UNDERSTANDING THE REQUIREMENTS AND BARRIERS FOR MODAL SHIFT

Climate Change Committee

UNDERSTANDING THE REQUIREMENTS AND BARRIERS FOR MODAL SHIFT

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WSP

WSP House
70 Chancery Lane
London
WC2A 1AF

Phone: +44 20 7314 5000

Fax: +44 20 7314 5111

WSP.com

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Prepared by	Melinda Matyas, James Knoll-Pollard, Becca Jenkins, Annabel Moore, Damon McVeigh	Melinda Matyas, James Knoll-Pollard, Becca Jenkins, Annabel Moore, Damon McVeigh
Signature	MM	MM
Checked by	Jared Thomas	Jared Thomas
Signature	JT	JT
Authorised by	Toby Thornton	Toby Thornton
Signature	TT	TT
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Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023

CONTENTS

TABLES

FIGURES

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023

EXECUTIVE SUMMARY

Reducing traffic growth and shifting people out of their private vehicles to more sustainable modes has become an important part of UK Government and local authority agendas. To achieve Net Zero targets, better understanding of interventions to increase the attractiveness, affordability and availability of low emissions public transport and active travel is needed.

The Climate Change Committee (CCC) have commissioned WSP to conduct a research-based exercise with the aim to understand past and current interventions that seek to achieve modal shift from private cars to alternative modes. During the project, a five-step methodology was followed:
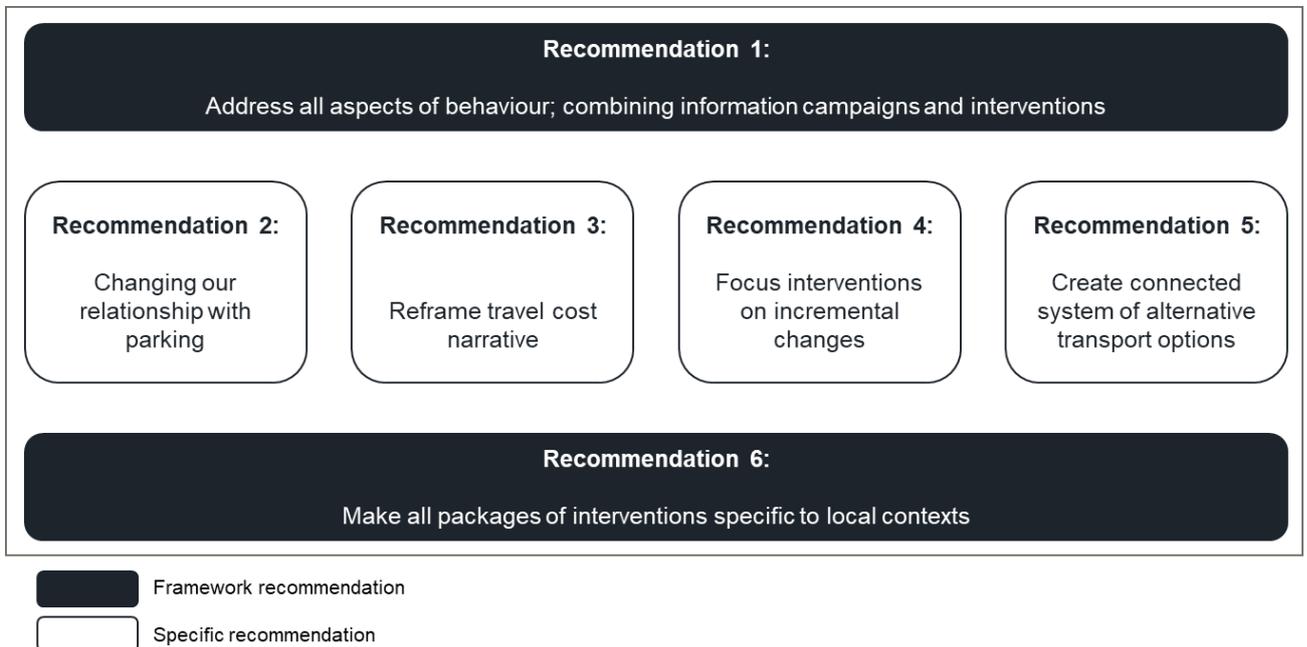
| 1. Literature Review on evidence about modal shift interventions | → | 2. Case Study Deep Divison selected modal shift initiatives | → | 3. Survey on public attitudes towards modal shift | → | 4. Focus Groups with people willing to shift modes | → | 5. Recommendation generation |
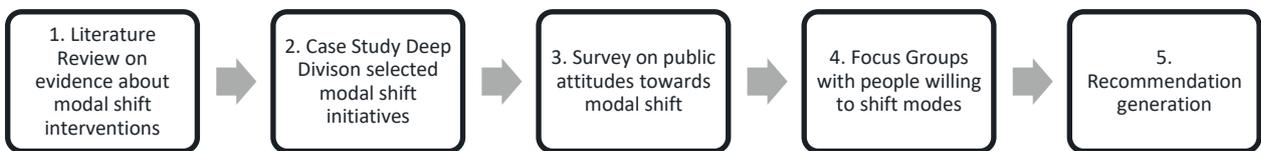
The outputs of the research resulted in six main recommendations, with two 'framework' recommendations, which are overarching suggestions on best practices which should be followed when establishing any modal shift intervention and four 'specific' recommendations that are slightly more focussed on groups of interventions.

Recommendation 1:
Address all aspects of behaviour; combining information campaigns and interventions

Recommendation 2:
Changing our relationship with parking

Recommendation 3:
Reframe travel cost narrative

Recommendation 4:
Focus interventions on incremental changes

Recommendation 5:
Create connected system of alternative transport options

Recommendation 6:
Make all packages of interventions specific to local contexts

■ Framework recommendation
☐ Specific recommendation

Recommendation 1: Effective modal shift requires information campaigns as well as interventions to prevent car use and interventions to offer people alternatives.

To change individuals' behaviour, it is imperative that information campaigns are conducted so people know the behaviour that is to be changed. In conjunction with this, any campaign needs to create barriers to car use but improve access to alternatives.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023

Recommendation 2: Changing our relationship with parking/space

The work has shown that one of the main issues with implementing behaviour change campaigns to encourage modal shift is the low cost of parking. We need to consider how to pay for parking in such a way that the externalities of driving are covered by the costs of parking. At the same time, we can use the freed up space to improve the cities and spaces that we live in allowing more commercial and leisure opportunities.

Recommendation 3: Reframe the narrative around travel costs by creating targeted campaigns, specifically aimed at the perception that car use is cheaper than alternative travel modes.

Our research suggests that car owners have the perception that car use is less expensive than alternative transport modes as they only really think about fuel costs. Information campaigns that highlight the real cost of a car trip (including elements such as purchase cost, maintenance, MOT, parking) combined with targeted, cheap/discounted public transport use could be a powerful tool to rebalance the travel cost narrative and change people's behaviour.

Recommendation 4: Focus on incremental change

Large change is difficult to implement so any shifts to behaviour should concentrate on small changes for people who are more susceptible to change. While this may result in modest improvements, it is easier to nudge behaviour further once initial changes have been made.

Recommendation 5: Create better interconnections

This project has highlighted that connectivity between different modes of transport is one reason for people not reducing their car use (this is interwoven with frequency of service). The evidence gathered suggests that people would be more likely to use alternative transport options if they were connected. Exploration into the feasibility of aligning schedules with user needs where possible, including factors such as expanding timetables to encourage modal shift is recommended.

Recommendation 6: Make interventions location-specific and led by Local Government bodies.

Modal shift interventions need to be made location-specific to ensure they address the pain-points of the population in those areas and are framed in a way that resonates with locals. This also means that Local Governments are the ideal lead stakeholders to take ownership of promoting interventions. However, they should not act in isolation, but should engage with other stakeholder groups, including the private sector, National Government, local transport providers and civil society.

Steps to a successful integration

As areas have a wide range of interventions to choose from, we recommend the following nine high-level steps to follow:

1. Understand stakeholders and clarify roles and responsibilities.

2. Engage with the wider stakeholder community and end-users early in the process to enable buy-in and co-design.

3. Understand local barriers and motivators by conducting user research and public engagement.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023

4. Clarify local objectives by reviewing local policies and priority areas.

5. Develop a long-list of possible interventions / packages of interventions, evaluate each and select approach to take forward.

6. Design intervention / package of interventions considering funding, planning, operation (if applicable), regulations and monitoring.

7. Trial solutions in a smaller area for a fixed period of time and monitor. Public engagement should form part of this.

8. Make adjustments to intervention or stop if the intervention was not successful.

9. Scale up and continue to monitor and adjust as necessary. Promote the scheme to the wider public.

Contact name Melinda Matyas

Contact details +44 (0) 203 116 6173 | melinda.matyas@wsp.com

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023

1 INTRODUCTION

1.1 BACKGROUND

Through both the Transport Decarbonisation Plan and Net Zero strategy[1, 2], the UK Government has acknowledged the role that reducing traffic growth can play in lowering transport emissions. To achieve this, modal shift or reduction in use of private cars to alternative modes is vital – as cars and taxis currently contribute to over 55% of all UK transport emissions[1]. Increased use of Active Travel, Shared Mobility[3] and Public Transport would reduce emissions and complement the move from Internal Combustion Engine (ICE) vehicles to Electric Vehicles (EV). The need to significantly reduce private car use is critical for multiple reasons – the most pertinent relates to air pollution which is the greatest environmental risk to public health in the UK. The annual mortality rate from human made air pollution in the UK is between 28,000-36,000 deaths per year[4]. Therefore, the need to facilitate modal shift away from private cars is stressed throughout the Clean Air Strategy (2019)[5], which notes that drivers and passengers on busy urban roads are exposed to significantly higher air pollution than those walking/cycling. This addresses the misconception that it is just the outside air which is significantly polluted. As well as serious threats to public health, the use of private cars also results in serious issues of congestion in the UK. Congestion is a prominent issue throughout the UK, with the average UK driver losing 80 hours per year due to congestion (a figure which has been increasing each year since 2020. However, certain areas – notably urban areas – experience much higher congestion levels[6]. London was found to be the most congested city in the world, with drivers losing on average 156 hours per year due to congestion.

