SCENARIO PLANNING – HOW CAN TRANSPORT PLANNERS BEST PLAN FOR THE NEW NORMAL?

1. INTRODUCTION

1.1. Importance of Research

There is much uncertainty associated with active travel which has been exacerbated by the Covid-19 pandemic. Levels of cycling and walking have changed during the pandemic period, with the National Travel Survey (Department for Transport (DfT), 2021a) reporting the number of walking trips over a mile increased by 34%; the number of work and education trips decreased by 42%; and the number of leisure trips increased by 9% between 2019 (pre-Covid-19 pandemic) and 2020 (during the Covid-19 pandemic). Average cycling trips increased by 26%; the number of work and education trips decreased by 20% but increased by 75% for leisure trips. Changes to the types of trips made and the level of restrictions imposed have both had an impact on people's travel behaviour with leisure trips increasing, and work and education trips decreasing across both modes (DfT, 2021b).

The degree to which travel behaviour has returned to pre-lockdown levels since the easing of restrictions is largely unknown, although at a local level, cordon counts taken in central Reading show cycling levels largely remained the same between 2020 and 2021, while walking levels increased by 5% (Reading Borough Council, 2021).

In addition to the uncertainty associated with people's travel behaviours, there is also uncertainty within the interventions delivered by decision makers. Such interventions, whether physical infrastructure, behaviour change initiatives or policy making, are influenced by social, technological, economic, environmental and political variables. This uncertainty within active travel has highlighted the importance of and need for planning for future uncertain scenarios. Scenario planning offers a methodical approach for Transport Planners to plan for, rather than react to these scenarios.

1.2. Aims and Objectives

This research considers how scenario planning can be used to address uncertainty within active travel and outlines how toolkits can aid Transport Planners when planning for such uncertain scenarios. The main purpose of this research is to identify four scenarios and establish interventions that could be implemented for each scenario, encouraging participation in active travel.

In addressing the topic of scenario planning within active travel, the following objectives have been established:

- *What are the most uncertain variables in the participation of active travel?*
- *How can we remain flexible to change?*
- *How can toolkits help Transport Planners plan?*

1.3. Structure of Research Paper

This paper will provide an overview of what scenario planning is, its importance within transport planning and the process of developing scenarios. The paper then considers how toolkits can be used as a mechanism to plan for future scenarios. An active travel toolkit is presented, with an explanation of its importance, how it was developed, and how it was tested. A summary of the key findings from this research is then presented and potential next steps in further developing the toolkit are identified.

2. LITERATURE REVIEW

2.1. The Need for Scenario Planning

The application of scenario planning first emerged in the 1940s and was later trialled and tested by companies such as Shell in the '70s and '80s (Chermack et al, 2001). Given there is "considerable uncertainty about how the transport system will evolve in the future", developing scenarios will support decision making by Transport Planners, allowing them to identify possible scenarios of uncertainty before they take place (DfT, 2021c; Lyons et al, 2021). This process results in more thought-out, rational and timely solutions to address the challenge surrounding changing uncertainties within transport (Chermack et al, 2001; Foresight Horizon Scanning Centre (FHSC), 2009).

Transport Planners had been working with a level of uncertainty prior to the Covid-19 pandemic, which has since exacerbated the level of uncertainty (Lyons et al, 2021). This paper will identify potential future scenarios, following the scenario planning process, to prepare for uncertainty specifically in relation to active travel.

2.2 Scenario Development – The 2x2 approach

There are different methods of developing scenarios, such as the 2x2 matrix, branch analysis or cone of plausibility methods (FHSC, 2009). For the purposes of this research, the following steps – identified by FHSC (2009) – involved in developing scenarios will be explained in relation to active travel, looking towards a long-term future of 2050. The 2x2 approach is often used within the transport planning profession when undertaking a stakeholder mapping exercise. Stakeholder mapping enables Transport Planners to identify which stakeholders have the most and least influence and interest, helping to distinguish the frequency and type of engagement required for each stakeholder before progressing a scheme (Sustrans, 2019). *Figure 1* illustrates this process which was used by Reading Borough Council (2018) when developing their joint Local Cycling and Walking Infrastructure Plan (LCWIP). The process enabled Transport Planners to determine which stakeholders had the most influence and interest in shaping the LCWIP, and what level of engagement was required with each stakeholder.

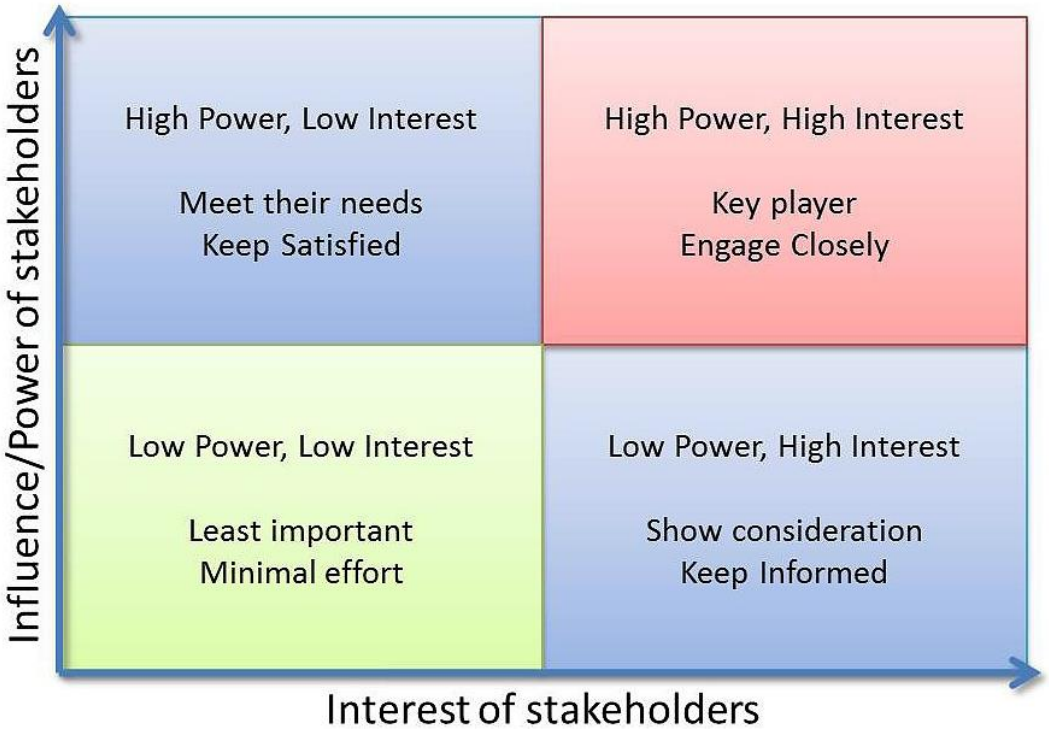


Figure 1 – Stakeholder mapping template (Reading Borough Council 2018).

The following exercise is often undertaken in a workshop setting, however for the purposes of this paper, this has been undertaken individually.

Step 1 – Identifying the Driving Forces

This initial step in the scenario planning process involves identifying the key drivers of uncertainty in the context of active travel. The STEEP (Social, Technological, Economical, Environmental and Political) framework is used to categorise these drivers.

Social

There is considerable uncertainty around travel demand, particularly following the Covid-19 pandemic as individuals' need to travel and types of trips changed (Transport for the North, 2020). There is still a level of uncertainty with how people will travel over the coming years as a high proportion of people are currently still working from home. Therefore, decision makers must ensure that plans developed offer a level of flexibility to cater for any future change to travel demand, for example local authorities that have produced LCWIPs, must ensure that this strategic document is treated as a live document to account for such changes.

People's desire or opinion of travelling is also subject to sudden change, whether it be through government direction, their ability, or a good/bad travel experience. There is an increasing importance of inclusivity and accessibility within transport and removing the barriers to active travel (DfT, 2018). This emphasises the need for Transport Planners to

ensure that interventions must cater for everyone's needs. Furthermore, it is important that information such as route maps, cycle training or led walks is well depicted (DfT, 2018).

Public buy-in on active travel as a mode of travel is paramount otherwise the implementation of active travel interventions would simply not provide value for money with respect to not achieving the monetised benefits of active travel: mode shift, health and journey quality (DfT, 2020). There is uncertainty associated with public buy-in given the different views and opinions individuals have, which are subject to change (as discussed above). This emphasises the value of engaging with people which may result in a more positive view associated with active travel.

Technological

New, evolving technology within transport creates uncertainty as developments such as electric and autonomous vehicles will influence travel behaviours going forward; although some of these technologies are at nascent stages. Following the introduction of e-scooter trials, it is evident that technology has already begun to shape the type of mode available to people, but it is still uncertain as to the extent to which travel behaviour can be changed (Oxfordshire County Council, 2021).

The European Bank for Reconstruction and Development (2019) explores how new technologies will influence travel supply and demand. They consider changing technologies could lead to:

- reducing the need to travel through substitution;
- improving the efficiency and convenience of travel by creating new modes, improved route planning, more efficient vehicles, and in vehicle services;
- improving the efficiency of infrastructure construction, operation and management;
- improving the efficiency of transport operators; and
- reduced emissions, productivity gains, better information for public planning

This highlights the potential impact technology may have on the future of active travel.

It is important to also be mindful of technological developments that are not yet known and what their potential impact on transport could be (Lyons and Marsden, 2021). This technological uncertainty means Transport Planners must maintain flexibility and be aware of potential changes that are likely to influence the level of active travel, both positively and negatively.

Economic

Long term investment in active travel is critical to influence change in behaviours of people and decisions made by decision makers (UK Parliament, 2019). Brand et al (2021) state, "investing in and promoting active travel whilst 'demoting' private car ownership and use should be a cornerstone of strategies to meet 'net zero' carbon targets". However, without investment from central government, infrastructure and initiatives

aimed at supporting travel behaviour change are less likely to occur. This reinforces the need for a cross-party consensus on supporting active travel through investment at local, regional, and national levels, reducing the uncertainty that arises during a change of government.

