

Hemel Garden Communities

Potential Modal Shift



Introduction & executive summary

INTRODUCTION & EXECUTIVE SUMMARY

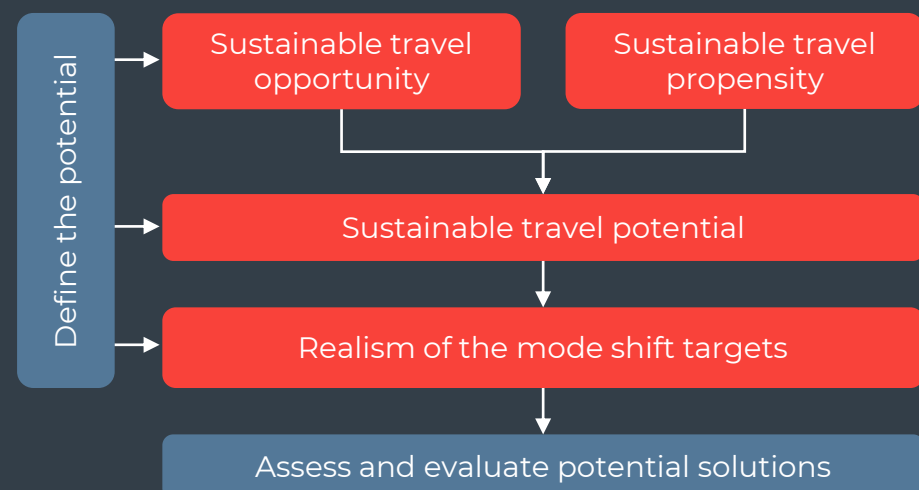
Overview

Hertfordshire County Council (HCC) engaged WSP to undertake a modal shift study for the Hemel Hempstead and Hemel Garden Communities (HGC) growth area.

The Hemel Garden Communities Spatial Vision aims to promote active and sustainable travel for all, linking local hubs with natural landscapes. The vision seeks to enhance lifestyles by fostering a deeper connection with nature, while also reducing energy consumption and playing a substantial role in reaching Net Zero carbon goals.

This report

This report summarises the key findings related to opportunity and propensity for sustainable travel, and the resulting potential for the HGC growth area, Hemel Hempstead and Dacorum, and a high-level assessment of potential interventions (solutions).



Project aims

The goal of the Hemel Garden Communities Spatial Vision is to achieve ambitious mode share targets by 2050:

- 40% of all trips starting and/or ending in the **existing settlement area** of Hemel Hempstead should be by active and sustainable travel modes, and
- 60% of all trips starting and/or ending in the **new development** of HGC growth area should be by active and sustainable travel modes.

This vision emphasises reducing reliance on private vehicles and promoting eco-friendly transportation options to create a more sustainable and liveable community.

The primary emphasis will be on data analysis to establish a fact-based method for estimating the sustainable travel potential outcomes of the project.

The next step is to ascertain the attainability and practicality of the specified mode shift targets for the HGC growth area.

This report aims to identify and assess specific interventions that will drive the desired mode shifts.

Report structure

The report is structured as follows:

- **Part A – Sustainable travel opportunity** – summarising the number of car trips that could be made by walking, cycling and public transport
- **Part B – Sustainable travel propensity** – calculating the propensity or likelihood of users to walk, cycle or use public transport
- **Part C – Sustainable travel potential** – estimates which car trips are likely to walk, cycle and use public transport
- **Part D – Realism of mode share targets** – assesses the achievability of the mode share targets, looking at existing travel patterns, mode share, and the sustainable opportunity and propensity findings.
- **Part E – Assess and evaluate potential solutions** – scores a long- and short-list of interventions based on their suitability or need to help achieve the mode share targets.

Conclusion

The report should be read in conjunction with the following appendices:

Appendix A – Policy review

Appendix B – Assess and evaluate potential solutions methodology

Appendix C – Avoid trips interventions and scoring

Appendix D – Shift modes interventions and scoring

Appendix E – Improve fuel efficiency interventions and scoring

Appendix F – Interventions scoring input data sources

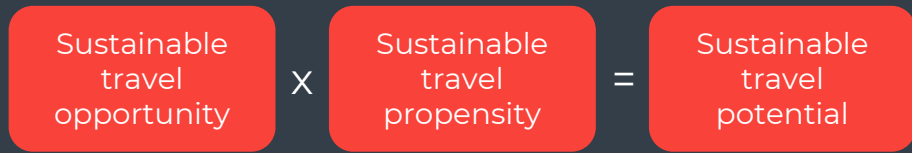
Appendix G – Ideal value percentile values

Appendix H – Multi-criteria analysis scoring

INTRODUCTION & EXECUTIVE SUMMARY

Project approach

The initial phase of this project focussed on **sustainable travel potential** – which was estimated by calculating and multiplying the opportunity trips by the propensity score.



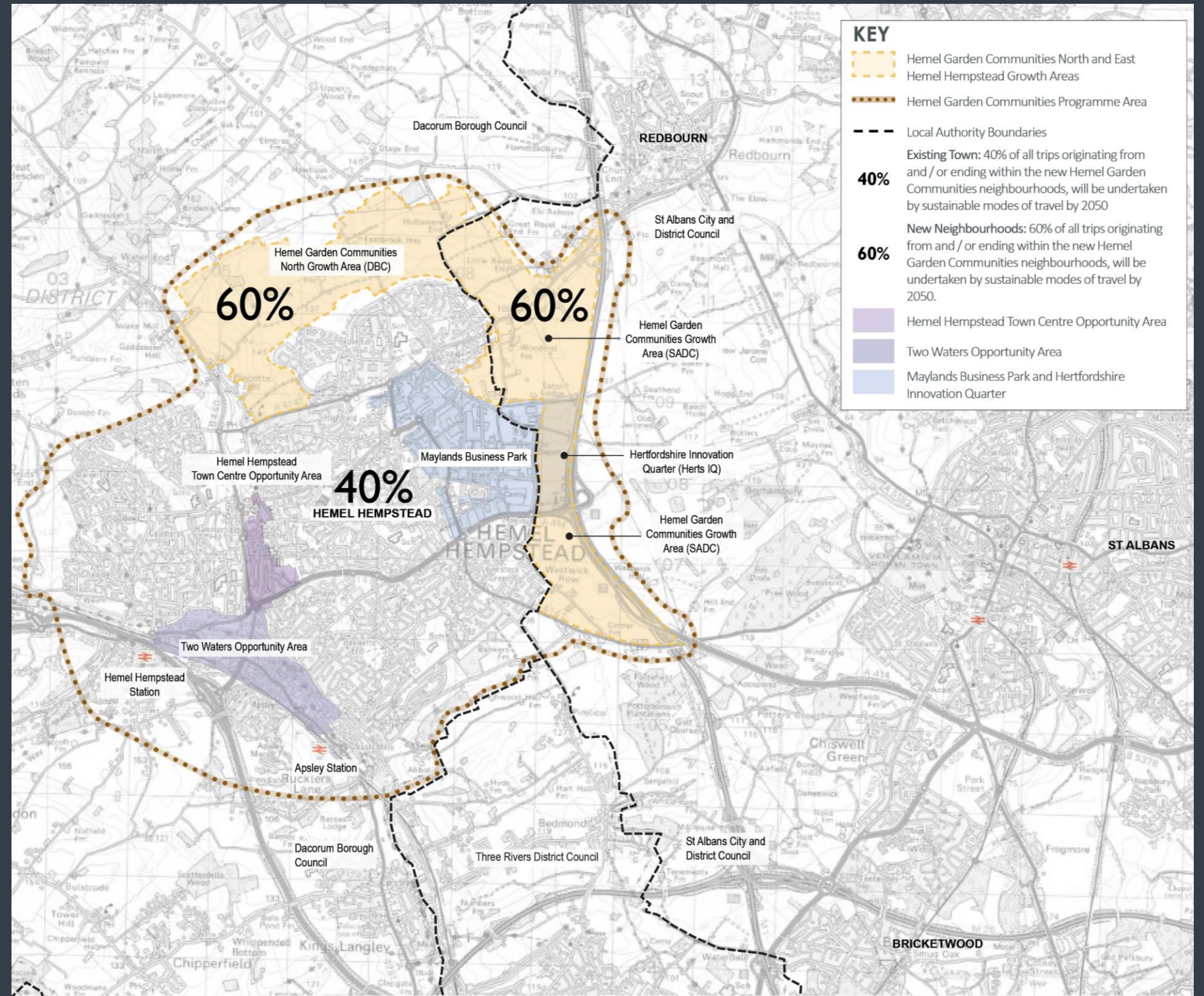
The second phase aimed to establish the **realism of the mode shift targets** – as set out in the Hemel Garden Communities Spatial Vision – by comparing the County Travel Survey data, WSP’s Mobility Insights predictions and the sustainable travel potential to the targets.

Finally, the project **assessed and evaluated a long list of interventions** – drawing on WSP’s Solutions Toolkit to understand which had the highest need (or potential to unlock the sustainable travel potential).

Based on the results and discussions with the client – a short list of interventions was developed – showing the prioritised interventions and where they should be considered across Hemel Hempstead.

The study area for this assessment is shown in **Figure 1** focussed on the Hemel Garden Communities Programme Area (Hemel Hempstead) and the Hemel Garden Communities North and East & Hemel Hempstead Growth Areas (HGC growth area).

Figure 1 Hemel Hempstead and HGC growth area included in this study



SUSTAINABLE TRAVEL POTENTIAL FINDINGS

Sustainable travel opportunity

What is it

Sustainable travel opportunity estimates the number of modelled car trips that can use sustainable modes (walking, cycling or public transport).

What did we do

Existing car journeys are extracted from the Hertfordshire Countrywide Model of Transport (COMET) and alternative route options are provided using the Google API.

Routes for walking, cycling and public transport are compared to the driving journey using lower and high sustainable travel opportunity scenarios:

- The **high** scenario aims to hit targets as set out in the Department for Transport's Gear Change – two miles for walking, five miles for cycling and a maximum public transport journey time of 2.4x the driving alternative.
- The **lower** scenario is more conservative and aims for a 15–20 minute neighbourhood – one mile for walking, three miles for cycling and a maximum public transport journey time of 1.5x the driving alternative.

Part A of this report summarises the approach and findings of the sustainable travel opportunity work.

Sustainable travel propensity

What is it

The sustainable travel propensity is the likelihood that a resident or household will use or switch to walking, cycling, bus or rail, and is benchmarked against the England average (which is set at 100).

What did we do

WSP's Mobility Insights survey response bank is used to derive propensities for walking, cycling, public transport (bus and rail), and driving by grouping survey results to the Dominant Experian Mosaic Group.

Responses are categorised into different variables (such as owning a car) and socio-demographic groups (derived from Experian Mosaic), then compared to the England average response.

A weighted average of relevant variables for each mode is calculated to determine propensity and is presented at a hex level (400m x 400m) based on the Dominant Mosaic Group in that hex.

Part B of this report summarises the approach and findings of the sustainable travel propensity work.

Sustainable travel potential

What is it

Sustainable travel potential estimates which car trips would use sustainable modes – considering the opportunity and propensity findings. It is intended to provide a better calculation for estimating the total number of switchable trips.

What did we do

Outputs from the sustainable travel opportunity analysis and the sustainable travel propensity analysis are combined to determine the sustainable travel potential.

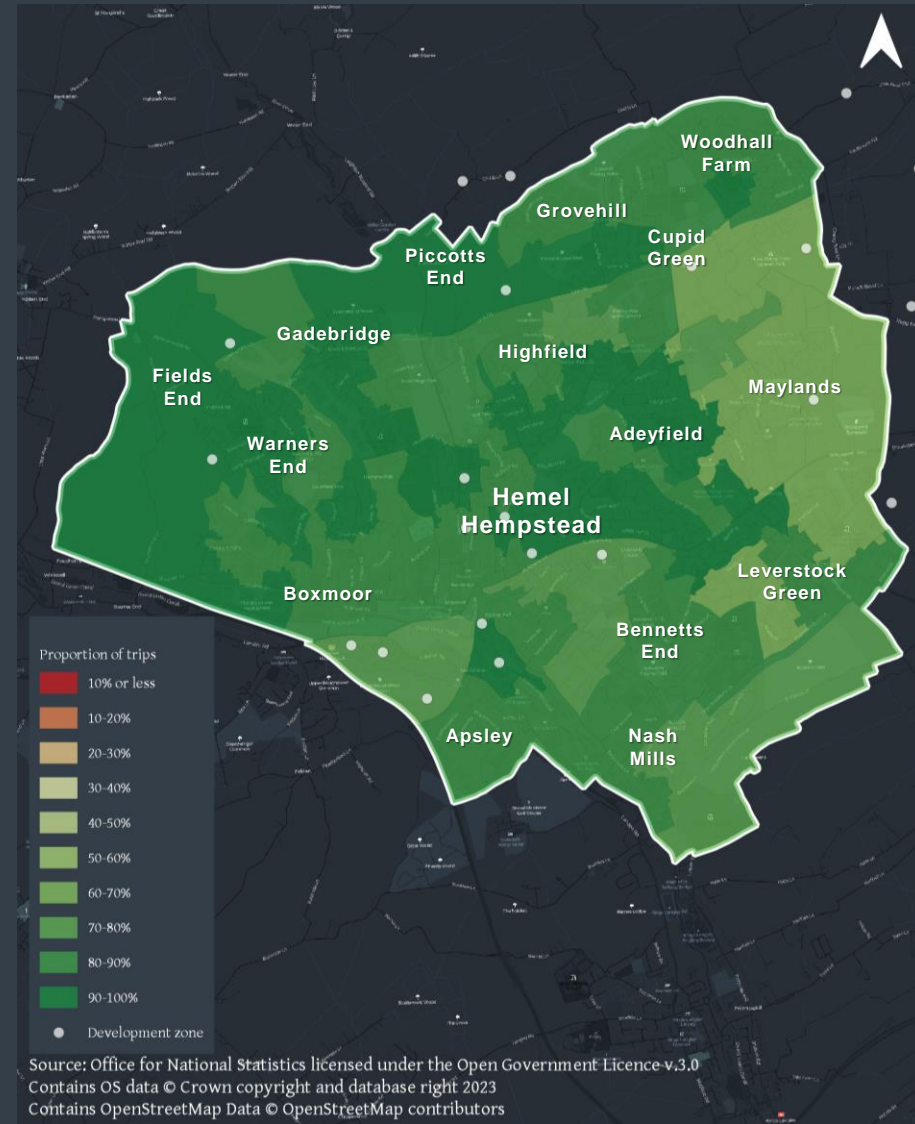
For active travel – the Gear Change target of 50% was used as the baseline mode share for walking and cycling trips for the England average. If propensity was 100 (England average) then 50% of the opportunity trips would shift – with a higher proportion switching if propensity was greater than 100, and the inverse for propensity scores below 100.

Public transport trips were adjusted by comparing the propensity to take public transport to that of driving.

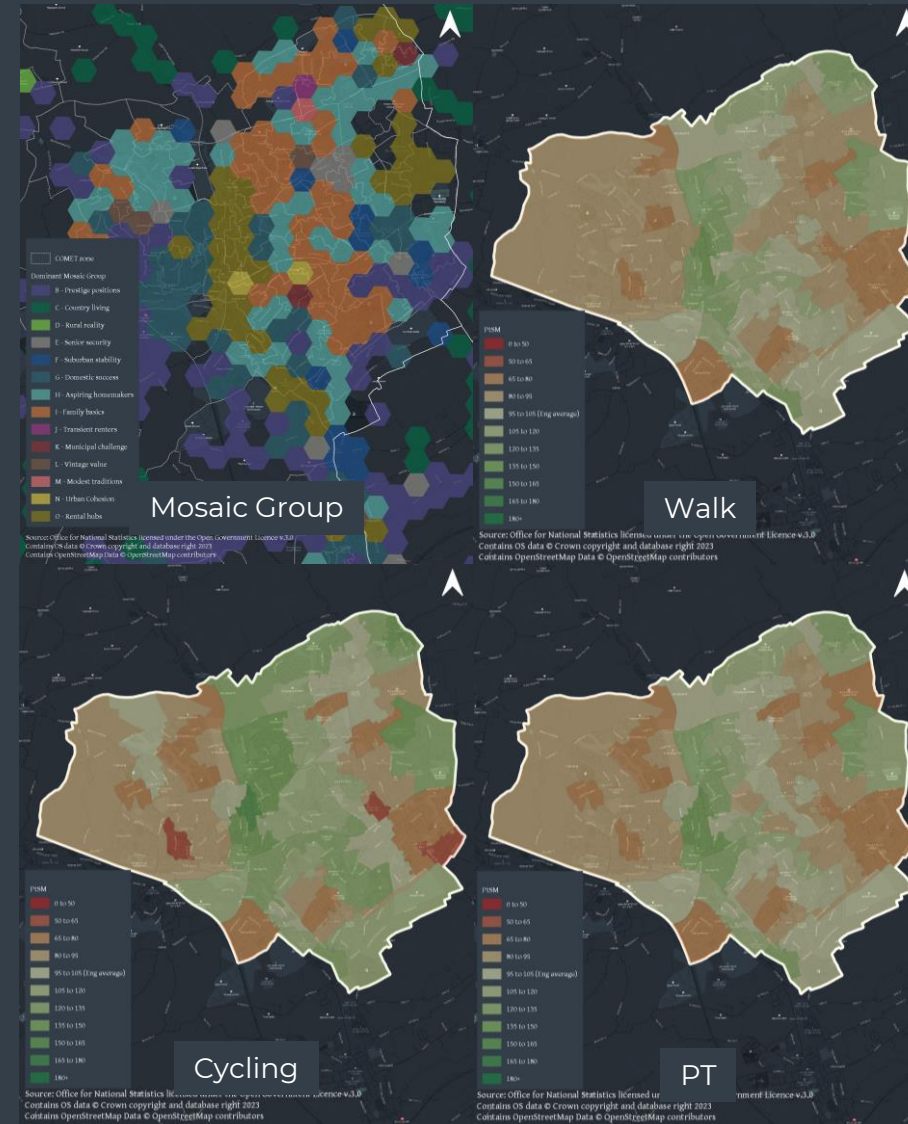
Part C of this report summarises the approach and findings of the sustainable travel potential work.