As such, there are several other key UK policies both on a national and local level which stress the importance of shifting away from private car use. This need to shift is reflected in policies designed to promote alternative modes. For example, DfT's Gear Change Strategy[7] is an active travel strategy

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[1] DfT. (2021). Decarbonising Transport: A Better, Greener Britain. London: Department for Transport.
[2] BEIS. (2021). Net Zero Strategy: Build Back Greener. London: Department for Business Energy & Industrial Strategy.
[3] Energy Saving Trust. (2022, December 10). An introduction to the sustainable travel hierarchy. Retrieved from Energy Saving Trust: https://energysavingtrust.org.uk/an-introduction-to-the-sustainable-travel-hierarchy/
[4] Office for Health Improvement & Disparities. (2022). Air pollution: applying All Our Health: https://www.gov.uk/government/publications/air-pollution-applying-all-our-health/air-pollution-applying-all-our-health#:~:text=In%20the%20UK%2C%20air%20pollution,and%2036%2C000%20deaths%20every%20year
[5] Department for Environment Food & Rural Affairs. (2019). Clean Air Strategy 2019: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf
[6] INRIX. (2023). INRIX 2022 Global Traffic Scorecard: London Tops List as Most Congested City, U.S. Cities Inch Closer: https://inrix.com/press-releases/2022-global-traffic-scorecard-uk/
[7] DfT. (2020). Gear Change - A bold vision for cycling and walking. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904146/gear-change-a-bold-vision-for-cycling-and-walking.pdf

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 1 of 33

that sets out the UK's objectives to increase walking and cycling but stresses the importance of modal shift from the private car. The strategy notes that 58% of car journeys in 2018 were under 5 miles and therefore have the potential to be shifted to active travel. Additionally, the National Bus Strategy: Bus Back Better[8] details the importance of facilitating modal shift, particularly in congested urban areas, by making the bus a strong alternative to the private car. The Future of Mobility: Urban Strategy also highlights a range of solutions to challenge the modal dominance of the private car. Several local authorities and UK cities also have their own modal shift targets – with London targeting a 27% reduction in car traffic by 2030[9] and Leeds aiming to reduce the modal split of the car by 30%[10]. This therefore shows the importance of modal shift at the forefront of UK policy.

The reduction in travel demand due to Covid-19 travel restrictions highlighted the environmental and health benefits of reduced traffic. However, the cost-of-living crisis combined with changes in consumer behaviour brought about by Covid-19 appear to have reinforced the dominance of car usage within the transport network. The increased cost and unreliability of public transport when compared to private cars, as well as health concerns related to communal travel, have impacted modal shift efforts, and have led to private car travel rebounding from Covid-19 far faster than alternate modes. However, research on the lasting effects of Covid-19 on transport behaviour remains immature, especially regarding telecommuting and public transport behaviour changes [11, 12].

To achieve Net Zero targets and reduce traffic congestion on UK roads, further understanding of interventions to increase the attractiveness, affordability and availability of low emissions public transport and active travel is needed.

The Climate Change Committee (CCC) has previously analysed the reduction in car miles due to modal shift, assuming a 9% reduction, relative to baseline growth forecasts, due to factors such as home-working and modal shift by 2035 increasing to 17% by 2050[13]. However, these assumptions did not explicitly consider how demand for alternate modes would change, or how price would impact modal shift. Understanding the factors which impact mode choice is vital when developing interventions which will change transport behavioural patterns long term. These factors may include push factors, which drive individuals away from using a mode (such as long journey times) and pull factors, which attract individuals to use a mode (such as reliability).

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[8]   DfT. (2021). National Bus Strategy: Bus Back Better. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/980227/DfT-Bus-Back-Better-national-bus-strategy-for-England.pdf

[9]   Element Energy. Greater London Authority. (2022). Analysis of a Net Zero 2030 Target for Greater London https://www.london.gov.uk/sites/default/files/nz2030_element_energy_final.pdf

[10] Leeds City Council. (2021). Connecting Leeds Transport Strategy. https://democracy.leeds.gov.uk/documents/s226223/Connecting%20Leeds%20Report%20Appendix%201A%20111021.pdf

[11] Benita, F. 2021. Human mobility behaviour in COVID-19: A systematic literature review and bibliometric analysis. Sustainable Cities and Society, 102916.

[12] Javaid, A. 2020. Determinants of low-carbon transport mode adoption: systematic review of reviews. Environmental Research Letters, 103002.

[13] CCC. (2020). The Sixth Carbon Budget. London: Climate Change Committee.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 2 of 33

1.2 AIM OF PROJECT

Against the above background, the CCC have commissioned WSP to conduct a research-based exercise which aims to:

- Understand past and current interventions which seek to achieve modal shift from private cars to alternate modes;
- Understand the barriers to these interventions being implemented; and
- Develop recommendations for implementation of modal shift interventions.

1.3 STRUCTURE OF REPORT

The main section of this final report focuses solely on overarching recommendations and conclusions. The details of each individual research stage (i.e. Literature Review, Case Study Deep Dives, Survey, Focus Groups) can be found in Appendix A-D, which can be found as separate attachments to this report. As such, the remainder of the report is structured as follows:

- Chapter 2: Methodology
- Chapter 3: Recommendations
- Chapter 4: Conclusions
- Appendix A: Literature review summary
- Appendix B: Case study deep dives
- Appendix C: Survey results summary
- Appendix D: Focus group results summary

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 3 of 33

2 METHODOLOGY

To address the research questions, a mixed methods approach was used, gathering evidence from different sources. The research was structured in five main stages:

(1) Literature Review;

(2) Case Study Deep Dives;

(3) Survey;

(4) Focus Groups; and

(5) Recommendations.

An exploratory method was employed during the research, meaning that later stages of the project built on outcomes from earlier stages. This approach also allowed for continuous input from CCC, helping drive the research direction. An overview of the stages and a flowchart including each step of the process is presented in **Figure 2-1** and discussed below.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 4 of 33

![WSP logo]

Figure 2-1 - Project Flow Chart

Literature Review

Fine-tune objectives with CCC

Create Excel database structure to collect information ← → Create research protocol including search terms

Carry out review and populate database

Case Study Deep Dives

Create selection criteria for case study deep dives

Create draft list of potential case studies

Review list of case studies with CCC and finalise list

Carry out deep dives

Survey

Use outputs of literature review and deep dives to draft survey question and sampling criteria

Review survey questions and sampling criteria with CCC

Finalise survey and carry out data collection

Analyse survey results

Focus Group

Use outputs of survey, literature review and deep dives to draft focus group guide and sampling

Review Focus Group approach with CCC

Finalise and carry out focus groups

Analyse focus group results

Recommendations

Integration of results from literature review, case studies, survey and focus groups to suggest draft recommendations

CCC review of recommendations

Finalise recommendations

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 5 of 33

2.1 LITERATURE REVIEW

The first stage of the research involved examining the available literature and evidence surrounding modal shift interventions. Given the nature of the project, a brief Rapid Evidence Review (RER) was selected over a more exhaustive, systematic review due to the way the research was being supplemented by primary data collection. Through the RER, the most important pieces of academic and grey literature were identified, selected, critically appraised, and analysed using a systematic and transparent method.

Based on early discussions with CCC, an excel database was created to structure the key information extracted from the literature. This included citation and access information, type of study, key findings notable strengths or weaknesses, and an assessment evidence based on the AACTT (action, agent, context, target, time) behaviour specification framework. In addition, a research protocol was created to help focus the search.

Using the above approach over 51 pieces of academic literature were identified and 28 pieces of grey literature. These were all reviewed, and the database populated. The database can be found in Appendix A.

2.2 CASE STUDY DEEP DIVES

The literature review was supplemented by deep dives, during which, specific case studies could be examined in greater detail. The aim of the deep dives was to focus in on areas with especially interesting and relevant interventions. Initially the aim was to look at an intervention in a specific area, however, after discussion with CCC, it was decided that each deep dive would focus on a concept and a comparison of the intervention(s) in different areas.

Using the outputs of the literature review an initial list of deep dive ideas was presented to CCC, which included:

- Universal Basic Mobility/Free public transport/Mobility Credits;
- E-scooter trials;
- DRT;
- Dynamic Kerbside Management;
- E-Cargo Bikes;
- Cycling promotion schemes / general motivational programmes / soft measures; and
- Workplace Parking Levy / Parking tax.

Based on feedback received from CCC and follow-up research, the following four topics were selected for exploration in the deep dives:

- Parking initiatives – workplace levies and dynamic kerbside;
- Financial incentives – discounted and free mobility options;
- Behaviour change campaigns – advertising, communications, and education campaigns; and
- Multiple interventions – schemes where there is a full suite of interventions to tackle mode shift.

2.3 SURVEY

Following the literature review and deep dives, to understand public perceptions of the barriers to modal shift and to examine how effective interventions could be, a survey was carried out. The

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 6 of 33

survey focused on the views and opinions of the general public as opposed to eliciting insights from experts in the area.

2.3.1 SURVEY DESIGN

The survey was designed using best practice survey design principles, informed by output from the literature review and case study deep dives. The survey had the following main sections:

- Introduction with a brief explanation of aims and objectives of the survey;
- Participant socio-demographic characteristics;
- Current travel behaviour;
- Openness to shifting modes (i.e. reducing car use / completely giving up car use);
- Factors respondents like/dislike about car use;
- Factors that would encourage use of other modes; and
- Opinions about specific interventions.

Most questions were single/multiple choice or Likert scale. However, there was also an open text response available at the end of the survey allowing individuals to add any further details about factors that would motivate them to switch modes away from their private vehicles.

2.3.2 SAMPLING AND RECRUITMENT

To achieve the aim of 1500-2000 participants, a registered online participant panel provider, Prolific[14], was used to coordinate recruitment. Due to the focus of the study, participants were screened beforehand to ensure that they had a full driving licence and that they self-reported using a car for more than one hour a week. Informed consent and incentives were administered by Prolific.

The survey was created using Microsoft Forms and a soft launch was carried out with 35 test participants to ensure the survey ran smoothly and the data came in the format expected. Following the soft launch, the survey was distributed to the wider panel and 2,009 people responded to the survey. After data collection was complete, the data was "cleaned" i.e. duplicate and ineligible entries (such as those who completed the survey multiple times) were removed and incomplete surveys discarded, leaving 1,994 participant entries that were used for analysis.

An overview about the sample characteristics of the sample can be seen in Table 2-1.

Table 2-1 – Survey Characteristics (N = 1994)

Characteristic	Category	Percentage of sample
Age	18-29	17.4%
	30-44	41.8%
	45-64	34.6%
	65+	6.2%
Gender	Female	50.7%

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[14] Prolific. (2023) Quickly find research participants you can trust: https://www.prolific.co/

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 7 of 33

Characteristic	Category	Percentage of sample
	Male	49.1%
	Prefer not to say	0.2%
Income	Up to £19,999	9.3%
	£20,000 - £39,000	28.9%
	£40,000 - £59,999	25.6%
	£60,000-£79,999	17.3%
	£80,000 +	14.5%
	Rather not say	4.5%
Trouble with activities	Had trouble with one/some of the activities mentioned e.g. walking/hearing	15.3%
	No trouble with any of the activities mentioned	84.2%
	Other	0.5%
Frequency of car use[15]	Not at all	0.7%
	At least monthly	2.3%
	Less than monthly	1.0%
	Once or twice a week	16.8%
	Three or more times a week	79.2%
Location	Urban	81%
	Semi-urban	16%
	Rural	4%

2.4 FOCUS GROUPS WITH INDIVIDUALS WILLING TO SHIFT

The aim of the focus groups was to delve further into specific elements that came to light during the survey. The focus group only sampled from those individuals who stated they would be willing to shift modes from private vehicles to alternative transport modes. The focus groups built on the findings from the literature review, case study deep dives and survey.

