A vision for creating an inclusive wayfinding system that works for everyone

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Pathways Project

Strategic Outline Business Case

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applied

1 Executive summary

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1.1 Introduction

This document presents the Strategic Outline Business Case (SOBC) for the Pathways Project, a new wayfinding, data and signage system for walking, wheeling and cycling routes across the UK. The SOBC is being prepared alongside the Blueprint: an overarching Vision Study for the project.

The aim of the SOBC is to provide a body of evidence which supports further development and progression of the Pathways Project, and which makes the case for government support to deliver the scheme.

The next stage is a Research & Development phase, during which time the project will be piloted in a number of sample locations, and the data system further developed and tested on the "front line", with user and stakeholder consultations undertaken to evolve and optimise the project ahead of full national launch and roll-out.

1.2 Strategic case

The Pathways Project has a strong Strategic Case. It will support increased levels of active travel, particularly for those with disabilities, by improving the quality, visibility, accessibility and coverage of active travel wayfinding and signage.

There is a clear case for intervention, with current wayfinding characterised by designs that are often unclear and ambiguous, signage that is poorly positioned or maintained, and piecemeal coverage, with significant gaps as well as inconsistencies in how wayfinding is installed. Key guidance sources and specifications, including TSRGD and LTN 1/20, lack clarity and are open to interpretation, resulting in both inefficiency and poor practice.

The Pathways Project directly addresses all of the above issues. It will create clearer, more consistent and better implemented wayfinding that makes routes easier to understand and use for everyone. Signs will be more visible and legible, developed by design experts and tested with members of the public The project's new Data System will capture the key information needed for those walking, wheeling or cycling to have a well-informed, comfortable journey and make this available for planners and designs of wayfinding infrastructure – enabling better, more informative wayfinding to be developed over time in both physical and digital formats. Disabled people will be given more detailed information around the route's characteristics, allowing them to travel with greater confidence.

By making active travel journeys more attractive and accessible, the Pathways Project will increase overall demand. The underpinning logic and rationale for the scheme is validated via the project's Logic Map, from which the following six Project Objectives have been defined to measure success against as it progresses:

- Increase numbers of active travel trips across the UK population and reduce levels of physical inactivity.
- Improve active travel accessibility and numbers of active travel trips for those with disabilities.
- Improve active travel journey quality and perceptions of safety.

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- Improve active travel journey quality and perceptions of safety.
- Increase footfall in local high streets and civic spaces (parks, green spaces, community areas).
- Create an accessible framework to continually capture and expand wayfinding data, designed to support enhanced information provision, business growth and innovation.
- Reduce the costs for planning, design and installation of wayfinding infrastructure.

The Project Objectives and critical success factors have been used to analyse and test initial variant approaches – reflected in the Longlist assessment. On this basis, the following longlist options have been identified as "preferred way forward":

- **Service solution:** Full Pathways Project implementation (including the 4 x systems outlined in section 3.2.1).
- **Service delivery:** A new dedicated team within Active Travel England or the Department for Transport, providing specifications, guidance monitoring, data management.
- **Implementation:** Initial R&D programme (2-3 years) followed by a national roll-out (over a 10-year period)
- **Funding:** 100% public funding.

The above longlist options are combined into a single preferred "Do Something" option which, alongside two other potential "Do Something" variant options, informs the subsequent Economic Case analysis (see below).

1.3 Economic case

The initial SOBC-stage analysis presents a strongly positive Economic Case. This analysis is based on comparison of a "Do Something" scenario involving delivery of Pathways Project (identified via the longlist options appraisal outlined above) against a baseline "business as usual" scenario representing continuation of the status quo. An appraisal period of 30 years from full project roll-out (2030 onwards) has been applied. We note results are presented as a range of estimates (high / medium / low) to reflect uncertainties in the current early-stage analysis.

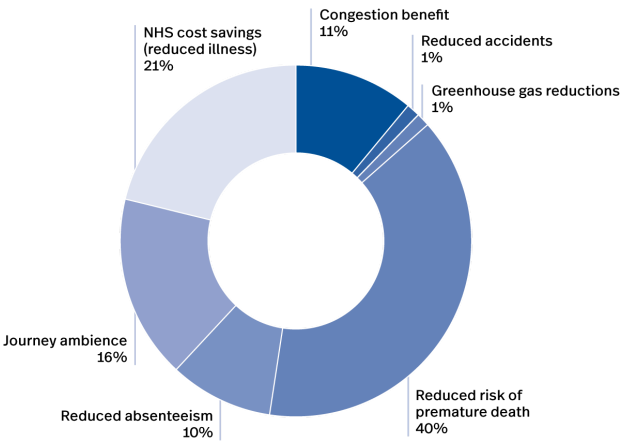
Results from the analysis of cost impacts resulting from development and implementation of the Pathways Project are set out in Table 27 below. This incorporates both the direct costs of the project itself, and the wider cost savings it enables in the long-term.

The results show that the Pathways Project will deliver cost savings over the appraisal period that exceed the direct costs of the project under all three scenarios. This results in a financially positive outcome, with the project representing "very high" Value for Money according to Green Book standards.

In addition to the project's long-term cost saving impact, the Economic Case analysis identifies substantial economic benefits, principally due to improved health outcomes resulting from higher levels of active travel. In present value terms, it is estimated that over the full appraisal period (30 years from the start of full roll-out), the project will deliver between £1.5 billion and £3.2 billion in economic benefits. These economic benefits are many times greater in value than the project's direct implementation costs.

These distribution of benefits by category is summarised in Figure 1.

Figure 1: Economic benefits (full appraisal period) – distribution by category (medium case)



It is important to note that, given the current early stage in the project's development, plus the limited number of previous case studies directly comparable to the Pathways Project there remains significant uncertainty around the precise extent of cost efficiencies and economic benefits the project is likely to achieve. It is recommended that, as part of the forthcoming R&D phase, detailed evidence is gathered around the project's emerging impacts in these areas (see section 1.6 below).

1.4 Commercial Case

The Pathways Project is deliverable within existing industry structures for public signage and wayfinding. There are established functions within government through which it the project can be developed, whilst highway authorities and local authorities have the capability and jurisdiction to oversee implementation. Furthermore, mature and competitive supplier markets are are already established in the UK, both for production of physical signage and wayfinding assets and for their installation.

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Table 1: Pathways Project cost impacts analysis – results (£,000s, Present Values)

Cost impact - full appraisal period (2027 - 2059)	Low case	Medium case	High case
Pathways Project costs			
Investment costs	6,414	6,414	6,414
Operating costs	17,505	17,505	17,505
Total project costs	**23,919**	**23,919**	**23,919**
Indirect cost saving impacts			
More efficient wayfinding implementation by highway authorities and local authorities	26,921	53,842	80,763
Reduced infrastructure maintenance (fewer vehicle trips from mode switch to active travel)	715	1,192	1,669
Total cost savings	**27,636**	**55,034**	**82,432**
Project costs minus cost savings			
Net cost impact (PVC)	**-3,717**	**-31,115**	**-58,513**

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1.5 Financial Case

The initial R&D Phase of the Pathways Project is likely to be funded via the CWIS3 funding process. Given the comparatively modest amount required – ca. £5 million over three years – it is expected to be affordable within existing / planned transport budgets.

The long-term funding requirement is also modest – estimated at £1.5 million per annum. Furthermore, as discussed in section 1.3 above, the project is expected to enable cost savings that will, in the long-term, outweigh its direct costs.

In summary, the Pathways Project has a strongly positive Financial Case and is expected to be affordable in both the short and the long-term.

It is important to note the costs included in this analysis are based on initial estimates provided by Applied Information Group. More detailed and extensive cost analysis is recommended as the project moves towards commencement of the R&D phase (see section 1.7 below).

1.6 Management Case

The Pathways Project has a strong governance structure in place, with sponsorship from key stakeholders in the UK government including Active Travel England. This will help provide the support and guidance needed to progress the project, and secure wider stakeholder support.

The proposed phasing – with ca. 3 years of R&D to prior to full national roll-out – provides an effective timeframe to test, pilot and optimise the project, enabling it to achieve maximum long-term impact.

As the project moves towards R&D phase commencement, it is expected that organisational arrangements, scoping and phasing of activities and pilots will be developed in further detail.

1.7 Recommendations

Based on the analysis presented in this document, the following recommendations are made:

- **Evidence gathering:** As part of the upcoming R&D phase of the project, it is recommended that the project team establishes a detailed process for data gathering, monitoring and analysis of the Pathways Project's economic and financial impacts. This should include:
  - how the project is affecting local authority wayfinding implementation practices and associated costs, and;
  - how it is affecting levels of active travel (walking, wheeling, cycling), as well as perceptions of active travel, at pilot locations.
- **Regulatory change:** It is recommended that the project team obtains specialist advice and guidance relating to any formal change in duties for different public entities that could arise as a result of changes / improvements to wayfinding design and development practices, and any associated regulatory or legislative requirements, to ensure these are workable and deliverable.
- **Highways-related safety standards:** Highways-related safety standards: it is recommended the project team obtains advice from a highways design specialist regarding continuing compliance with all relevant safety requirements associated with signs, markings or other assets on or around the public highway, to ensure all relevant requirements can be fully complied with through the development, R&D and implementation of the project.