POTENTIAL SUSTAINABLE TRAVEL

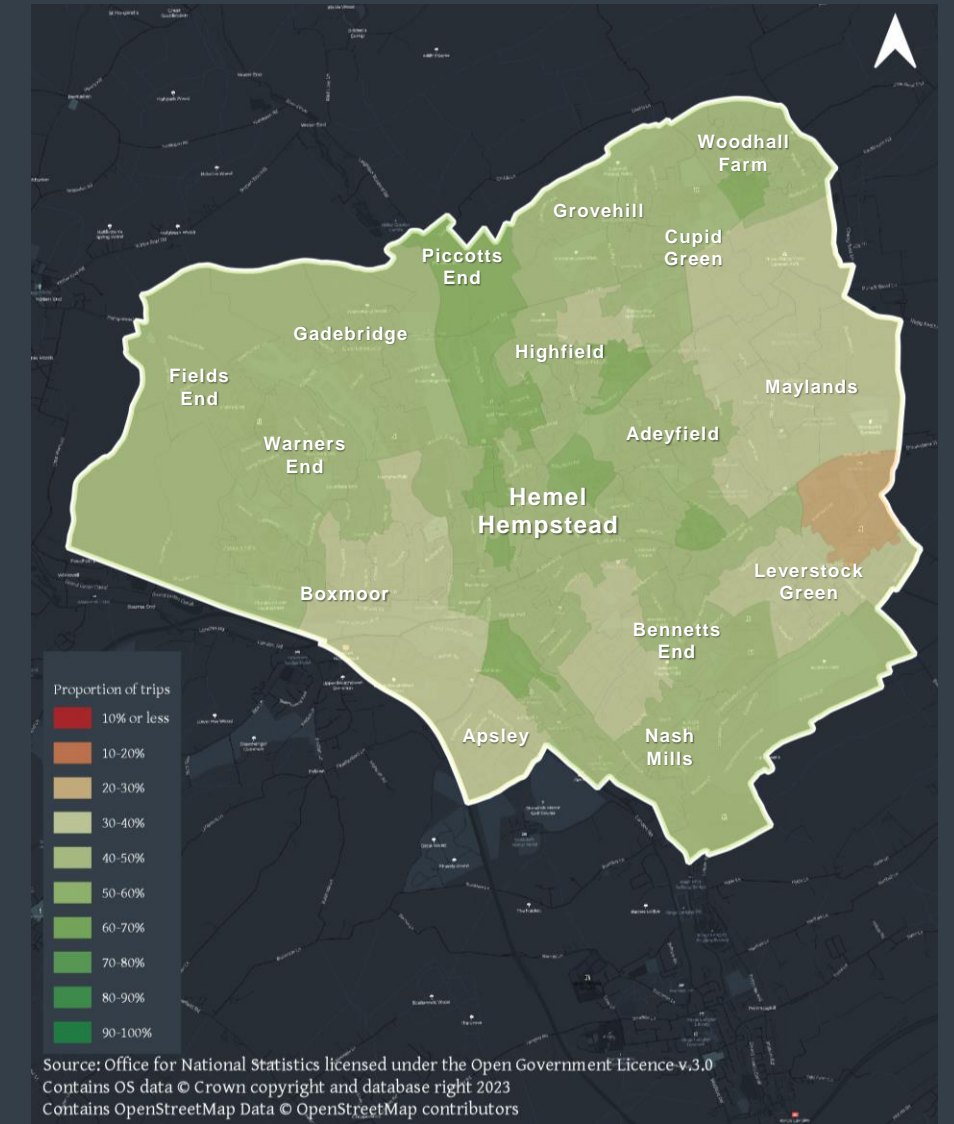
Sustainable travel opportunity



Sustainable travel propensity



Sustainable travel potential



We calculated that up to:

- 54% of car trips in the HGC growth area,
- 66% of car trips in Hemel Hempstead have the opportunity to switch from cars.

The lower proportion for the HGC growth area (shown as development zones in the map) is explained as the zones are points and therefore mode shares for internal trips are not calculated – but would increase the opportunity.

What did we find:

Based on the existing socio-demographics Hemel Hempstead has above average propensities for walking, cycling and public transport in the town centre, along the River Gade, Maylands, Woodhall Farm and Grovehill.

As the HGC growth area is developed, it is likely that the propensity to use sustainable modes will increase with new and incoming residents.

- 27% of car trips in the HGC growth area.
- 34% of car trips in Hemel Hempstead have the potential to be shifted from driving to sustainable modes – based on the current active and public transport networks, and current socio-demographics (propensities).

Sustainable travel potential findings

The table to the right summarises illustrative mode split calculations of this study (based on commuting trips), for both Hemel Hempstead and the HGC growth area.

- The existing mode split is based on the 2021 Census Journey to Work data for Dacorum – and has been used as the baseline mode share for both Hemel Hempstead and the HGC growth area. **It is noted that the Census only includes commuting trips, the realism of the mode share targets section looks at the sustainable travel mode shares for other trip types bringing in data from the County Travel Survey.**
- The sustainable travel potential sets out the car trips that could walk, cycle and public transport – based on current networks (sustainable travel opportunity), socio-demographics and travel habits (sustainable travel propensity).
- Finally, the illustrative mode split indicates the best-case scenario for mode share based on the current networks, socio-demographics and travel habits.

For the **HGC growth area**, sustainable travel mode share could increase from 18% to 41%. This is lower than Hemel Hempstead as a whole, as the development zones identified in the COMET model were point data – which meant that mode share calculations for internal trips were not undertaken. This is primarily due to the assumptions made in our calculations. These findings represent a worst-case scenario. In this analysis, we assumed that HGC growth area residents would exhibit similar travel habits to the existing Hemel residents, there would be no significant additional infrastructure developments, and that no internalisation of trips would occur due to the provision of facilities within the development. The results show:

- **Walking** increasing from 11% to 22%
- **Cycling** increasing from 1% to 13%
- **Public transport** remaining at 6%
- **Car** mode share decreasing from 80% to 40%.

Although the sustainable travel mode share for the HGC growth area is 41%, it should be noted that the analysed data is for 2036, based on existing transport networks and current socio-demographics. The HGC is planned to be built out by 2050 – suggesting that over time improved active and public transport networks will increase the opportunity (or number of trips) that can be made by sustainable modes, while new residents will shift socio-demographics to have a higher likelihood (or propensity) to use alternative travel methods – edging close to the 60% sustainable travel mode share target.

Illustrative commuting mode split calculations for **Hemel Hempstead**

Mode	Existing mode split		Mode shift		Illustrative mode split
Walk	11%	+	+14%	=	25%
Cycle	1%		+12%		13%
Public transport	6%		+2%		8%
Car	80%		-32%		48%
Other	2%		+4%		6%
↑ 46%					

Illustrative commuting mode split calculations for **the HGC growth area**

Mode	Existing mode split		Mode shift		Illustrative mode split
Walk	11%	+	+11%	=	22%
Cycle	1%		+12%		13%
Public transport	6%		+0%		6%
Car	80%		-40%		40%
Other	2%		+17%		19%
↑ 41%					

SUSTAINABLE TRAVEL POTENTIAL FINDINGS

For **Hemel Hempstead**, sustainable travel commuting mode share could increase from 18% to 46%. The results show:

- **Walking** increasing from 11% to 25%
- **Cycling** increasing from 1% to 13%
- **Public transport** increasing from 6% to 8%
- **Car** mode share decreasing from 80% to 48%.

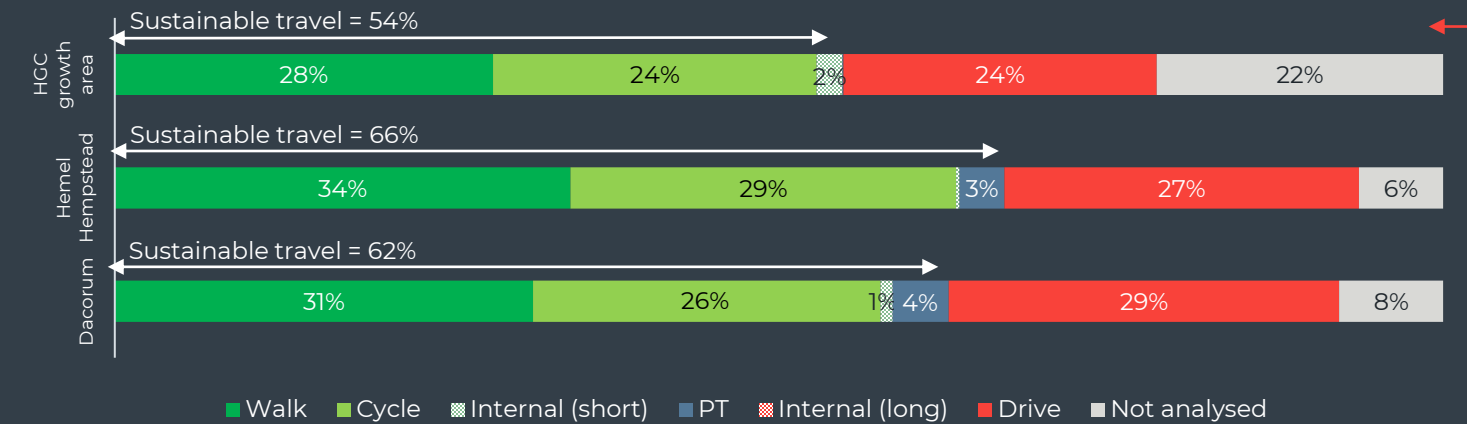
The data analysis suggests:

- A relatively high sustainable travel potential for walking and cycling – which could be unlocked and encouraged through continued investment in active travel infrastructure and shared mobility. Interventions considered in more detail in this study include connected walking and cycling infrastructure, logistics infrastructure, micro consolidation, mobility hubs, bike and scooter share.
- A lower mode shift opportunity to use bus and rail – suggesting that enhancements to the public transport network will be required. Focus should be on improving the bus and rail network to better meet the needs of existing and new residents – improving connectivity between activity centres and areas with a higher propensity to use public transport, while improving travel time competitiveness with driving. Interventions considered in more detail in this study include bus priority and demand responsive transport.

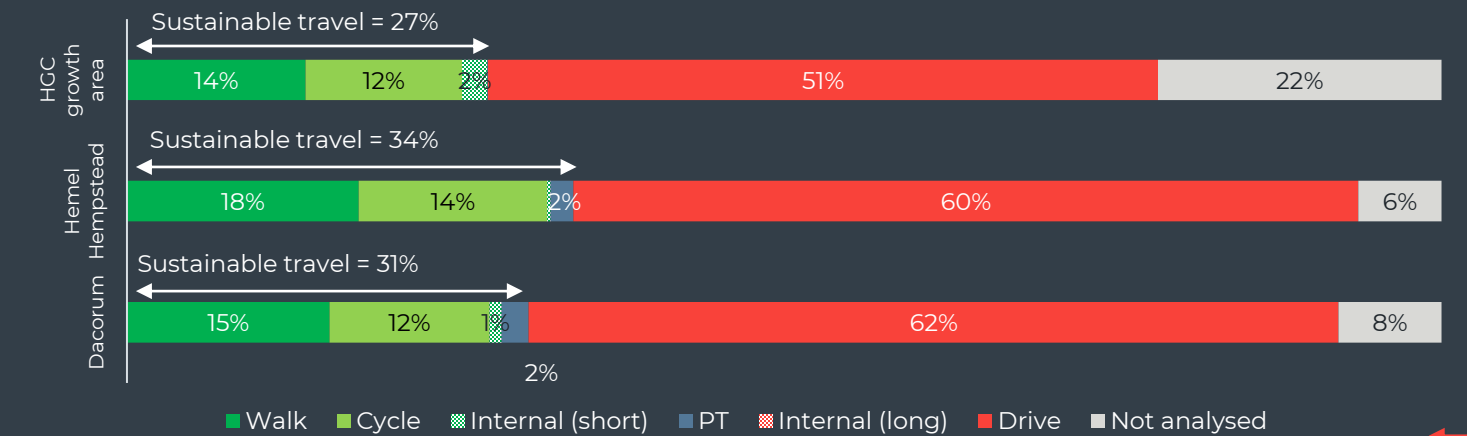
The graphs to the right show the mode share calculations that were used to calculate the illustrative mode split (high mode shift):

- **Mode shift opportunity** – or number of car trips that could be made by walking, cycling and public transport
- **Sustainable travel potential** – the number of car trips factoring for propensity of likelihood of residents to switch to walking, cycling and public transport
- **Illustrative mode split** – a recalculation of mode shares factoring mode shift from cars.