2.4.1 PARTICIPANT SELECTION AND SAMPLE

The focus group participants were a sub-sample of those that completed the survey, so were already familiar with the topic that was being discussed. Participants were selected from those survey respondents that expressed some level of willingness to use their car less in the survey (i.e. rated 6 or above on a 0-10 scale for willingness to use car less). This means that the results presented below are specific to those who will be more likely to change their travel behaviour due to interventions, as opposed to those who were unlikely to shift. It was also agreed with CCC that there

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[15] Note that a low percentage of 67.4% of participants responded to this question. The percentages for the different answers have been calculated out of those who responded to the question.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 8 of 33

would be four focus groups. Each would target a specific type of participant based on a location (urban/rural), and the mode that they chose as the most preferred alternative to car use.

The target size for each group was five, however, to account for participant dropouts, more individuals were initially invited to each group. Details of the four focus groups can be seen in Table 2-2.

Table 2-2 – Focus Group Details

Group	Description	Final group size	Group characteristics
#1: Urban - Cycling	Participants who live in urban areas and cycle most often as an alternative to car use.	6	Mix of men and women Range of ages
#2: Urban - Walking	Participants who live in urban areas and walk most often as an alternative to car use.	7	More men than women Range of ages
#3: Urban - Rail/Bus	Participants who live in urban areas and use rail or the bus most often as an alternative to car use.	5	Only men Similar ages[16]
#4: Rural – All modes	Participants who live in rural areas.	6	Mix of men and women Range of ages

2.4.2   FOCUS GROUP GUIDE

Each participant was sent an invite to a Microsoft Teams meeting beforehand through Prolific platform. They were informed that the focus group would be an hour long, and they would receive £20 incentive for their participation.

The research questions had two main sections:

First, **attitudes towards car use** were explored. Each group was presented with the survey results regarding why people do and do not like using their cars and were asked to comment whether they agreed or found anything surprising. They were also prompted to share any other reasons that may have not been captured during the survey.

Second, **motivators and barriers towards modal shift** were examined. Each group was presented the survey results around this topic, but only those specific to the mode they selected as most likely to shift to (i.e. the cycling group presented modal shift to cycling etc.). This helped channel the focus group and have detailed conversations in the limited time. They were subsequently asked whether

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[16] Note 20 participants were invited to participate in this group, 10 females and 10 males were invited to this group (within male and female - 5 with a preference for shifting to trains and 5 with a preference for shifting to buses. Given that we were only running one group at one specific time and date, it was unlikely we would get an even mix of males and females and we do not consider the data or insights to be influenced by the only male participants in this group)

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 9 of 33

they agreed with the results, whether anything surprised them and whether any other factors would encourage/hinder them to shift modes.

2.5 RECOMMENDATIONS

The final step of the process was to bring together the four previous stages. Recommendations were extrapolated that the UK Government, Local Authorities and industry could take to reduce traffic and shift people from using their private cars to more sustainable modes.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 10 of 33

3 RECOMMENDATIONS

3.1 INTRODUCTION

This section focuses on key recommendations that have been extrapolated based on the insights gained during the literature review, deep dives, survey, and focus groups, and combines these with the research team's prior experience and expert judgement. Rather than focusing in on a singular intervention and its efficacy, we have purposefully chosen higher-level recommendations around best practices to approach modal shift interventions. This decision was guided by feedback received from CCC, as stand-alone interventions (e.g., the introduction of micro-mobility) were not the primary focus during this piece of work.

An overview of the recommendations can be seen in Figure 3-1. There are two 'framework' recommendations, which are overarching suggestions on best practices which should be followed when establishing any modal shift intervention. There are also four 'specific' recommendations that are slightly more focussed on groups of interventions.

Figure 3-1 - Overview of Recommendations
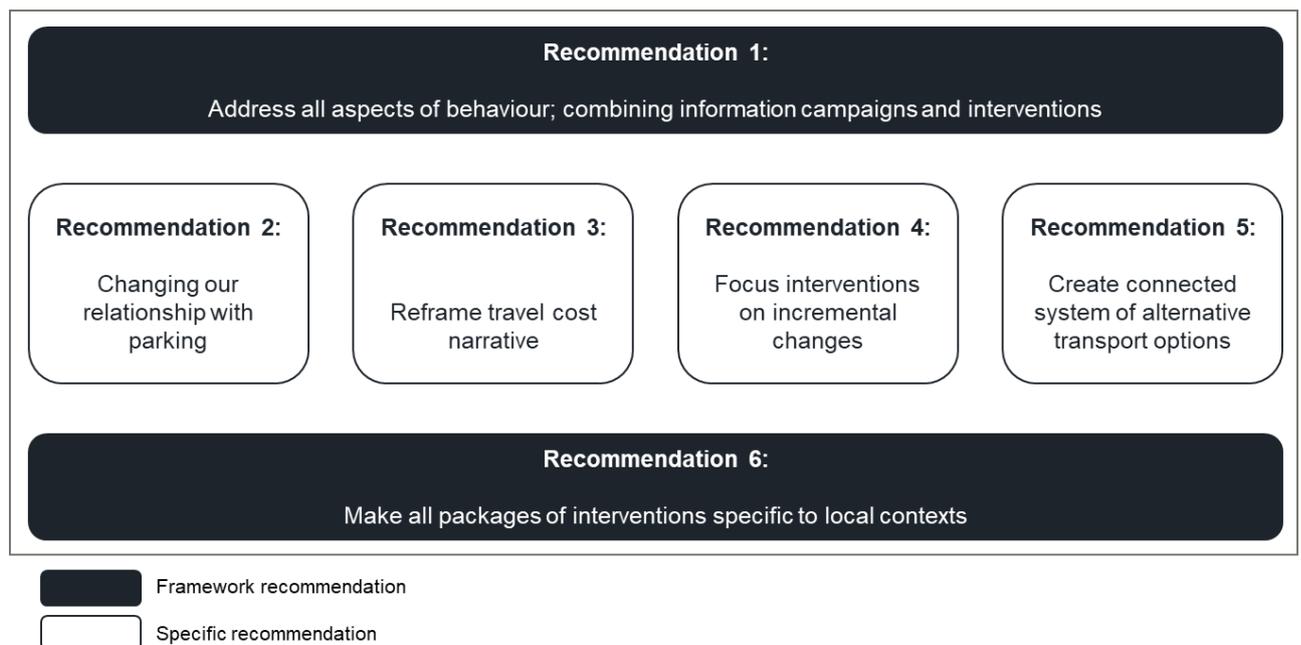
Each recommendation is presented below. First the recommendation itself is summarised, then brief review of the evidence to support the recommendation is provided.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 11 of 33

3.2 RECOMMENDATION 1: ADDRESS ALL ASPECTS OF THE BEHAVIOUR

3.2.1 OVERVIEW

	Recommendation: *Effective modal shift requires information campaigns as well as interventions to prevent car use and interventions to offer people alternatives.*
The work done has highlighted one main failing of previous mode shift programmes – they do not cover all aspects of individual decision making. This project has highlighted that campaigns must cover effective communications about the work, interventions to prevent driving, and interventions to encourage alternative modes. Understanding human decision making is a key factor and modal shift campaigns must consider all aspects. We have looked at how people make decisions using the COM-B Model and interventions must address a person's Capabilities, the Opportunities to act, and their underlying Motivations. Successful mode shift relies on addressing each of these factors. There need to be interventions that are focussed on preventing car use at the same time as increasing alternative modes. If no alternative is provided for car use, then people feel that they are being unfairly treated. If there are no barriers to driving, then drivers can carry on as they were before the interventions. Tying these together are campaigns to let people know of what is happening regarding interventions is crucial to ensure the public understand the changes and know the reasons behind them. Effective public engagement can be the most important factor between a successful programme and a failed one.	

3.2.2 EVIDENCE

How individuals come to a decision to travel is a hugely complicated system involving their own knowledge and abilities, the infrastructure and the opinions of those around them, and their own internal thoughts and processes. Many travel decisions are habitual and, as such, are hard to change – we are battling a quirk called the "status quo bias" where people stick to what they are doing. To combat this, interventions must be holistic and overarching to ensure that they address any and all concerns people have.

Many mode shift interventions in the recent past have been only partially successful. Our survey highlighted that people are open to mode shift and reduction in miles driven, but alternatives are not provided – or at least not visible to the individual. Most campaigns focus on providing "sticks" for drivers or "carrots" for public transport or active travel. While these have their place, they need to be done in conjunction and communicated clearly to end-users about what is expected of them and what is available. A prime example from the literature of a scheme not maximising its potential by not using "carrot" and "sticks" in conjunction is the introduction of free public transport in Tallin,

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 12 of 33

Estonia in 2013[17]. This is because three years after the removal of fares, it was found that bus passengers increased from 55% to 63% but car journeys only decreased from 31% to 28%. This showcased that free public transport alone does not have a considerable effect on changing the habits of drivers and the use of a restriction such as a congestion charge or parking removal could have enhanced the modal shift potential. A more successful scheme that utilised "carrots" and "sticks" in conjunction was the Oslo 'liveable' city scheme[18] (which is evidenced further in the deep dive). The Oslo 'liveable' city scheme began in 2015 and was a series of measures to manage the impact of the city's rapid population on the environment. The scheme aimed to reduce car traffic by 20% by 2019 and by 33% by 2030. Although this scheme primarily involved barriers such as restricting city-centre car use and altering/closing routes (pedestrianisation), it also involved creating pedestrian friendly areas and extending pedestrian and bike lanes. This resulted in significant modal shift away from the private car, towards active travel. Specifically, car traffic was reduced by 11% between 2016-2018 and then a further 19% between 2018-2019, while pedestrians spending time in urban spaces increased by 43%.

> *"Cycling could be used as something not just as an alternative, and often as a 'poor man's' alternative. It should be sold as something people should aspire to, for the health benefits, for the wider community."*[19]

Further, there are benefits to public transport that aren't always spoken about or understood by travellers. Post-Covid, people are re-considering their relationships with work and public transport where people can achieve other tasks are more appropriate and allow greater flexibility with working. As an example, provision of more suitable working arrangements on public transport and communications campaigns around this are vital.

> *"I can do other very useful things while on the train, so it's easier to do these things on the bus, like working or reading or even having short meetings with other colleagues if we're all going to the same place. So it can almost become a mobile office at times."*

The disincentivising of driving needs to be considered, along with advertising and supporting public transport to nudge people out of the "status quo". Even through short term initiatives, opening up opportunities for drivers to experience different modes may be enough to help them consider alternative modes. This theory was evidenced in the literature review as one study looked at the effects on attitudes of offering 190 participants free public transport for one month in Värmland (Sweden). This gave drivers the opportunity to have a new/different experience, and a positive

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[17] Papa, E. Inverse. 2020. These cities made public transportation free. Here's what happened next. [online]. [Accessed 7th March]. Available from: https://www.inverse.com/culture/free-public-transportation-scientific-studies

[18] Modijefsky, M. 2021. Oslo – Promoting Active Transport Modes. [online]. [Accessed 22 February 2023]. Available from: https://www.eltis.org/resources/case-studies/oslo-promoting-active-transport-modes

[19] Please note that all quotations in this report are from focus group participants.

finding was that following the intervention, there was a stronger motivation from participants to reduce their car use, which therefore may lead to long-term behavioural change.[20]

A scheme that successfully managed to combine the three threads are London's "mini-Hollands" which have shown a large increase in active travel use, through infrastructure design to prevent driving and improve active travel as well as communication of the scheme through local engagement with residents – more information about this can be found in the literature review.