Additionally, personal income is uncertain to a degree, highlighted recently by job losses experienced as a result of the Covid-19 pandemic. The pandemic in general has had a significant negative impact on the economy with Gross Domestic Product (GDP) falling to as low as 25% below pre-pandemic levels; that being said, GDP has recovered to just 2% below the pre-pandemic level according to the latest government figures, suggesting the economy is in the process of recovery (UK Parliament, 2021). Depending on the future level of recovery, this will have implications on people's personal income levels, resulting in different travel mode choices and changing purposes of travel due to affordability of travel and the need to travel.

More recently, there has been further uncertainty around fuel due to a global energy crisis driving oil markets to an unprecedented high (Ambrose, 2021). This ultimately effects people's travel behaviours as a result of fuel shortages and price increases.

Uncertainty around economic variables is important as there are potential impacts on people that are not within their control as they occur at a national level in terms of the decisions made by government, a personal level which may change as a result of an unforeseen event, and unknown global factors that are unpredictable.

Environmental

In cities that already have a well-established cycle culture, cyclists are generally not fazed by the weather, whereas activity levels drop during poor weather conditions elsewhere (Goldmann and Wessel, 2020). In addition, younger generation cyclists and cycle networks with a high mesh density are also linked to people's willingness to cycle in poor weather. In researching walking patterns, Aspvik et al (2018) find older adults who are physically fit are more likely to continue to exercise during poorer weather conditions and identify people's access to transport links and the quality of infrastructure as key influencers on people's willingness to walk during poor weather conditions.

Despite forecasting, there is a level of uncertainty when it comes to weather. Climate change is already altering the weather with colder winters and warmer summers and is increasing the frequency and extent of natural disasters (United Nations, 2021). This emphasises the need to be adaptable to changing environmental scenarios and the need to plan for such uncertainty.

May 2019 saw Parliament declare an environment and climate emergency which was soon followed by local authorities declaring the same (UK Parliament, 2019). More recently, since the release of the Net Zero Strategy 2050, aimed at ending the UK's contribution to climate change, not only will there be an increasing focus on zero

emissions, it is likely that there will be further changes to peoples travel choices over this long-term period (Department for Business, Energy & Industrial Strategy, 2021). However, research suggests the environmental benefits associated with active travel are not considered a strong motivator among older people (Centre for Ageing Better, 2021).

Uncertainty around environmental variables is important as the environment is constantly changing, noticeable through the worsening effects of climate change. The impact this has on active travel is that decision makers will need to focus on implementing interventions that will contribute to achieving the governments targets for a net zero future. Decision makers and the public will need to be aware of the possibility of future natural disasters, whilst being mindful that there is an unknown as to when exactly these may surface.

Political

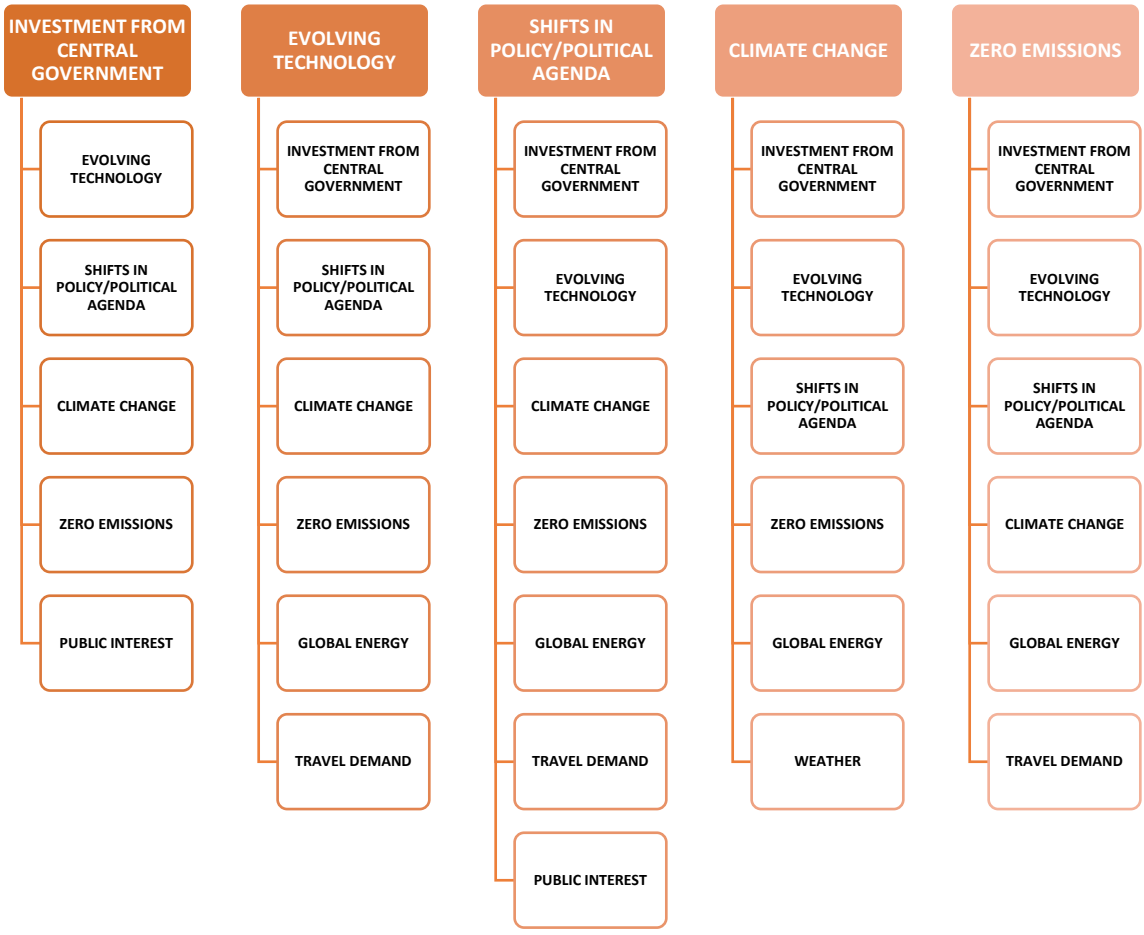
There is uncertainty from a political standpoint as there are often changes in priorities within government, depending on the urgency. In considering the climate emergency, the UK Government has set a target to have half of all journeys in towns and cities to be by bike or on foot (DfT, 2021b). As an example of urgency, the Covid-19 pandemic saw government call for rapid implementation with no consultation required beforehand as part of the Emergency Active Travel Fund (EATF), although a thorough two-stage consultation process was subsequently required for Tranche 2. Consultation is vital in terms of getting both political and public buy in as without consultation, the successfulness of a scheme can be compromised. This has been evident for some EATF schemes which have been hastily removed by various local authorities (DfT, 2021c).

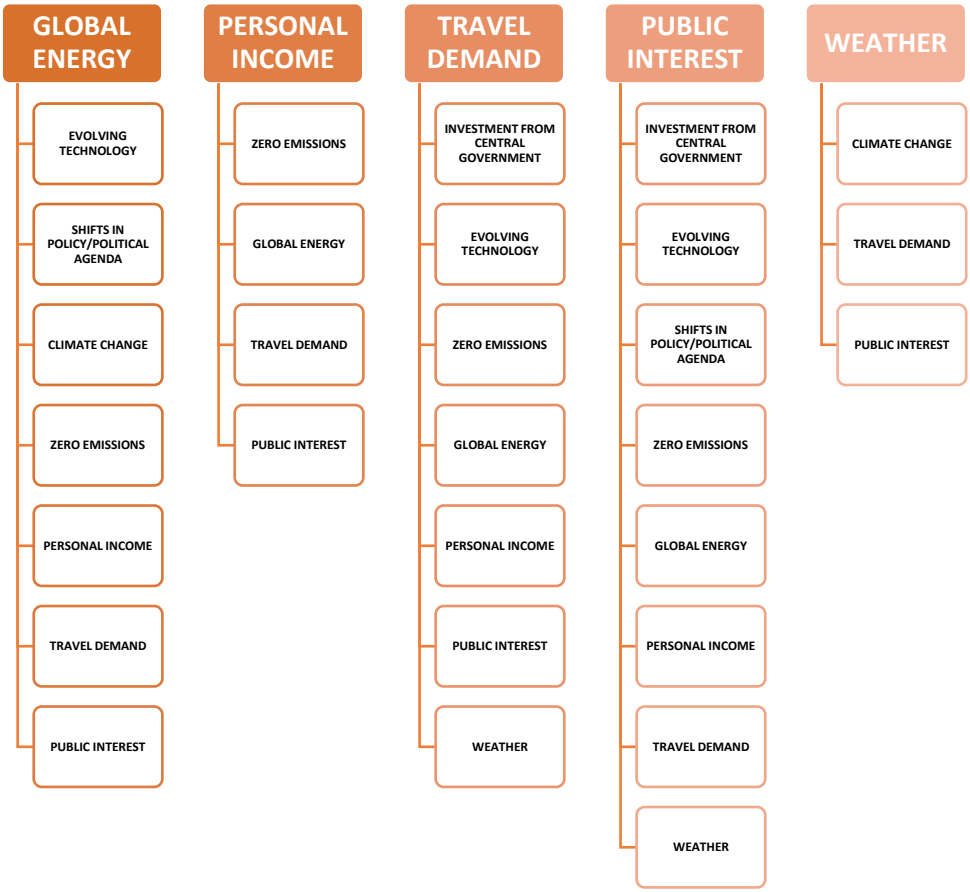
Furthermore, there are potential shifts in policy between government of the same political make up, where leadership succession may result in change to policies, political style, performance and responsiveness (Bunce, 1980). In addition, changing political parties also brings change and uncertainty for similar reasons.

Political uncertainty is important given its potential impact at a national level. Such uncertainty means that active travel may not always be held as a priority on the political agenda, resulting in less support, awareness and investment in encouraging a change in travel behaviour. At the local level, the types of interventions and policies implemented are heavily influenced within local authorities by members and senior management, but also by residents when undertaking engagement and consultation exercises.