- **Cost estimates:** to support the project's ongoing development and strengthen the evidence base for the business case, it is recommended that more extensive project cost estimates are prepared, with detailed resource plans and phasing of activities.

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2 Introduction

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2.1 Project overview

This document presents the Strategic Outline Business Case (SOBC) for the Pathways Project, a new wayfinding, data and signage system for walking, wheeling and cycling routes across the UK.

The Pathways Project has been designed and developed by Applied Information Group, in partnership with the RCA Design Age Institute, and with sponsorship and support from Active Travel England (ATE), Walk Wheel Cycle Trust (WWCT), the Scottish Government and the Welsh Government.

This SOBC is being prepared alongside the overarching Vision Study for the project. The aim of the SOBC is to provide a body of evidence which supports further development and progression of the Pathways Project, and which makes the case for government support to deliver the scheme. The next stage is a three-year Research & Development phase (2027-2029), during which time the project will be piloted in a number of sample locations, and the data system further developed and tested on the "front line", with user and stakeholder consultations undertaken to evolve and optimise the project ahead of eventual national roll-out.

The Pathways Project is based around a new toolkit that enables UK highway and local authorities to implement high-quality, standardised wayfinding across their networks. This will address the current fragmented and inconsistent approach – which often results in low quality, piecemeal and confusing active travel wayfinding.

The toolkit comprises four elements: a **Behavioural System**, comprising signage designed to promote considerate behaviour and reduce conflict; an **Awareness System**, providing directions and maps to physically and digitally connect transport hubs with places people can go; a **Network System**, setting out national standards for coded and planned networks with an agreed and systemised database of directions; and a **Data System**, based on an underpinning active travel data specification, enabling organisations to collate data in a cost-effective way, and encouraging innovative uses of data through sharing.

Further details of the Pathways Project proposals are set out in section 3.2.1 below.

2.2 SOBC purpose and structure

The purpose of this SOBC is to present the case to government for public support and investment in the Pathways Project, including obtaining funding for the initial R&D phase of development over the next three years. The SOBC is the first of three business case development phases defined in the Treasury's Green Book. Subsequent Outline Business Case (OBC) and Full Business Case (FBC) phases will be delivered as programme proposals increase in detail and maturity, and more detailed underpinning evidence becomes available through initial piloting of the project during the forthcoming R&D phase. [1]

Following Green Book principles, this SOBC is based on the five key dimensions – strategic, economic, commercial, financial and management. Each of these dimensions is reflected in the following "five cases", set out in the remainder of this document:

- **Strategic Case (Chapter 3):** this presents the policy justification and strategic rationale for the Pathways Project, describing current challenges with active travel accessibility and wayfinding, and how the project aims to resolve them. It uses a logic map to show the project's intended outcomes and how these stem from its inputs, activities, and outputs. The chapter also defines a set of SMART objectives linked to the key outcomes. An initial longlist options assessment is then carried out to identify the most suitable ways of meeting the SMART objectives, including different Pathways Project variants and possible alternatives.
- **Economic Case (Chapter 4):** this provides an initial high-level value for money appraisal, with economic benefits and costs measured by comparing delivery of the Pathways Project against a baseline "business as usual" scenario, representing continuation of the status quo. We note that Economic Case figures will be

[1] Refer to "Plain English" guide for assessing business cases for an overview of SOBC-, OBC- and FBC-stage appraisals. Link: The Green Book: templates and support material - GOV.UK

presented as a range of estimates (high / medium / low) to reflect uncertainties in the current early-stage business case analysis.

- **Commercial Case (Chapter 5):** this reviews the delivery and procurement arrangements for the Pathways Project and provides a high-level assessment of the capacity of the market to deliver the project.
- **Financial Case (Chapter 6):** this summarises the costs of the project (focusing at this stage on the initial R&D phase of the programme) and likely funding arrangements.
- **Management Case (Chapter 7):** this provides a brief assessment of programme deliverability including governance arrangements and programme phasing.

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3 Strategic Case

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3.1 Introduction

The purpose of the Strategic Case is to present the context, rationale and justification for the Pathways Project. The Strategic Case explains the issues and shortcomings in current active travel wayfinding, and why there is a need to address these through a new bespoke, coordinated, standardized and data-driven system that delivers improved, clear and comprehensive wayfinding information. Evidence from a range of research and previous project case studies is presented. This demonstrates a compelling case for change, with a range of "long list" options identified and assessed to establish deliverable and achievable options for implementing the project.

3.2 Strategic context

3.2.1 SOBC purpose and structure

The Pathways Project is a new national wayfinding system designed to increase levels of active travel across the UK, particularly for those with disabilities by improving the quality, predictability, visibility and coverage of wayfinding information. This includes both physical infrastructure – signs, markings, maps etc. – and the digital information that both underpins physical infrastructure design, and that is accessible for use by existing digital navigation systems, apps etc. The project is designed to address the current fragmented and inconsistent approach – which often results in low quality, piecemeal and confusing active travel signage and wayfinding.

At the core of the Pathways Project is a new toolkit, designed to enable all UK highway and local authorities to implement high-quality signage and wayfinding in a consistent manner. The toolkit is made up of the following key elements:

- a **Behavioural System**, comprising clearer visual signage designed to set expectations of behaviour, reduce conflict and promote politeness and consideration;
- an **Awareness System**, designed to raise everyone's awareness of active travel routes and destinations. This will provide directions and maps that will physically and digitally connect transport hubs with places people can go;
- a **Network System**, setting out national standards for a network of local routes. This will define coded and planned walking, wheeling and cycling networks, with an agreed and systemised database of directions used by everyone consistently, including agreed units of measurement; and
- a **Data System**, based on an underpinning active travel data specification. This will enable organisations to collate data in a cost-effective way, and will enable innovation in industry, empowering those publishing data to share valuable active travel information more widely.

By improving consistency, clarity, visibility and coverage of wayfinding information, the Pathways Project aims to enhance the quality, ease and predictability of active travel journeys, and increase

attractiveness and accessibility for all users.

3.2.2 Policy alignment

The Pathways Project aligns with a range of national policies and strategies, some key examples of which are summarised in Table 2 overleaf.

Table 2: Pathways Project – policy alignment

Policy name	Relevant aspects	Pathways Project alignment
The Third Cycling and Walking Investment Strategy (CWIS3)[2]	Currently in consultation, CWIS3 will set out how active travel investment measures over the period 2025 – 2030 will be coordinated and delivered. The strategy aims to support the UK government's aim to make walking, wheeling and cycling a safe, easy and accessible option for everyone by 2035. Full funding details are still to be confirmed, but CWIS3 coordinates with existing committed active travel funding. This includes £300 million active travel funding already committed over the period 2024-2026, plus £616 million capital funding committed for the period 2026-2030 within the Treasury's UK Infrastructure 10-year Strategy (see below).	✔ Pathways Project directly supports the aims of CWIS3, making wayfinding more visible, accessible and inclusive, supporting more diverse usage of active travel routes.
Active Travel England Standing Advice Note [3]	This practical guidance is designed to ensure developers and planning authorities give appropriate consideration to active travel as a means to support sustainable development and to deliver the government's aims for increased levels of walking, wheeling and cycling.	✔ Pathways Project aligns with the principles set out in this guidance, providing standards that local authorities can implement to encourage active travel.
UK Infrastructure – a 10-year strategy (HM Treasury, 2025) [4]	Active travel is identified as a means to reduce transport emissions and congestion and improve community health. £616 million of capital funding is committed from 2026/27 to 2029/30 for Active Travel England to support councils in building and maintaining walking and cycling infrastructure.	✔ Pathways Project is a targeted investment programme designed to increase levels of active travel across the population.
National Planning Policy Framework - DLUHC [5]	Promotes sustainable growth, with walking and cycling identified as a means to reduce reliance on private car travel.	✔ A key aim of the Pathways Projects is to improve functionality and usability of walking / wheeling / cycling networks.
Inclusive Transport Strategy: Achieving equal access for disabled people [6]	Highlights the importance of providing people with disabilities equal access to public transport networks.	✔ The Pathways Project will deliver clear, well-designed signage and better information, helping those with disabilities navigate with more confidence.
Department of Work and Pensions: Access to Work [7]	Access to Work provides practical support for people with physical or mental health conditions, including support that can relate to work travel.	✔ By making walking / wheeling / cycling networks more visible, accessible and easier to navigate, the Pathways Project will help reduce barriers to employment.
Transport Scotland – Active Travel Framework [8]	Brings together policy approaches to improve amount of walking and cycling in Scotland for travel.	✔ Supports the delivery of active travel by improving route clarity and legibility.
Wales 20mph Speed Limits [9]	Policy document setting out the case and justification for application of 20mph speed limit in all built-up areas across Wales, as a means to improve safety, including making roads less hazardous and improving signage and lighting.	✔ Supports the implementation of pedestrian / cycle friendly environments.
Creating an Active Wales [10]	Focus on ensuring safe and attractive streets, pedestrian links and cycle paths.	✔ Pathways Project directly supports safer routes for pedestrians and cyclists.