Our survey research showed that about 4 in every 10 people are open to change mode. If this is put into practice, there is then the potential that more will follow as they see others switching modes. This is shown in the literature, in a systemic review that looks at the best ways of promoting modal shift towards walking and cycling. Specifically relating to cycling, there is evidence that even if an intervention (such as a cycle lane) is initially used by a small group, this can have much wider benefits. This is because the increase in participation will gradually improve the general social acceptability of cycling, thus leading to a more widespread modal shift[21].

Understanding the "carrots" and "sticks" that work together most effectively, and the communications campaigns that are most effective to reach this group should underpin any mode shift programme. While there is only a small amount of evidence on this and much of it is theoretical, this approach tallies with literature around human decision making and should have worthwhile benefits.

3.3 RECOMMENDATION 2: CHANGING OUR RELATIONSHIP WITH PARKING/SPACE

3.3.1 OVERVIEW

	Recommendation: *Effective modal shift requires a change in the way we view urban space predominantly used for car parking.*

Our research suggests that parking is seen as a factor that influences the decision to use the private car over alternative modes – particularly for commuting. This is because a lack of parking availability can be a push factor that can deter a user from travelling via car. However, although parking availability can clearly cause a lot of frustration, it has been found that issues such as congestion and cost of fuel tend to be at the forefront of drivers' minds. Therefore, there is an emphasis to push the issue of parking and reallocate the space to maximise the potential of urban spaces to create a more liveable environment. This is because space previously occupied by the

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[20] Friman, M., Maier, R. and Olsson, L.E., 2019. Applying a motivational stage-based approach in order to study a temporary free public transport intervention. Transport Policy, 81, pp.173-183. https://doi.org/10.1016/j.tranpol.2019.06.012

[21] Panter, J., Guell, C., Humphreys, D. and Ogilvie, D., 2019. Can changing the physical environment promote walking and cycling? A systematic review of what works and how. Health & place, 58, p.102161. https://doi.org/10.1016/j.healthplace.2019.10216

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 14 of 33

private car can be converted to serve as leisure spaces (e.g., outdoor dining areas), green spaces and sustainable transport infrastructure.

Resultingly, the desire to restrict parking availability has been the focus of several modal shift campaigns in the past. However, the ones that demonstrate the most success are those which clearly communicate the possibilities of alternative modes and aim to change the way we view parking in city-centres/urban areas. The repurposed space can be used for better public transport provision, improved commercial experience and shopping, or for parklets and leisure spaces.

Workplace Parking Levy (WPL) schemes can be very successful if they include measures to improve sustainable transport alternatives from the outset. This is because a WPL scheme can create a parking issue (by restricting space) but also provide parking solution/car alternative simultaneously. This therefore can quickly change the way that people view urban space. The implementation of a WPL or any parking restriction related scheme alone, will likely always be perceived as purely a restriction, and will be received negatively by drivers. This links back once again to the 'carrot and stick' behavioural change approach which evidences the need to incentivise change alongside any restriction/disincentive.

Innovative schemes such as Dynamic Kerbside Management (DKM) – which is defined as "the management of kerb adjacent space according to the time-varying need and demand of different uses or users"[22] – aim to change the way we perceive urban space, particularly space that predominantly is and always has been used for parking. The ingrained private car dominance can be challenged as the removal of car parking space can have transformative effects on creating a more liveable environment that maximises the efficiency of the movement of people and goods. Therefore, there is significant modal shift potential as space can be reallocated to improve the efficiency and credibility of private car alternatives. This is a primary aspect of DKM, and is showcased through a recent trial in San Francisco, where kerbside parking space was removed in certain areas in order to facilitate a commuter shuttle program.[23] The San Francisco trial in particular included a variety of measures to reduce transportation hazards and improve quality of life, most notably a demand-responsive parking pricing programme.

Target audience: This intervention is aimed at those people who either:

- drive into town and city centres

- commuters who travel by car,

- live in neighbourhoods with high levels of through traffic

A successful application would result in fewer individuals driving to their destination and the repurposing of car parking to more economically and societally beneficial functions.

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[22] ReVeAL. 2020. Barriers to implementing Dynamic Kerbside Management. [online]. Accessed 7th March 2023. Available from: https://civitas-reveal.eu/wp-content/uploads/2021/02/ReVeAL_WS_Barriers_Dynamic_KM_20201015_WSP-1.pdf

[23] ITE. Regulation Of Curbside Supply And Demand/Tnc And City Partnerships. [online]. Accessed 7th March 2023. Available from: https://www.ite.org/pub/?id=C2D66E96-FF01-0BA8-68C3-65CC9116A5AE

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 15 of 33

3.3.2 EVIDENCE

Within the surveys – parking difficulties/costs was observed to be the second most prominent barrier/push factor that people disliked most about car use (as can be seen in Figure 3-2). On the other hand, within the focus group, very few concerns were raised about parking, as much more focus was given to fuel/car maintenance costs, journey times and congestion. The discrepancy between the survey results and focus group results may be because when prompted to think about parking (in the survey), participants rated it as an issue, but when asked an open question about car disadvantages (focus groups), parking was not raised and was overshadowed by fuel cost. This evidences the fact that when prompted, people are frustrated and unhappy about parking, however, it is perhaps not an issue that is frequently at the forefront of people's minds. The fact that parking was not raised as a pressing concern shows that there is scope to make parking more of an issue as part of the means of facilitating modal shift. This can be achieved by making people more aware of the alternative uses of parking spaces in urban environments. This must be caveated by the fact that the focus group participants were not necessarily the same group of people.

Figure 3-2 - Car Push Factors
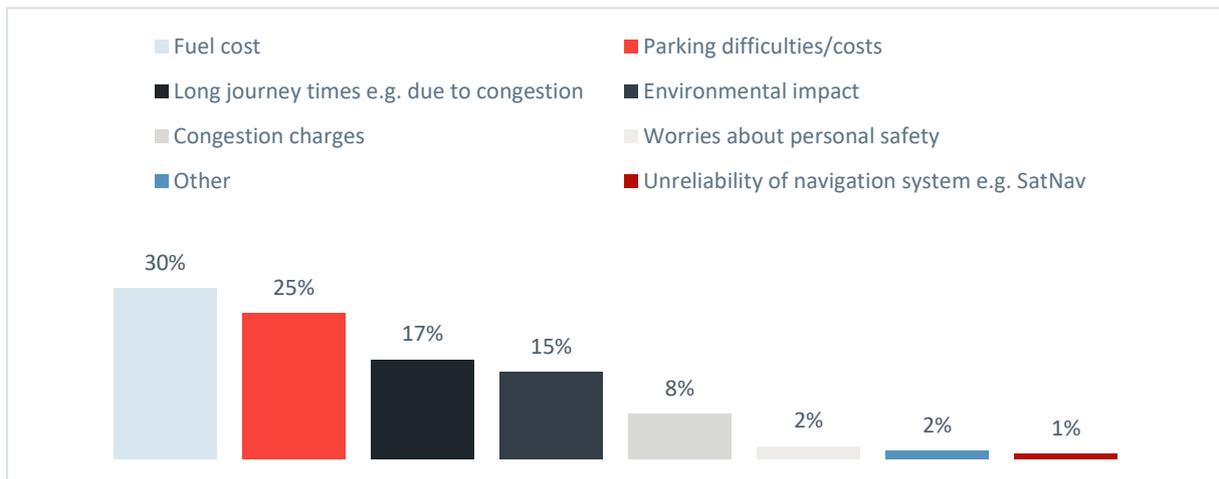
The potential for a WPL scheme to change the way we view urban space predominantly used for car parking is evidenced by the very successful Nottingham WPL[24] (as seen in the Deep Dive section). The Nottingham WPL was launched in 2012 with the aim of reducing congestion and incentivising modal shift, particularly for commuters, and involved a charge for employers who had over 11 liable workplace parking spaces within the city (with the revenue reinvested into transport alternatives). The success of this intervention can be attributed to the fact that the scheme clearly communicated goals and promises to invest and improve sustainable transport alternatives from the outset. This allowed the scheme to address some of the initial doubts and make an almost immediate impact

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[24] Dale, S., Frost, M., Ison, S. and Budd, L., 2019. The impact of the Nottingham Workplace Parking Levy on travel to work mode share. Case Studies on Transport Policy, 7(4), pp.749-760. https://doi.org/10.1016/j.cstp.2019.09.001

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 16 of 33

that led to the long-term transformation of perceptions towards urban parking space. The promises made were also delivered upon, and the money generated by the WPL reshaped the city's sustainable transport network and led to a series of developments, including the implementation of 1,000 e-scooters, 9 park and ride sites and 18km of new bus lane[25].

Equally, despite being a much newer phenomenon, multiple DKM schemes/trials have demonstrated how on-street parking space can be reallocated in order to prioritise other means, including freight collection points, pick-up/drop-off points, walking/cycling infrastructure and liveable spaces. Studies are relatively recent in this area but there is some evidence to indicate that car free streets are good for business, even if they are not universally welcomed[26]. The DKM trials observed in the Deep Dives evidence positive modal shift outcomes as well as benefits such as decreases in congestion levels, improvements in traffic flows (due to reduced circling) and increases in kerbside safety. One example where all these benefits were realised was in Washington D.C., where Performance Based Parking Pricing and Multimodal Variable Pricing was introduced as part of their DKM strategy. This involved having a parking price variation vary in different zones/streets based on time limits and real time traveller information[27].

Due to DKM being a new and innovative phenomenon, there is currently very limited evidence of the economics of these schemes. However, Grid Smarter Cities have produced a report where they analyse the benefits of their DKM products that they have developed and trialled in several locations – these products include bookable virtual loading bays to be utilised by freight providers[28]. The report stresses the potential economic benefits for the owner, which is typically the local authority. Benefits include the low implementation costs (approximately £3,000 per bay) and the revenue generated through a proportion of each booking fee – which is estimated to be around £25,000 pa for one bay. Additionally, these products would reduce the need for Penalty Charge Notices (PCNs) in the area, allowing economic resources to be focused elsewhere – such as improving kerbside sustainable transport provision.

Lastly, the LTN schemes mentioned elsewhere in this work, and in Appendices A and B are a good example of changing our relationship with the space around us. The recent push to create "liveable" spaces has shown there is support from the public to shift traditionally held views. Whilst they remain controversial, they are a potent example of altering how the public see roads and our relationship with the kerbside area.