Step 2 – Clustering the Driving Forces

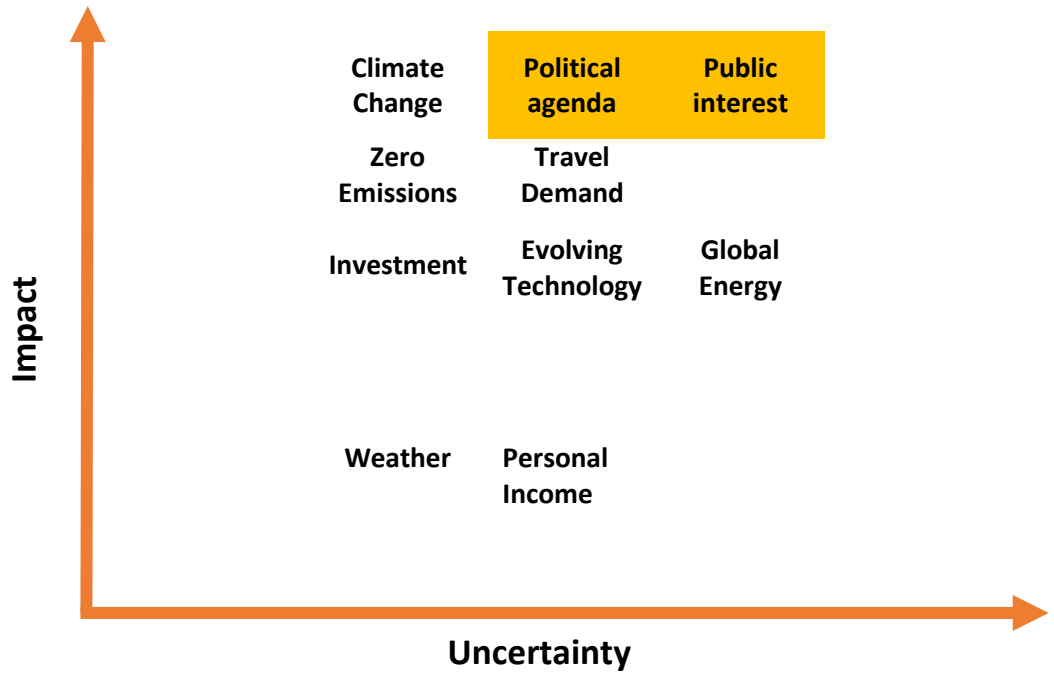
Clustering the driving forces (identified in Step 1) involves linking individual forces that may influence one another to create clusters. As shown below, individual driving forces can be found in more than one cluster. This highlights the importance of each individual driving force and the level of impact that each may have on other clusters. The principal clusters are: investment, evolving technology, political agenda, climate change, zero emissions, global energy, personal income, travel demand, public interest and weather. These clusters are plotted in step 3 by their impact and level of uncertainty.





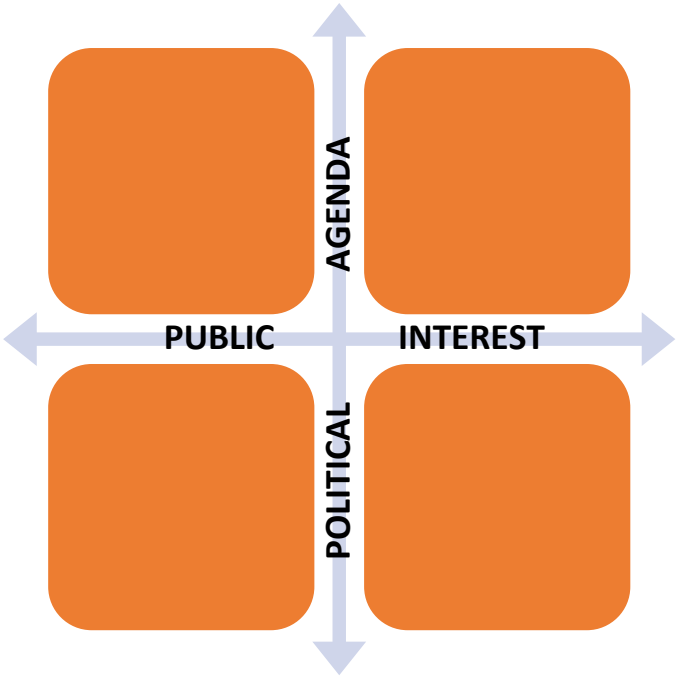
Step 3 – Most Impactful and Uncertain Clusters

The driving forces associated with the clusters are then prioritised by impact and uncertainty, with the aim of finding the two most impactful and uncertain clusters. As illustrated below, no cluster is located on the left-hand side of the graph, demonstrating that each cluster presented poses some level of uncertainty. As part of this scenario development process, the two most impactful and uncertain clusters are public interest and political agenda.



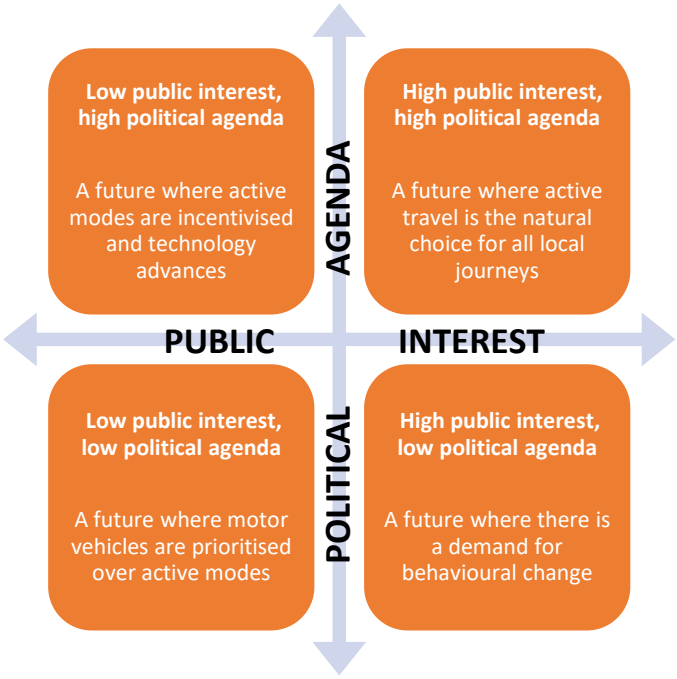
Step 4 – Developing the two axes

The two most impactful and uncertain clusters are then translated into a 2x2 axes, forming four quadrants.



Step 5 – Developing the Scenarios

The scenarios are then developed, and narratives are formed.



2.3 Toolkits within Scenario Planning

The use of toolkits as a way of planning for future scenarios is becoming a more prominent feature particularly within national guidance documents, for example the DfT's Travel Demand Management (TDM) Toolkit (Mott MacDonald, 2021), the Uncertainty Toolkit (DfT, 2021d), and the Futures Toolkit (Government Office for Science, 2017).

This section explores how scenarios can be developed to test and assess interventions, in comparison to a different approach which would result in recommended interventions for each scenario. Each toolkit will be examined to understand how they can be used as a mechanism to encourage participation in active travel, and whether it offers a level of flexibility should uncertainties change.

Travel Demand Management Toolkit

The TDM toolkit was developed to help local authorities manage the effects of Covid-19 on the transport system and consider how to manage other scenarios that may impact the transport network during the easing of Covid-19 restrictions (Mott MacDonald, 2021). The toolkit offers a set of five scenarios where the plan has been applied. However, many of these scenarios have since expired as they were aimed at addressing future challenges associated to Covid-19 in the short term. As explored earlier in the paper, scenarios should realistically be based on a medium to long-term future (FHSC, 2009). This would allow Transport Planners more time to prepare, test and adjust plans, which was not offered through the TDM toolkit.

The toolkit offers a basis for scenario planning; however, it is unclear how the example scenarios were developed. The use of example messages provided in the toolkit offers decision makers a basis to implement the planning of a scenario, although there is opportunity to build on this and provide a complete toolkit specifically for active modes. It may also be considered useful to provide different categories of interventions which would open the toolkit up to a wider audience.

Transport Analysis Guidance: Uncertainty Toolkit

The DfT's Uncertainty Toolkit is a supplementary tool to Transport Analysis Guidance (TAG) Unit M4: forecasting and uncertainty. The toolkit provides advice on the analysis and presentation of uncertainty. The toolkit sets out how to explore uncertainty as part of transport modelling and appraisal and focuses on using scenarios to assess uncertainty around future travel demand.

Similar to the TDM Toolkit, this toolkit provides six 'Common Analytical Scenarios' covering all modes of travel: Growth in the population and the economy; Distribution of economic activity across the regions; Technological advances and uptake; Social and behavioural change; and Level of decarbonisation and fleet mix ambition. Despite not recommending specific interventions to practitioners for each scenario, it enables practitioners to test their interventions against the six scenarios to understand how well they perform across all circumstances.

Government Office for Science's Futures Toolkit

The Futures Toolkit is another resource that supports Transport Planners when scenario planning. The toolkit identifies the key drivers of change to be political, economic, societal, technological, legislative or environmental factors, following a similar approach to the STEEP framework (Government Office for Science, 2017). It sets out the key stages in scenario planning and offers tools that can be used at each of stage. The toolkit itself contains 12 tools, which are organised into four categories, the most relevant for this research being 'developing and testing policy and strategy'. This involves using tools such as policy stress testing, backcasting and roadmapping which offer different uses for decision makers when developing interventions. These tools are adaptable and can be customised, however the toolkit does not provide specific interventions that can be implemented for certain scenarios.

The three existing toolkits explored above offer example scenarios or recommended scenarios that can be used for testing interventions. The scenario development process used appears to follow the same, or similar STEEP framework as explored in section 2.2, which clearly emphasises that uncertainty in transport is evident across all variables in this framework. However, the toolkits do not offer specific active travel interventions that are recommended to be implemented for certain scenarios.