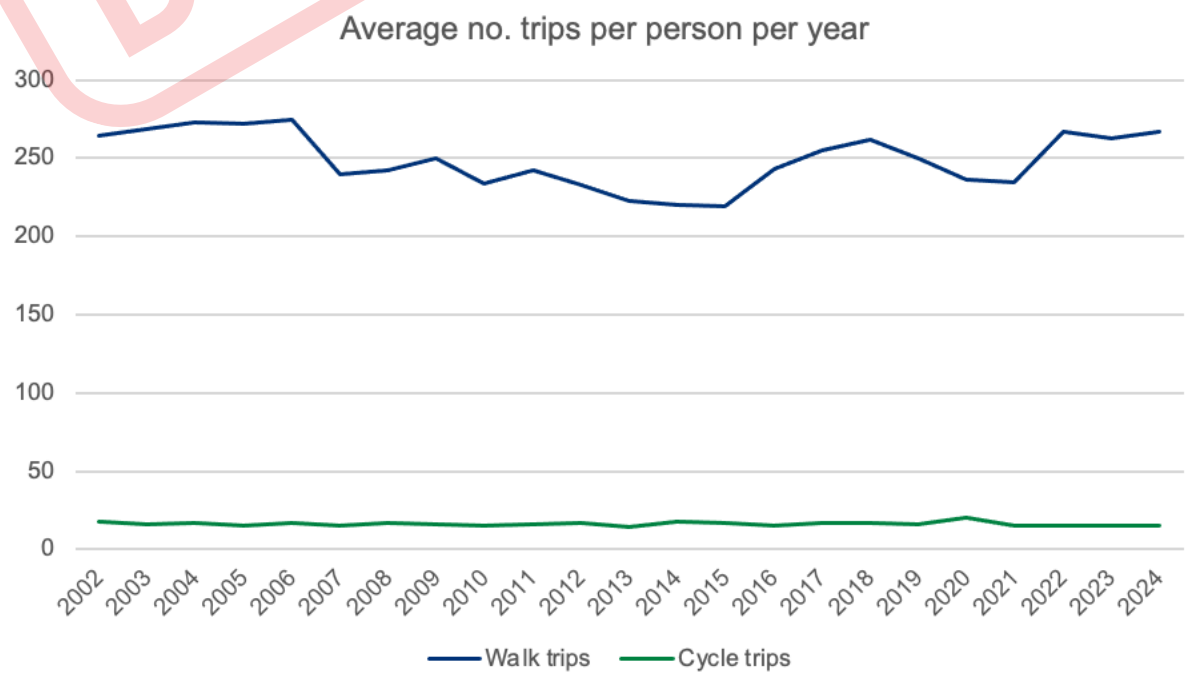
[2] Source: The third cycling and walking investment strategy (CWIS3) - GOV.UK
[3] Source: Active Travel England Standing Advice Note: Active travel and sustainable development
[4] Source: UK Infrastructure: A 10 Year Strategy - GOV.UK
[5] Source: National Planning Policy Framework - GOV.UK
[6] Source: Inclusive Transport Strategy: Achieving equal access for disabled people
[7] Source: Access to Work: get support if you have a disability or health condition
[8] Source: Active Travel Framework | Transport Scotland
[9] Source: Introducing default 20mph speed limits | GOV.WALES
[10] Source: Creating an Active Wales - A 5 Yr Strategic Action Plan

3.2.3 General trends in active travel usage

Despite significant investment in active travel in recent decades including roll-out of the National Cycle Network, and continuing investment in infrastructure and behaviour change programmes (including around £3.3 billion of spend between 2016 and 2021)[11], there has been no meaningful growth in levels of active travel.

Data from the DfT's National Travel Survey (NTS) show the average number of walking trips taken per person per annum has remained roughly the same over the past 22 years, with total trips per person in 2024 averaging 267, similar to the 264 trips recorded in 2002. The average number of cycle trips per person per annum fell by 16% over the same period, from 18 trips per person in 2002 to 16 trips in 2024. As shown in the figure overleaf, despite a significant spike in numbers of cycling trips in 2020 / 2021 (during the Covid-19 pandemic) and a concurrent dip in walking trips, numbers of trips in both cases have since returned to pre-pandemic levels.

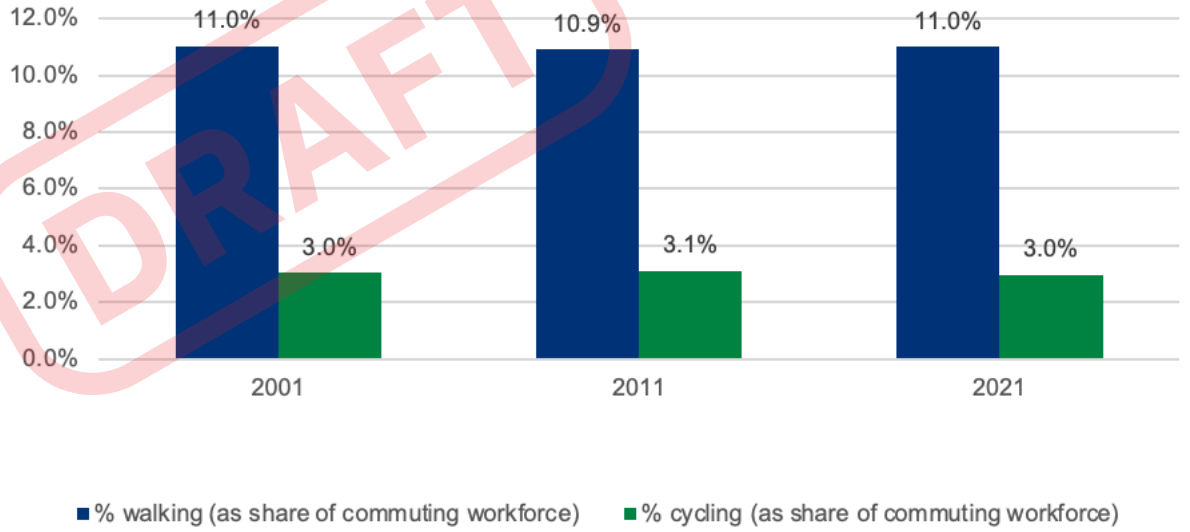
Figure 2: Average walking and cycling trips per person per annum (2002 – 2024) [12]



Travel to work figures derived from ONS census data show a similar pattern, as illustrated in Figure 3. These show the proportion of work commutes using active modes in 2021 was roughly the same as in 2001, with around 11% of commutes taken on foot, and around 3% by bicycle.

[11] Source: Active travel in England - Committee of Public Accounts
[12] Source: Mode of travel - GOV.UK

Figure 3: Method of travel to work (England & Wales), 2001, 2011 and 2022 [13]



Despite minimal growth in trip numbers, NTS data indicate that average distances walked have increased slightly between 2002 and 2024, with 12% more short walks taken (under a mile) and 10% more longer walks (over a mile)[14]. Cycle trip distances have grown more significantly with the average person significantly, with the average person cycling 53 miles per annum in 2024, a 36% increase in mileage compared to 2002. [15]

When compared to other economically similar nations, the UK maintains a relatively high level of walking, though it remains behind top European performers [16]. National travel surveys showed that Switzerland leads with a 34% walking mode share, followed by England at 26%, France at 24%, and Germany at 22%. In contrast, walking levels in the United States (11%) and New Zealand (12%) are significantly lower.

The popularity of cycling in the UK remains comparatively limited, with cycle trips accounting for only 2% of all trips in 2024. Other European countries that provide higher standards of cycling infrastructure such as the Netherlands, Denmark and Germany show a significantly higher cycle mode share [17]. UK strategy documents indicate that achieving similar levels of cycling to these countries would result in approximately £17 billion in savings for the NHS over a 20-year period assuming an average increases of 1.6km of walking or 3.4km of cycling daily per person, resulting in significant reductions in the prevalence of type 2 diabetes, dementia, and cardiovascular disease [18].

The Pathways Project is designed to increase levels of walking and cycling across the population. This should help to address current low levels of active travel and bring the UK closer to leading European comparators.