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[25] Nottingham City Council. 2022. Nottingham's Workplace Parking Levy 10 Year Impact Report. [online]. Accessed 7 March 2023. Available from: https://www.transportnottingham.com/wp-content/uploads/2022/10/WPL-10-Year-Impact-Report-Digital-Nov-22.pdf

[26] Bliss, L., Where Covid's Car-Free Streets Boosted Business, [Accessed 18th March]. Available from: https://www.bloomberg.com/news/articles/2021-05-11/the-business-case-for-car-free-streets

[27] ITE. Case Study. District Department of Transportation. [online]. Accessed 17 January 2023. Available from: https://www.ite.org/pub/?id=C29F4D5E-FE34-2037-3B96-DE312E1DBBFF

[28] Stantec. Grid Smarter Cities. Kerb Delivery. 2021. Loads Easier: Dynamic Kerbside Management – The key to unlocking a greener, safer and more equitable city future. [online]. Accessed 12th March 2023. Available from: https://assets.website-files.com/6286467cc81b7f81321ac1a7/62eb969df00465689637e1e6_GridSmarterCities-StantecReport.pdf

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 17 of 33

3.4 RECOMMENDATION 3: REFRAME COST NARRATIVE

3.4.1 OVERVIEW

	Recommendation: ***Reframe the narrative around travel costs by creating targeted campaigns, specifically aimed at the perception that car use is cheaper than alternative travel modes.***

Our research suggests that many car owners have the overarching perception that car use is less expensive than alternative transport modes – especially public transport. Their perception is that the only cost of car use is fuel, and all other costs are not relevant to day-to-day use. There is a lack of consciousness around the longer-term costs of car ownership, including purchase cost, maintenance, MOT test, parking costs and other costs.

As such, information campaigns that compare the real cost of a car trip (clearly factoring in all elements of car ownership) with the cost of the same trip using alternative modes should be explored. This could lead to people having a clearer picture of the total cost of car ownership and may re-consider owning a car (or a second/third car).

These information campaigns could be paired with targeted, cheap/discounted public transport, providing encouragement for people to use public transport as an alternative mode and further emphasising the overall cost difference between these modes.
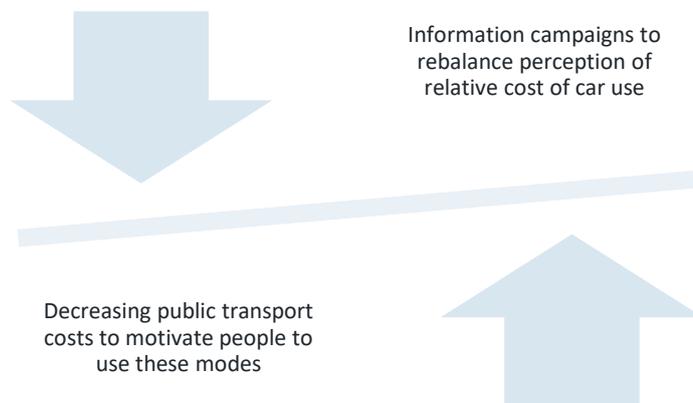

Information campaigns to rebalance perception of relative cost of car use

Decreasing public transport costs to motivate people to use these modes

Figure 3-3 - Rebalancing the Rebalancing the Perceptions Around Relative Costs of Transport

Target audience: This intervention is aimed at those people who either:

- do not own a car yet,
- are considering replacing their existing one,
- are considering purchasing a second/third car.

A successful application would result in individuals not purchasing a car or getting rid of their existing one (as opposed to replacing it).

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 18 of 33

3.4.2 EVIDENCE

With the current cost of living crisis, travel costs are an increasingly important factor in determining individuals' travel mode choices. Despite not referring to the UK cost of living crisis, a previous study in Lisbon, Portugal highlights the reality of this concept. The study, which looked at barriers and motivators for cycling, showed that many respondents started cycling between 2013-2016 during a financial crisis in Portugal and thus affordability of cycling and not paying for fuel (and car related costs) was a key factor[29].

Evidence from the survey and focus group suggest that car use is viewed as a significantly cheaper option than other modes. It was mentioned that a car is cheaper than paying for a train ticket – especially when it comes to families. As one focus group participant put it:

> *"I need to make sure that I can pay all my bills or can feed the family. If public transport, infrastructure was better, if the costs are cheaper, more and more people would use that. But at the moment it's prohibitive, and that's why people are having to do what they're doing..."*

The survey results showed that fuel costs came out as the factor that individuals disliked most about using their car, with parking difficulties/ costs also highly rated. The focus group discussions highlighted, that people generally only think about petrol costs per journey when thinking about using their cars. For example, one respondent stated:

> *"The cost to you in the immediate is really cheap, it's probably about a tenth of what a train ticket is in fuel cost. It is really cheap mobility."*

Other, car-related sunk costs (i.e. a cost that has already been incurred and cannot be recovered) were only mentioned when prompted. This means, that people do not factor in all the other fixed costs of car ownership, such as purchase cost, MOT, service, and maintenance. This gives people the false picture, that car use is relatively inexpensive compared to alternative modes of transport.

It is also important to note the sunk cost fallacy, which is a cognitive bias that causes people to stick to an approach because they have already invested time and/or money in it. In the case of private vehicles, people will often use their cars even in cases where they are time and/or cost suboptimal just to help justify their initial investment.

Educating people about the 'real' cost of car usage, relative to alternative modes of transport, could help re-balance this perception that car is an overall cheaper mode than public transport. The ideal target audience could be those who have yet to buy a car (or a second/third car), as once the car purchase has occurred, it is a lot more difficult to get people to get rid of them. One study showed that education did improve participants understanding of the costs of cars and impact their future decision making to travel, however more research is required in this area[30].

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[29] Félix, R., Moura, F. and Clifton, K.J., 2019. Maturing urban cycling: Comparing barriers and motivators to bicycle of cyclists and non-cyclists in Lisbon, Portugal. Journal of transport & health, 15, p.100628. https://doi.org/10.1016/j.jth.2019.100628

[30] Cairns, S., & Okamura, K. (2003). Costs And Choices the Effects Of Educating Young Adults About Transport Prices. Doboku Gakkai Ronbunshu, 2003(737), 101-113.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 19 of 33

Communicating the overall cost of car use could be partnered with an intervention around lowering the cost of public transport to further highlight the cost difference between these modes. In some cases, individuals even stated that a taxi is cheaper than public transport:

"What's the point of waiting for a bus when you can get a taxi for cheaper and quicker"
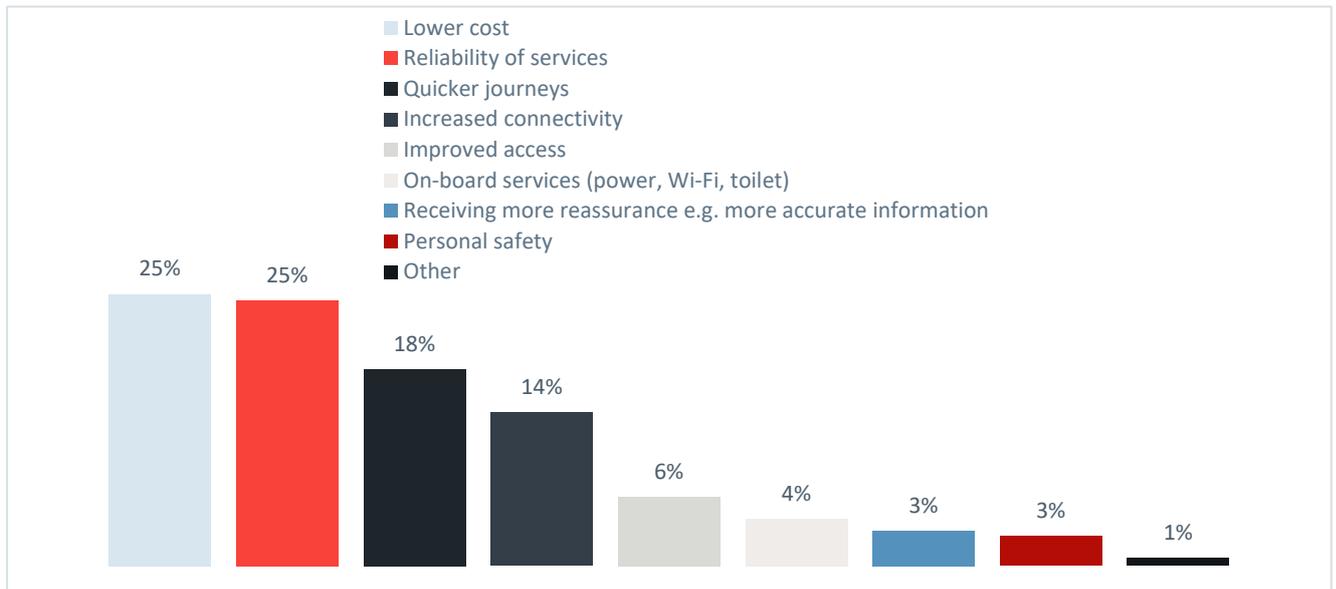
There is mixed evidence for the efficacy of cheaper or discounted public transport in schemes in Germany, Austria, Spain, and Estonia. Some mode shift to cheap public transport may come from those who were already walking, so it is important to target the incentive at those who may be less able.

However, there is appetite from drivers for cheaper public transport. Figure 5 highlights that the biggest motivating factor for using buses or trains more was for them to be cheaper. This concept is evidenced throughout the literature, including one study in Malaysia, where affordability was found to be the most influential factor in determining people's decision to use public transport[31].

The impact of discounted (or free) public transport has been successfully implemented in several locations. In the UK, a £2 bus fare cap has been introduced by the Government in January 2023 which, based on a survey by Transport Focus, has resulted in 6% of car users indicating they are using the bus more. The survey results echo this sentiment, as lowering public transport costs was the most important factor that respondents indicated would motivate them to use these modes more (see Figure 3-4).

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[31] Ambak, K., Kasvar, K.K., Daniel, B.D., Prasetijo, J. and Abd Ghani, A.R., 2016. Behavioral intention to use public transport based on theory of planned behavior. In MATEC Web of Conferences (Vol. 47, p. 03008). EDP Sciences. https://doi.org/10.1051/matecconf/20164703008

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 20 of 33

Figure 3-4 - Survey Results to Question Regarding What Would Motivate People to Use Buses or Trains More

Legend:
- Lower cost
- Reliability of services
- Quicker journeys
- Increased connectivity
- Improved access
- On-board services (power, Wi-Fi, toilet)
- Receiving more reassurance e.g. more accurate information
- Personal safety
- Other

Bar values: 25%, 25%, 18%, 14%, 6%, 4%, 3%, 3%, 1%

3.5   RECOMMENDATION 4: FOCUS ON INCREMENTAL CHANGE

3.5.1   OVERVIEW

Recommendation:

Ensure campaigns focus on incremental change, rather than wholesale modal shift

Mode shift campaigns are more likely to be successful when they focus on parts of journeys or particular trips, rather than encouraging people to shift for all journeys. Interventions should address minor changes to what people are doing to prevent pushback.

Once the small habits are changed, it is easier to change the larger ones - this is called the "foot in the door" technique. The research has found that people are willing to make changes, but they often feel there are insurmountable barriers to stopping the use of their car. At the same time, people consider small adjustments to their routines manageable, as long as they are reasonable.

Consider schemes that replace the last part of a drive with a walk or public transport. For example, park and stride schemes or incentivisation for park and ride. Messaging that includes the health benefits of such schemes for people, and those around them, could be effective.

