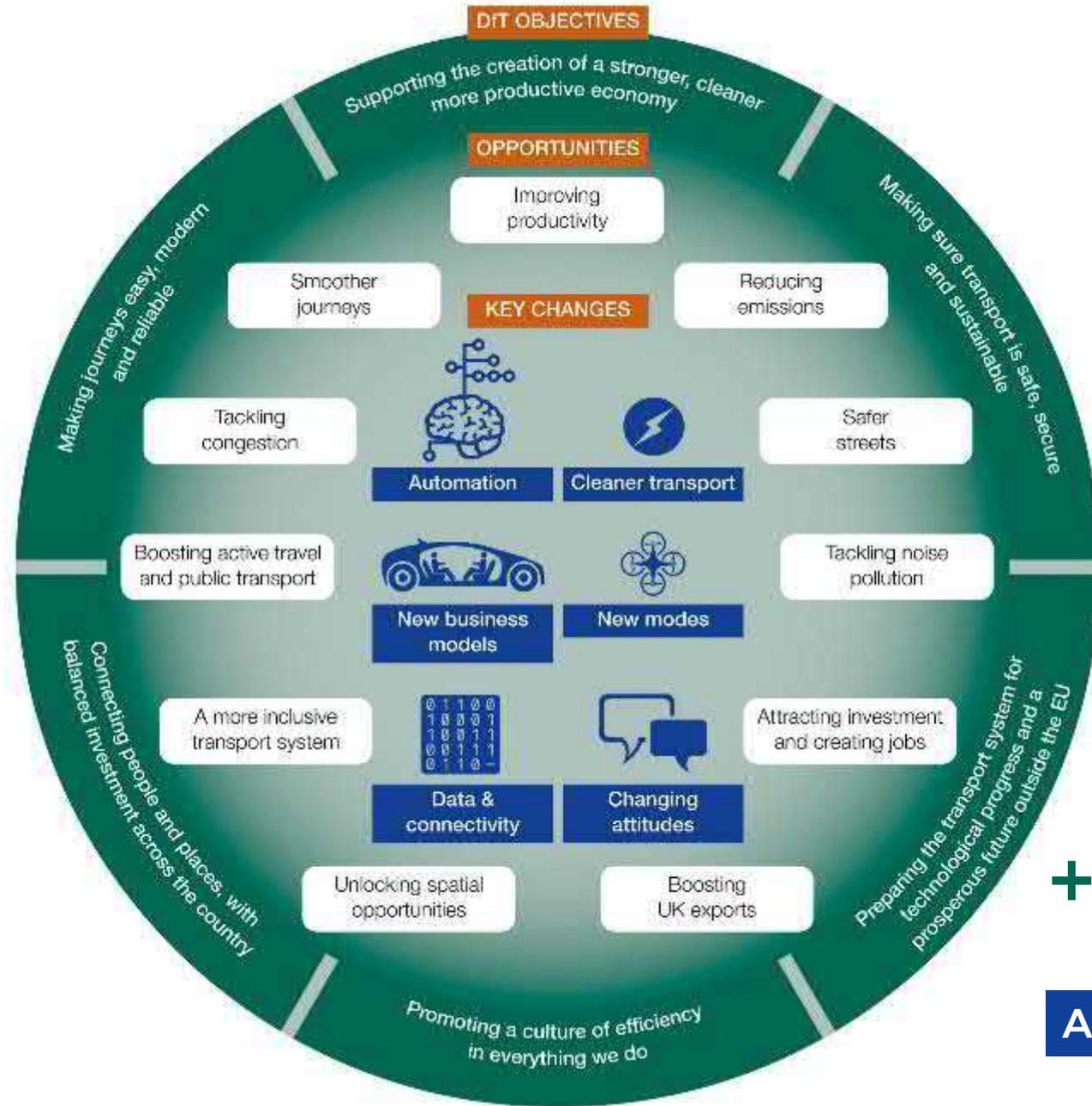
Digital  
access

Technology  
& services



# What's changing from and emerging beyond the 'norm' – across all modes?