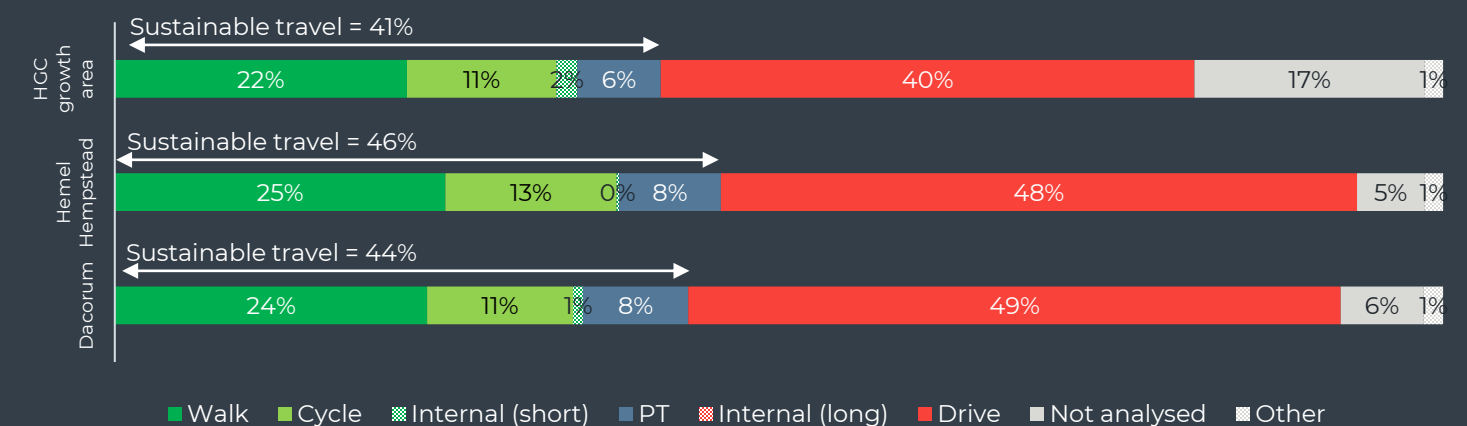
Commuting mode shift opportunity



Commuting sustainable travel potential



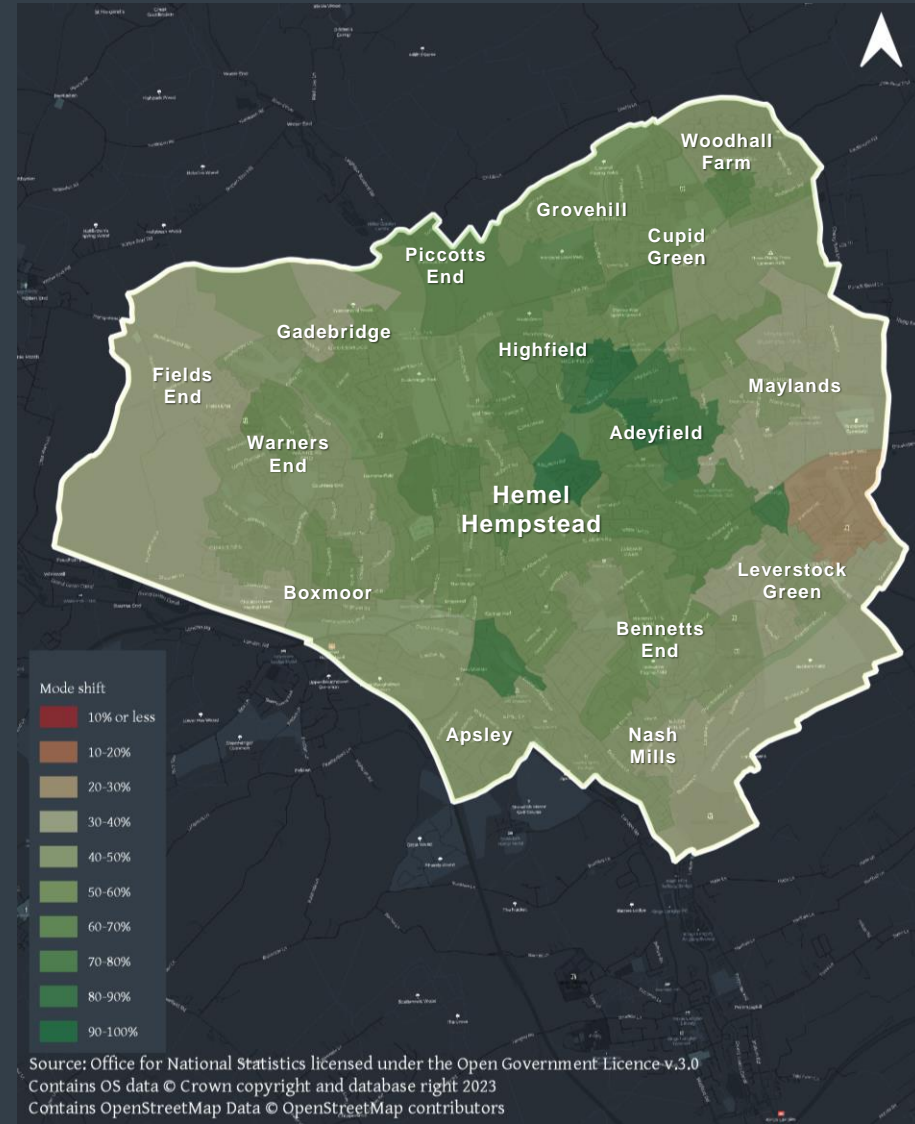
Commuting illustrative mode split



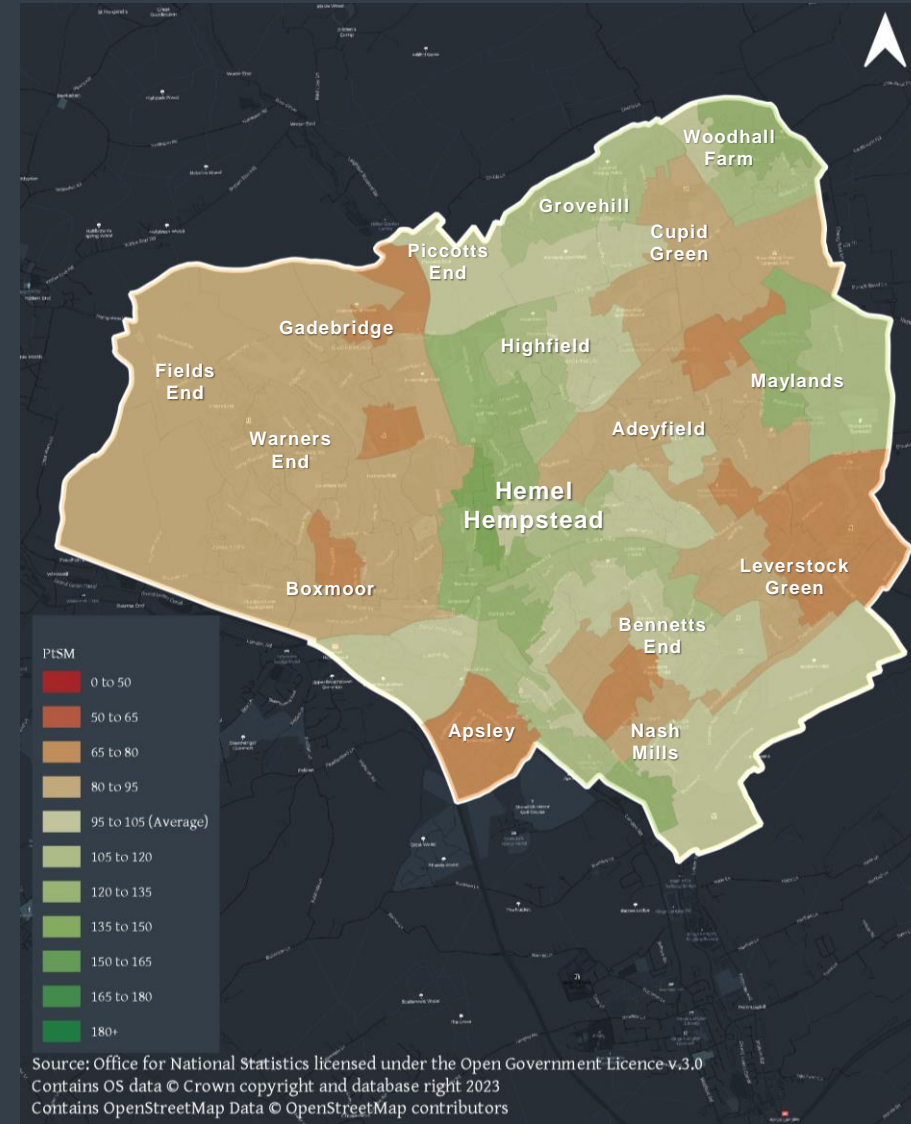
by number of trips

POTENTIAL SUSTAINABLE TRAVEL (WALKING)

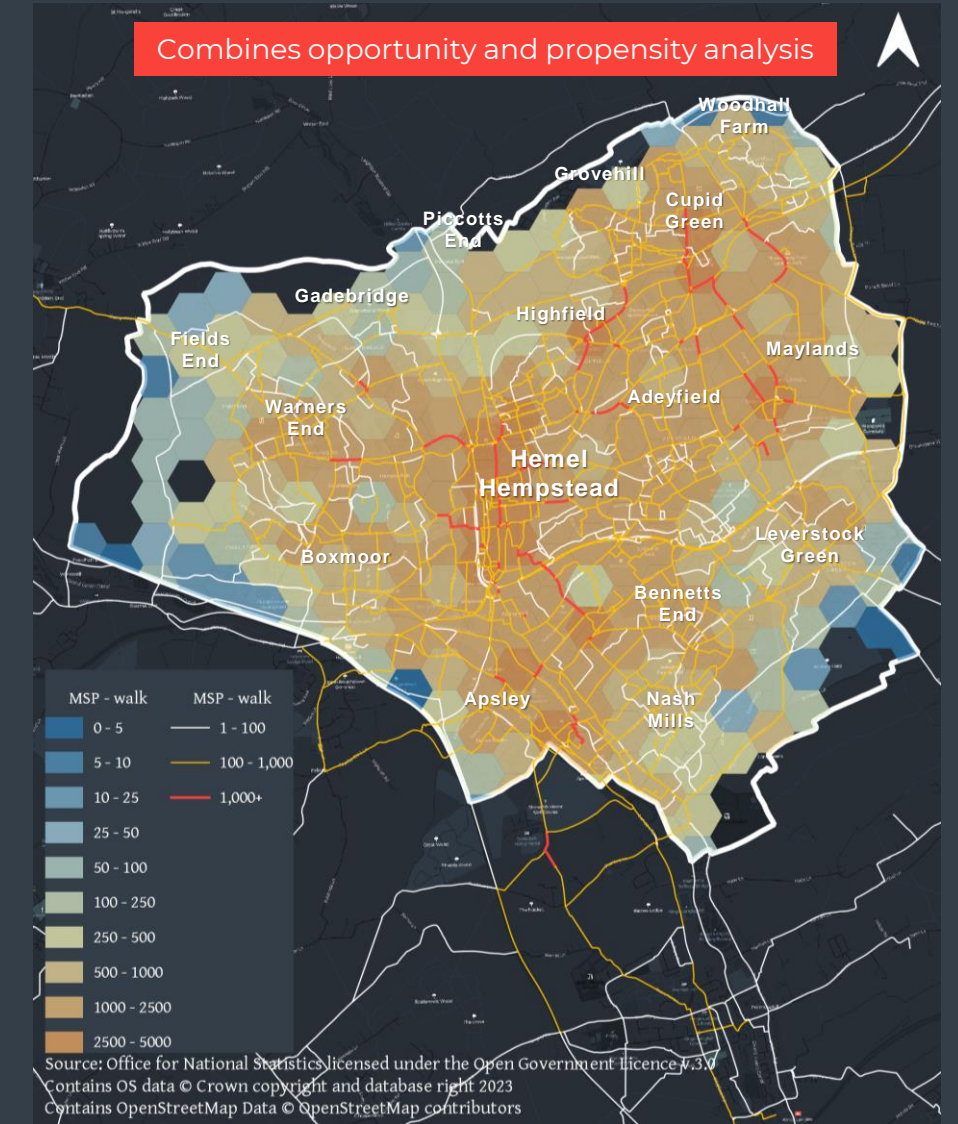
Opportunity to walk



Propensity to walk



Walking potential



We calculated that up to:

- 28% of trips in the HGC growth area,
- 34% of trips in Hemel Hempstead have the opportunity to switch from cars to walking.

Areas where a high proportion of trips can be walked include the town centre, Adeyfield and Highfield.

What did we find:

Propensity to walk varies across Hemel Hempstead, including the characteristics of the residents and the local infrastructure. The town centre, along the River Gade, Maylands, Grovehill and Bennetts End have a higher-than-average propensity to walk. These areas may have a higher proportion of residents who prioritise active lifestyles and are more inclined to engage in walking activities for leisure or commuting purposes.

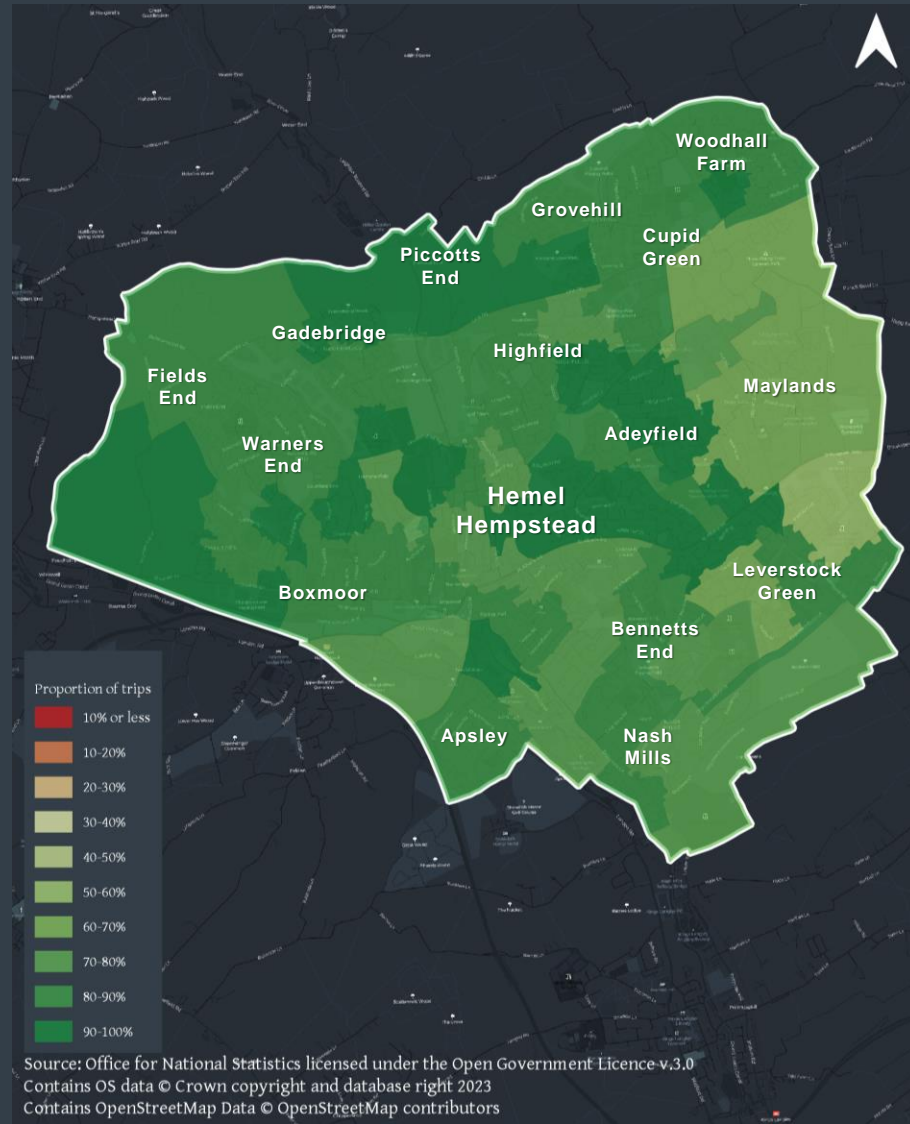
We calculated that up to:

- 14% of trips in the HGC growth area,
- 18% of trips in Hemel Hempstead have the potential to switch from cars to walking.

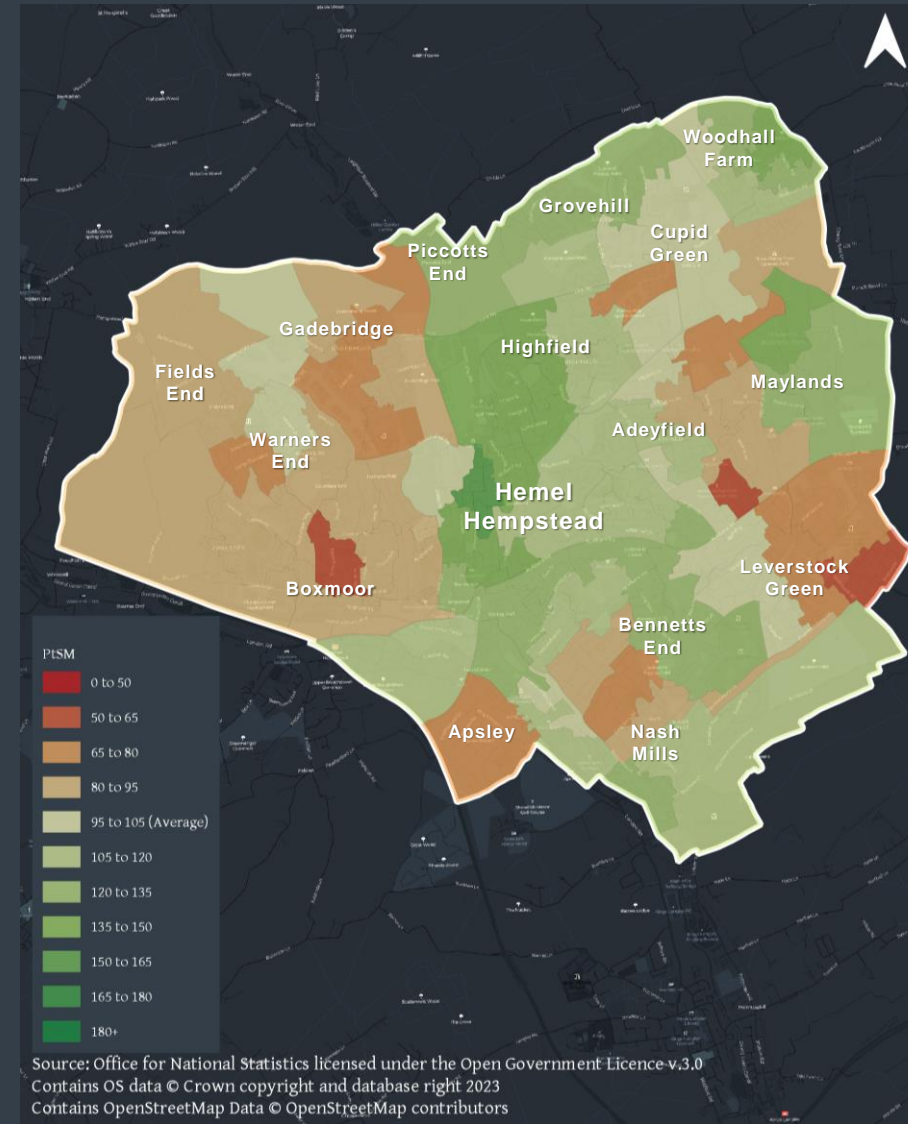
The map shows the number of trips at a hex and link level, red links have the highest potential for walking. The town centre, along Apsley, Maylands, Highfield and Cupid Green have a higher-than-average potential to walk.

POTENTIAL SUSTAINABLE TRAVEL (CYCLING)

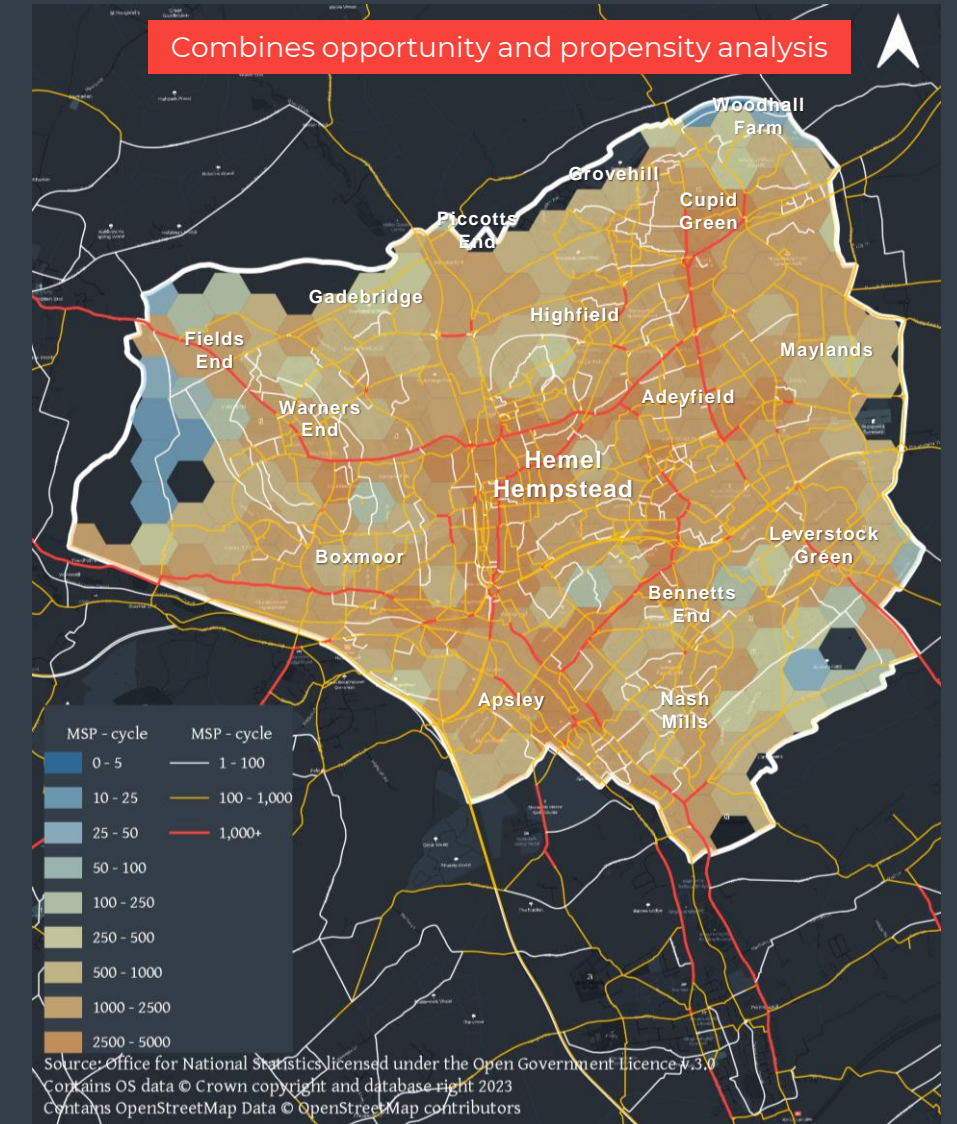
Opportunity to cycle



Propensity to cycle



Cycling potential



We calculated that up to:

- 32% of trips in the HGC growth area,
- 37% of trips in Hemel Hempstead have the opportunity to switch from cars to cycling.