There is a level of unknown as to how the demand and supply of active travel may change going forward given the multiple drivers of uncertainty identified in this section. Furthermore, it is apparent that there is a gap within current research for a toolkit that offers specific interventions that can be implemented to plan for such uncertainty. The active travel toolkit

will address this gap by providing a mechanism for Transport Planners to plan for scenarios while also encouraging participation in active travel. Such a toolkit is appropriate when dealing with uncertainty because it offers a level of flexibility in what can be implemented for each scenario. Interventions that are listed against each scenario may be selected on an as needed basis depending on individual circumstances and challenges faced. It also offers the opportunity to add further scenarios that may be suited to a wider audience and can be applied to any given geographic location.

3. METHODOLOGY

The following research approach was undertaken, to identify the need for a bespoke toolkit focused on active travel and to determine whether the toolkit can support Transport Planners to plan for future potential scenarios.

Primary Research

Qualitative data collection was the most suitable method to test the toolkit and to understand whether the toolkit would be useful for decision makers when planning for uncertainty. This approach involved preparing a survey which consisted of 11 semi-structured questions focusing on understanding the respondents' view on uncertainty within active travel, the use of toolkits, the 'active travel toolkit' and basic personal details about the respondent.

The survey was sent to 50 practitioners within transport and related fields across public, private and third sectors. Surveys were shared via email in two different formats (Microsoft Word document and PDF) giving users the option of answering using Microsoft Word or a PDF 'fill and sign' feature – both of which are standard tools used by practitioners on a regular basis. Alternative formats were offered to respondents upon request. A total of 19 responses were received between November and December 2021.

In developing the toolkit, the interventions were identified through both primary and secondary sources. Primary research was used within the toolkit from personal experiences with implementing such interventions, which was further enhanced through the survey responses collected.

Secondary Research

Qualitative data collection was the most suitable method to establish the key trends of the topic area. This included setting out the importance of active travel, identifying existing research on scenario planning and the use of toolkits.

As mentioned previously, the content within the toolkit is based on a combination of primary and secondary sources. The secondary sources consisted of case study examples where specific interventions have been used, and other sources that have undertaken research on the types of interventions available (Brook Lyndhurst, 2016).

Research Limitations

Due to the timescales associated with undertaking this research, the scenario development exercise was undertaken individually, however it is most commonly undertaken as part of a workshop exercise which may have resulted in different scenarios. Furthermore, there was a limitation regarding the time allocated for respondents to return their completed survey. More time given to respondents may have resulted in more feedback that would have further shaped the final contents of this toolkit.

Although the survey was shared with varying sectors (public, private and third), a larger sample size could have generated a more informed view from practitioners.

Data Privacy and Ethics

All survey responses were treated anonymously and stored securely using an encrypted database. All respondents gave consent to participating in this study.

4. THE ACTIVE TRAVEL TOOLKIT

The active travel toolkit was developed through a combination of primary and secondary sources. The toolkit recommends what interventions work best for each scenario developed in section 2.2:

- Scenario 1 – low public interest + low political agenda - A future where motor vehicles are prioritised over active modes.
- Scenario 2 - low public interest + high political agenda - A future where active modes are incentivised and technology advances.
- Scenario 3 - high public interest + low political agenda - A future where there is a demand for behavioural change.
- Scenario 4 - high public interest + high political agenda - A future where active travel is the natural choice for all local journeys.

The toolkit is a standalone document that offers a list of interventions that may be implemented on an individual basis or as a package to help Transport Planners manage and plan for these scenarios, whilst also encouraging participation in active travel.

The interventions recommended are categorised into the following areas: physical environment, intra-individual, socio-cultural and policy. The use of categories allows the user to easily identify a specific type of intervention, depending on their needs.

The toolkit can be found in Appendix A and includes information on how to use the toolkit.

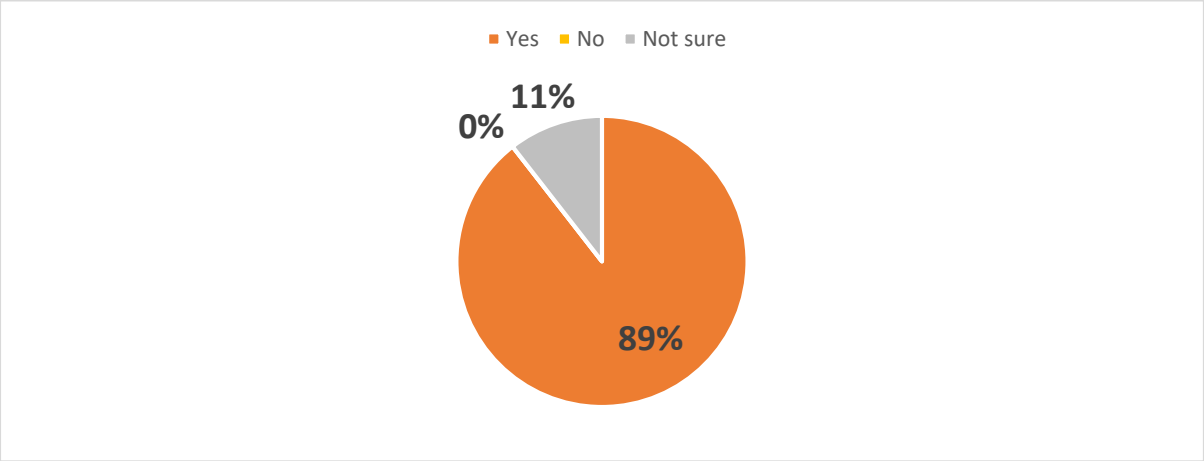
5. DATA PRESENTATION AND ANAYLSIS

The toolkit was tested by practitioners within transport and related fields to determine the usefulness of the toolkit. The survey template is detailed in Appendix B.

Uncertainty within active travel

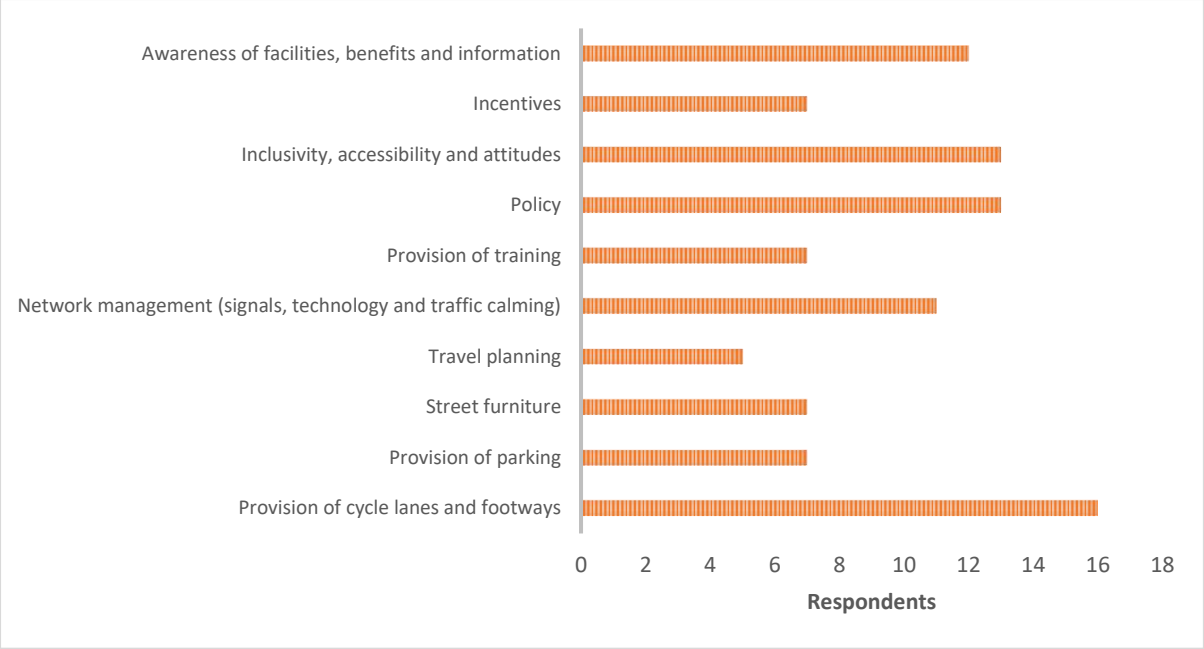
Do you agree that in active travel planning we need to plan for uncertainty and alternative possible futures?

89% of survey respondents agreed that there was a need to plan for uncertainty and alternative possible futures within active travel, highlighting the importance of ensuring Transport Planners have the tools they need to plan for such scenarios and illustrating the awareness that uncertainty exists.



What do you think are the most important variables in encouraging active travel?

Respondents identified the provision of cycle lanes and footways; policy; awareness of facilities, benefits and information; inclusivity, accessibility and attitudes; and network management as the top 5 most important variables to encourage active travel.



Any additional variables? [sub question to question above]

The illustration below displays the most common additional variables chosen by respondents not listed as options in the question. These are: political support, technology and physical infrastructure. This exercise emphasises the multitude of variables that practitioners believe impact levels of active travel. The interventions within the toolkit must reflect such variables.

Existing toolkits

In your role, have you used any of the following toolkits?