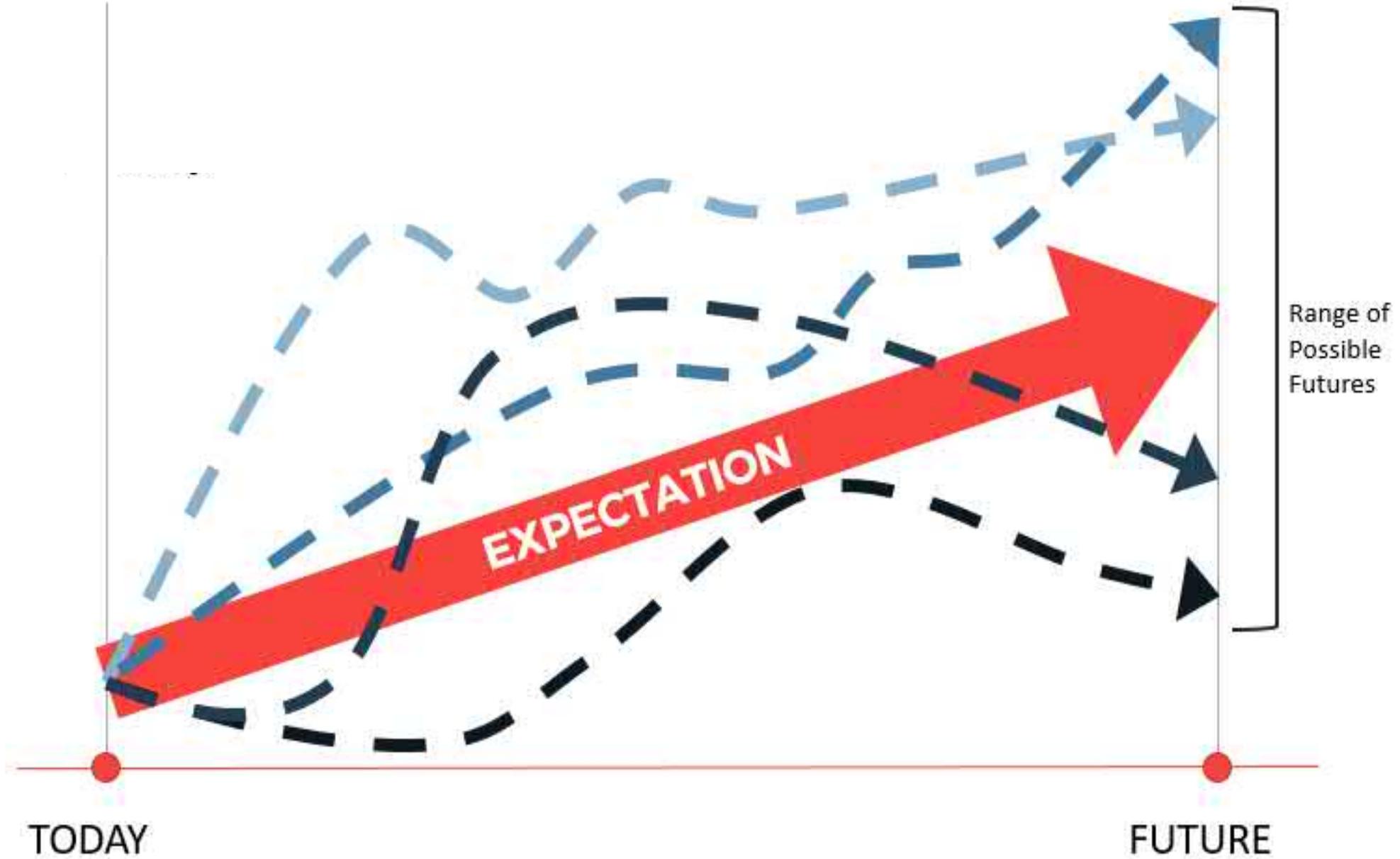
Future Mobility



Aggregation



# Navigating to a very uncertain future

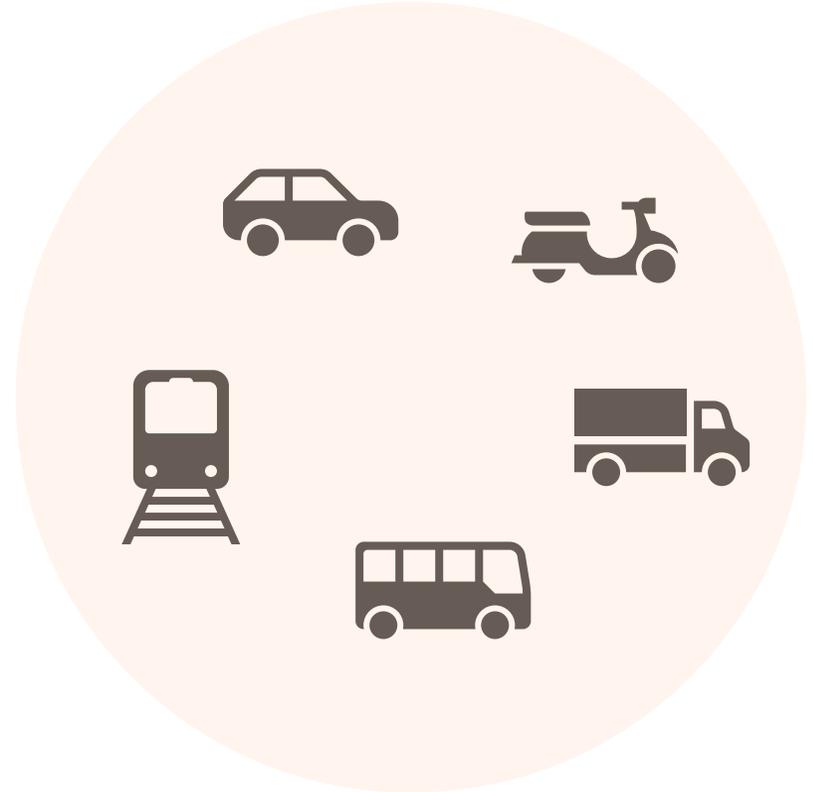