Areas where a high proportion of trips can be cycled include the town centre, Adeyfield, Highfield, Piccotts End and Warners End. This suggests that a high proportion of trips are within a comfortable five-mile cycle.

What did we find:

Propensity to cycle varies across Hemel Hempstead, including the characteristics of the residents and the local infrastructure. The town centre, Highfield, Piccotts End, Grovehill, Woodhill Farm, Maylands and Bennetts End have a higher-than-average propensity to cycle. These areas may have a higher proportion of residents who prioritise active lifestyles, prefer cycling, or find it a convenient means of getting around.

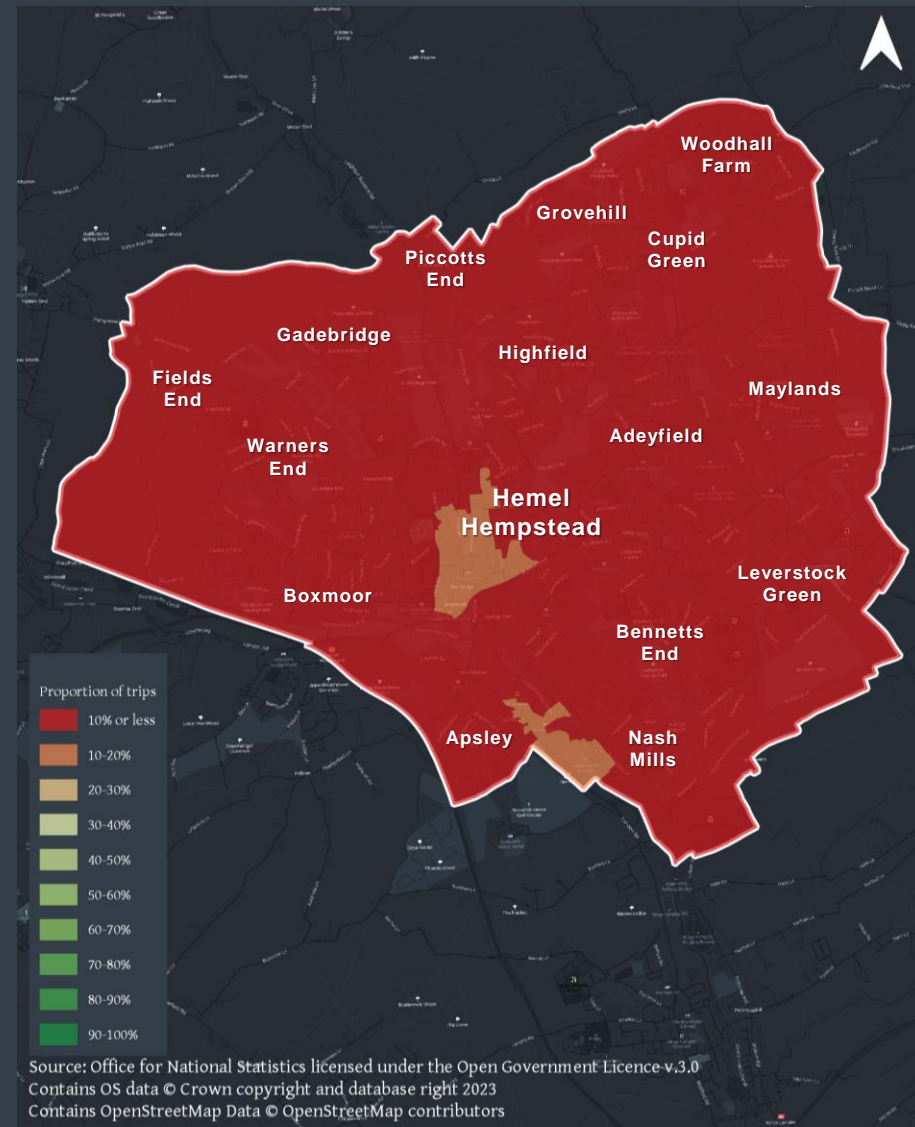
We calculated that up to:

- 15% of trips in the HGC growth area,
- 20% of trips in Hemel Hempstead have the potential to switch from cars to cycling.

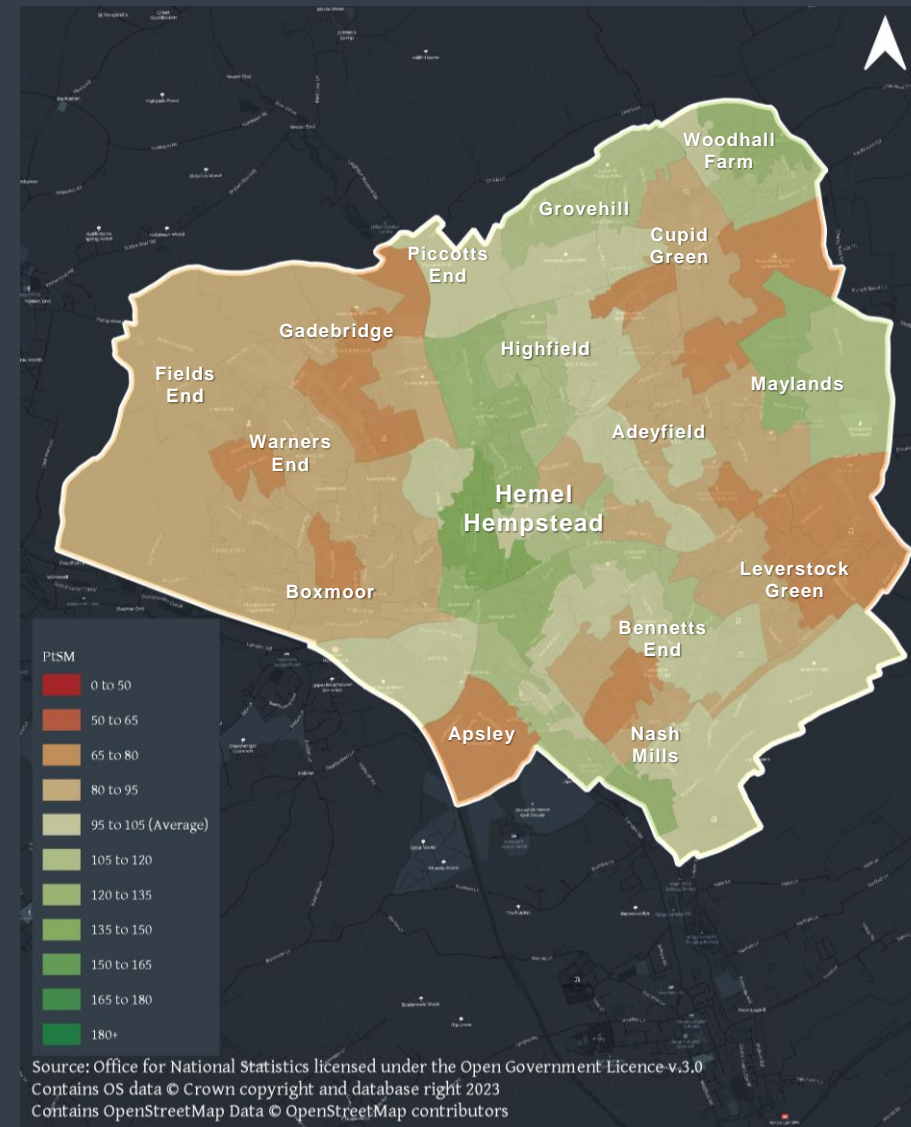
The map shows the number of trips at a hex and link level – with the cycling trips distributed across Hemel Hempstead. Cycling infrastructure should focus on good links between areas and also with the town centre.

POTENTIAL SUSTAINABLE TRAVEL(PUBLIC TRANSPORT)

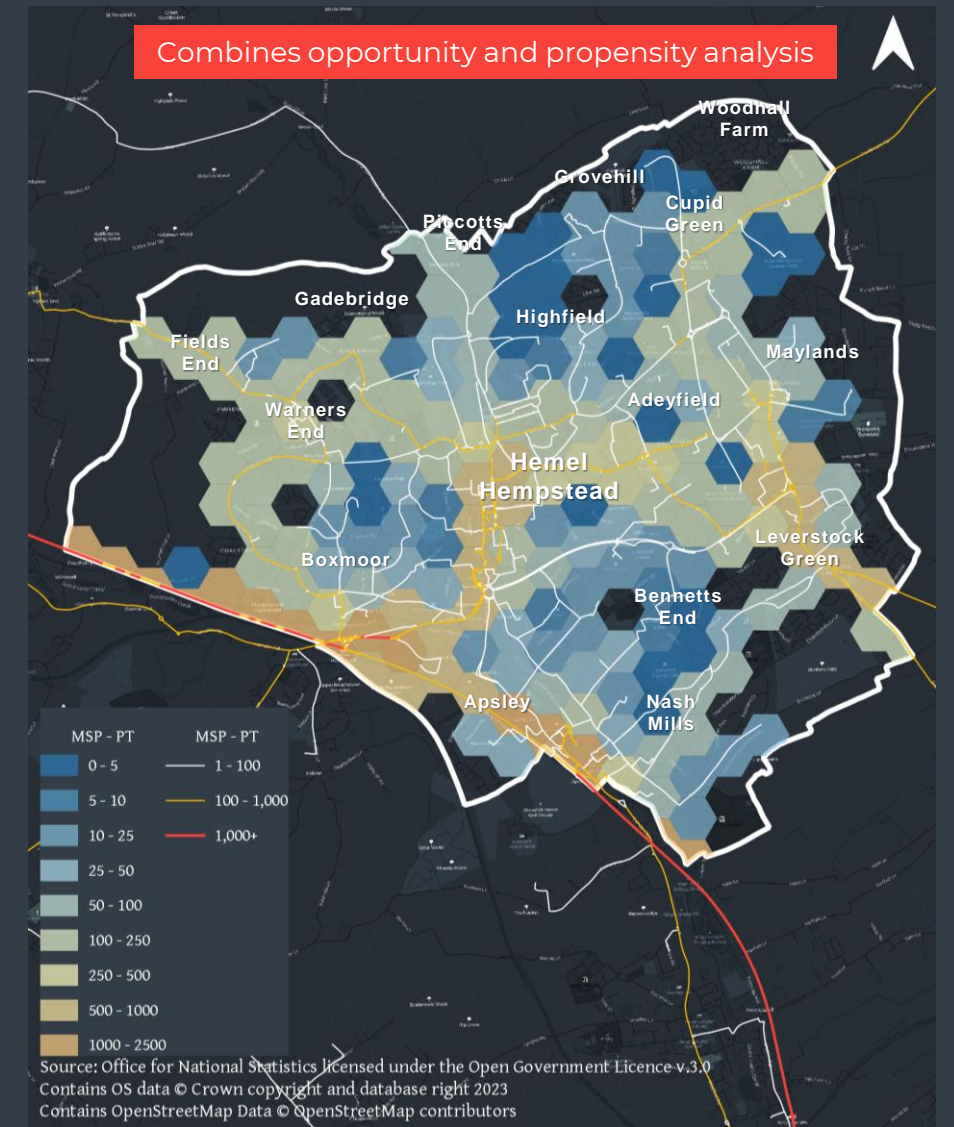
Opportunity to use public transport



Propensity to use public transport



Public transport potential



We calculated that up to:

- 3% of trips in Hemel Hempstead have the opportunity to switch from cars to public transport – with very limited public transport options available.

The opportunity to use public transport is limited by the coverage and journey times of bus and rail when compared to car. For example, although a public transport trip could be made by bus or rail, it would take 2.4x longer than if driven.

What did we find:

Propensity to use public transport (which is an average of bus and rail) varies across Hemel Hempstead, including the characteristics of the residents and the local transport infrastructure. The town centre, Highfield, Grovehill, Woodhall Farm and Maylands have a higher-than-average propensity to use public transport. These areas may have a higher proportion of residents who prioritise sustainable transport methods, either due to personal preferences and environmental consciousness.

We calculated that up to:

- 2% of trips in Hemel Hempstead have the potential to switch from cars to public transport – and no trips for the HGC growth area.

The map shows the number of trips at a hex and link level based on the currently available public transport network. Red links have the highest potential for public transport. The focus for public transport improvements should be on key links between areas of higher propensity, but also new or improved services to improve public transport potential.

REALISM OF THE MODE SHIFT TARGET

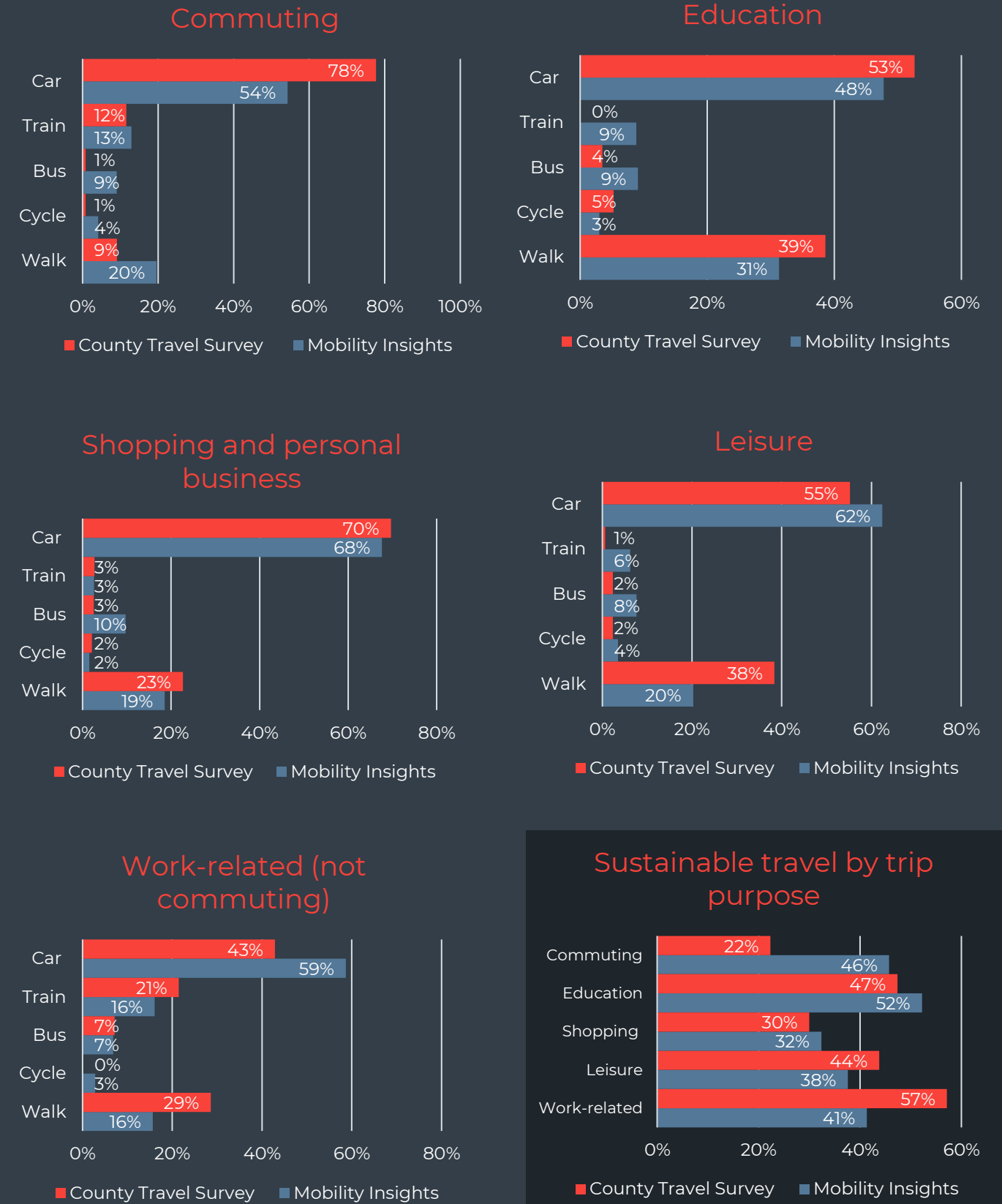
Comparison of travel habits

The graphs to the right show the current mode shares by trip type – comparing the County Travel Survey results with WSP’s Mobility Insights survey bank predictions. The Mobility Insights prediction indicates likely travel behaviour that would be expected based on the socio-demographics in the area as evidenced in other parts of England:

- For **commuting** – car use based on the County Travel Survey is 78% - which is higher than would be expected. As a result, mode share for sustainable travel is lower than other parts of England. This suggests that there is an opportunity to improve active travel and public transport opportunities for commuting trips.
- For **education** – car use is 53% which is slightly higher than the Mobility Insights predictions (48%). Walking is 39% which is greater than other areas with similar socio-demographics. Cycling and use of bus and rail is lower than would be expected for the area.
- For **shopping and personal business** – car (79%) and walking (23%) trips are higher than predicted, with cycle, bus and train lower than expected.
- For **leisure** – walking trips are higher than predicted at 38% compared to 20% for Mobility Insights. As a result – car, cycle, bus and train trips are lower than predicted.
- For **work-related trips** – walking (29%) and train trips (21%) are higher than predicted when compared to Mobility Insights. Car and cycling are lower than predicted, while bus use is the same.