3.2.4 Active travel for people with disabilities

People with disabilities face significant barriers to active travel participation. This is reflected in Transport for All's 2023 publication, "Are we there yet?" [19] which reports that disabled people make on average ca. 30% less walking trips per year than non-disabled people. The report also identifies very low cycling participation, with disabled people averaging only two cycling trips per year compared with 16 for non-disabled people. The 2024 study, "Understanding and identifying barriers to accessing transport", published by National Centre for Accessible Travel (NCAT), which surveyed just under 1,200 disabled people, found that 92% of respondents "face barriers when travelling" including "badly designed and cluttered streets, unreliable step-free access, and poor staff assistance." [20] A persistent

[13] Source: Travel to work, England and Wales - Office for National Statistics
[14] Source: NTS 2024: Active travel - GOV.UK
[15]
[16] Source: Malden, S., et al (2024)
[17] Source: Rethinking the spatiality of Nordic electric vehicles and their popularity in urban environments: Moving beyond the city? J Jester et al., (2019)
[18] Effect of increasing active travel in urban England and Wales on costs to the National Health Service
[19] Source: Transport for All –Barriers to Transport for Disabled People, 2023
[20] Source: Understanding and Identifying Barriers to Transport - National Centre for Accessible Transport

"disability transport gap" is evident, with disabled people making 38% fewer trips annually across all modes, a disparity that has not improved for over ten years.

A key aim of the Pathways Project is to make walking, wheeling and cycling routes more easily accessible to those with disabilities. Giving clearer, more comprehensive wayfinding information should reduce barriers to mobility and help to close the disability transport gap.

3.2.5 Current UK signage and wayfinding practice

Overview of Traffic Signs Regulations and General Directions (TSRGD)

Signage specifications and regulations for UK public highways are set out in the "Traffic Signs Regulations and General Directions" framework (TSRGD) [21]. Overseen by the DfT, the TSRGD sets out design rules and usage conditions for all signage on or adjacent to public highways, including active travel signage. Implementation and maintenance of the signage is the responsibility of the relevant highways authorities – with National Highways (in England) and the Welsh and Scottish Governments responsible for the strategic road network, and local authorities responsible for other public and local roads.

TSRGD requires signage for cyclists to have a blue background and a white pedal cycle symbol. Where the route indicated forms part of the National Cycle Network (see below), the number of that route is shown on the signs in white numerals on a red patch, whilst designated Regional Cycle Routes have white route numbers on blue patches. [22] Other information including the route name, distances or travel times may also be included in the signage.

TSRGD recommends a similar format for pedestrian signs (white letters and blue background, with a pedestrian symbol), however variations in colour scheme and omission of the symbol are permitted in town centres and pedestrianised areas.[23]

Local Transport Note (LTN) 1/20 Cycle Infrastructure Guidance

LTN 1/20 is a DfT document (published in 2020) which provides practical guidance and good practice to local authorities for the design of cycle infrastructure, in support of the Cycling and Walking Investment Strategy. It sets out key design principles, layouts and dimensions for different route types, junctions etc. supported by diagrams and photos. The guidance covers England and Northern Ireland and contains tools which set measurable quality thresholds for implementing authorities to achieve when designing cycling schemes. Whilst the guidance highlights the requirement for all traffic signs, markings and signals on or around the public highway to align with TSRGD (see above), it also identifies areas in which authorities can apply some flexibility in infrastructure design to meet specific requirements of locations, e.g. layout variations [24]. LTN 1/20 recommends that, to effectively implement projects in accordance with the guidance, practitioners should obtain appropriate qualifications such as the Institute of Highway Engineers' Professional Certificate & Diploma in Active Travel. [25]

National Cycle Network and other signposted cycle routes

The National Cycle Network (NCN) is a UK-wide signed network for walking and cycling, created by Sustrans. In 1995, the charity Sustrans (recently renamed as Walk Wheel Cycle Trust or WWCT) attained a £42.5m National Lottery grant from the Millennium Commission to help create the network. As of 2020, after some unsafe sections were removed, the NCN totalled 12,739 miles, made up of 5,220 miles traffic-free sections and 7,519 miles on-road. In 2017, it supported 786 million trips by 4.4 million people. Current policy for NCN development / enhancement focuses less on mileage expansion and more on upgrading safety and accessibility of existing routes [26].

In addition to the NCN, the UK has other signposted cycle routes that are primarily leisure and tourism orientated. These often follow canal towpaths, parks, and especially disused railway alignments, which provide gentle gradients and traffic free spaces. A key early example is the Bristol and Bath Railway Path, a 14-mile route opened in 1984, later incorporated into the NCN. Such routes are popular because they feel safe and accessible for families and casual riders, but they can be geographically limited and may not connect well into everyday commuting networks.

The NCN has had varying success by location. Some sections are high quality and traffic free, while others are less direct, on a busy road, or constrained. In 2018, Sustrans' Paths for Everyone review rated 42% of the network as "very poor" and identified over 12,000 barriers affecting accessibility. Following this work, parts of the NCN were de-designated in 2020 on safety grounds, reducing the signed network by a quarter. Of the remaining 17% of the network that continued to be classed as "very poor", sections were either retained as signed sections without being

[21] Refer to: Traffic Signs Regulations and General Directions 2016: an overview - GOV.UK
[22] Source: Know your traffic signs - GOV.UK
[23] Source: *ibid*
[24] Cycle infrastructure design (LTN 1/20) - GOV.UK
[25] For details refer to: Active Travel - Planning & Design - IHE
[26] Our role as custodian of the National Cycle Network - Walk Wheel Cycle Trust

designated as part of the network, or they were signed to be used by "experienced users only". Overall, following these changes the National Cycle Network is now considered to be smaller, but safer. [27]

Pedestrian signage systems

Legible London is Transport for London (TfL)'s pedestrian wayfinding system. It uses on-street maps (monoliths) and signs designed for quick and confident navigation. TfL describes two core map types: a "finder" (5-minute) map and a "planner" (15-minute) map, each with a walking circle based on an average walking pace. These maps integrate transport features such as bus stops, underground and tram stations, and cycle hire docks.[28] The system is widely viewed as best practice in UK city wayfinding, helping people understand real walking distances and make more walking trips.[29]

A number of other major cities have developed comparable "legible city" stye pedestrian wayfinding schemes, typically at a smaller scale and with more limited coverage. The Bristol Legible City uses physical monolith style maps and direction signs across the city centre [30]. Liverpool City Centre has also adopted a similar scheme. Outside core schemes, pedestrian wayfinding in UK built-up areas is often inconsistent. Many streets with pavements have little or no directional signage for pedestrians, particularly away from transport hubs and tourist zones. Where signage exists, it may focus on cars [31], rather than walking routes, and pedestrian information can be fragmented across different authorities and stakeholders. This means short walkable links may be poorly "legible" in practice [32], even if they exist physically, because people can't easily see where routes go, how long they take, or how they connect.

In rural areas, pedestrian wayfinding relies on public rights of way signage. Footpaths are typically indicated at road crossings and then waymarked intermittently using small arrow signs. For long distance walking routes [33], National Trails are marked using the acorn symbol, providing intermittent reassurance that users remain on the correct route. Compared with urban schemes, rural signage usually prioritises confirming Public Rights of Way (PRoW) access rather than providing detailed local maps with time/distance navigation. This can work well for confident map users but less intuitive for casual walkers.

3.2.6 Funding and resourcing of active travel wayfinding

Physical wayfinding assets (signs, markings, maps etc.) are funded by the highway authorities or local authorities responsible for the roads or pathways along which the active travel routes run. Wayfinding costs fall most commonly within broader budgets for development schemes, highway improvements or new active travel infrastructure projects. There are no published figures specifically for signage and wayfinding that apply to the whole of the UK.

However, a reasonable high-level cost estimate can be inferred from a number of data sources, which suggest that annual wayfinding implementation costs are likely to total roughly £40 million per annum. This estimate takes into account a number of factors, including:

- Published values for 16 x wayfinding-specific project examples identified by Applied Information Group from various tender records, council minutes etc. over the period 2021-2026, which collectively entail ca. £1.4 million p.a. of wayfinding investment identified. These are estimated to represent only a fraction of the total.
- Wayfinding interventions not identified as standalone projects due to them being smaller scale (under OJEU thresholds), falling within existing cycling / walking or regeneration budgets, and/or being procured through larger highways or public realm frameworks contracts. Such interventions are likely to be far greater in number than the 16 x identified published examples outlined above, and far more widespread across the UK. For this analysis, it is assumed these interventions are ca. 10 times greater in value than the published examples noted above (so with an implied value of £14 million per annum).
- Wayfinding assets (signage, route branding, maps, gateway features, markings, orientation) are commonly included within major public realm / active travel / transport capital programmes. It is estimated that such activity accounts for ca. £25 million per annum.

Combining the above, it is estimated that approximately £40 million p.a. is spent annually in the planning, design and implementation of physical wayfinding assets.

[27] Paths for Everyone Three Years On

[28] Walking and Walkability: Is Wayfinding a Missing Link? Implications for Public Health Practice - PMC

[29] Source: Active Travel Wayfinding Manual

[30] Bristol Legible City – Bristol Legible City is a unique concept to improve people's understanding and experience of the city through the implementation of identity, information and transport projects integrated with artist's work.