# How we move (or not)



**'Mobility'**

vs.



**'Transport'**



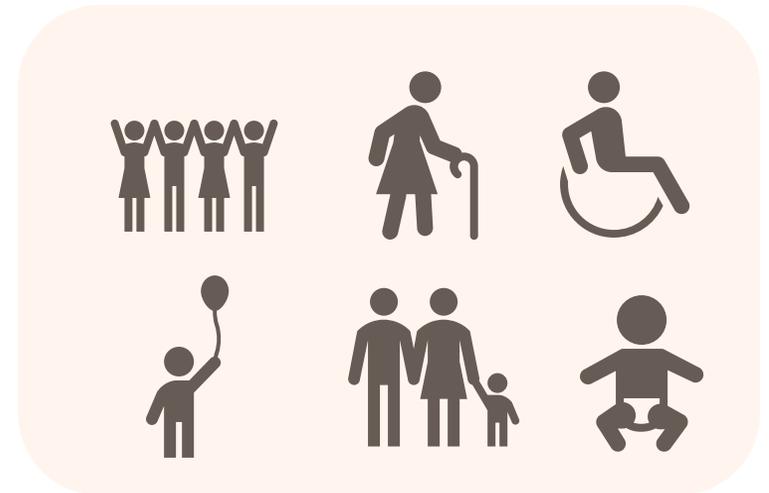
# The changing way we access things



People to places  
(goods and services)