When looking at current sustainable travel (walk, cycle, bus and rail) from the County Travel Survey by trip purpose – those that fall below the 40% target include commuting (22%), shopping and personal business (30%). Trip purposes above the 40% target include education (47%), leisure (44%) and work-related (57%) – with leisure and work-related trips also exceeding the Mobility Insights predictions. This suggests that there is an opportunity to improve active travel and public transport networks particularly for commuting, education and shopping trips.

Comparison of main mode by trip type



REALISM OF THE MODE SHIFT TARGET

Comparison of asset ownership

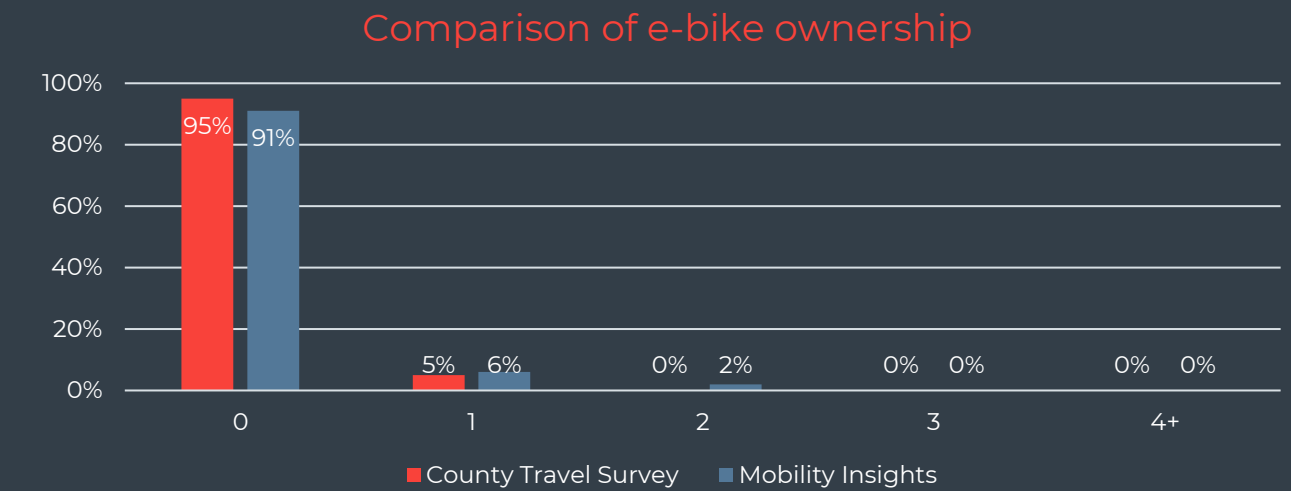
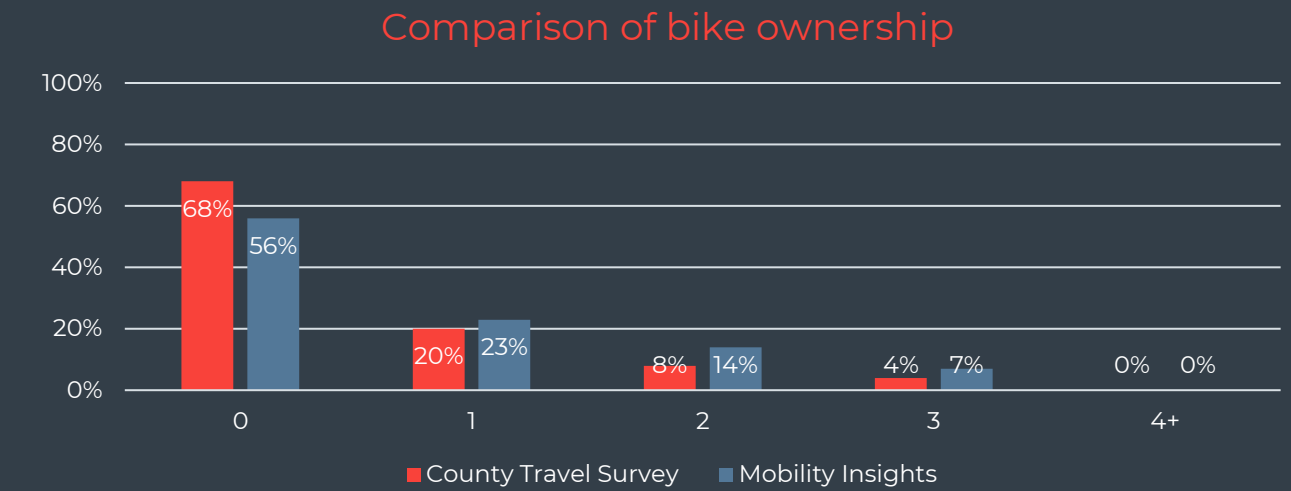
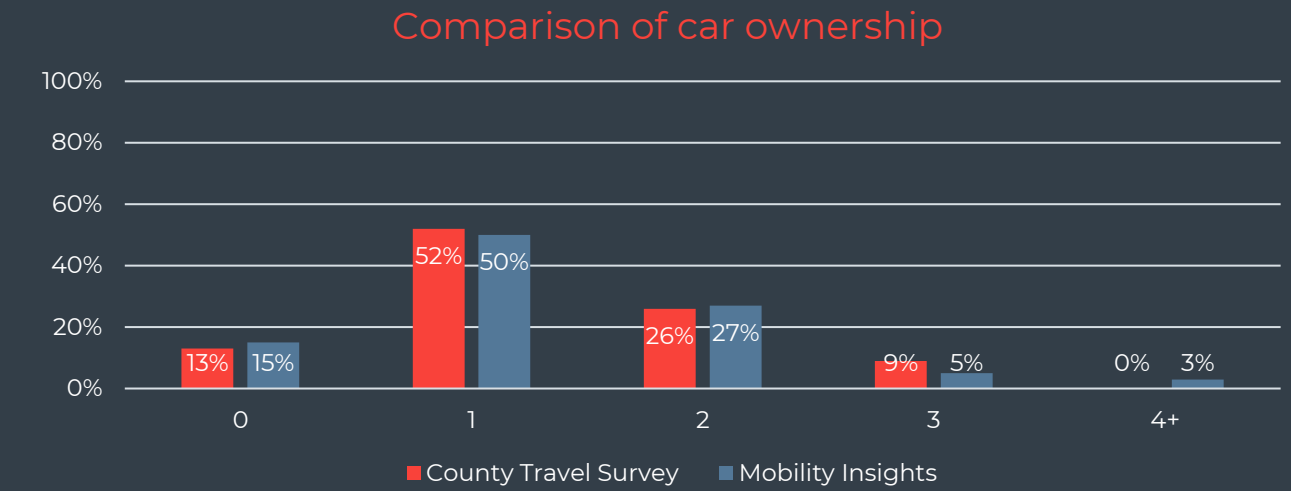
This analysis compares the asset ownership results between the County Travel Survey and Mobility Insights to understand residents' ownership.

For the County Travel Survey – we included all the survey responses that fell within Hemel Hempstead. The results are shown in the figure to the right and indicate:

- **Car** – both data sources show relatively consistent results, with slightly higher ownership of more than 4+ cars in Mobility Insights compared to the County Travel Survey.
- **Bike** – Mobility Insights predicts slightly higher bike ownership compared to the County Travel Survey. The County Travel Survey indicates a higher proportion of households without bikes. This suggests that bike ownership is lower than would be expected – impacting on cycling mode share overall.
- **E-bike** – similar to bike ownership, Mobility Insights indicates a slightly higher than County Travel Survey.

In general, the results from the County Travel Survey and Mobility Insights are relatively consistent for asset ownership in Hemel Hempstead, and comparable.

Comparison of asset ownership



REALISM OF THE MODE SHIFT TARGET

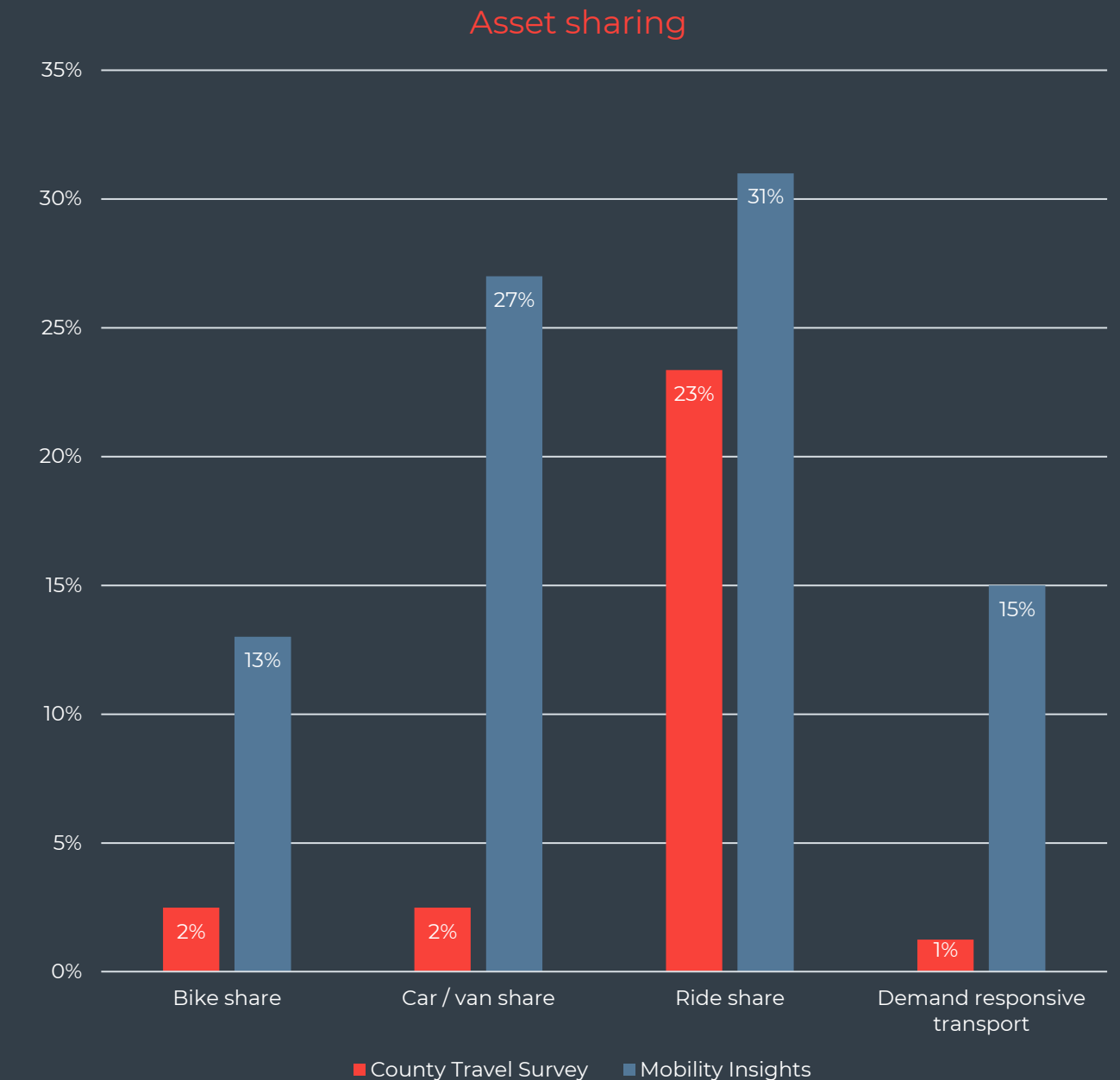
Comparison of asset sharing

The graph to the right compares asset sharing usage between the County Travel Survey and Mobility Insights predictions for bike share, car/van sharing, ride share and demand responsive transport.

- **Bike share** usage from the County Travel Survey is 2% with the question including bike hire, e-scooter hire, bike share and pool bike. This is lower than Mobility Insights predictions which would expect 13% of households to use bike share based on the Mosaic Groups.
- **Car / van share** from the County Travel Survey again is 2% and includes liftshare, car club, and car share (e.g. Zip car). This is lower than expected when compared to Mobility Insights which is 27%.
- **Ride share** from the County Travel Survey is 23% and includes app-based taxi hire and ride hailing (such as Uber). This is slightly lower than the Mobility Insights predictions which is 31%.
- **Demand responsive transport** from the County Travel Survey was 1% with initiatives in the survey including ArrivaClick and HertsLynx – both of which do not service Hemel Hempstead. As expected this is lower than the Mobility Insights prediction of 15%.

The analysis suggests that usage of asset sharing is lower than would be expected in the area based on the socio-demographic Experian Mosaic groupings, which is explained by limited asset sharing interventions in the area at present. This indicates that, based on survey results from other parts of England and the existing Experian Mosaic mix, there is an opportunity to implement bike share, car / van share and demand responsive transport. The findings of this analysis are included in the need or suitability of the interventions in [Part E](#).

Comparison of asset sharing



REALISM OF THE MODE SHIFT TARGET

How realistic are the mode share targets for Hemel Hempstead and HGC growth area?

To answer this question, a few things need to be clarified:

- **What is the current mode share** – how do people currently travel and what is the baseline situation?
- **What is the potential for change** – how many trips could be made by sustainable travel both now and into the future?
- **What are likely mode shares** – what is the range of outcomes that could be expected?

What is the current mode share?

This report has used two potential sources for current mode share as shown in **Table D1**:

- The **2021 Census Journey to Work** data for Dacorum was used as one source to understand current mode share. It is noted that this only includes commuting trips, which makes up a part but not all trips that are made. As shown in in the top table, the 2021 Census and County Travel Survey mode shares are generally consistent for commuting – however, mode shares for other trip types differ from the results of the Household Travel Survey.
- The **County Household Travel Survey** included a total of 320 households across Hertfordshire, of which 171 were in the postcode sub-districts covering Hemel Hempstead. While a small sample, this dataset provided useful insights related to mode share, as well as asset ownership and asset sharing.

The County Household Travel Survey sample dataset was compared to WSP’s Mobility Insights survey bank which is an aggregated dataset linked to Experian Mosaic – which provided mode share predictions based on the Experian Mosaic groups present in Hemel Hempstead and is shown in bottom table to the right.

Current mode share (Census and Household Travel Survey)

Mode	Dacorum 2021 Census (Journey to Work)	County Travel Survey data for Hemel Hempstead				
	Commuting	Commuting	Education	Shopping	Leisure	Work-related
Walk	11%	9%	39%	23%	38%	29%
Cycle	1%	1%	5%	2%	2%	0%
Public transport	6%	12%	4%	5%	3%	29%
Car	82%	78%	53%	70%	55%	43%
Sustainable travel	18%	22%	48%	30%	43%	58%

Table D2 Mobility Insights mode share predictions based on the Mosaic Groups in Hemel Hempstead

Mode	Commuting	Education	Shopping	Leisure	Work-related
Walk	20%	31%	19%	20%	16%
Cycle	4%	3%	2%	4%	3%
Public transport	22%	18%	12%	14%	23%
Car	54%	48%	68%	62%	59%
Sustainable travel	46%	52%	33%	38%	42%

REALISM OF THE MODE SHIFT TARGET

What is the potential for change?

Comparison to Mobility Insights predictions

As noted in the previous pages, asset ownership (car, bike and e-bike) between the two datasets are generally consistent. However, the level of asset sharing (bikeshare, car/van share, ride share and demand responsive transport) is lower than predicted – explained through the limited availability of these measures at present – but indicating a likelihood to use these interventions if implemented.

The mode shares also vary between the two datasets, with the Household Travel Survey showing higher levels of car use and walking than predicted through Mobility Insights. This suggests that there is an opportunity to improve the cycling, bus and rail networks to better meet the needs of users – and achieve mode shares similar to that in other parts of England.

As a result, the Mobility Insights predictions could be used as a scenario when calculating the realism of the mode shift target (i.e. what has been achieved in other areas with comparable Mosaic Group socio-demographics).

Sustainable travel potential

Finally, previous sections of the report aimed to understand that proportion of car trips (as per the 2031 COMET model) could be made by walking, cycling and public transport. For existing areas this could be through mode switch.

- The top table shows the **sustainable travel opportunity**, or proportion of car trips that could be made by walking, cycling and public transport based on the current transport network in the lower and high scenario.
- The lower table meanwhile shows the **sustainable travel potential**, or proportion of car trips that are likely to be made by walking, cycling and public transport taking into account propensity to use those modes in the lower and high scenario.