Target audience: This intervention is aimed at those people who either:

- Live within walking distance of their destination,

- Those in cities or towns with good provision of public transport,

- People in particularly congested urban areas

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 21 of 33

> A successful application would result in a greater number of people using active travel or public transport for a part of their journey.

3.5.2 EVIDENCE

Schemes around the world that have focussed on shifting the small behaviours for the last mile have had varying degrees of success, while schemes that solely expect people to stop using their cars for journeys have little to no impact. People are creatures of habit and nudging them towards minor changes are more likely to be effective at changing behaviour, even if they have a smaller impact on decarbonisation. The longer-term goal of encouraging people to consider the ease of walking or public transport begins with the small changes. This is evidenced throughout the literature as there was plenty of examples of schemes that had modal shift success by targeting one specific trip type, in particular modal shift interventions targeting the workplace and commuting were found to be particularly successful[32]. For example, Sheffield University held "the Cycle Challenge" which was an inter-departmental competition aimed at facilitating modal shift due to the car being the dominant mode for commuting. The scheme had some long-term behavioural success as 2-3 years later 26% of respondents had increased their cycling frequency as a result of the scheme[33]. In our research, when asked to choose an alternative mode, the mode that participants were most willing to shift to was walking (Figure 3-5). This is not surprising, given the freedom, convenience and health benefits walking can bring. The popularity of walking, particularly in urban areas that are made pedestrian friendly, was highlighted in the Oslo 'liveable city' scheme (discussed previously), as 'liveable' measures resulted in a 43% increase in pedestrians spending time in urban spaces[18]. Bus, train and cycling were the next three measures that participants were most willing to shift to. This suggests that people may be willing to incorporate walking or cycling as part of their journey. This would likely involve walking/cycling to the local bus and train interchanges, as part of an intermodal journey. Similarly, survey participants were more open to reducing their car use than eliminating it (Figure 3-6), further suggesting that encouraging incremental changes such as combining driving with alternative modes could be a desirable intervention.

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[32] Javaid, A., Khanna, T., Franza, M. and Creutzig, F., 2022. Behavioural interventions change individual transport choices but have a limited impact on transport mode split. Evidence from a systematic review.

[33] Uttley, J. and Lovelace, R., 2016. Cycling promotion schemes and long-term behavioural change: A case study from the University of Sheffield. Case studies on transport policy, 4(2), pp.133-142.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 22 of 33

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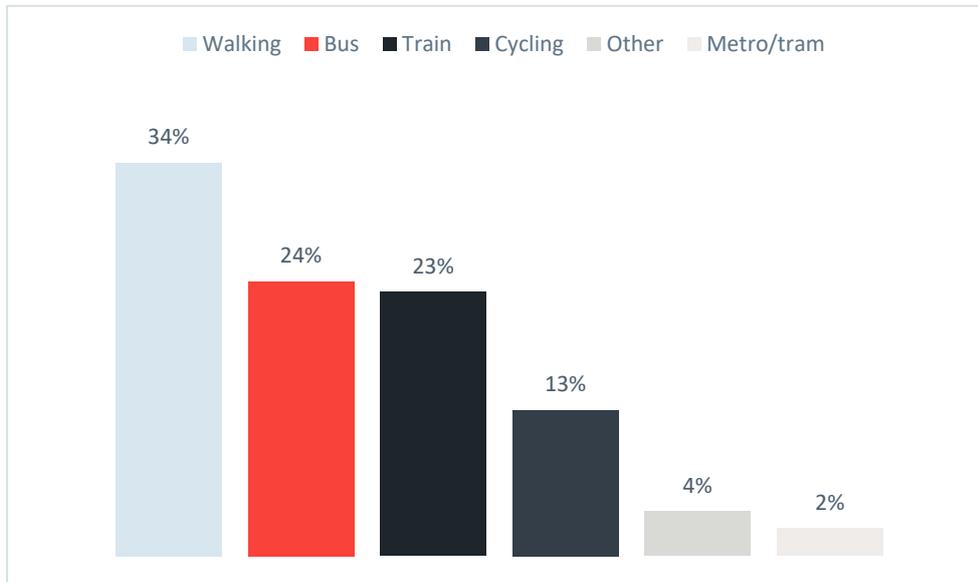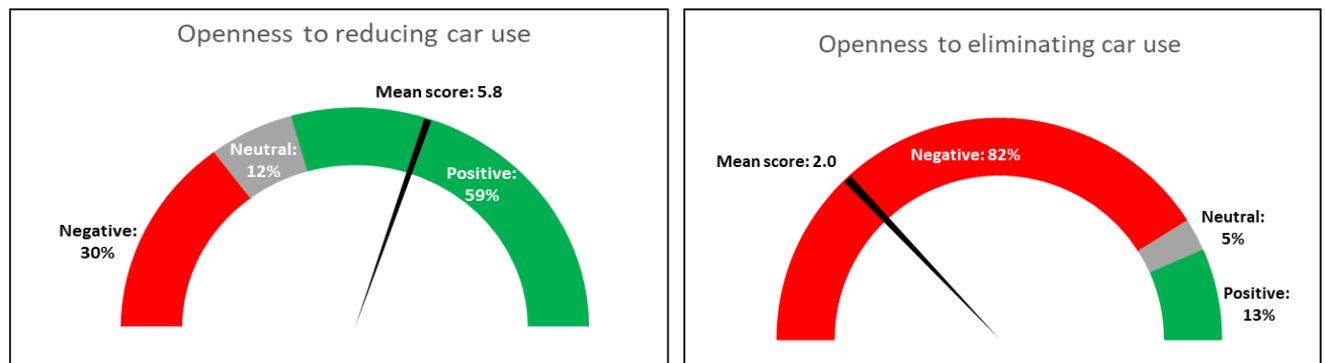**Figure 3-5 - Survey Respondents' Willingness To Use Alternative Modes**

Figure 3-6 - Survey Respondents' Openness to Reduction and Eliminated In Care Use

These sorts of schemes can be linked to wider programmes such as the NHS's Social Prescribing work which "connects people to activities, groups, and services in their community to meet the practical, social and emotional needs that affect their health and wellbeing"[34]. A focus on the health benefits of mode changes was supported by our research.

> *"I think British people in general need to be made more aware of the health benefits that could come from walking."*

> *"I'm happy to walk but there is only so much time in the day."*

The research conducted showed that people were willing to consider the environment in their modal decision making (Figure 3-7), but this must not come at the cost of their own convenience as indicated by the driving factors behind car use. As identified from the survey results, having control

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[34] https://www.england.nhs.uk/personalisedcare/social-prescribing/

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 23 of 33

and freedom over journeys is important to people (Figure 3-8) and they like to customise their journey. Whilst concern for the environment might not be the main motivator, once people have begun shifting modes, it may contribute to sustaining the shift as this value is likely to become intrinsic over time. Convenience was an important factor for participants within the survey and focus groups, therefore consideration must be given to linking these interventions to increasing friction of driving, such as making parking more expensive, and initiatives to make alternatives more appealing as stated in Recommendations 1 and 5.

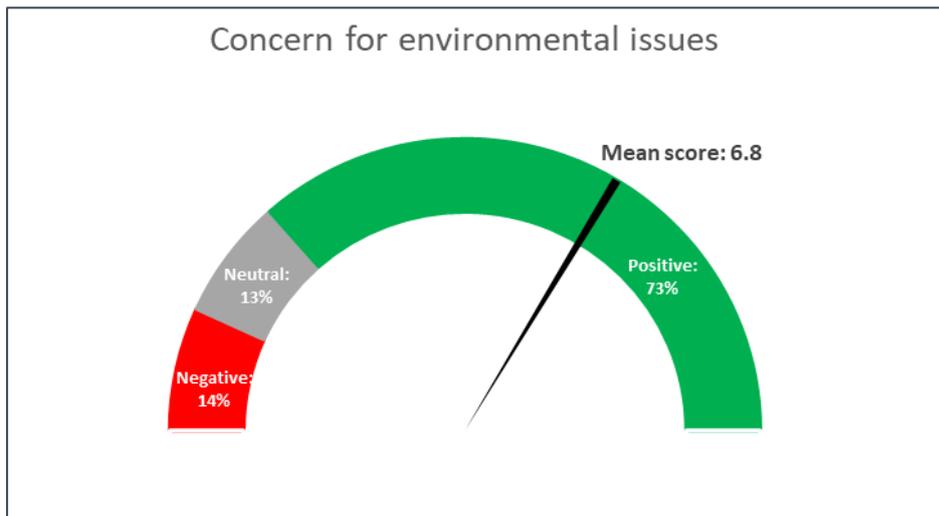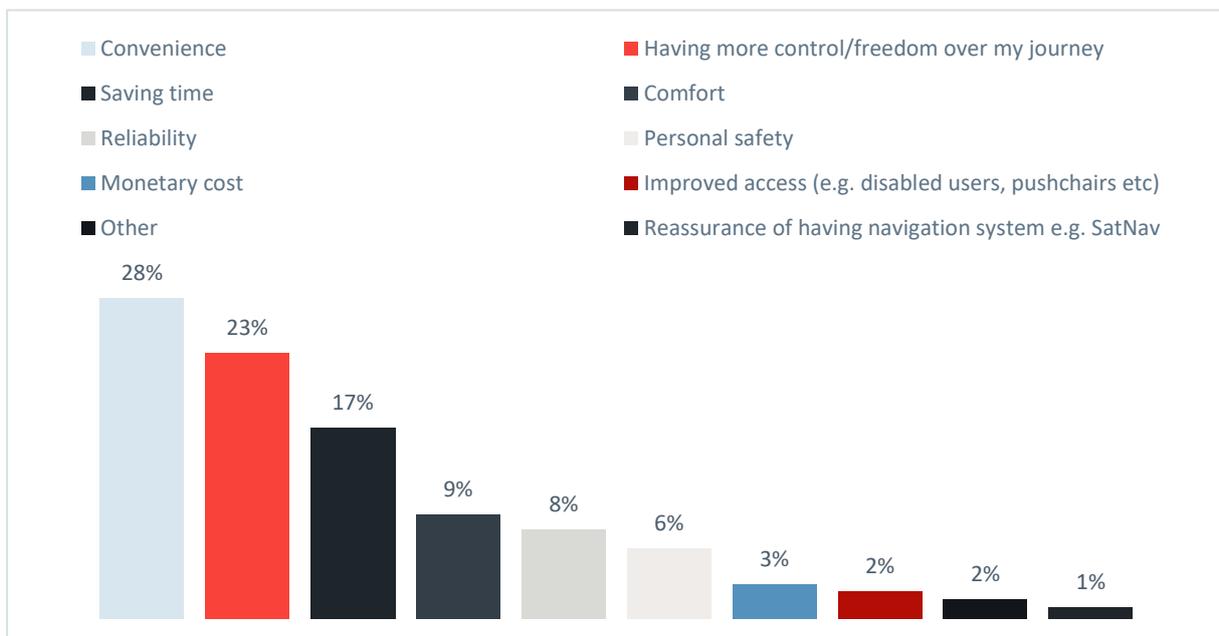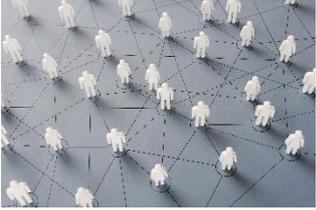**Figure 3-7 - Survey Respondents' Concerns for Environmental Issues**

Figure 3-8 - Respondents Reasons for Driving

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 24 of 33

3.6 RECOMMENDATION 5: CREATE BETTER INTERCONNECTIONS

3.6.1 OVERVIEW

<table>
<tr>
<td></td>
<td>Recommendation:

Create a connected system of alternative transport options</td>
</tr>
</table>

This project has highlighted that connectivity between different modes of transport is one reason for people not reducing their car use (this is interwoven with frequency of service). The evidence gathered suggests that people would be more likely to use alternative transport options if they were connected i.e. an ideal connected journey would involve:

1) Taking a bus (from a bus stop being close to home, with frequent services) or cycling to a train station (with sufficient cycle storage facilities);

2) Catching a train from the station (where the bus timetable aligns allowing sufficient time to reach the train before departure);

3) Reaching the train's final destination and being able to locate a bus within a reasonable distance and with a sufficiently frequent timetable to take them to their final destination; and

4) Being able to have an option to return easily (particularly pertinent in rural locations).