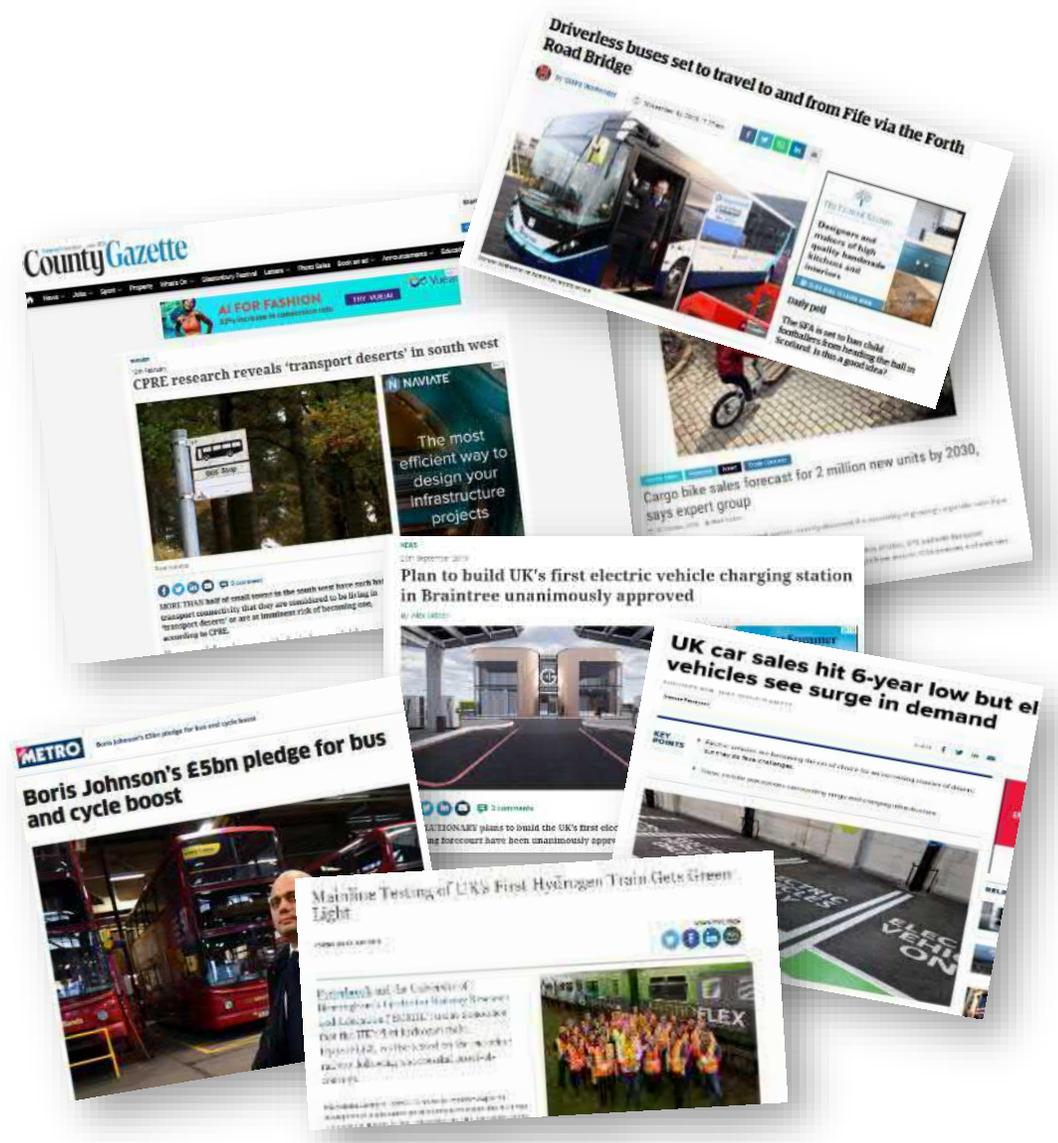
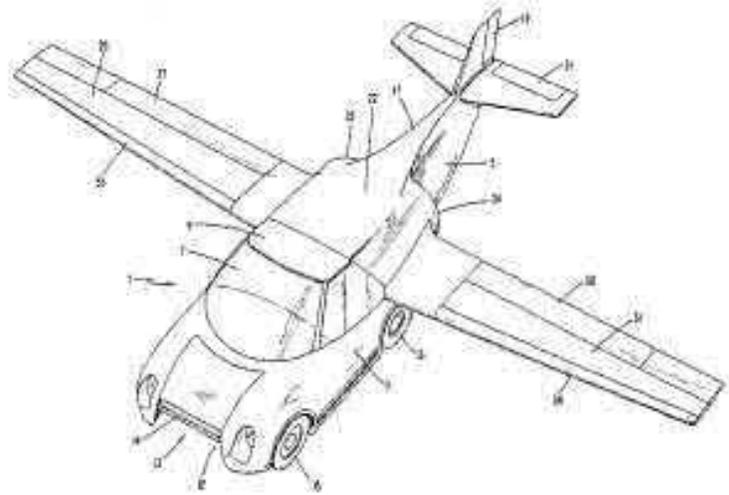