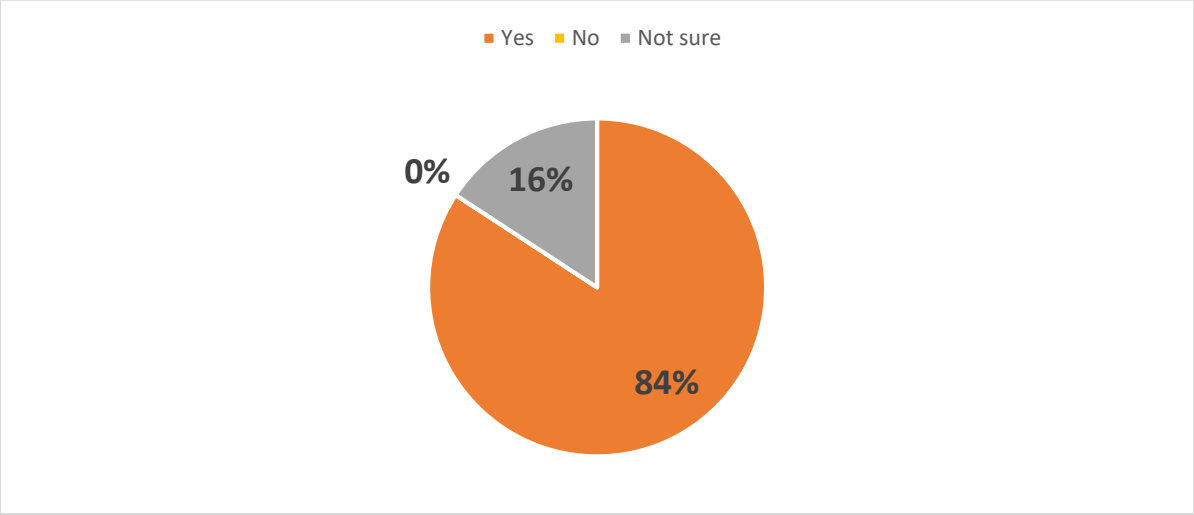
Of the 63% of respondents who have used one or more of the three toolkits, the TAG: Uncertainty Tool was the most commonly used. The remaining 37% of respondents have not used any toolkit. This highlights the need for the toolkit to be easy to use and accessible, but more importantly it must provide enough detail to enable practitioners to implement interventions efficiently, as well as the need to create a widely recognised toolkit.

Active travel toolkit

Do you support the concept that a toolkit such as the 'active travel toolkit' can help you plan for future scenarios?

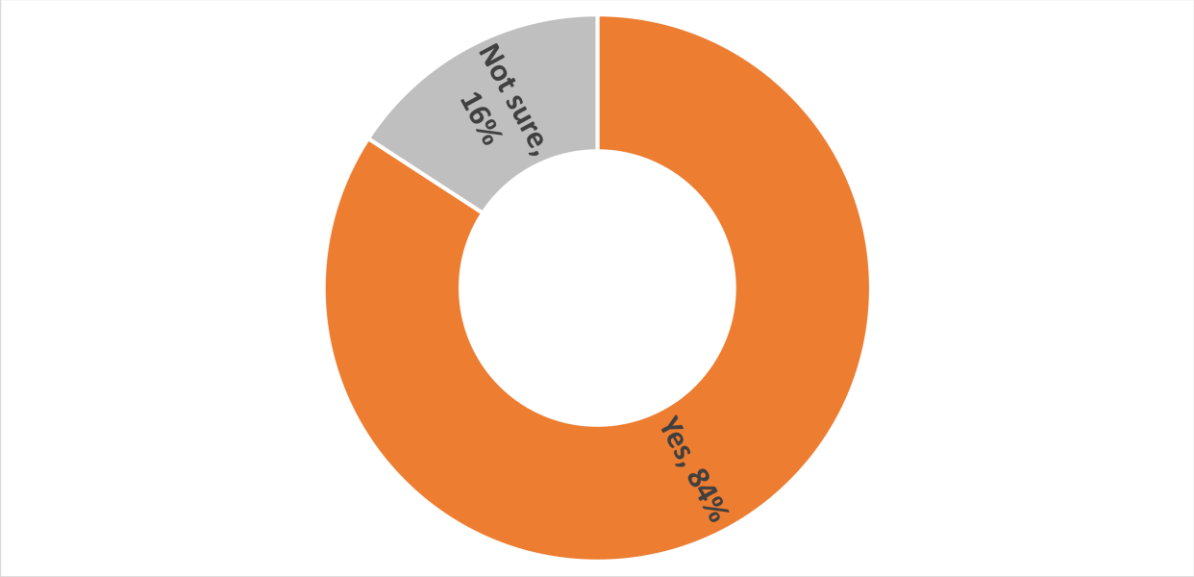
84% of respondents supported the concept that a toolkit can support planning for future scenarios, suggesting that a toolkit would be welcomed by practitioners.

Two thirds of the respondents who are not sure if they support the concept of a toolkit (11%), are the same respondents who are not sure whether there was a need to plan for uncertainty and alternative possible futures and have also not used any previous toolkit. This suggests that there is a need to ensure that practitioners are aware of how toolkits can be used in planning for future uncertainty and raises the importance of including practitioners in a workshop style exercise to develop the scenarios (identified in section 2.2).



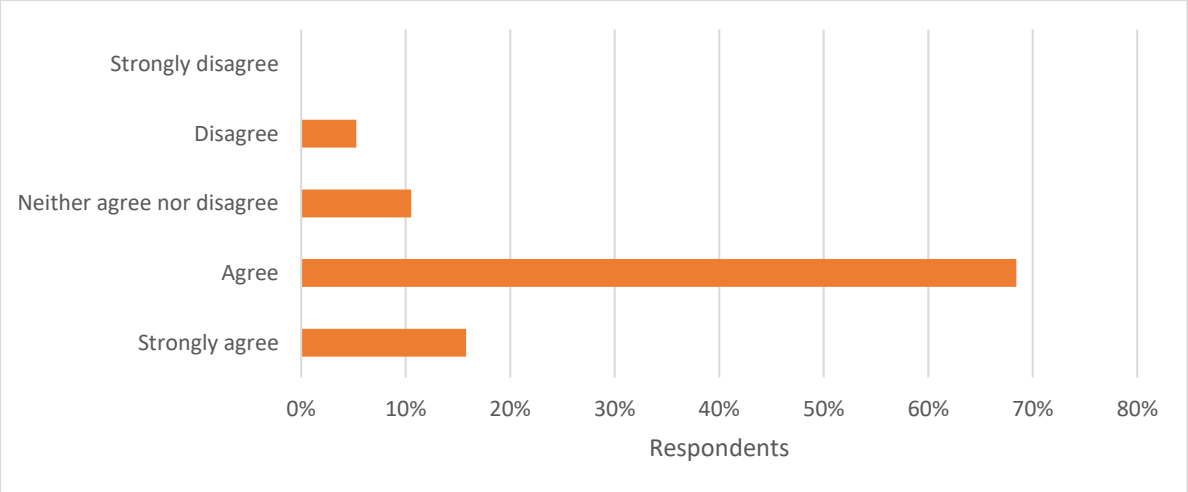
Do you consider the scenarios identified in the toolkit are appropriate?

74% of respondents agree that the scenarios identified are appropriate; 26% were not sure. It is evident that the scenarios are subjective to a certain extent, however the scenario development exercise could be revisited with a group of practitioners to ensure that scenarios are "plausible, internally consistent, based on rigorous analysis, engaging and compelling" (FHSC, 2009).



To what extent do you agree that the interventions recommended in the 'Active travel toolkit' align to each scenario?

84% of respondents either agree or strongly agree that the interventions recommended within the toolkit align to each scenario. It is understood that interventions could be delivered individually or as a package of measures. In some cases, it is argued that the most effective approach to increasing levels of active travel is to implement a complementary package of measures that consist of both physical infrastructure and behavioural change interventions (DfT, 2016; Brook Lyndhurst, 2016).



What other measures should the toolkit promote, considering its focus on scenario planning and robust decision making? And, *please provide any additional comments or suggestions on how to improve the value of this toolkit for decision makers.*

A range of improvements to the toolkit were suggested by respondents which are grouped into two key themes.

Intervention Details

A follow up guide or further information on how to implement the recommended interventions was suggested. This would provide practitioners with an understanding of whether interventions are feasible to implement in terms of timeframe, costs and effectiveness.

Respondents supported the provision of examples to give context to interventions and confidence that they can be effective and requested examples for all interventions.

Respondents also highlighted the need for additional interventions to be listed within the toolkit, enabling the toolkit to apply to a wider audience. Suggested interventions included: clean air zones, repurposing car parking spaces and rainbow crossings to promote inclusivity and raise awareness.

Additionally, respondents emphasised the importance of considering the impact of these interventions on other sustainable modes of travel such as bus and train as well as quantifiable benefits such as expected carbon emission savings and longer-term benefits.

Toolkit Layout

Interventions across the toolkit apply in multiple scenarios, respondents therefore recommended listing the interventions at a high level and providing an indication as to whether it was suitable for certain scenarios. This would emphasise that many interventions can be applied across scenarios.

Respondents suggested that the toolkit could be simplified in terms of accessibility, whereby the user could select which type of intervention they would like to view. This would enable practitioners who may solely work on infrastructure to access only 'physical infrastructure' interventions.

About the Respondents

There was no correlation identified between the age and sex of the respondents and their selected answers in this survey. The views provided are based on practitioners across 12 different job roles, four age groups covering 26-55+ and a fair representation of male (58%) and female (42%) responses.

6. CONCLUSION

6.1 Summary

This research paper has considered how scenario planning can be used to address uncertainty within active travel. The following objectives were explored, the findings of which are summarised below.

What are the most uncertain variables in the participation of active travel?

The paper has established the various key drivers of uncertainty following the STEEP framework, which highlighted the extent to which uncertainty is experienced across all factors. Based on the exercise carried out in section 2.2, the top 3 most uncertain variables are: political agenda, travel demand and public interest. This emphasises the importance of undertaking scenario planning within transport planning and more specifically, active travel.

How can we remain flexible to change?

The process of scenario planning and development as set out within the paper is iterative. This step-by-step process provides a level of flexibility or adaptation, for example, if additional drivers of uncertainty are established, or if levels of uncertainty and impact change, the process can be revisited and the final output (scenarios) may change. Furthermore, the 2x2 approach also offers the opportunity to add further layers (axes) of uncertainty, resulting in additional potential scenarios.

The active travel toolkit itself offers flexibility to decision makers. Given the toolkit offers a starting point for practitioners, additional scenarios and interventions can be added to provide further options. The toolkit acts as a pool of interventions and therefore practitioners can select individual interventions or create a package of interventions to suit their needs.

How can toolkits help Transport Planners plan?

This research examined the use of toolkits within the context of scenario planning and established how toolkits can be used as a mechanism for Transport Planners to plan for future scenarios. The paper reviewed three existing toolkits proving example/recommended scenarios that were linked to the STEEP framework offering practitioners a tool to assess and test interventions across these scenarios. From an alternative standpoint, the toolkits did not recommend any interventions for each scenario with the aim of achieving a specific outcome, for example increasing levels of active travel.