[31] When physical activity meets the physical environment: precision health insights from the intersection

[32] Walking and Walkability: Is Wayfinding a Missing Link? Implications for Public Health Practice - PMC

[33] Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace—Cross-sectional survey

3.3 Key issues and limitations

3.3.1 Unclear / ambiguous signage designs

Signage designs specified by TSRGD are often poorly understood. Some designs follow the same format as road vehicle signage, and do not consider whether such designs are intuitive for non-drivers, e.g. symbols within a red circle to indicate prohibitions, which could be easily misunderstood. A survey undertaken by Applied Information Group in 2024 indicated the blue circular sign for shared pedestrian and cycle routes (paths, pavements etc.) was only fully understood by 40% of survey respondents, while the sign that prohibits cycling along a pathway (a bicycle within a red circle) was fully understood by only 23% of respondents.

3.3.2 Insufficient behavioural signage

A related issue is the lack of any instructional signage within TSRGD to encourage orderly and considerate behaviours. Although some authorities have implemented their own bespoke signage this is generally infrequent and ad-hoc. There is no walking / cycling equivalent of roadside "Give Way" signs. Although "give way" surface markings are sometimes applied to cycle routes their application remains piecemeal, and many intersections do not have such markings.

3.3.3 Insufficient behavioural signage

There is significant variability in how wayfinding is implemented between different routes, including the types of signs used in different locations, signage content (e.g. whether distances or times are included) and positioning. The signage design in TSRGD (blue background, white symbols and lettering) is only mandatory for active travel routes on or adjacent to public highways. TSRGD permits implementing authorities to use alternative designs for routes in town centres and pedestrianised areas, and for rights of way not on the highway network. Although intended as a way for authorities to tailor signage to fit with local conditions and identity, this approach also leads to inconsistent and sometimes unclear signage.

This can make active travel routes less clearly identifiable and navigable for many users. The choice of signs used in different locations, as well as their positioning, is inconsistent and in some cases ineffective. The example opposite shows a marking on a shared pathway positioned at the far edge rather than the centre of the pathway, limiting its visibility.

3.3.4 Insufficient clarity and coverage for people with disabilities

The "Disabled Citizens Inquiry" report, issued 2023, identified that active travel signage "is often inconsistent, poorly designed, positioned or missing, or sometimes illegible", causing a significant hindrance for many disabled people. [34] Lack of clarity and consistency in signage designs can cause particular issues for neurodivergent individuals [35], as well as those with visual impairments. [36] Signs can also be positioned too high for people in wheelchairs or those with visual impairments to see properly.

3.3.5 Lack of coverage and incomplete routes

Signage for many active travel routes is incomplete or, in some cases, completely lacking. A piecemeal approach is typical – with new signage provided as part of a highway upgrade or housing scheme delivered in isolation, and a lack of ongoing / connecting signage beyond scheme boundaries. Signposted cycle routes often end abruptly; "End of cycle route" signs can channel users into live traffic lanes but give no information as to whether, or where, the given cycle lane will resume, and signs designed to ensure considerate sharing of cycling and walking routes – such as "Cyclists dismount" – are often used inappropriately or unnecessarily. Even along sections of the National Cycle Network, signs are sometimes missing [37].

3.3.6 Limitations in available guidance and specifications

TSRGD guidance is focused primarily on the safe functioning of road vehicle traffic, and it provides limited details for active travel wayfinding aside from basic signage design specifications. LTN 1/20 provides more specific, practically focused guidance to support scheme designers, but is focused only on cycle infrastructure. Although LTN 1/20 promotes good practice, it contains a range of variant approaches and principles that are open to interpretation and its application requires suitably qualified practitioners. No geographic database or digital platform currently exists that captures key details needed to shape high-quality wayfinding design, e.g. crossing points, busy areas, steep gradients or steps, benches, amenities, etc.

[34] Source: "Disabled Citizens Inquiry", Transport for All / Walk Wheel Cycle Trust, 2023 (Disabled Citizens' Inquiry - Walk Wheel Cycle Trust)
[35] Source: "Streets for Diversity: Exploring how Neurodivergent People Experience Streets", Royal College of Art, 2023 (Streets for Diversity | Royal College of Art)
[36] Source: "Inclusive Journeys: Improving the accessibility of public transport for people with sight loss", RNIB / Motability, 2023 (Improving the accessibility of public transport | RNIB | RNIB)
[37] Direction Signing on the NCN - FF26

3.3.7 Limitations in available guidance and specifications

With the limitations in available guidance, specifications and underpinning data, wayfinding design and implementation is a time- and resource-intensive process. Local authority designers and planners must interpret the guidance, survey local conditions and determine the wayfinding design to be implemented. This limits the scope for automation and standardisation and leads to inconsistent and sometimes poor-quality implementation (as discussed previously).

Issues raised by officials involved in active travel scheme development and implementation through consultations undertaken by Applied Information Group include the following:

- Lack of standardised guidance for developing, implementing and evaluating active travel wayfinding projects.
- Complex and inconsistent processes for wayfinding design, placement and procurement.
- Insufficient practical direction in national guidance, including limited usable detail on wayfinding within LTN 1/20.
- Limited ability to estimate costs and build business cases in-house, leading to reliance on external consultants.
- Lack of a structured forum or mechanism for sharing best practice and lessons learned on active travel wayfinding across regions and local authorities.
- Absence of a consistent active travel wayfinding system at regional and national level, limiting network integration, connectivity and uptake, particularly for users with accessibility needs.
- Limited adoption of standardised data specifications to support the effective use of new technologies and enable efficient sharing and use of active travel data across public bodies, planners and technology providers.

3.3.8 Addressing the key issues and limitations

Overall, the issues outlined above lower the quality and comfort of walking, wheeling and cycling journeys, reduce the visibility of active travel options, and cause confusion and potential conflict for some users.

to improve consistency, detail and comprehensiveness of wayfinding, and reduce the costs of its implementation.

Details of the Pathways Project proposals, and how they address current issues to substantially active travel route accessibility and utilisation, are discussed in further detail in the Case for Change (section 3.2).

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The Pathways Project has the potential to resolve all of the above issues and limitations. It will address current design shortcomings in active travel signage by redesigning unclear signs, adding clearer behavioural prompts, and ensuring consistent standards across all route types. New, expert designed signs will be tested with the public, and comprehensive specifications will guide both on and off highway installation. A data system will provide the common platform and base information that enable widespread adoption of tools and automation,

3.4 Project stakeholders

Planning, development, delivery and governance of the Pathways Project will involve a number of key stakeholders, as set out in Table 4 below.

Table 3: Pathways Project stakeholders

Stakeholder	Description	Role / interest in Pathways Project
Active Travel England	Government executive agency that promotes walking, wheeling, and cycling as the preferred way to travel in England.	Principal sponsor.
Applied Information Group	Spatial design consultancy specialising in wayfinding. Design approach draws on behavioural psychology and information design to create legible city-wide navigation systems. Played a leading design role in the Legible London scheme (see section 3.2.5).	Leading the design and development of the Pathways Project.
Department for Transport	UK ministerial department responsible for national transport policy, infrastructure investment, and overseeing agencies like National Highways and Network Rail to keep the country moving safely.	Improve national consistency to encourage more people to choose walking and cycling safely.
Scottish Government	Devolved administration for Scotland, managing devolved matters including health, education, and transport. It works through Transport Scotland to deliver a sustainable, integrated national transport network.	Interested in creating seamless, inclusive national networks that supports active travel goals and improves accessibility for all users.
Welsh Government	Devolved executive in Wales, responsible for key public services. Through Transport for Wales, it directs investment into rail, bus, and active travel infrastructure.	Aiming to deliver legible, integrated transport system that supports Active Travel Act and carbon reduction.
Department for Infrastructure Northern Ireland	Manages Northern Ireland's strategic networks. Its remit includes public transport, road maintenance, water and sewerage services, river management, and regional planning policy to improve quality of life.	Aiming to standardise information across its network to enhance safety and facilitate easier navigation for active travellers.
Local Government Association	National voice of local councils in England and Wales. It works to support, promote, and improve local government, ensuring councils have the resources needed.	Interest in providing councils with a unified framework that simplifies planning and improves the local pedestrian experience.
Royal College of Arts (Helen Hamlyn Design Institute)	Global leader in inclusive design. Conducts research to improve people's lives through human-centred, socially inclusive design and innovation.	Focussed on ensuring the system is inclusive and human-centred.
Walk Wheel Cycle Trust (*formerly Sustrans*)	Charity making it easier for people to walk, wheel, and cycle. They manage the National Cycle Network and promote healthy travel.	Mission to create a coherent National Cycle Network where consistent signage removes barriers to walking, wheeling and cycling.
Transport for All	UK's leading disability focused organisation campaigning for accessible transport. They work to ensure every disabled person can travel with the same freedom as everyone else.	Aiming to ensure all signs are fully accessible for disabled people, providing clear and reliable information.
Wheels for Wellbeing	Charity set up to help enable disabled people to take up cycling. Campaign for inclusive cycling infrastructure and provide opportunities for people of all abilities.	Aim to promote infrastructure that makes every route accessible and attractive for disabled cyclists.