Goods and services to people





# Taking an evidential approach



Future Mobility

**Hype vs. Reality**



wsp



# People, activity & place led outcomes

<https://www.wsp.com/en-GB/campaigns/future-mobility>



# Adopting a people centric approach



Future Mobility



The young



The aging



Life stages and events



Gender / orientation / ethnicity



The socially / financially excluded



The less-abled



Wider society



# Combining activity and place led thinking



Retail and leisure



Healthcare



Workplace & employment



Education & learning



Deliveries & logistics



Rural



Peri-urban



Urban



Future Mobility



# Focusing on community outcomes



Future Mobility



**Friendlier**



**Greener**



**Happier**



**Healthier**



**More productive**



**Prosperous**



**Quieter**



**Safer**

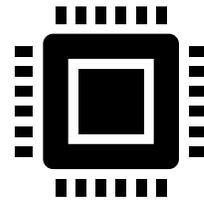


**Thinking  
in a truly  
integrated  
way**



Future Mobility

**People + places + activities**



**Energy + digital + access**

A close-up photograph of a bicycle helmet, showing the blue outer shell and the silver inner liner. The helmet is positioned on the left side of the frame, with the text overlaid on the right.

# **Future Mobility in action\***

**\*not exhaustive**



# Shared e-bikes

Future Mobility



Co Bikes, Exeter  
Source: WSP Team Photo



# Shared e-scooters



Lime e-scooters, Stockholm

Source: WSP Team Photo



# Shared e-scooters



Lime e-scooters, Stockholm  
Source: WSP Team Photo



# Shared cars (and EVs)

Shared cars (and EVs)