The two scenarios for the sustainable travel opportunity and potential can also be used as methods to test the realism of the mode share target for Hemel Hempstead and HGC growth area. It is noted that for this realism test, only the findings for Hemel Hempstead has been used. The master plan, modelling O-D matrix and existing active and public transport networks for the HGC growth area are not yet fully developed and show a lower opportunity and potential than Hemel Hempstead.

Sustainable travel opportunity of car trips (Hemel Hempstead)

Mode	Lower	High
Walk	10%	34%
Cycle	37%	29%
Public transport	0%	3%
Sustainable travel	47%	66%

Sustainable travel potential of car trips (Hemel Hempstead)

Mode	Lower	High
Walk	5%	18%
Cycle	20%	14%
Public transport	0%	2%
Sustainable travel	25%	34%

REALISM OF THE MODE SHIFT TARGET

What could mode shares be for the area based on the current mode share and potential for change?

The final step is to calculate likely mode shares and compare the results to the targets. The top table shows the assumptions that have fed into the mode share calculations. To make it easier to understand, we have presented the data by trip type – split between sustainable travel (walk, cycle, bus and rail) and car trips.

- The top part of the table shows the sustainable travel mode share from the County Travel Survey by trip type. As the 2021 Census Journey to Work data was similar to the survey – it was excluded from this assessment.
- The second half of the table shows the proportion of car trips that could be made by sustainable travel based on the lower and high sustainable travel opportunity and potential results, as well as the proportion of trips by car.
- Finally the Mobility Insights predictions are included for reference.

$$\text{Calculated mode share} = \text{Sustainable travel mode share} + \left(\frac{\text{Proportion of car trips that could be made by sustainable travel}}{\text{Proportion of car trips}} \right)$$

The image graph to the bottom right shows the resulting mode share calculations across the six scenarios by trip type – and compared to the 40% and 60% mode share targets.

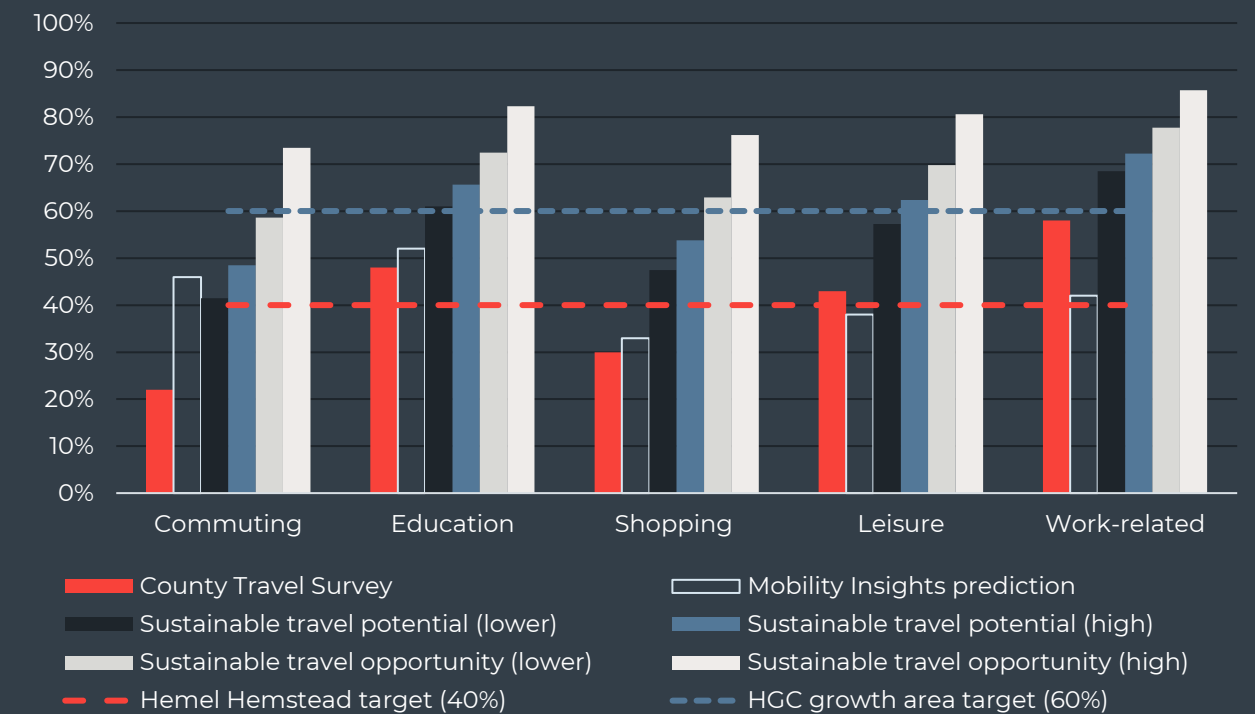
- Both the lower and high **sustainable travel potential** scenarios achieve the 40% mode share target across all trip types, but not the 60% target. This potential is based on existing transport networks and propensity to walk, cycle or use public transport of users.
- In comparison, both the lower and high **sustainable travel opportunity** scenarios achieve the 40% and 60% mode share targets across all trip types. This opportunity is based on existing transport networks, but does not include propensity or likelihood to use alternative modes to car.

The data suggests that while the 40% target is feasible, the 60% target will be more difficult to achieve unless the active travel and public transport networks are enhanced – particularly to support commuting, shopping and personal business and leisure trips – which is covered in [Part E](#).

Table D5 Mode share calculations using County Travel Survey data

Sustainable travel mode share		Commuting	Education	Shopping	Leisure	Work-related
County Travel Survey		22%	48%	30%	43%	58%
Proportion of car trips that could be made by sustainable travel		Proportion of car trips				
Sustainable travel potential (lower)	25%	78%	52%	70%	57%	42%
Sustainable travel potential (high)	34%					
Sustainable travel opportunity (lower)	47%					
Sustainable travel opportunity (high)	66%					
Mobility Insights prediction		46%	52%	33%	38%	42%

Figure Mode share calculations by trip type and scenario



INTERVENTIONS ASSESSMENT AND EVALUATION

This section looks at interventions that could help unlock the **sustainable travel opportunity, propensity and potential** and help achieve the mode share targets which were tested in **Part D**.

- The **sustainable travel opportunity** work showed that up to 66% of car trips could be walked, cycled or use public transport. This was based on existing active travel and public transport networks. So additional opportunity could be unlocked with transport network enhancements.
- The **sustainable travel propensity** work showed that there are parts of Hemel Hempstead with higher than England average propensity or likelihood to walk, cycle and use public transport.
- While the **sustainable travel potential** work showed that when taking into account propensity the proportion of car trips that would walk, cycle or use public transport reduces to 34%.
- Finally, the **realism of the mode shift targets** calculated that while the **sustainable travel potential scenario** could achieve the 40% mode share target for the existing settlement – more would need to be done to achieve the 60% mode share target which is closed to the **sustainable travel opportunity** scenarios.

For this interventions assessment we have used our WSP Solutions Toolkit which is a multi-criteria assessment tool that identifies a long-list of interventions. Working with the client we were then able to identify a short list most suited to increasing the number of trips that could be made by walking, cycling and public transport and unlocking the propensity of users to use sustainable travel.

The following sections of this part of the report sets out the approach of the multi-criteria assessment, the intervention included in the assessment and the final short-list of interventions considered in more detail.

The table to the right shows the short-list interventions that were considered as most suitable, with additional detail on all the interventions included in **Appendix C, D and E**.

Approach

The assessment toolkit has follows a four step process to calculate the intervention score, detailed through a worked example in the following pages:

- **Step 1** – for each datapoint – calculate the **ideal value** accounting for place type
- **Step 2** – for each datapoint – calculate the **actual value** by hex
- **Step 3** - to calculate **datapoint score** – divide the actual value by ideal value by hex
- **Step 4** – to calculate intervention score – weight and sum relevant datapoint scores.

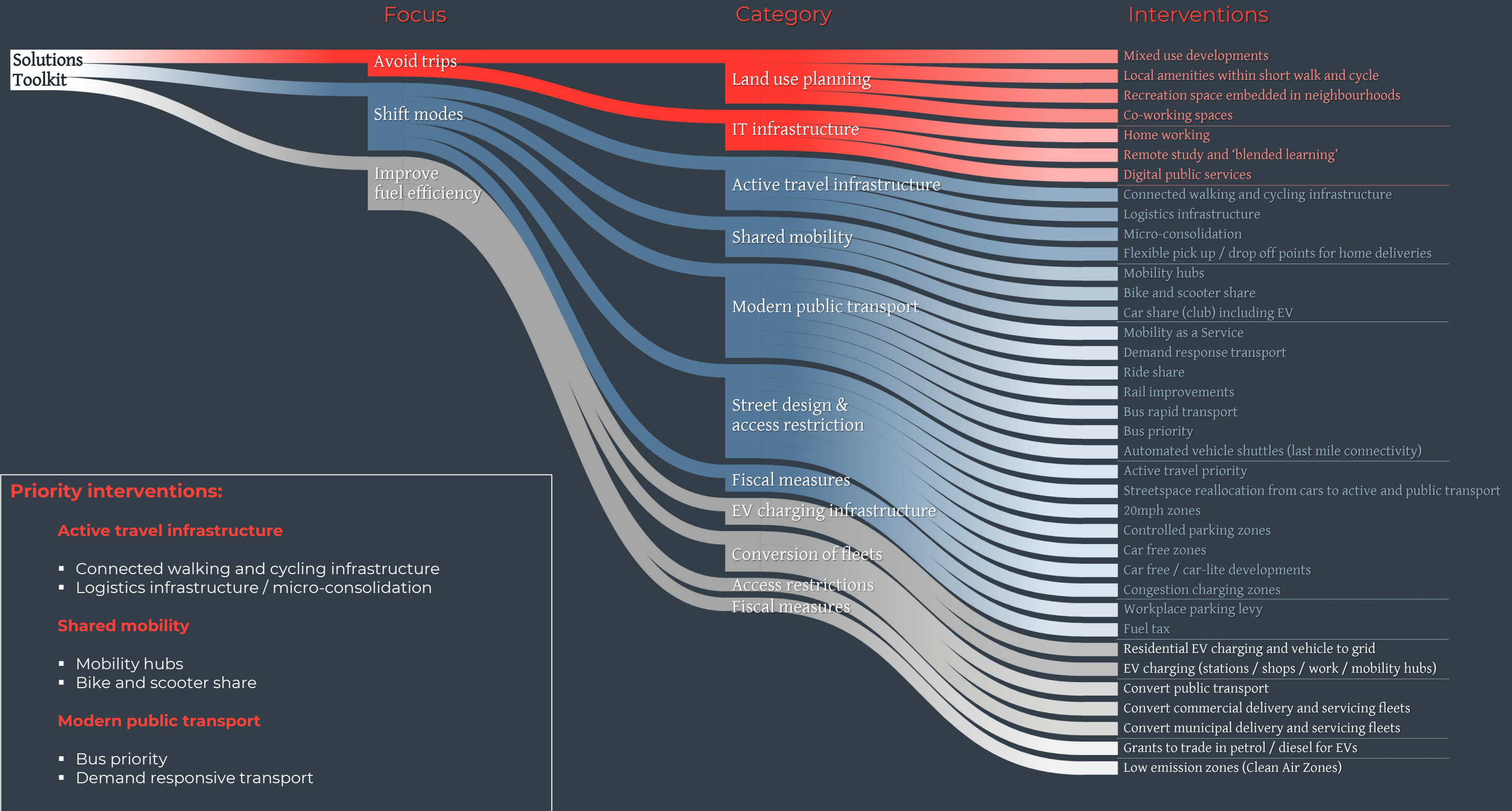
The appendices include more detail regarding the assumptions:

- **Appendix B** – outline the methodology and inputs
- **Appendix F** – sets out the data sources used in the assessment
- **Appendix G** – outlines the ideal values by place type
- **Appendix H** – sets out the weighting by criteria and intervention.

Prioritised interventions

Active travel infrastructure	Connected walking and cycling infrastructure
	Logistics infrastructure / micro-consolidation
Shared mobility	Mobility hubs
	Bike and scooter share
Modern public transport	Bus priority
	Demand responsive transport

The Solutions Toolkit



Priority interventions:

- Active travel infrastructure**
 - Connected walking and cycling infrastructure
 - Logistics infrastructure / micro-consolidation
- Shared mobility**
 - Mobility hubs
 - Bike and scooter share
- Modern public transport**
 - Bus priority
 - Demand responsive transport

INTERVENTIONS ASSESSMENT AND EVALUATION

Intervention scores

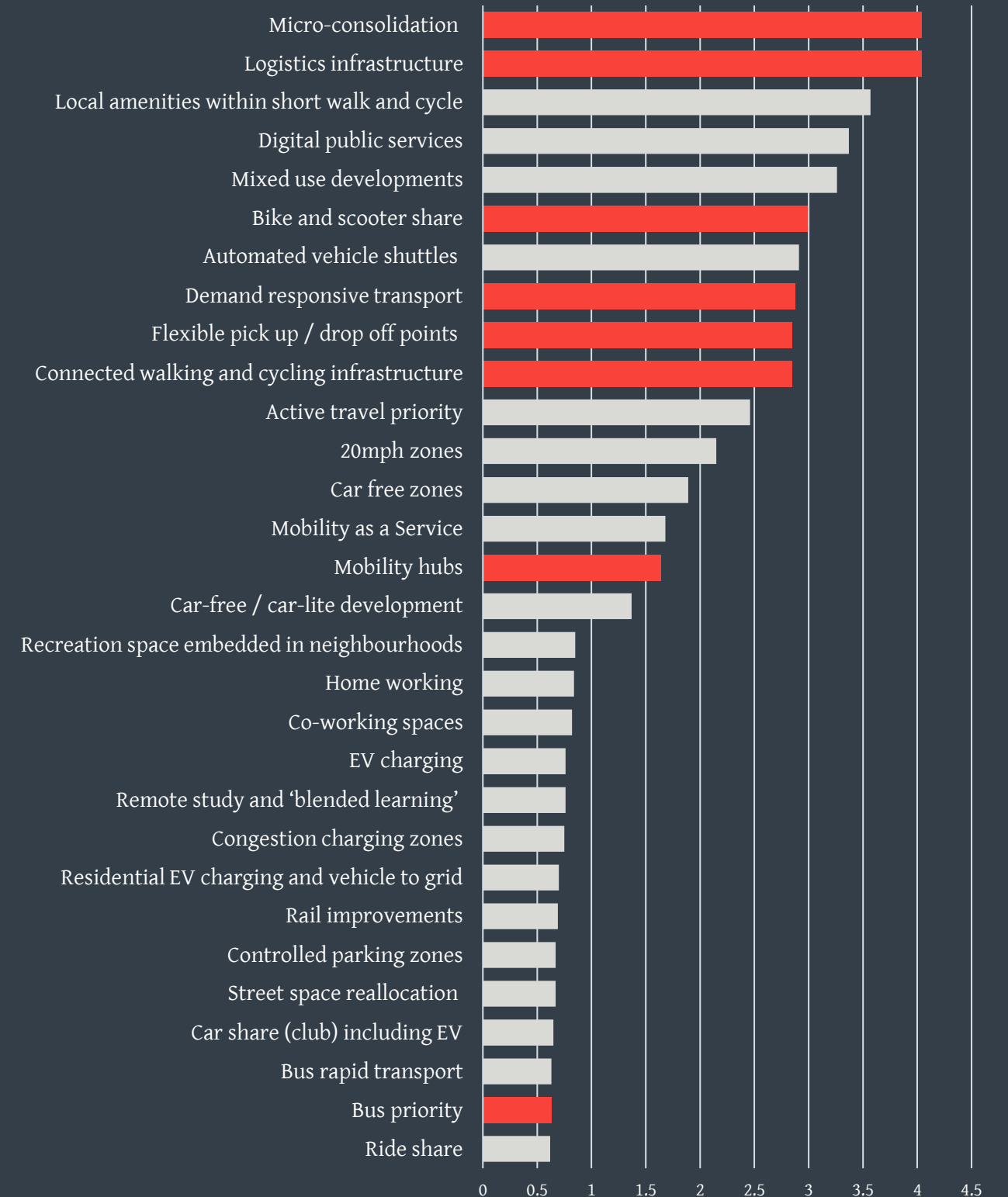
The graph to the right shows the average score by intervention (which can exceed 1.0 if the values are greater than the ideal value) – indicating a greater need or suitability for those interventions.

This is an average for Hemel Hempstead and only includes interventions considered within the Council’s control to influence. This provides insight into the interventions that are most suitable or needed based on the criteria – which included the outputs of the **sustainable travel opportunity, propensity and potential**. In the graph, the interventions in red indicate those that have been included in the short-list for further consideration.

- For **active travel infrastructure** – logistics infrastructure and micro-consolidation, both rated at 4.04, stand out as high-potential interventions that could significantly enhance connectivity and efficiency. This could be supported by flexible pick up / drop off points for deliveries (score 2.85). Connected walking and cycling infrastructure (score 2.85) is relatively high, with the need reduced due to the presence of existing infrastructure in some areas.
- For **shared mobility** – bike and scooter share with a rating of 2.99 indicates a strong potential for shared mobility. Mobility hubs (rated at 1.64) has a slightly lower score compared to some other interventions.
- For **modern public transport** – demand-response transport (rated at 2.88) holds promise for addressing crucial connectivity gaps in the public transport network particularly to better connect the HGC growth area to the rail station, while bus priority scores 0.63.
- Other interventions, such as local amenities within a short walk and cycle (rated at 3.57) and mixed-use developments (rated at 3.26), Active travel priority measures (rated at 2.46), are highlighted as high-impact strategies for enhancing the liveability of regions and should be embedded as the HGC growth area is developed.