Stakeholder	Description	Role / interest in Pathways Project
Transport for London	Integrated transport authority for the UK capital.	Interested in extending "Legible London" principles to create a unified, world-class wayfinding experience across all London boroughs.
Transport for Greater Manchester	Coordinates transport across the city-region. It delivers the Bee Network, managing the Metrolink, bus services, and cycling infrastructure to improve regional connectivity and economic growth.	Driven by the Bee Network vision, requiring a recognisable, standardised brand to integrate walking and cycling across the region.

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3.5 Case for Change

3.5.1 Addressing signage and wayfinding issues / limitations

The Pathways Project will help to address all the issues and limitations discussed in section 3.3 by creating clearer, more consistent and better implemented wayfinding that makes routes easier to understand and use for everyone – as summarised in Table 4 below.

3.5.2 Creating a new Data System

Overview

Currently there is no national data platform to capture active travel route details in a systematic or standardised way. The Pathways Project will address this, with the new Data System designed to capture the key information needed for those walking, wheeling or cycling to have a well-informed, comfortable journey and make this available for planners and designs of wayfinding infrastructure.

Key benefits of the Data System include:

- Quality and regulation of workflow and methods, making sure the right steps are taken in the right order.
- Embedding system rules in the method of creation and outputs, i.e. reducing time and effort required for interpretation, whilst maintaining data integrity.
- Automating tasks by using software tools to create plans, manage content creation, define details of locations and content, create visual designs and artwork, and provide specifications for practical implementation.

Active Travel Data Specification (ATDS)

The Data System will define standards in the form of an Active Travel Data Specification (ATDS) for all types of active travel data. This will include not just navigational information but also route characteristics, features and hazards in a format that can be used to create high-quality wayfinding and signage. The ATDS will be accessible to all databases using Application Programme Interfaces (API's) and sharing protocols, providing an accurate picture that can be kept continually up to date.

Table 4: Pathways Project – addressing signage and wayfinding key issues and limitations

Key issue / limitation	Pathways Project proposals
Unclear / ambiguous signage designs	The Pathways Project will redesign and improve existing active travel signage, with new standardised signs developed by design experts and tested with members of the public to ensure optimal clarity and comprehensibility.
Insufficient behavioural signage	The Pathways Project will deliver a new Behavioural System, with new and enhanced signage designs with clearer and more frequent behavioural prompts that encourage considerate and orderly behaviours. The system will provide better information around route and junction priorities between cyclists, pedestrians and wheelchair users, as well as other modes.
Inconsistent and ineffective application of signage	The Pathways Project will provide more comprehensive signage specifications applicable to all types of active travel route including public highways generally, town centres, pedestrianised streets and other pathways / rights of way. The Network System will set out national standards that enable greater consistency between different local authority areas, and between on-highway and off-highway routes, with coded and planned walking, wheeling and cycling networks, and an agreed and systemised database of directions.
Insufficient clarity and coverage for people with disabilities	The Pathways Project will give disabled people clearer and more comprehensive information. Signs will be more visible and legible, and additional information will be built-in to wayfinding signage and information systems, e.g. route evenness, gradient / camber, potential hazards (steps, uneven, narrow or busy sections), busy crossings, benches on-route. Disabled and neurodivergent people will provide input and feedback throughout the design, piloting and roll-out stages of the project. (Awareness system)

Key issue / limitation	Pathways Project proposals
Lack of coverage and incomplete routes	The Pathways Project will provide a framework for wayfinding development designed to close gaps in provision and provide complete route coverage. The Network System will define standards for coherent and complete local route networks, and the Awareness System will ensure routes are visible and accessible (using both physical signage and data).
Limitations in available guidance and specifications	The Pathways Project will deliver improved guidance to implementing authorities, with higher quality designs and clearer specifications for planning and installation, underpinned by a Data System designed to capture the route-specific details needed for high-quality informational signage in a standardised format. This will make the process of delivering signage more straightforward for authorities, with more effective results.
Costly and inefficient application	The Pathways Project will provide designers and planners with more clearer design specifications, coupled with accessible, route-specific data to guide the detail, content and placement of physical signage through the Data System. This will allow for greater usage of tools and automation, with improved design specifications and information reducing the time and resources needed for planning and design and saving costs.

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Planning and Management Tools

Building off the ATDS, a range of planning and management tools can be developed to implement wayfinding schemes efficiently and to a high standard. Examples of prototype tools developed by the Pathways Project team (to be tested in the upcoming R&D phase) include the following:

- **Predicted Scheme Planning Tool:** this analyses data (ATDS) and produces a draft scheme with an automated predicted cost budget. This can be used to support funding requests.
- **Detailed Scheme Planning Tool:** The predicted scheme is filled and adjusted with local content driven by the local team. Automated workflows ask the right questions and only a workable scheme can be created.
- **Scheme Detailing Tool:** This tool specifies all locations and data / content that appears, e.g. directional information. With automated updates, if a destination changes, the tool highlights how the system on the street needs to adjust.
- **Mapping Tool:** This creates local maps efficiently, with holistic information. The whole mapping output can be automated, drawing data from the planning tools and using ATDS to show an accurate picture that can be managed and updated within the tool.

Combining the range of tools and aspects outlined above, the Pathways Project will develop an extensive "playbook" of approaches that allow for continual innovation and enhancement.

3.5.3 Improving perceptions of journey quality, accessibility and safety

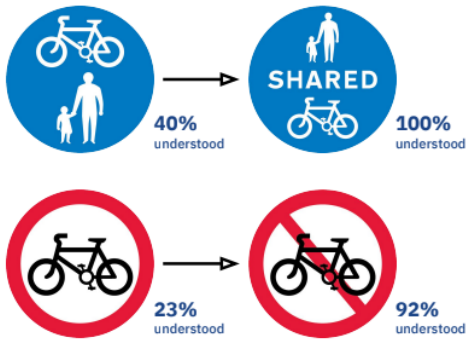
The Pathways Project will deliver clearer, more informative and more comprehensive wayfinding information and signage, built on a data system with common standards and high-quality inputs continually updated, as outlined above. This will improve the quality and accessibility of active travel journeys, and provide increased feelings of comfort and safety.

Various studies and surveys from recent years show a link between wayfinding and signage improvements and positive perceptions of active travel. Some examples are set out in Table 5 below.

Table 5: Studies linking signage and wayfinding with improved perceptions of active travel

Study	Scope / method	Key findings
"Research Summary" - Legible London pilot scheme evaluations (3 x locations), TfL, 2010 [38]	User surveys, including face-to-face interviews (x 2,300 pre-stage / x 1,008 post-stage)	Post-stage interviews identified high ratings for scheme helpfulness (73%) and effectiveness (93%). 77% of post-stage interviewees stated local wayfinding information gives them greater confidence to explore the area on foot, compared to 54% of pre-stage interviewees. Satisfaction with "finding their way around the area" with the information increased from 61% to 83%. Satisfaction with "finding the shortest route" increased from 43% to 67%

[38] Source: RESEARCH SUMMARY Legible London scheme evaluation in new areas

Study	Scope / method	Key findings
"Pathways Project" (briefing pack), Applied Information Group, 2024 [39]	User engagement workshops and on-street surveying with older people	Simple modifications TSRGD-based active travel designs that could significantly improve levels of understanding – as depicted below. 
"Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace", University of Northampton (Ryan and Hill), 2022 [40]	Online survey of 266 adults (200 females, 63 males, 3 with alternative gender identity)	39% of respondents strongly agreed with the statement, *"Having directional signposts on paths would make me feel less anxious about walking on paths that I am not familiar with".* 38% strongly agreed with the statement, *"Having directional signposts on paths would make route planning easier for me".* 23% strongly agreed with the statement, *"Having directional signposts on paths would make me feel safer", although this was far more prevalent for female / alternative gender identity respondents (27%) than for male respondents (13%).*
"An Analysis of Pedestrian Preferences for Wayfinding Signage in Urban Settings: Evidence from Nanning, China", Zhou and Ujang (published in "Buildings" journal), 2024 [41]	Intercept surveys of 385 pedestrians, using photos of signage types	Many wayfinding signs provide useful information but often score poorly on visual appeal because they lack clear sensory cues and meaningful design. Current wayfinding systems focus too heavily on navigation while overlooking sensory engagement and expression of local culture, reducing the overall walking experience. Balancing functional needs with sensory and cultural elements will improves legibility while helping people feel more connected to the places they walk through.
"City of Edmonton - Wayfinding Business Case", Applied Information Group, 2014	Street intercept surveys (x 168) and online surveys (x 514) following a prototype roll-out (5 x signs) in downtown Edmonton.	• 57% of intercept and 56% of online respondents agreed or strongly agreed they would "walk more or further if maps or signs like these were available." • 90% of intercept and 87% of online respondents agreed or strongly agreed the system would "increase people's confidence in finding their way around." [42]
"Guiding the Way: Exploring cycle tourists' needs and preferences for cycling route maps and signage", Lamont and Causley (published in "Annals of Leisure Research"), 2011 [43]	Quantitative and qualitative evidence from a study of independent cycle tourists in Australia	The personal health and safety of cycle tourists can be compromised by of inaccurate information published on maps and signage. Female cycle tourists appear more susceptible to wayfinding anxiety than males, and exhibit a stronger desire to be well informed about the nature of the routes they will cycle on.
"Wayfinding Strategy Document", Tourism Northern Ontaria, 2014 [44]	Citation from a study in Asheville, US with 4,076 survey respondents	87% of respondents would explore further if signage and kiosks provided directions to additional attractions.