# (Digital) Demand Responsive Transport

Future Mobility



Arriva Click, Liverpool



# (E-) cargo logistics



Coffee delivery, Brighton station

Source: WSP Team photo



# Robotic deliveries

Future Mobility



Starship robot delivery, Milton Keynes



# EV rapid charging

Future Mobility



Fast Ned Charging Hub, Netherlands



# Automated shuttle solutions

Future Mobility



Automated Shuttle, Salford University



# Low level air deliveries

Future Mobility

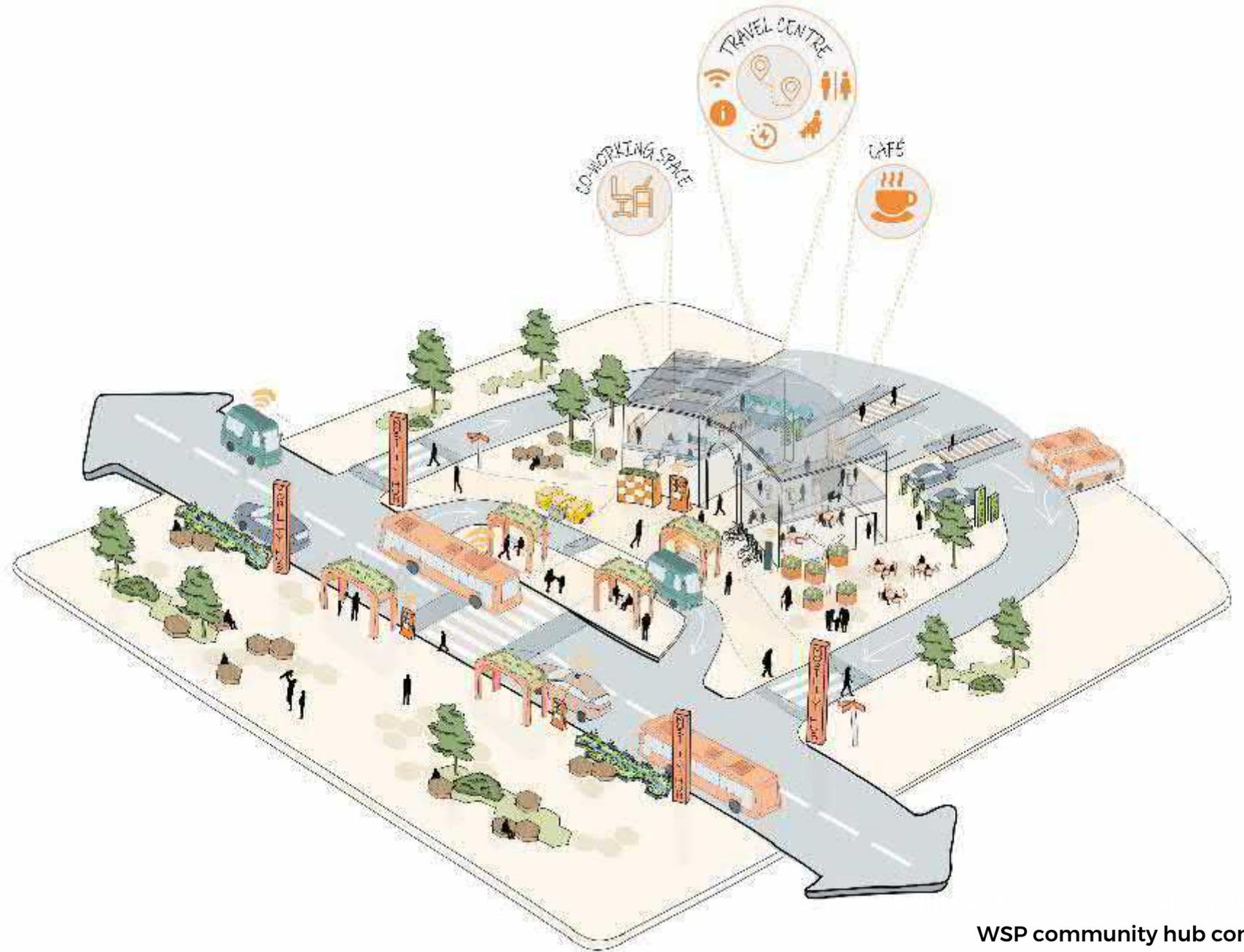


UPS / Matternet medical deliveries, USA

Source: TechCrunch



# Community (mobility) hubs





# 'Mobility as a Service'

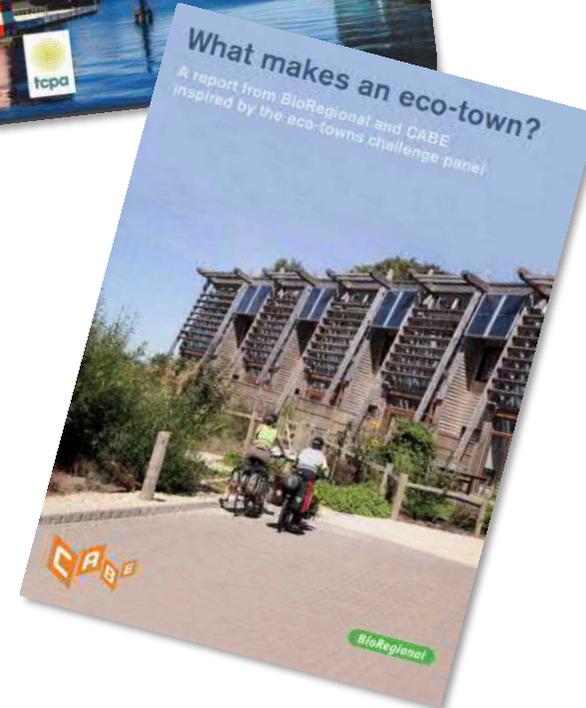
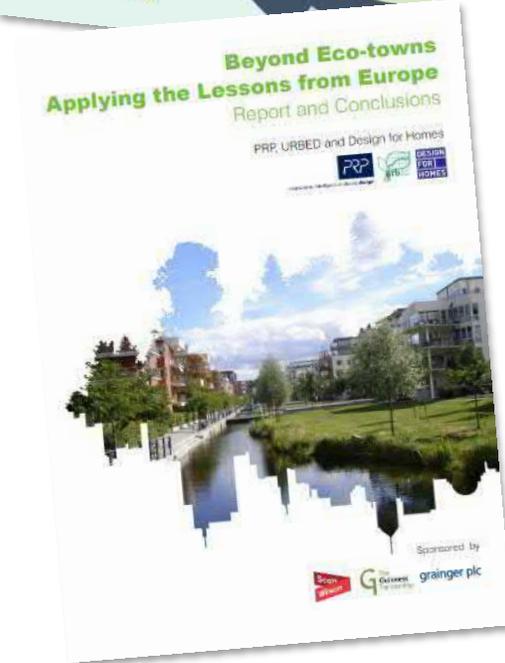