The following pages provide more detail on the short-list priority interventions.

Average intervention need scores for Hemel Hempstead



ACTIVE TRAVEL INFRASTRUCTURE

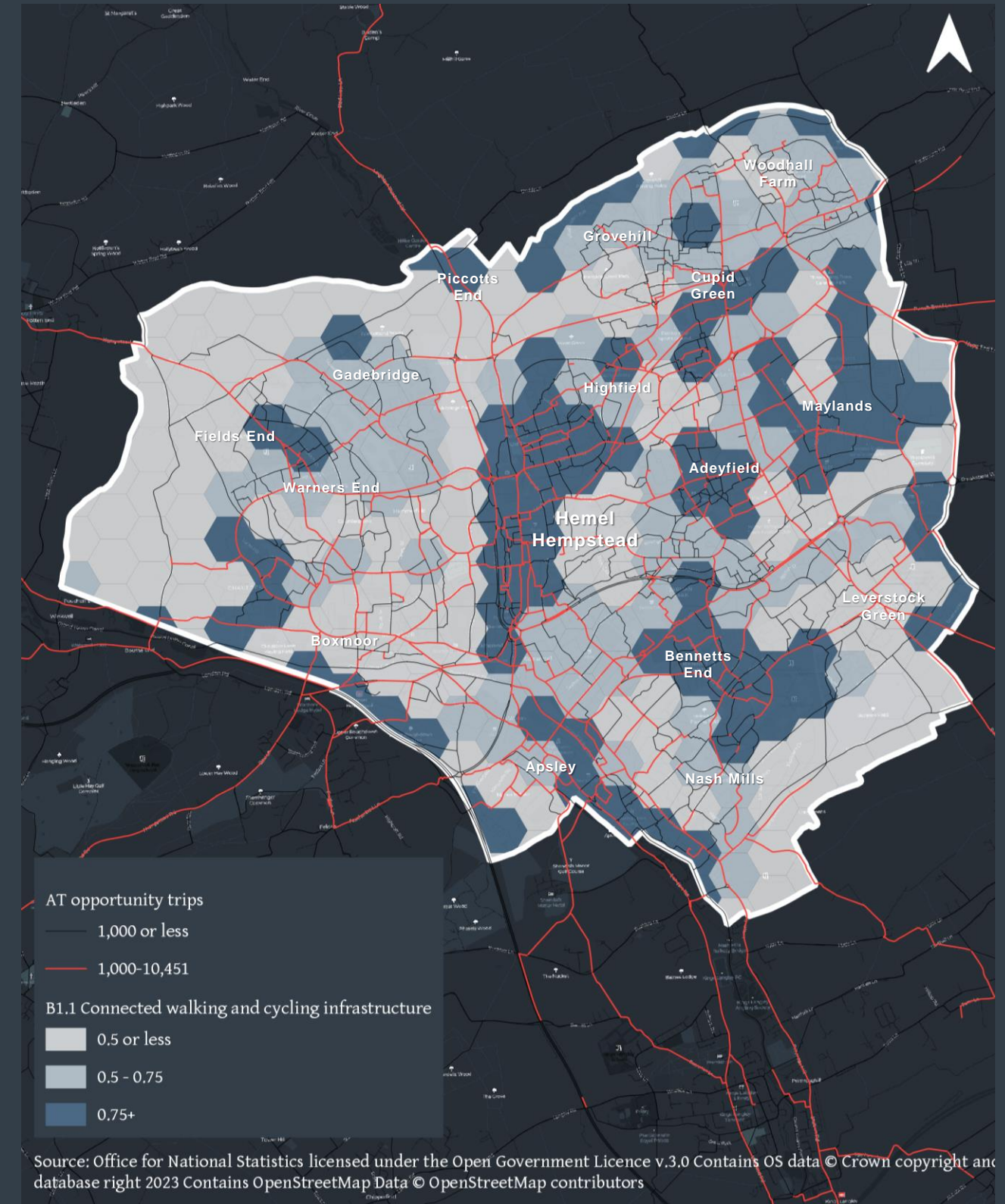
Connected walking and cycling infrastructure

Criteria type	Factors contributing to the need	Factors reducing the need
Amenities / land use	Floorspace of non-residential land use (Valuations Office Agency)	
Infrastructure	Road safety (KSIs)	Length of national cycle network Length of cycle path Length of 20mph street
Behaviours / perceptions	Transport asset ownership (bike/scooter) Shared mobility usage / experience / perceptions Proportion of households reliant on on-street parking	Transport asset ownership (car/van, motorcycle)
Current travel patterns	Proportion of walking / cycling trips	
Modal shift potential	Opportunity to shift to walking / cycling Propensity to shift to walking / cycling	

The map to the right shows the need score for **connected walking and cycling infrastructure** overlaid with the opportunity to walk or cycle trips. Factors or criteria that are contributing to the need include the floorspace of commercial land uses, walking and cycling collisions (KSIs), bike/scooter ownership, positive shared mobility usage and perceptions, the proportion of active travel trips, as well as the opportunity and propensity outputs. Factors reducing the need include the presence of active travel infrastructure, as well as car/van and motorcycle ownership. The priority areas to target investment are shown in dark blue (with a score of 0.75/1.0 or more) and include:

- The town centre and areas adjacent to the River Gade (including Piccotts End and Apsley)
- Cupid Green, Maylands, Adeyfield and Bennetts Green
- Gadebridge, Fields End and Warners End, and
- The key corridor adjacent to the rail line.

Need for **connected walking and cycling infrastructure**



ACTIVE TRAVEL INFRASTRUCTURE

Logistics infrastructure / micro-consolidation

Criteria type	Factors contributing to the need	Factors reducing the need
Behaviours / perceptions	Proportion of households receiving parcel / takeaway / groceries deliveries	
	Location of deliveries	
	Proportion of households reliant on on-street parking	
Current travel patterns	Proportion of walking / cycling trips	
	Proportion of car trips	

The map to the right shows the priority areas to target for **logistics infrastructure / micro-consolidation**, with the highest scores in dark blue (with a score of 0.75/1.0 or more), overlaid with the opportunity to walk or cycle trips.

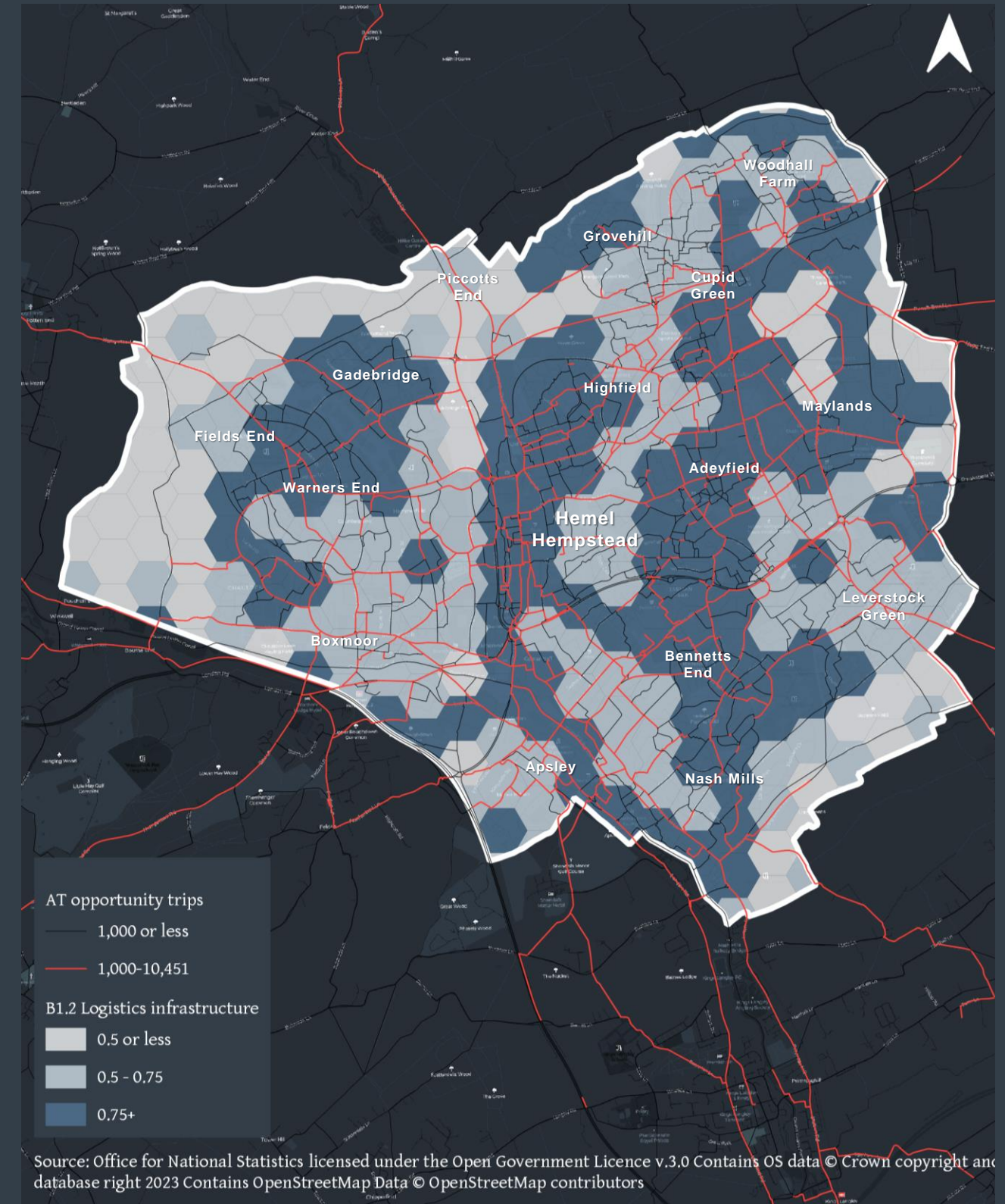
Factors contributing to the need or suitability include the proportion of households that receive deliveries, delivery location, as well as the proportion of active travel trips and car trips (which could be replaced through zero-emission deliveries).

and include:

- The town centre and areas adjacent to the River Gade
- A north-south arc extending from Cupid Green to Maylands, Adeyfield, Bennetts End and Nash Mills
- The area focussed on Gadebridge, Fields End and Warners End, and
- The key corridor adjacent to the rail line.

The data suggests a relatively high need across Hemel Hempstead for logistics infrastructure / micro-consolidation based on the estimated proportion of parcel / takeaway / grocery deliveries, as well as the location of deliveries.

Need for **logistics infrastructure / micro consolidation**



SHARED MOBILITY

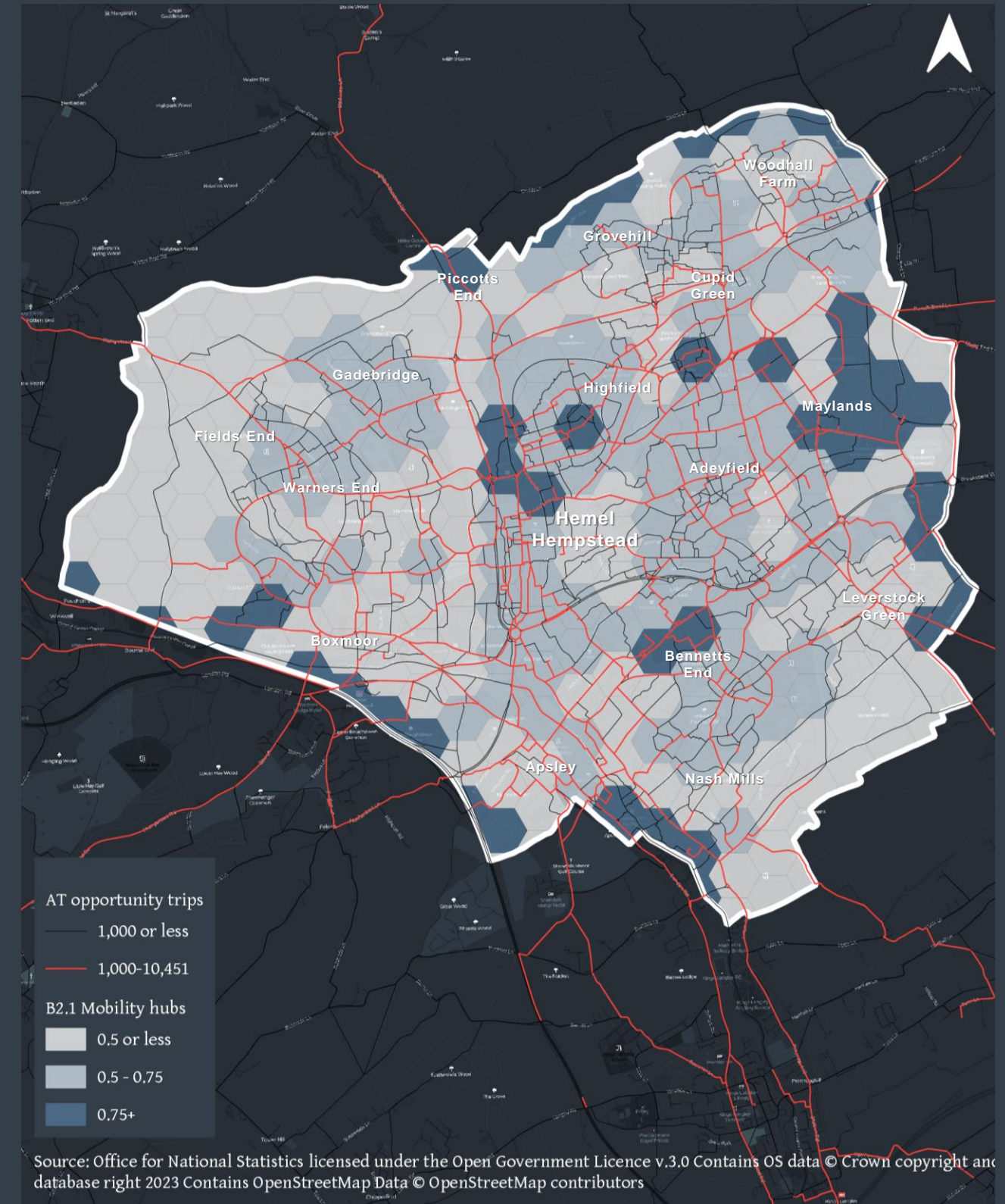
Mobility hubs

Criteria type	Factors contributing to the need	Factors reducing the need
Amenities / land use	Number of amenities that can be reached within 30 minute PT journey	
Infrastructure	Length of national cycle network Length of cycle path Length of 20mph street Bus stop / rail station access	Number of EV charging points in area
Behaviours / perceptions	Transport asset ownership (bike/scooter) Shared mobility usage / experience / perceptions Bus stop / rail station access Proportion of households reliant on on-street parking	Transport asset ownership (car/van, motorcycle)
Current travel patterns	Proportion of walking / cycling trips Proportion of bus / rail trips	
Modal shift potential	Opportunity to shift to walking / cycling / PT Propensity to shift to walking / cycling / PT Estimated EV uptake (2030)	

The map to the right shows the priority areas to target for mobility hubs as they have the highest scores in dark blue (with a score of 0.75/1.0 or more), overlaid with the opportunity to walk or cycle trips. Key factors driving the need for mobility hubs include access to amenities, active travel infrastructure, public transport access, shared mobility usage / perceptions, current active travel patterns and sustainable travel potential.

Key mobility hub locations include the rail station, town centre, Maylands, Piccotts End, Highfield and Bennetts End.