Survey results indicated a vast majority (84%) of practitioners support the concept of a toolkit being used to plan for future scenarios and on balance the active travel toolkit created was well supported.

6.2 Further Research

Further data collection is required to provide additional interventions and examples, as well as more details in terms of costs, impacts, benefits and how to implement interventions. Considering the additional information contained within the toolkit, it is recommended that the toolkit is made more accessible through an interactive platform, where an individual

selects certain variables (scenarios and/or type of intervention) and is given an output of initiatives and messages to trial and test. The platform could also enable a contribution feature which allows practitioners to upload interventions and scenarios which are then viewable within the toolkit. This would result in a wider pool of scenarios and interventions which may lead to the toolkit becoming a common guide for practitioners.

It is also considered that testing the interventions, as seen in the uncertainty toolkit, would provide more validity to each intervention recommended in the active travel toolkit, which are currently recommended based on personal experiences and existing research.

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APPENDIX A - ACTIVE TRAVEL TOOLKIT

How to use this toolkit

Step 1 – Establish which scenario is relevant to you. This may be your preferred scenario or current scenario.

Step 2 – Choose the type of intervention you would like to implement. In this example, 'physical infrastructure' has been selected, and then within 'physical infrastructure', 'cycle lanes and footways' has been selected as the chosen type of physical infrastructure.

Step 3 – Once the type of intervention has been selected, view the recommended actions/interventions that can be implemented to help encourage active travel for this scenario.

Step 1 – Choose your scenario

Step 2 – Choose your intervention type

Step 3 – View recommended interventions

	INTERVENTION	SCENARIO 1 LOW PUBLIC INTEREST + LOW POLITICAL AGENDA Motor vehicles prioritised	SCENARIO 2 LOW PUBLIC INTEREST + HIGH POLITICAL AGENDA Incentivising and technology	SCENARIO 3 HIGH PUBLIC INTEREST + LOW POLITICAL AGENDA Demand for behavioural change	SCENARIO 4 HIGH PUBLIC INTEREST + HIGH POLITICAL AGENDA Natural travel choice
PHYSICAL INFRASTRUCTURE	**CYCLE LANES AND FOOTWAYS**				
	Use the Propensity to Cycle Tool[1] to identify routes with the highest potential to increase cycling and walking. Create pipeline of schemes, prepare concept designs and undertake consultation to determine least opposed and most supported. Ensure compliance with Local Transport Note 1/20[2].	X	X	X	X
	Undertake engagement exercise with general public to identify perception of active travel and create a prioritised list of infrastructure improvements.	X	X	X	X
	Re-allocate road space away from motor vehicles e.g. removal of hatching, right turn pocket lanes, edge of carriageway markings or reduction of carriageway widths.	X	X	X	X
	Undertake engagement exercise to identify most travelled trips in an area e.g. to school, to work, to the shops.	X	X	X	X
	Consider using technology to enable continuous cycling. **Example: Utrecht - 'Fiz'[3]**		X		X
	Provide shared bus and cycle facilities on multi modal routes where full segregation is not possible.				X
	Consider using smart technology at crossing points. **Example: Portsmouth[4]**		X		X
	Improve routes that link to key destinations, places of employment and r…			X	X
	Provide connectio… e.g. routes link to rail stations… cle/scooter parking and places…			X	X
	Engage with local … holders to identify routes to b… . Identify both quicks wins and long-term improvements. Produce concept designs and re-engage in advance of submitting for a bid.	X		X	X
	Increase mesh density of cycling and walking network to ensure high quality walking and cycling facilities are easily accessible to all.			X	X
	Undertake review of all existing crossing facilities, and upgrade or install additional crossing facilities on key desire lines as appropriate	X	X	X	X
	NETWORK MANAGEMENT				
	Use Variable Message Signs (VMS) signs or temporary signs to raise awareness of cycling and walking on a relatable basis e.g. "Cycling from here to town could save you £x, burn X calories, save you x minutes and reduce your carbon emission by x."	X	X	X	X
	Review existing traffic restrictions on key walking and cycling routes.	X	X	X	X
	Introduce traffic calming measures (20mph zones) on routes used as rat runs and/or have high pedestrian flows.		X		X
	Ensure VMS signs are on all strategic roads.	X	X	X	X
	Introduce early release for cyclists at signalised junctions or separate phases for cyclists or use artificial intelligence technology. **Example: Southampton[5]**		X		X

	INTERVENTION	SCENARIO 1 LOW PUBLIC INTEREST + LOW POLITICAL AGENDA Motor vehicles prioritised	SCENARIO 2 LOW PUBLIC INTEREST + HIGH POLITICAL AGENDA Incentivising and technology	SCENARIO 3 HIGH PUBLIC INTEREST + LOW POLITICAL AGENDA Demand for behavioural change	SCENARIO 4 HIGH PUBLIC INTEREST + HIGH POLITICAL AGENDA Natural travel choice
PHYSICAL INFRASTRUCTURE	**CYCLE LANES AND FOOTWAYS**				
	Use the Propensity to Cycle Tool[1] to identify routes with the highest potential to increase cycling and walking. Create pipeline of schemes, prepare concept designs and undertake consultation to determine least opposed and most supported. Ensure compliance with Local Transport Note 1/20[2].	X	X	X	X
	Undertake engagement exercise with general public to identify perception of active travel and create a prioritised list of infrastructure improvements.	X	X	X	X
	Re-allocate road space away from motor vehicles e.g. removal of hatching, right turn pocket lanes, edge of carriageway markings or reduction of carriageway widths.	X	X	X	X
	Undertake engagement exercise to identify most travelled trips in an area e.g. to school, to work, to the shops.	X	X	X	X
	Consider using technology to enable continuous cycling. **Example: Utrecht - 'Flo'[3]**		X		X
	Provide shared bus and cycle facilities on multi modal routes where full segregation is not possible.				X
	Consider using smart technology at crossing points. **Example: Portsmouth[4]**		X		X
	Improve routes that link to key destinations, places of employment and residential areas.			X	X
	Provide connections between different modes e.g. routes link to rail stations, bus/tram stops and offer cycle/scooter parking and places to stop and rest.			X	X
	Engage with local community groups and stakeholders to identify routes to be improved in priority order. Identify both quicks wins and long-term improvements. Produce concept designs and re-engage in advance of submitting for a bid.	X		X	X
	Increase mesh density of cycling and walking network to ensure high quality walking and cycling facilities are easily accessible to all.			X	X
	Undertake review of all existing crossing facilities, and upgrade or install additional crossing facilities on key desire lines as appropriate	X	X	X	X
	NETWORK MANAGEMENT				
	Use Variable Message Signs (VMS) signs or temporary signs to raise awareness of cycling and walking on a relatable basis e.g. "Cycling from here to town could save you £x, burn X calories, save you x minutes and reduce your carbon emission by x."	X	X	X	X
	Review existing traffic restrictions on key walking and cycling routes.	X	X	X	X
	Introduce traffic calming measures (20mph zones) on routes used as rat runs and/or have high pedestrian flows.		X		X
	Ensure VMS signs are on all strategic roads.	X	X	X	X
	Introduce early release for cyclists at signalised junctions or separate phases for cyclists or use artificial intelligence technology. **Example: Southampton[5]**		X		X

[1] Lovelace et al. (2017) https://www.pct.bike/
[2] Department for Transport (2020) https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120
[3] Streetfilms (2019) https://vimeo.com/337648879
[4] The News (2021) https://www.portsmouth.co.uk/news/transport/portsmouth-zebra-crossing-is-the-first-of-its-kind-in-the-uk-as-it-lights-up-for-pedestrians-3464966
[5] Paton, 2020, https://www.thetimes.co.uk/article/smart-traffic-lights-will-turn-green-for-cyclists-c5nmxwslf

	Introduce priority for pedestrians at all signalised crossing points. **Example: London[6]**		X		X
	Introduce more/upgrade existing crossing points for pedestrians and cyclists on key desire lines.	X	X	X	X
	Ensure appropriate enforcement of traffic restrictions.	X	X	X	X
	Undertake School Street trials. **Example: Reading[7]**			X	X
	Introduce Mini-Hollands focusing on residential areas and local centres. **Example: London Mini-Hollands[8]**				X
	Trial 'car free days'.		X	X	X
	STREET FURNITURE				
	Review existing street furniture at local centres and list improvements/changes to be made in line with the Healthy Streets[9] indicators.	X	X	X	X
	Undertake a lighting survey to ensure key routes are well lit to increase sense of safety.	X	X	X	X
	Install community planter schemes that may be used as modal filters. Partner with organisations to maintain planters. **Example: Food4Families[10]**		X	X	X
	Create interactive routes using signage or temporary vinyl stickers on footways and cycleways. **Example: Oxfordshire[11]**	X	X	X	X
	Engage with local cycling and walking groups to identify and sign leisure routes of varying distances and difficulty.	X	X	X	X
	Undertake decluttering programme focusing on areas of high footfall.	X	X	X	X
	Ensure key walking routes have places to stop and rest. Install new seating where appropriate.	X	X	X	X
	Consider implementing pocket parks and reallocate highway space to pedestrians and cyclists.		X	X	X
	PARKING				
	Undertake a review of existing cycle parking provision within the local area. Consider trialling Bikehangars within a residential area. **Example: Richmond[12]**	X	X	X	X
	Engage with key employers and assist with ideas on marketing of cycle parking facilities that are available to employees/visitors e.g. posters, emails, leaflets, "Did you know cycling from A to B only takes X mins and saves you £x in fuel and parking."	X	X	X	X
	Undertake a review of existing cycle/scooter parking facilities at all educational facilities. Ensure adequate parking is available.	X	X	X	X
	Trial a cycle hire scheme at key locations including residential areas. Offer both e-bikes and standard bikes.		X	X	X
	Offer free cycle hooks for residents to install at home. Focus on flats/terraced houses following completion of a survey.	X	X	X	X
	Engage with a group of employers and hold a competition e.g. most miles cycled on average per person in a week wins 5 Sheffield stands.	X	X	X	X
	Encourage workplaces with car parks to reallocate 1 car park space (for every 10 car spaces), providing 10 cycle spaces. Use a Car Bike Port as a marketing tool[13].		X		X
	Hold a competition with schools to encourage active participation in a transport related issue, e.g. best poster for Clean Air Day wins a free cycle/scooterpod.	X	X	X	X
	Ensure cycle parking is located within city/town centres, local centres and key destinations.	X	X	X	X