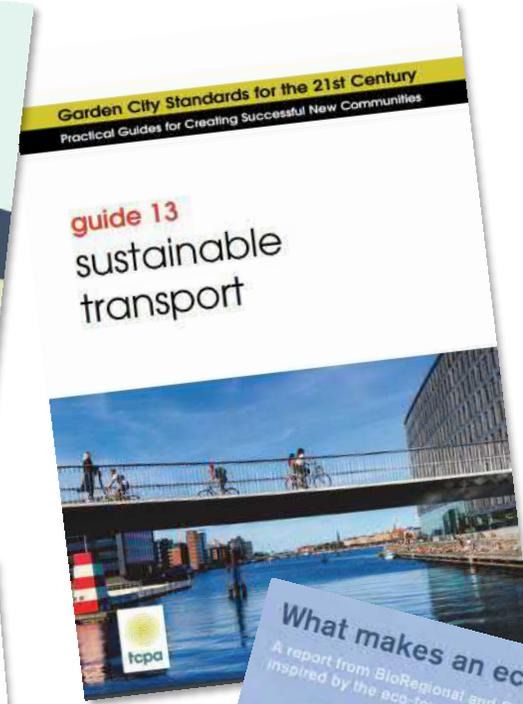
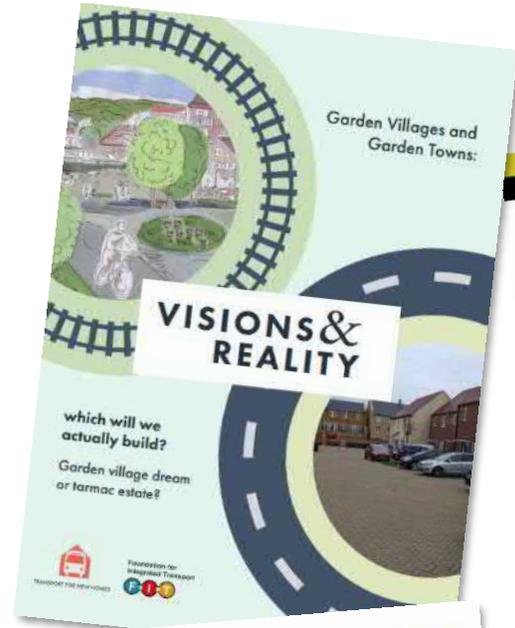




# What are the ingredients we might need?



# Start with international best practice...





# Add a sprinkle of Poundbury, Dorset?

Future Mobility





# With a dash of Vauban, Germany?





# And a touch of Eddington, Cambridge?





# And season with Tempe, Arizona?



A close-up photograph of a hand with fingers resting on a red, textured surface. The surface has a fibrous, paper-like texture with some dark smudges and faint white markings, including the letters 'W' and 'O' in the bottom right corner. The background is a plain, light color.

# What does all this mean for Culm Garden Village?



**Let's change the  
way we think. *Let's  
create change.***