Need for mobility hubs



SHARED MOBILITY

Bike and scooter share

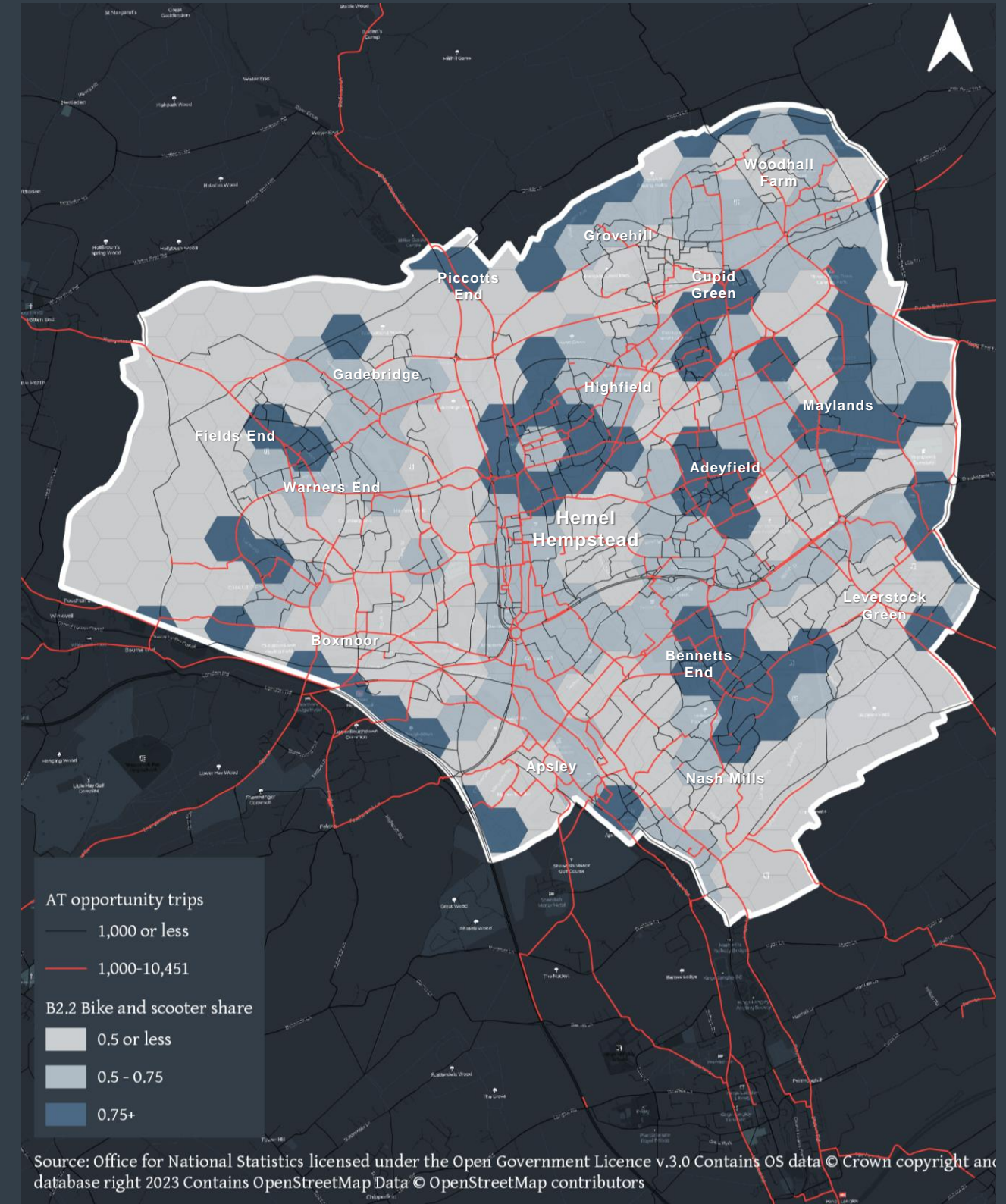
Criteria type	Factors contributing to the need	Factors reducing the need
Infrastructure	Length of national cycle network Length of cycle path Length of 20mph street Bus stop / rail station access	
Behaviours / perceptions	Transport asset ownership (bike/scooter) Shared mobility usage / experience / perceptions Proportion of households reliant on on-street parking	Transport asset ownership (car/van, motorcycle)
Current travel patterns	Proportion of cycling trips	
Modal shift potential	Opportunity to shift to walking / cycling Propensity to shift to walking / cycling	

The map to the right shows the priority areas to target for bike and scooter share as they have the highest scores in dark blue (with a score of 0.75/1.0 or more), overlaid with the opportunity to walk or cycle trips. Key factors driving the need include active travel infrastructure, public transport access, shared mobility usage / perceptions, the proportion of households reliant on on-street parking, the proportion of cycling trips and sustainable travel potential.

Key bike and scooter share areas include the rail station, town centre, Piccotts End, Cupid Green, Maylands, Adeyfield, Bennetts End and Field End which are mostly residential with high opportunity and propensity to use bike and scooter share.

As an example, the old town appears to have a higher score compared to the main town, driven due to being more residential. In reality, bike and scooter share would need to connect both residential and commercial areas.

Need for bike and scooter share



MODERN PUBLIC TRANSPORT

Bus priority

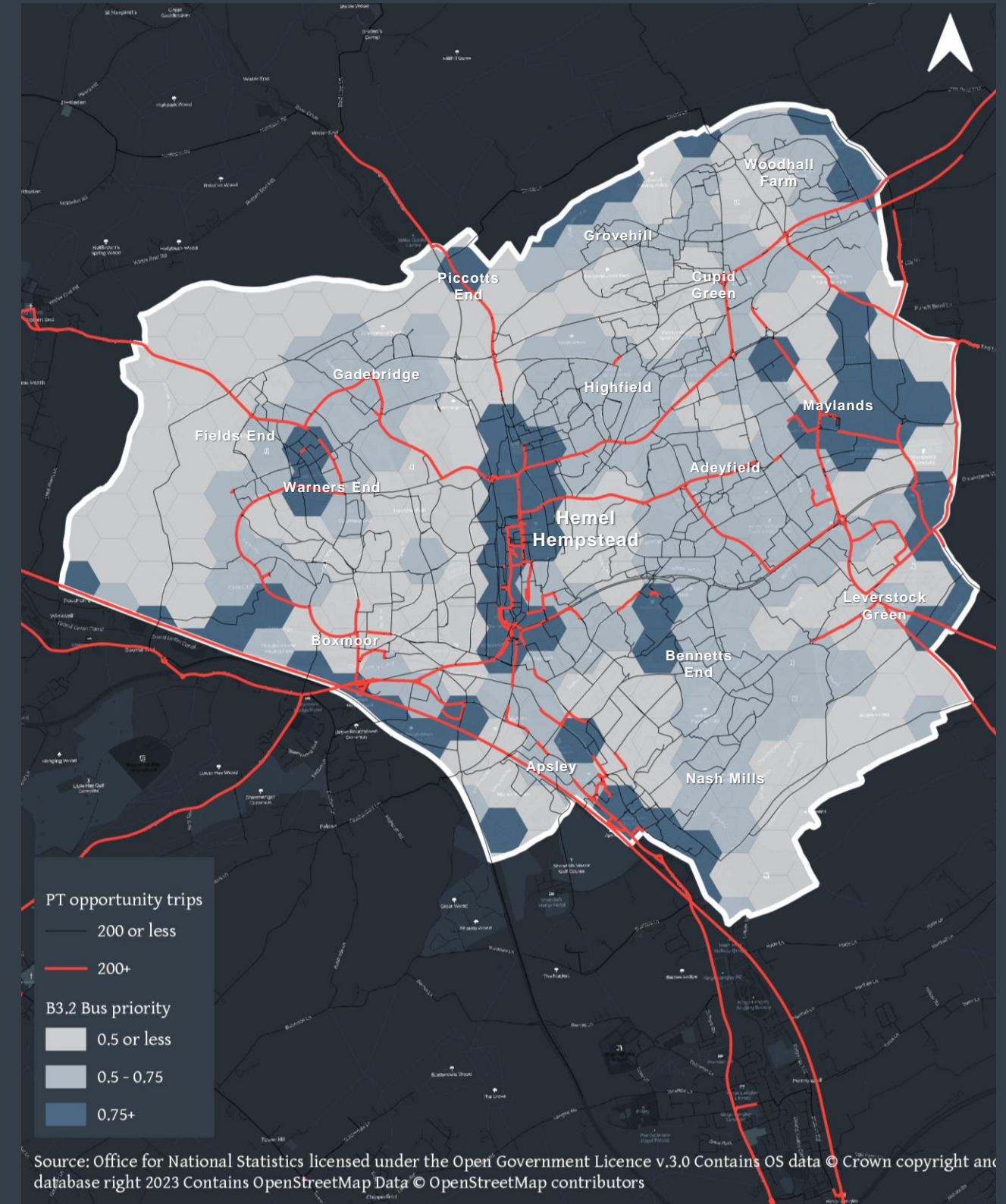
Criteria type	Factors contributing to the need	Factors reducing the need
Amenities / land use	Number of amenities that can be reached within 30 minute PT journey	
Infrastructure	Bus stop / rail station access	
Behaviours / perceptions	Shared mobility usage / experience / perceptions Proportion of households reliant on on-street parking	
Current travel patterns	Proportion of bus trips	
Modal shift potential	Opportunity to shift to PT Propensity to shift to PT	

The map to the right shows the key areas to target for bus priority as they have the highest scores (with a score of 0.75/1.0 or more), overlaid with the opportunity to use public transport trips. Key factors contributing to the need for bus priority include bus stop / rail station access, reliance on on-street parking, the proportion of trips made by bus and public transport sustainable travel potential.

Key areas to be considered for bus priority include:

- The town centre and areas adjacent to the River Gade (including Piccotts End and Apsley)
- Maylands, Bennetts End, Warners End, and
- The key corridor adjacent to the rail line.

Need for bus priority



MODERN PUBLIC TRANSPORT

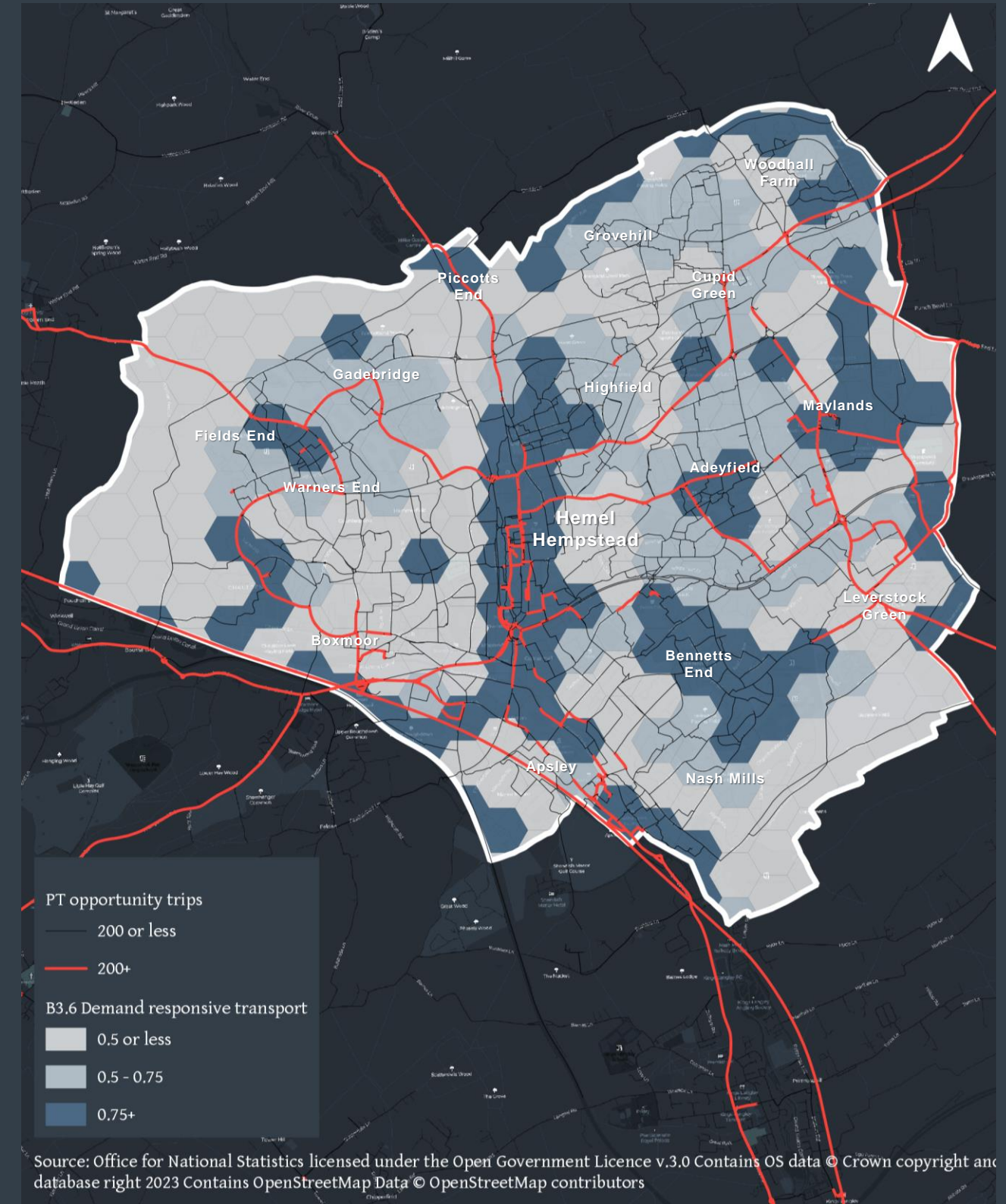
Demand responsive transport

Criteria type	Factors contributing to the need	Factors reducing the need
Behaviours / perceptions	<ul style="list-style-type: none"> Shared mobility usage / experience / perceptions Proportion of households reliant on on-street parking 	<ul style="list-style-type: none"> Transport asset ownership (car/van, motorcycle)
Current travel patterns	<ul style="list-style-type: none"> Proportion of walking / cycling trips Proportion of bus / rail trips 	
Modal shift potential	<ul style="list-style-type: none"> Opportunity to shift to PT Propensity to shift to PT 	

The map to the right shows the key areas to target for demand responsive transport as they have the highest scores (with a score of 0.75/1.0 or more), overlaid with the opportunity to use public transport trips. Key factors contributing to the need include shared mobility usage / perceptions, reliance on on-street parking, the proportion of public transport trips and public transport sustainable travel potential.

- The town centre and areas adjacent to the River Gade (including Piccotts End and Apsley)
- Maylands, Bennetts End, Adeyfield, Fields End, and
- The key corridor adjacent to the rail line.

Need for demand responsive transport



SUMMARY AND NEXT STEPS

Findings

This report focussed on understanding the sustainable travel opportunity, propensity and potential for Hemel Hempstead and the HGC growth area to test the realism of the ambitious mode shift targets set out in the Hemel Garden Communities Spatial Vision. It also scored the need or suitability of a long- and short-list of interventions that could help unlock the sustainable travel potential.

Sustainable travel opportunity

The assessment indicates that based on modelled origin-destination matrices for 2031, current active travel networks and available public transport services – up to 54% of modelled car trips in the HGC growth area and 66% in Hemel Hempstead could be made by sustainable methods – predominantly by active modes.

The walking and cycling opportunity data (hex and link) provides detail around where to focus active travel improvements to unlock additional trips and could be used to support the Local Cycling and Walking Infrastructure Plan being developed for Dacorum.

Only about 7% of car trips could reasonably use public transport based on existing services – which suggests an opportunity to improve the network to better match the origins-destinations of users (coverage and frequency) and be more time competitive with driving (speed) – focussed on commuting, education, shopping and personal business trips.

Sustainable travel propensity

This work which is benchmarked to the England average and based on current socio-demographics of the area, shows that while propensity is mixed across Hemel Hempstead – there are areas with a higher likelihood to walk, cycle and use public transport. These areas should be prioritised for active and public transport interventions to unlock the potential.

As the HGC growth area is developed, it is anticipated that incoming residents will shift the socio-demographics and propensities further to active and public modes.

Sustainable travel potential

Based on the findings on the opportunity and propensity work, it is estimated that up to 27% of car trips in the HGC growth area and 34% would use sustainable modes. It is noted that this is a worst-case scenario – based on the existing active and public transport options available, as well as the propensities of the current population.

Measures to increase sustainable travel opportunity such as enhanced walking, cycling, bus and rail networks could increase the number of trips that could be made.

Socio-demographic changes with the redevelopment and new development in the HGC growth area could increase the propensity to use active and public transport.

Realism of mode share targets

The County Travel Survey results for Hemel Hempstead were extracted, analysed and compared to the 2021 Census Journey to Work Data for Dacorum and the WSP's Mobility Insights predictions – to see if they were consistent, but also to understand if Mobility Insights could predict mode shares and use of shared mobility based on findings from other parts of England.

The County Travel Survey commuting results matched the 2021 Census Journey to Work data, while asset ownership was consistent with the Mobility Insights predictions.

The use of shared mobility was lower in the County Travel Survey compared to the Mobility Insights predictions – which is to be expected as there is limited bike share, car/van share, ride share and demand responsive options in the area at present.

The data suggests that the local population would be receptive to shared mobility interventions if implemented.

The mode shares differed between the County Travel Survey and the Mobility Insights predictions – with cycling, bus and rail being lower in the County Travel Survey.

This reinforces the need improve the cycle, bus and rail networks to unlock the sustainable travel potential.

SUMMARY AND NEXT STEPS

The mode share results from the Household Travel Survey were used as a baseline to understand the realism of the mode share targets.

The baseline mode shares by trip type were then merged with the low and higher sustainable travel opportunity and potential to test several scenarios. The Mobility Insights predictions were included for reference and compared to the 40% and 60% mode share targets.

- The **sustainable travel potential** scenarios achieve the 40% mode share target across all trip types, but not the 60% target.
- Meanwhile, the **sustainable travel opportunity scenarios** achieve both the 40% and 60% mode share targets across all trip types.

The data suggests that while the 40% target is feasible, the 60% target will be more difficult to achieve unless the active travel and public transport networks are enhanced – particularly to support commuting, shopping and personal business and leisure trips.

Interventions assessment and evaluation

The interventions assessment identified and scored a long-list of interventions. Of that, six high-scoring interventions were considered as priority, including:

- Connected walking and cycling infrastructure
- Logistics infrastructure / micro-consolidation
- Mobility hubs
- Bike and scooter share
- Bus priority, and
- Demand responsive transport.

Next steps

- The HGC growth area is in the planning stages with the existing active travel and public transport networks not fully formed or in place. At the same time, the socio-demographic mix is not known. As a result, the **sustainable travel opportunity, propensity and potential are a worst-case scenario and should be rerun for the HGC growth area as the master plan is developed** – including housing, socio-demographics, active and public transport network and services.
- The data analysis for Hemel Hempstead shows a high opportunity, propensity and potential for active travel. The **data from this study should be used to inform active travel investment and prioritisation** – including the LCWIP that is being developed.
- The analysis showed that the current public transport network and services should be improved to better meet the needs of existing and future users. **Further analysis into bus and rail networks improvements should be considered** to increase the sustainable travel opportunity and unlock the propensity to use bus and rail of the local population.
- The sustainable travel potential and Mobility Insights predictions showed that there is propensity to use shared mobility. **New and expanded bike share, car share, ride share and demand responsive transport** should be considered to capitalise on the potential.