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[39] Source: "Pathways Project – a new national wayfinding system for walking, wheeling and cycling", Applied Information Group, Sept. 2024

[40] Source: Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace—Cross-sectional survey - ScienceDirect

[41] Source: An Analysis of Pedestrian Preferences for Wayfinding Signage in Urban Settings: Evidence from Nanning, China

[42] Edmonton Wayfinding Business Case

[43] Source: Guiding the Way: Exploring cycle tourists' needs and preferences for cycling route maps and signage: Annals of Leisure Research: Vol 13, No 3

[44] Source: 2014_wayfinding_strategy__final.pdf

Study	Scope / method	Key findings
"Walking and Walkability: Is Wayfinding a Missing Link? Implications for Public Health Practice" Vandenberg et al (published in "Journal of Physical Activity and Health", 2015 [45]	Review of literature on outdoor pedestrian-oriented wayfinding to examine its relationship to walking and walkability	Because walking requires attention, sensory or cognitive impairments, distractions, or confusing environments can make wayfinding harder. Navigating—especially in unfamiliar places—demands mental effort, in order to notice and remember environmental cues. When these cues are limited, walking confidently becomes difficult. Existing research suggests wayfinding affects people's motivation to walk, as well as how often and how far they walk, but more study is needed to fully understand this relationship.

Overall, it can be concluded from the range of sources outlined above that improvements to wayfinding and signage can have a significantly positive impact on people's perceptions of active travel, the quality of their journeys and their desire to explore an area.

3.5.4 Increasing active travel demand

Overview

A key aim of the Pathways Project is to increase overall demand for active travel. Although there is not an extensive body of evidence focused on demand-inducing impacts of signage and wayfinding in isolation, some useful insights can be obtained from a few key studies and surveys.

Legible London

Most useful is Legible London, a pedestrian wayfinding and signage system installed throughout central London, as well as in busy areas and along key corridors in a range of boroughs across Greater London.

A post-implementation evaluation[46] was conducted in 2010, focusing on three pilot areas – two within central London (South Bank, Covent Garden & Bloomsbury), and one in outer London (Richmond & Twickenham). Each pilot area had "sixty to eighty signs" which entailed "a range of street signs and maps, to provide a comprehensive wayfinding system that helps both residents and visitors." The evaluation determined that programme roll-out had "significantly improved pedestrians' perceptions and satisfaction", and that "signs and maps provided help to encourage more walking and make it easier to walk to new places." The study observed a 5% increase in the volume of pedestrians in and around survey locations. Although it was noted this increase cannot be definitely attributed to Legible London, 58% of post-implementation survey respondents stated that Legible London would encourage them to walk more often – consistent with the observed footfall increase.

Other studies showing signage and wayfinding demand increases

Other studies observing increases in active travel following wayfinding improvements are summarised in Table 6 below.

Park and Stride for Health and Wellbeing: Evaluation of a wayfinding intervention to promote active travel to school in Oxfordshire, UK - ScienceDirect

[45] Source: (PDF) Walking and Walkability: Is Wayfinding a Missing Link? Implications for Public Health Practice

[46] Legible London Post-Implementation Evaluation

Table 6: Studies showing active travel increases from wayfinding improvements

Study	Scope / method	Key findings
"Park and Stride for Health and Wellbeing: Evaluation of a wayfinding intervention to promote active travel to school in Oxfordshire, UK", Riches et al, 2024	Survey of 110 parents of children attending four schools with wayfinding improvements, plus a control group survey of 71 parents of children attending two other local schools (without wayfinding improvements)	A programme of wayfinding on routes to four local schools in Oxfordshire included prominent signage, pavement markings and murals (e.g., hopscotch, dragons, information about planets), map boards, and safety cues (e.g. star symbols at wait points). Following implementation, the share of children whose parents stated that they usually travel to / from the four schools using active modes increased from 76% to 81% (in contrast to a slight decline from 71% to 70% in control group schools over the same period).
"Increasing Walking in the Hartsfield-Jackson Atlanta International Airport: The Walk to Fly Study", Fulton et al (published in American Journal of Public Health), 2017 [47]	Count data gathered continually over the course of a year using six ceiling-mounted infrared sensors	Four large signs were installed by escalators and train entrances provided directional arrows and walking times (e.g. "5-minute walk to next concourse"), encouraging travellers to walk instead of taking the inter-terminal train. Following installation, the proportion of travellers choosing to walk to their gates rather than ride the train showed a daily increase of between 11% and 17%.
"Active Streets Pilot Summary Report", Transport Canberra, 2017 [48]	Four primary schools participating in pilot scheme, with manual counts of children and accompanying adults walking / cycling to and from each school pre- and post-scheme implementation	A pilot programme of active travel signage, related road crossing improvements and traffic calming measures were implemented along key routes used to access four primary schools in early 2016. Footpath stencils and "Active Travel" signs were prominently placed, and a promotional campaign was held in the schools to raise awareness. Following implementation, the share of children enrolled across the four schools using active to travel into school increased from 26% to 31%, while the share of children using active travel to travel back from school increased from 36% to 41%.

Increases in stated preference for active travel from wayfinding improvements

Alongside the limited number of studies outlined above showing actual demand changes post-implementation, there are several studies showing increases in numbers of people stating their intention or desire to use active travel following implementation of a scheme – as summarised in Table 7. (It is important to note that, in all the studies cited, statements of intent have not been compared to actual travel patterns).

Table 7: Studies showing increases in stated intention to use active travel post-wayfinding

Study	Scope / method	Key findings
"Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace", University of Northampton (Ryan and Hill), 2022 [49]	Online survey of 266 adults (200 females, 63 males, 3 with alternative gender identity)	47% of respondents strongly agreed with the statement, *"Having directional signposts on paths would make me feel more confident about trying new routes,"* with a higher proportion of female / alternative gender respondents (48%) strongly agreeing, as opposed to 44% of males.
"City of Edmonton - Wayfinding Business Case", Applied Information Group, 2014	Street intercept surveys (x 168) and online surveys (x 514) following a prototype roll-out (5 x signs) in downtown Edmonton. Report also includes citation from an intercept survey in Vancouver with 120 participants	• 61% of intercept and 67% of online respondents in Edmonton agreed or strongly agreed the wayfinding system would "increase the frequency of visits to an area." • 90% of intercept and 87% of online respondents agreed or strongly agreed the system would "increase people's confidence in finding their way around."

[47] Source: Increasing Walking in the Hartsfield-Jackson Atlanta International Airport: The Walk to Fly Study - PubMed

[48] Source: Active Streets Pilot Summary Report

[49] Source: Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace—Cross-sectional survey - ScienceDirect

Study	Scope / method	Key findings
"Evaluation of a community wayfinding signage project in Hawai'i: Perspectives of pedestrians and bicyclists", Keliikoa et al (published in "Journal of Transport and Health"), 2018 [50]	244 intercept surveys, relating to a community-wide wayfinding signage project in Kailua, a suburban community in Hawaii.	50.5% of pedestrians and 63.3% of cyclists reported seeing a wayfinding sign – 41.9% of whom reported that it helped with route decision making. 33.1% of survey respondents agreed that seeing the wayfinding signs encouraged them to walk or bicycle more often. Both residents (82.6%) and non-residents (86.5%) thought the wayfinding signs were beneficial to the community.
"Wayfinding Strategy Document", Tourism Northern Ontario, 2014 [51]	Citation from a study in Asheville, US with 4,076 survey respondents	87% of respondents would explore further if signage and kiosks provided directions to additional attractions.

Summary

It can be concluded from the range of sources outlined above that improvements to wayfinding can increase both people's stated intention to use active travel, and actual levels of walking, wheeling and cycling.

3.5.5 Enhancing accessibility for people with disabilities

The Pathways Project is designed to increase the attractiveness of active travel by improving journey quality, accessibility and feelings of comfort and safety for all users, including those with physical, sensory or cognitive impairments. Providing accessible information in multiple formats is essential to support disabled people in navigating the built environment with confidence. This effects are demonstrated in a number of studies, summarised in Table 8.