[6] Transport for London, 2021 https://tfl.gov.uk/info-for/media/press-releases/2021/may/pedestrian-priority-introduced-as-part-of-london-s-drive-to-be-the-world-s-most-walkable-city
[7] Reading School Streets, 2021 www.reading.gov.uk/schoolstreets
[8] Department for Transport, 2020 - https://www.gov.uk/government/case-studies/london-mini-hollands
[9] Saunders, L. https://www.healthystreets.com/what-is-healthy-streets
[10] Food4Families, 2021 https://www.food4families.org.uk/
[11] JACK FM Oxfordshire, 2021 https://www.jackfm.co.uk/news/oxfordshire-news/sport-england-pilot-project-encourages-families-to-walk-to-school/
[12] London Borough of Richmond, 2021 https://www.richmond.gov.uk/bikehangars
[13] Cyclehoop, 2019 https://www.cyclehoop.com/news/did-you-know-that-one-car-parking-space-can-provide-cycle-parking-for-ten-bicycles/

	Hold community events and offer free cycle locks for completing a survey on cycle usage.	X	X	X	X
	Upgrade and expand existing cycle parking facilities e.g. maintenance facilities, shelter, CCTV where possible.		X	X	X
	Work in partnership with community groups to campaign and support need for all employees to have access to cycle parking and associated facilities.	X	X	X	X
	Ask schools to undertake regular cycle/scooter parking counts. Delegate the task to a class each term to understand the level of usage. If cycle parking is over or near capacity, offer funding to install additional parking facilities and/or improve facilities.	X	X	X	X
	Increase number of cycle parking locations within residential areas.				X
	Ensure appropriate parking facilities available for adapted bikes/cargo bikes.				X
	Encourage workplaces to increase quality of cycle facilities, such as showers, lockers and secure cycle parking.				X
	Offer schools the opportunity to request additional cycle and scooter parking, if evidenced that there is a need.	X	X	X	X
	Use social media to promote use of cycle/scooter parking spaces in schools. **Example: Reading**[14]	X	X	X	X
	Implement cycle hubs within town/city centres. **Example: Worcester**[15]		X		X

[14] Reading Borough Council, 2021 https://twitter.com/ReadingCouncil/status/1460578866041344000
[15] Visit Worcester, 2021 https://www.visitworcester.co.uk/cycle-storage-in-crowngate/?utm_source=rss&utm_medium=rss&utm_campaign=cycle-storage-in-crowngate

	INTERVENTION	SCENARIO 1 LOW PUBLIC INTEREST + LOW POLITICAL AGENDA Motor vehicles prioritised	SCENARIO 2 LOW PUBLIC INTEREST + HIGH POLITICAL AGENDA Incentivising and technology	SCENARIO 3 HIGH PUBLIC INTEREST + LOW POLITICAL AGENDA Demand for behavioural change	SCENARIO 4 HIGH PUBLIC INTEREST + HIGH POLITICAL AGENDA Natural travel choice
INTRA INDIVIDUAL	**AWARENESS**				
	Ensure up to date information is available on local notice boards and latest walking and cycling route maps are available at community centres and public buildings.	X	X	X	X
	Ensure schools display local travel information in reception. Provide materials including cycling and walking maps, and information on highway code for children.	X	X	X	X
	Use social media and VMS to raise awareness of key travel related issues.	X	X	X	X
	Undertake survey (at community event/door-to-door) with individuals to understand existing and preferred travel behaviours. Offer pedometer/cyclometer for completion.	X	X	X	X
	Hold a competition with schools to design the best poster on an appropriate topic e.g. parking, road safety or climate change. Schools and local authority to use social media to promote and raise awareness of competition and issues faced. Winning school receives a prize and poster is printed on a banner outside the school.	X	X	X	X
	Develop interactive network maps or develop bespoke travel app for the local area.		X		X
	Hold local engagement events with residents to raise awareness of a specific scheme or issue.	X	X	X	X
	Ensure travel information is available at local authority offices, on local authority website, at public/community spaces and key employment sites.	X	X	X	X
	Support schools to prepare bespoke journey to school maps/posters. Offer materials and hold workshops with a selection of schools to understand key issues faced on the journey to school.	X	X	X	X
	Create social media plan for regular transport related posts aimed at raising awareness and encouraging travel behaviour change.	X	X	X	X
	Keep cycling and walking route maps up to date and consider installing additional wayfinding facilities where pedestrian flows are high. **Example: Reading[16]**	X	X	X	X
	Create interactive map compiling all travel information for each school. Include information such as recently implemented schemes, cycling routes, walking routes (Public Rights of Way and pedestrianised areas), training on offer (Bikeability, road safety awareness), public transport routes, park and ride sites and park and stride sites. **Example: Reading[17]**		X		X
	Create central hub for travel information, buy bikes, offer lessons, led walks, routes and repairs. **Example: The Hague[18]**				X
	TRAVEL PLANNING				
	Target a small group of schools to sign up to Modeshift STARS[19] each term. Provide a starter pack of materials and ongoing support.	X	X	X	X
	Identify key issues faced by each school, what the schools are already doing in relation to sustainable travel and what more they could do.	X	X	X	X

[16] Reading Borough Council, 2020 https://media.reading.gov.uk/news/new-visitor-information-points-and-cycle-hub-cctv-at-reading-station
[17] Reading Borough Council, 2020 https://pjassoc.maps.arcgis.com/apps/MapSeries/index.html?appid=b997177bae8c4d73bf6d514d4f5090d5
[18] Dutch Cycling Embassy, 2021 https://dutchcycling.nl/en/news/news/903-the-hague-cycles-service-info-point
[19] Modeshift STARS https://www.modeshiftstars.org/

	Target a major employer to sign up to Modeshift STARS. Provide a starter pack of materials and ongoing support. Identify key issues faced and identify targets.	X	X	X	X
	Offer personalised travel planning to individuals through community events or door-to-door exercise.	X	X	X	X
	Local authorities should use Modeshift STARS to develop and monitor residential travel plans.	X	X	X	X
	Create sense of friendly competition between schools. Undertake competitions each term to encourage active participation in Modeshift STARS e.g. first school to achieve bronze accreditation wins a scooter pod or set up a Beat the Street[20] zone for the local area.	X	X	X	X
	Hold business event to promote Modeshift STARS and offer incentive to first 5 businesses that sign up e.g. offer some free pool bikes.	X	X	X	X
	Undertake survey with residents to understand personal activity and travel patterns. Offer cyclometers and pedometers for completion.		X		X
	Support schools to continue to participate in Modeshift STARS and raise awareness to local community through press releases.	X	X	X	X
	Offer to hold assemblies with transport officers and/or local councillors to emphasise importance of travel planning and the impact each pupil has.	X	X	X	X
	Support businesses to continue to participate in Modeshift STARS and raise awareness of achievements through press releases and social media.		X		X
	Hold community-based event to raise awareness of existing cycling and walking facilities available to users and provide motivation and advice on how to make journeys using more sustainable modes.	X	X	X	X
	Encourage schools to update and monitor travel plans.	X	X	X	X
	Encourage schools to share experiences with each other to overcome shared challenges.	X	X	X	X
	Request businesses with multiple locations to encourage multiple sign ups to Modeshift STARS.		X		X
	Encourage businesses to update and monitor travel plans.		X		X
	Create central hub for bespoke travel advice in combination with other cycling and walking facilities (sales, lessons, led walks, routes and repairs).		X		X
	TRAINING				
	Offer Bikeability courses during term time and holidays to all children.	X	X	X	X
	Offer road safety awareness courses/events.	X	X	X	X
	Establish why some schools/children do not partake in courses and address this by identifying a school sustainable travel leader/working group.	X	X	X	X
	Offer Adult and Family Bikeability cycle training and maintenance courses.	X	X	X	X
	Work with existing community groups to offer walking programmes for all. Offer a variety of routes, paces and distances at different times of the day.	X	X	X	X
	Create a Bikeability awards system based on the number of pupils trained per school or encourage competitions within school. Prizes may be offered on a termly basis.	X	X	X	X
	Offer road safety roadshows to all schools to encourage interest and raise awareness. **Example: Reading and Wokingham[21]**	X	X	X	X
	Arrange led walks and offer pedometers to attendees.		X		X
	Use social media and headteacher newsletters to promote training courses that are on offer.	X	X	X	X
	Hold information stalls on key topics such as road safety (within the playground or near entrance to education facility).	X	X	X	X
	Ensure training is available for those who are interested in cycling, either as a form of transport or as a recreational activity.	X	X	X	X

[20] Intelligent Health Ltd, 2021 https://www.beatthestreet.me/
[21] My Journey Wokingham, 2021 https://www.myjourneywokingham.com/news/louis-taylor-road-safety-shows-in-lockdown

	Hold cycling and walking festival to raise awareness of training and support on offer.	X	X	X	X
	Work with schools to identify how more training and awareness of transport related issues can be included on syllabuses.	x	X	X	X
	Bikeability sessions become mandatory for all schools to partake in. Ensure cycle training is age-appropriate and timed to allow cycling to school to become a habit.	X	X	X	X
	Hold regular Dr Bike/maintenance sessions at local centres and key destinations.	X	X	X	X
	Offer weekly led walks to local communities. Focus on those not currently active.	X	X	X	X
	INCENTIVES				
	Trial initiatives such as Beat the Street to inspire people to be physically active. **Example: Reading[22]**	X	X	X	X
	Trial offering Better Points[23] aimed at motivating people to improve mental and physical health by choosing active modes.	X	X	X	X
	Consider offering 'try before you buy' options to allow people to trial or loan bikes. **Example: Peddle My Wheels[24]**	X	X	X	X
	Offer a free or low-cost cycle hire scheme and encourage businesses to offer a cycle to work scheme for employees.		X		X