Central Government, local authorities and transport operators should work together to explore the feasibility of aligning schedules with user needs where possible, including factors such as expanding timetables to encourage modal shift – this may be particularly important for users such as shift workers, or those located in rural areas where timetables appear to be more restricted.

Target audience: This intervention is aimed at those people who either:

- live near a public transport stop

- live in rural areas

A successful application would result in an increased use of multimodal travel.

3.6.2 EVIDENCE

The importance of connectivity between modes as a tool to facilitate modal shift is evidenced in the literature. One prominent example is the California Safe Routes to Transit (SR2T) scheme[35], which is explored in more detail in the Deep Dives section. This scheme, which began in 2004, aimed to encourage commuters to shift modes to active travel or bus use at rapid transit stations, by improving the safety and convenience of walking and cycling routes and bus services in close

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[35] Weinzimmer, D., Sanders, R.L., Dittrich, H. and Cooper, J.F., 2015. Evaluation of the safe routes to transit program in California. Transportation research record, 2534(1), pp.92-100. https://doi.org/10.3141/2534-12

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 25 of 33

proximity to these stations. The purpose of this was to encourage intermodal travel by providing the infrastructure to allow active travel and public transport trips to be combined. This involved improving bus shelters, adding bike lockers, installing bike-share systems and installing cycle lanes. The study found that for change in mode share – walking increased 3.1%, cycling increased 0.4%, bus use increased 2.5% and driving was reduced by 2%. The intermodal element specifically was found to be a crucial factor behind these modal shift outcomes.
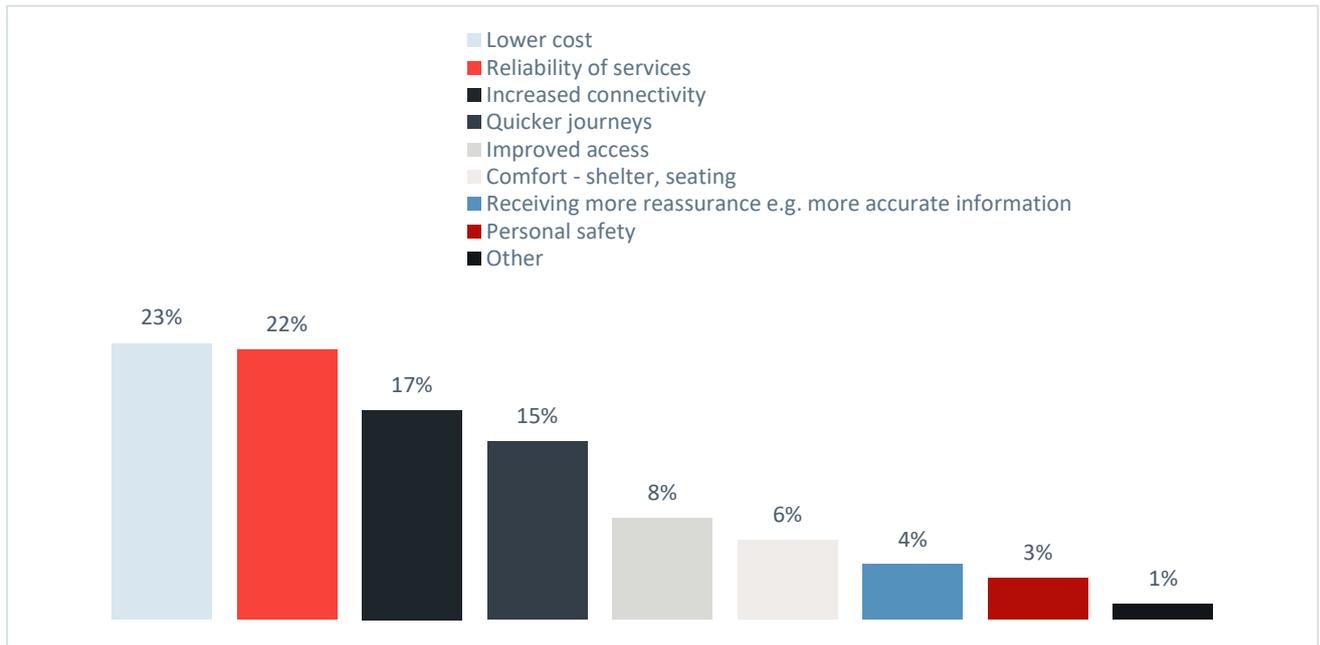
Evidence from the survey suggested that the main pull factors that would encourage people to change their mode of travel away from cars and towards trains (after cost) were increased reliability of service, quicker journeys, and increased connectivity. When asked about these in the focus groups, participants were not surprised that these features scored so highly.

Figure 3-9 - Factors that would Motivate People to Shift to Trains
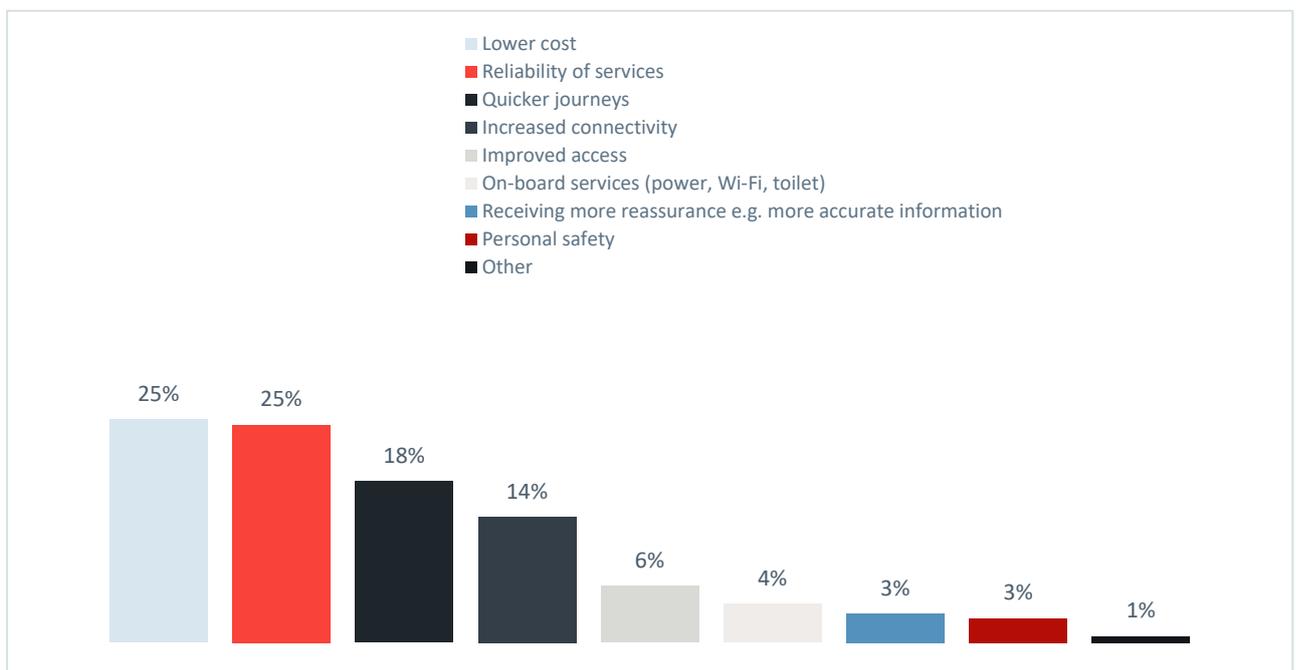
A similar picture was presented about shifting towards buses as a mode of transport, after cost, reliability of services, quicker journeys and increased connectivity were the highest scoring pull factors.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 26 of 33

Figure 3-10 - Factors that would Motivate People to Shift to Buses

One focus group was dedicated to people who said that they were most likely to shift to public transport. In this group, the overlap between reliability and connectivity was a strong theme:

"Better connections between places in towns, and more regular routes, and actually some reliability to them might make people more inclined to use those services instead of driving."

Seeing elements of transport was as a whole rather than individual parts was also considered to be something that people felt would encourage a modal shift.

"There's not as much joined up thinking about the whole transport system"

Unconnected systems were considered to be a barrier to not using alternative modes:

"There's no joined-up thinking, and even if there is, 9 times out of 10, you're worried that you're going to be significantly delayed and crushed onto a very crowded train. So yeah, it's a bit of a bit of a mess…the whole system."

There was also an awareness of initiatives such as 15 minute cities as approaches to reduce car use among participants which participants within the focus group sample seemed supportive of. The evidence from this part of the research indicates that there is an appetite to shift transport mode, but that without connectivity people are unwilling to make the shift, therefore consideration should be given to how to make alternative modes of transport better connected.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 27 of 33

3.7 RECOMMENDATION 6: MAKING INTERVENTIONS LOCATION-SPECIFIC

3.7.1 OVERVIEW

Recommendation:

Make interventions location-specific and led by Local Government bodies.

Modal shift interventions need to be made location-specific to ensure they address the pain-points of the population in that areas and are framed in a way that resonates with locals. The same intervention, or package of interventions may not work in different areas, unless it is tailored to the local needs.

This is especially true when it comes to the urban-rural divide within the UK, where there are significant differences in the barriers to modal shift. There are overarching concerns that seem to be consistent regardless of area, such as worries about safety, but lack of infrastructure for walking and cycling, concerns over public transport frequency and operational hours and overall lack of connectivity and first/last mile solutions are debilitating barriers in rural areas.

This also means that Local Governments are the ideal lead stakeholders to take ownership of promoting interventions. However, they should not act in isolation, but should engage with other stakeholder groups, including the private sector, National Government, local transport providers and civil society.

While interventions should be made location-specific, it should be noted that sharing of best-practices between regions can be very important for progress and learning. Central Government can have a key role in facilitating knowledge-sharing and promoting wider communication of experiences and findings.

3.7.2 EVIDENCE

Discussions from the focus group highlighted the significant differences between urban and rural barriers to shifting away from using private vehicles. Concerns around public transport frequency was raised by several participants in the rural focus group. It was highlighted that this has become worse since Covid-19. As one participant put it:

> *"Would use bus more if it was every 10 minutes but in a lot of villages once an hour is considered lucky."*

Coverage and the limited supporting services were also recognised as a barrier, with participants mentioning that there are no screens with timetables in bus stops or an app to track where the bus is. These factors were much less prominent in the urban population focus groups. Similarly, lack of infrastructure to enable the use of active transport was raised by the rural focus group more than the urban ones as were concerns over connectivity to train stations (first last mile).

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 28 of 33

The differences in local attitudes can even be seen between cities, not just in the urban-rural context. A report by CoMoUK[36] examined the example of Glasgow and Edinburgh, looking at attitudes towards bike sharing schemes in both cities. The study found that people in Edinburgh were a lot more sensitive to weather and would not cycle due to the rain, while this was not the case in Glasgow – which is a lot rainier. This means, that interventions in these two cities would need to be quite different as the barriers and perceptions are contrasting. Equally, the literature has demonstrated that even successful schemes in one city are not always necessarily welcomed in another city. One article looked at the perceptions of employers/employees in Cardiff, when posed with the potential of having a WPL scheme introduced to solve the city's congestion issues – similar to the one in Nottingham. Despite the evidenced success of the Nottingham WPL, there was a lot of negativities towards this in Cardiff and one key point raised was that respondents believed investment and improvements in public transport/active travel infrastructure would be required prior to the introduction of any WPL scheme in Cardiff[37].

Looking at the roles of each actor in the stakeholder ecosystem, there is evidence to suggest that Local Governments are best placed to take leadership on interventions / packages of interventions that will shift people away from private vehicle use. The fact that the interventions need to be tailored to the needs of locals necessitates the in-depth knowledge of local characteristics, which cannot be done from a centralised, national level. A meta-analysis looking at 26 interventions in European cities found that three quarter of them were led by Local Governments[38]. The same study concluded that, while Local Governments are key actors to promote transitions, this should not be done by enforcing top-down decisions. Rather they should actively engage in collaborations with other local stakeholders such private sector (e.g. local companies and businesses) as well as local transport providers and civil society should support planning and development. National and Regional government should also be involved, they can set frameworks, standards, and support with funding.

Figure 3-11 shows the type of collaborating stakeholders that were highlighted in the study by Kuss and Nicholas. Note, the four cases where the collaborating stakeholders were Local Government are those cases where the interventions were not led by Local Government.

Figure 3-11 - Collaboration with Other Stakeholders During Interventions (source: Kuss and Nicholas, 2022)

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[36] CoMoUK, https://uploads-ssl.webflow.com/6102564995f71c83fba14d54/63ed0107037bf4bd754018e9_CoMoUK%20Understanding%20users%20and%20non%20users%20of%20shared%20transport%20in%20Scotland.pdf

[37] Santos, G., Hagan, A. and Lenehan, O., 2020. Tackling traffic congestion with workplace parking levies. Sustainability, 12(6), p.2200. https://doi.org/10.3390/su12062200

[38] Kuss, P. and Nicholas, K.A., 2022. A dozen effective interventions to reduce car use in European cities: lessons learned from a meta-analysis and transition management. *Case studies on transport policy*, *10*(3), pp.1494-1513.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 29 of 33

b) Type of Partner Stakeholders involved in collaborations with Leading Stakeholders

Legend: Private, Public Transport Provider, Civil Society, Local Government, National Government, Educational Institution, Regional Government
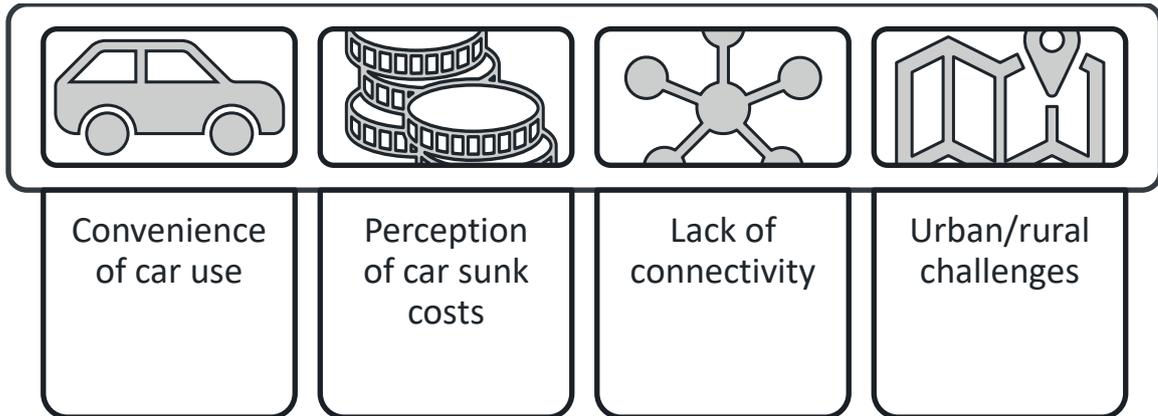
Values: 10, 8, 7, 4, 3, 3, 2

It should be noted that there is large discrepancy between the resources available in different Local Authorities in the UK, with some better-resourced ones being able to proactively lead initiatives, while others already being too pressed to deliver their core statutory duties. The latter would likely need additional support from Regional and National Government.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 30 of 33

4 CONCLUSIONS

4.1 SUMMARY

This short project highlighted the depth of research already done around interventions to shift people out of private vehicles – mirroring decades-long attempts to achieve successful behaviour change. There are many potential interventions to push people out of their private vehicles and pull them to alternative modes. Interventions are usually developed to lower the barriers or perceived barriers to modal shift. Some important barriers that were revealed during this study include:

Convenience of car use	Perception of car sunk costs	Lack of connectivity	Urban/rural challenges

Some interventions are "hard" measures, such as increasing the cost for car use, prohibiting car use in specific areas, or improving physical infrastructure. Other interventions are "soft" that aim to promote a voluntary reduction of car use, for example information campaigns, workplace/school travel plans and other psychological and behavioural strategies. It is clear, that the most successful interventions come as packages, combining several different interventions together to achieve sustainable behaviour change. The packages usually include both hard and soft measures, such as introducing parking charges, while promoting a workplace travel campaign.

4.2 THE PATH TO IMPLEMENTING INTERVENTIONS

The palette of possible interventions is vast, and it can be challenging for an area to determine the most appropriate approach. In addition, starting on the road to introducing a travel behaviour change intervention can be daunting, especially as there can be contradicting evidence of the efficacy of intervention packages between different places. There are some overarching steps that areas can follow to implement successful interventions:

1. Understand stakeholders and clarify roles and responsibilities. The initiating body may not have the resources or authority to carry out and implement an intervention package so it is important to identify the appropriate body to lead activities (or procure such a body if necessary). As highlighted in recommendation 6, Local Government is an ideal lead body.

2. Engage with the wider stakeholder community and end-users early in the process to enable buy-in and co-design.

3. Understand local barriers and motivators by conducting user research and public engagement.

4. Clarify local objectives by reviewing local policies and priority areas.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 31 of 33

5. Develop a long-list of possible interventions / packages of interventions, evaluate each and select approach to take forward.

6. Design intervention / package of interventions considering funding, planning, operation (if applicable), regulations and monitoring.

7. Trial solutions in a smaller area for a fixed period of time and monitor. Public engagement should form part of this.

8. Make adjustment to intervention or scrap if the intervention was not successful.

9. Scale up and continue to monitor and adjust as necessary. Promotion of the scheme to the wider public.

4.3 CHANGING LANDSCAPE

It should be noted that the transport sector is going through significant changes. New transport modes, technologies and business models are emerging at a previously unseen pace. This also means, that new types of interventions are being trialled and existing interventions are being improved. Even when looking at specific interventions, the options for the specifications of the intervention are widening. For example, some years ago the only real option for public transport ticketing was paper based tickets, whereas today, operators have the option to choose between paper-based tickets, smart cards (e.g. Oyster card in London), app-based tickets or contactless payment cards. However, with new developments come additional challenges, as looking at the previous example, some of the options rule out the unbanked and those who are not technologically savvy and would cause this population group to be excluded. These factors should all be considered when developing interventions.

The fact the transport landscape is going through significant changes begs the question of whether the key message should also start to change. Over recent years, there has been extensive work to educate individuals about the harmful effects of internal combustion engine vehicles and push them to change modes. This is evident through the sheer number and variety of schemes explored in the literature. However, with Electric Vehicles (EVs) becoming more prominent and the UK edging closer to the banning of sales of petrol and diesel vehicles in 2030[39], now might be the time to switch the focus away from emissions, towards the provision of space. Electric vehicles are likely to succeed in reducing most emissions (and may bring other full lifecycle emissions) but there will continue to be space issues surrounding private vehicles, as despite numerous interventions, many cities worldwide are still designed in a way which is dominated by the private car. This is especially problematic in the case of cities which are becoming more and more overwhelmed with urbanisation. This is applicable to many UK cities, with England alone having a 6.6% increase in

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[39] DfT. Office for Zero Emission Vehicles. 2021. Outcome and response to ending the sale of new petrol, diesel and hybrid cars and vans. [online]. Accessed 19th April 2023. Available from: https://www.gov.uk/government/consultations/consulting-on-ending-the-sale-of-new-petrol-diesel-and-hybrid-cars-and-vans/outcome/ending-the-sale-of-new-petrol-diesel-and-hybrid-cars-and-vans-government-response

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 32 of 33

urban population between 2011-2020[40]. As a result, many recent interventions, such as DKM, have focused on the reallocation of urban space to provide a more liveable environment.

In addition to the sector changing, we are also going through demographic changes that are impacting transport decisions. The younger generation are now considerably less likely to own a car and the continued improvement of sustainable transport alternatives can only enhance this trend. The sector is also impacted by the way society has been influenced by the COVID-19 pandemic, where trends of home working and less travelling have become prevalent. Home working and hybrid working peaked during the pandemic, but the trend appears to have levelled out as throughout 2022 the percentage of adults reporting some level of working from home has varied between 25% and 40%, without a clear upward or downward trend[41]. Despite this, these levels of home working today were unheard of prior to the pandemic. This therefore emphasises the need to cater for the differing flows and movements of the population.

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[40] Department for Environment Food & Rural Affairs. 2021. Statistical Digest of Rural England Population. [online]. Accessed 19th April 2023. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1028819/Rural_population__Oct_2021.pdf

[41] Office for National Statistics. 2023. Characteristics of homeworkers, Great Britain: September 2022 to January 2023. [online]. Accessed 19th April 2023. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/characteristicsofhomeworkersgreatbritain/september2022tojanuary2023#:~:text=Overall%2C%2044%25%20of%20workers%20reported,reporting%20working%20from%20home%20only.

Understanding the Requirements and Barriers for Modal Shift
Project No.: 70105049 | Our Ref No.: 001
Climate Change Committee

PUBLIC | WSP
May 2023
Page 33 of 33

WSP House
70 Chancery Lane
London
WC2A 1AF

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