[22] Intelligent Health, 2016 http://www.intelligenthealth.co.uk/best-foot-forward-for-reading-as-beat-the-street-returns/
[23] Better Points Ltd, 2021 https://www.betterpoints.ltd/
[24] Peddle My Wheels, 2021 https://www.peddlemywheels.com/

	INTERVENTION	SCENARIO 1 LOW PUBLIC INTEREST + LOW POLITICAL AGENDA Motor vehicles prioritised	SCENARIO 2 LOW PUBLIC INTEREST + HIGH POLITICAL AGENDA Incentivising and technology	SCENARIO 3 HIGH PUBLIC INTEREST + LOW POLITICAL AGENDA Demand for behavioural change	SCENARIO 4 HIGH PUBLIC INTEREST + HIGH POLITICAL AGENDA Natural travel choice
SOCIO-CULTURAL	**INCLUSIVITY, ACCESSIBILITY AND ATTITUDES**				
	Encourage and support schools to raise awareness of the wider benefits of walking and cycling to school community through parent assemblies, stalls in playground and parent newsletters.	X	X	X	X
	Offer led walks led by trained walk leaders and aimed at people who are currently inactive.	X	X	X	X
	Offer led cycle rides led by trained leader and aimed at people who are currently inactive or lack confidence.	X	X	X	X
	Provide information tailored for individuals who want to go walking without joining a group.	X	X	X	X
	Support schools to set up regular 'walking buses' and 'bike buses' or encourage participation in walk/cycle once a week programmes to encourage change in attitude and habits.	X	X	X	X
	Offer access to equipment (bikes and helmets) particularly for more deprived areas.		X		X
	Create mass participation such as walkathons and community challenges. Use pedometers/cyclometers as part of a package which includes support to set realistic goals. Create community leader board for local areas.		X	X	X
	Encourage schools to identify a walking or cycling champion to liaise with the local authority and other potential partners to address any barriers to walking and cycling to school.	X	X	X	X
	Hold local cycling and walking festivals. Raise awareness of different types of adapted bikes, offer chance to trial bikes, engage with local community and share information. **Example: Reading Cycle Festival**[25]	X	X	X	X
	Engage with hard to reach groups and provide alternative formats or translated materials. Identify point of contact/champion for each group.	X	X	X	X
	Develop programmes to ensure the local environment surrounding schools provide opportunities for all children to walk and cycle. Identify potential issues for those with mobility difficulties.		X		X
	Offer 'library of active travel things' to loan to school community e.g. bikes, helmets, walking shoes, wellies, raincoat, pedometers etc.		X		X
	Ensure all training is sensitive to cultural issues, e.g. women-only groups with female trainers, where appropriate. Also ensure it includes an understanding of the needs of people with impairments.	X	X	X	X

[25] Reading Cycle Festival, 2021 https://readingcyclefestival.co.uk/

	INTERVENTION	SCENARIO 1 LOW PUBLIC INTEREST + LOW POLITICAL AGENDA Motor vehicles prioritised	SCENARIO 2 LOW PUBLIC INTEREST + HIGH POLITICAL AGENDA Incentivising and technology	SCENARIO 3 HIGH PUBLIC INTEREST + LOW POLITICAL AGENDA Demand for behavioural change	SCENARIO 4 HIGH PUBLIC INTEREST + HIGH POLITICAL AGENDA Natural travel choice
POLICY	**LOCAL TRANSPORT PLAN Multi-Modal Policies**				
	Sustainable Transport - Prioritise sustainable travel modes to offer an attractive and realistic alternative to the private car.	X	X	X	X
	Equality and Inclusivity - Deliver an accessible network for all and address barriers caused by physical infrastructure.	X	X	X	X
	Sustainable Modes of Travel to School - Work with the school community to identify barriers currently preventing sustainable travel and provide solutions to create safer and more attractive routes to schools.	X	X	X	X
	Smart Solutions and Innovation - Embrace the latest technologies to improve the efficiency and resilience of the transport network.		X		X
	Sustainable Modes of Travel to School - All schools to be incentivised to renew their school travel plan annually as part of the national accreditation scheme – Modeshift STARS and set ambitious targets to increase the percentage of the school community walking, cycling and using public transport.		X	X	X
	Sustainable Modes of Travel to School - Encourage and support the promotion of sustainable travel to schools through implementation of education, training and initiatives, such as Bikeability and School Streets.			X	X
	Sustainable Transport - Increase the capacity of the sustainable transport network by reallocating road space to sustainable modes.				X
	Active Travel Policies				
	Healthy Streets – Reallocate road space away from the private car, to provide healthier streets and encourage more sustainable, active modes of travel.	X	X	X	X
	Walking and Cycling - Monitor the development and uptake of new technologies such as e-bikes and e-scooters.		X		X
	Wayfinding - Develop a comprehensive wayfinding strategy to improve the travel experience of residents, employees and visitors, and people travelling through the area.		X		X
	Healthy Streets – Encourage the creation of Healthy Streets to improve air quality, reduce congestion and help make communities healthier, greener and more attractive places to live, work, learn and play.			X	X
	Walking and Cycling - Design the walking and cycling network to accommodate all users where feasible e.g. wheelchair users, adapted cycles, those who are visually impaired and cycles with trailers.			X	X
	Walking and Cycling - Transform the walking and cycling network to be safe, clean and green and better connect people to local facilities and services, including education, retail, leisure and employment.			X	X
	Rights of Way - Maintain and improve the existing Rights of Way network across the area.				X
	Network Management Policies				
	Network Management - Maximise the performance of the network and manage the network to aid the movement of people, prioritising sustainable transport.	X	X	X	X
	Network Management – Invest in new technologies to support VMS.		X		X

	Road Safety - Improve the safety of vulnerable road users through infrastructure enhancements set out in the Local Cycling and Walking Infrastructure Plan.			X	X
	Road Safety - Support and promote education programmes and road safety campaigns, particularly those that better protect vulnerable road users.	X	X	X	X
	Communication and Engagement Policies				
	Public Consultation and Engagement - Engage with residents, employees and other stakeholders to develop schemes and strategies from the early stages, so that the views of the local community are considered.	X	X	X	X
	Travel Information - Support and promote the use of a wide range of data and technology to influence travel behaviour and manage the transport network.		X		X
	Travel Information - Work with partners to deliver high quality, accessible, real-time data to assist users to make sustainable travel choices, recognising the differing needs of travellers.			X	X
	Public Consultation and Engagement – Consultations will be made more accessible for all to participate in the consultation process.	X	X	X	X
	Travel Information - Work with businesses, and other key destinations, to support them in delivering their travel plans and providing sustainable travel advice to their workforce.	X	X	X	X

APPENDIX B – SURVEY TEMPLATE

This survey forms part of research being undertaken for the Transport Planning Society's 2021 Bursary, on the topic: 'Scenario planning – how can Transport Planners best plan for the new normal?'

The main objective of this research is to develop a toolkit that decision makers can use to address uncertainty within active travel by implementing recommended interventions.

The survey should take approximately 5 minutes to complete, and all information provided will remain anonymous. Alternative formats of this survey are available by emailing: lucyprismall@hotmail.co.uk

Do you agree that in Active Travel Planning we need to plan for uncertainty and alternative possible futures?

- ☐ Yes
- ☐ No
- ☐ Not sure

What do you think are the most important variables in encouraging Active Travel? (please mark all that apply)

- ☐ Provision of cycle lanes and footways
- ☐ Provision of parking
- ☐ Street furniture
- ☐ Travel planning
- ☐ Network management (signals, technology and traffic calming)
- ☐ Provision of training
- ☐ Policy
- ☐ Inclusivity, accessibility and attitudes
- ☐ Incentives
- ☐ Awareness of facilities, benefits and information

Any additional variables?

In your role, have you used any of the following toolkits? (please mark all that apply)

- ☐ Travel Demand Management Toolkit
- ☐ Transport Analysis Guidance: Uncertainty Toolkit
- ☐ Government Office for Science's Futures Toolkit
- ☐ Other (please specify): _____

Uncertainty and Active Travel Planning

This toolkit has been developed as a tool for decision makers to use to encourage participation in active travel for four potential future scenarios: A future where active modes are incentivised and technology advances; a future where active travel is the natural choice for all local journeys; a future where motor vehicles are prioritised over active modes; and a future where there is a demand for behavioural change.

These four scenarios have been identified using the scenario development process where key drivers of uncertainty have been identified and then ranked in terms of their level of impact and uncertainty. The two drivers considered to have the most impact and highest uncertainty (public interest and political agenda) were used to form the narratives of each scenario.

The toolkit can be used as a starting point for decision makers to understand what interventions are best suited to each possible scenario.

Do you support the concept that a toolkit such as the 'Active Travel Toolkit' can help you plan for future scenarios?

- ☐ Yes
- ☐ No
- ☐ Not sure

Do you consider the scenarios identified in the toolkit are appropriate?

- ☐ Yes
- ☐ No
- ☐ Not sure

To what extent do you agree that the interventions recommended in the 'Active Travel Toolkit' align to each scenario?

- ☐ Strongly agree
- ☐ Agree
- ☐ Neither agree nor disagree
- ☐ Disagree
- ☐ Strongly Disagree

What other measures should the toolkit promote, considering its focus on scenario planning and robust decision making?

What is your job role? (choose the role that suits you best)

- ☐ Transport Planner
- ☐ Transport Modeller
- ☐ Transport Economist
- ☐ Transport Consultant
- ☐ Transport Engineer
- ☐ Other (please specify): _____

Which age group do you belong to?

- ☐ Under 21
- ☐ 21-25
- ☐ 26-35
- ☐ 36-45
- ☐ 46-55
- ☐ 55+
- ☐ Prefer not to say

What best describes your gender?

- ☐ Female
- ☐ Male
- ☐ Other (please specify): _____
- ☐ Prefer not to say

Thank you for your time given to review the Active Travel Toolkit and complete this survey. The research paper associated with this work will be presented in 2022.