Table 8: Studies showing accessibility improvements for disabled people from wayfinding

Study	Scope / method	Key findings
"Walking and Walkability: Is Wayfinding a Missing Link? Implications for Public Health Practice" Vandenberg et al., 2015 [52]	Review of existing literature on the relationship of outdoor pedestrian wayfinding to walkability.	Pedestrians with cognitive impairments we found to make "very conscious use of landmarks" for navigation and orientation. Adults with sensory or cognitive limitations used voice activated systems. Clear environmental clues reduce the burden for all.
"Public Perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace", Declan et al., Volume 3, 2022[53]	Online survey of 266 adults exploring public opinion on wayfinding design and features.	Respondents emphasised that wayfinding must be inclusive, using tactile maps, raised surfaces or QR codes for those with visual impairments. Knowing the location of seating via signage was noted as critical for users with mobility issues or those using wheelchairs to decide if a route is suitable. It was strongly agreed that wayfinding would improve their confidence to explore.
"Inequalities in self-report road injury risk in Britian" – Aldred, 2018[54]	Analysis of National Travel Survey data focusing on pedestrian injuries and risk factors.	Notes that people with disabilities opposition to "shared space" designs is often based on an elevated risk of physical injury from cars. Wayfinding design should address safety for people with disabilities.
"Inclusive Journeys: Improving the accessibility of public transport for people with sight loss" – Motability Foundation, 2023[55]	Assessment of journeys for visually impaired people across various modes of transport. Qualitative, quantitative and ethnographic studies were used.	22% identified inaccessible or poor information as a difficulty when using public transport. Visual information present was often poorly positioned and/or displayed. One participant noted that Inverness Bus Station had no signage at all, making it impossible to navigate alone.
Accessibility Review of the PTAL Index (Frontier Economics & Revealing Reality), 2024[56]	Characterised the need for disability accessibility in metrics such as London's PTAL. Evidence reviews, focus groups.	Inadequate information provision as a major impactful barrier to public transport use. Specific barriers included inadequate provision of legible information and lack of Braille signage. Current information systems frequently fall short of accessibility needs.

[50] Source: Evaluation of a community wayfinding signage project in Hawai'i: Perspectives of pedestrians and bicyclists - ScienceDirect
[51] Source: 2014_wayfinding_strategy__final.pdf
[52] Source: Walking and Walkability: Is Wayfinding a Missing Link? Implications for Public Health Practice
[53] Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace
[54] Inequalities in self-report road injury risk in Britain: A new analysis of National Travel Survey data, focusing on pedestrian injuries
[55] Inclusive journeys - Motability research
[56] Accessibility Review of the PTAL Index

Study	Scope / method	Key findings
Streets for Diversity: Exploring How Neurodivergent People Experience Streets, Pau, S et al., 2023 [57]	Study focusing on how neurodivergent people respond to the sensory qualities of streets. Interviews, online surveys and workshops.	Participants found wayfinding difficult due to the street environment is often "passively unhelpful" making it hard to follow signage and visual cues. Those with ADHD noted that backstreets lack signage, leading to panic attacks. Bus timetables are often placed too high, sometimes overhead height.
"Creating an Inclusive Future: Addressing Accessible Transport Needs for Young Disabled People" Savanta & Mobility Foundation, 2025 [58]	UK study focused on transport experience for disabled people, (15-24) Peer research, quantitative survey, focus groups & in person observations.	24% of respondents reported information is difficult to understand. 19% of participants noted unclear signage as one of the hardest barriers in a journey. During in person observations, participants experienced confusion due to unclear signposting.
Disabled Citizens' Inquiry Sustrans, 2023 [59]	Investigation into walking and wheeling inclusivity.	Wayfinding, signage and maps were found to be inconsistent, unclear and failing to address needs. Some signs with icons but no text were useless.

3.5.6 Increasing local footfall in high streets, civic and green spaces

The Pathways Project aims to enhance the vitality of local economies and civic spaces by making them more navigable and welcoming. Research indicates that clear, consistent wayfinding systems do more than just provide directions, they lead to economic development by increasing pedestrian confidence and encouraging exploration. By revealing the proximity of local landmarks and businesses, wayfinding can create a significant boost in footfall and retail engagement.

Table 9: Studies showing increases in local footfall from wayfinding

Study	Scope / method	Key findings
"Cycling and Walking Investment Strategy" – Department for Transport (DfT), 2017 [60]	National policy framework and evidence review on the impacts of active travel investment in England.	Identifies wayfinding as a critical component for improvements to the walking environment. Can lead to a boost of 40% shopping footfall. Specifically bike lanes and support infrastructure.
"Delapré Walk project: Are signposted walking routes an effective intervention to increase engagement in urban parks?" Declan J Ryan et al., 2023[61]	Intercept surveys and automated counts	58% of intercept survey respondents stated that following the new signposted route was adding a new walk to their typical week. They also strongly agreed that the installation of such routes would encourage more people to visit spaces they were previously unfamiliar with.
"Wayfinding Strategy Document", Tourism Northern Ontario, 2014 [62]	Case study examination of behaviours in a city-wide wayfinding context.	Large scale survey found that 87% of respondents would explore an area further if signage and information kiosks provided directions to additional local attractions. Highlights "progressive disclosure" in wayfinding.
"Opinion of the Economic Impact of an Improved PATH Wayfinding System", N Barry Lyon Consultants Ltd, 2016 [63]	Workshops, and surveys with disabled people across the UK.	If pedestrian traffic were to increase by 10%, as an example provided by SDG, businesses could potentially expect an increase in trade of up to 10%, with retail businesses such as restaurants, fashion, and convenience stores particularly benefitting.
"The Pedestrian Pound" (1st Edition) NWDA/RENEW Northwest (2007) [64]	Evaluation of a range of pedestrian improvements in Coventry City Centre.	25% rise in footfall created from clearer signage, placement of new street furniture and new civic square.
"The Pedestrian Pound" (3rd edition) Douglas Economics (2022) [65]	Large representative survey of adults in Sydney's perceptions of actual vs hypothetical walking routes.	Significant increase in ratings of walking routes when they included clear signage, alongside other natural wayfinding tools such as trees and wide pavements. Improved route ratings are directly associated with an increased willingness to walk.

[57] Streets for Diversity
[58] Creating an Inclusive Future: Addressing Accessible Transport Needs for Young Disabled People - Savanta & Mobility Foundation, 2025
[59] Disabled Citizens' Inquiry - Walk Wheel Cycle Trust
[60] Cycling and Walking Investment Strategy" – Department for Transport (DfT), 2017
[61] Delapré Walk project: Are signposted walking routes an effective intervention to increase engagement in urban parks?
[62] Wayfinding Strategy Document, Tourism, Northern Ontario, 2014
[63] Opinion on the Economic Impact of an Improved PATH Wayfinding System
[64] Just Economics Pedestrian Pound Living Streets
[65] The Pedestrian Pound (3rd Edition) Douglas Economics, 2022

Study	Scope / method	Key findings
"Valuing Urban Realm - Business Cases in Public Spaces" Buchanan (2008) [66]	"Hall tests" including 600 respondents to measure users value specific public realm attributes.	"Signs to public transport and attractions" identified as a significant attribute of a high-quality environment. Clear key driver being legibility in making a high street attractive enough for people to choose to spend time.

3.5.7 Improving the cost-effectiveness of active travel interventions

The Pathways Project will provide comprehensive and well-structured guidance, underpinned by location- and route-specific information captured through the Data System (as described in section 3.5.2).

This will give authorities a clearer and more comprehensive set of specifications for installing and maintaining physical wayfinding assets (signs, markings, information boards etc.), reducing the need for engineers and scheme designers to interpret guidance and design their own bespoke solutions and guidance and design their own bespoke solutions and saving time and cost. A more systematic and standardised approach will also reduce costly scheme reworking, with more consistent and complete data in-built into the design approach.

There are numerous studies and examples of data standardisation programmes and systems in both infrastructure development and government functions, which have driven cost efficiencies. Some key examples are set out in Table 10 below.

Table 10: Case studies of data standardisation and efficiency savings

Example / study	Description and results
UK Government Digital Efficiency Report [67]	Drawing on historical data looking at the savings already achieved by existing digital services over offline alternatives, this report estimates that between £1.7 billion and £1.8 billion could be realised as total annual savings to the government and service users.
Light Rail White Paper, Egis (2025) [68]	Average construction costs per km for the UK's 9 x major tram networks are more than double the average costs per km for recent tram projects in other western European countries. A significant contributing factor is the lack of a definitive design standards – each UK tram system needing to develop its own largely bespoke specifications. This contrasts to comprehensive, well-defined design frameworks in both Germany and France. These play a key role in enabling faster, more cost-effective delivery – evident in the more widespread adoption of tram systems in these countries compared to the UK.
The impact of BIM on project time and cost, Discover Materials journal (2025) [69]	This study examines the impact of Building Information Modelling (BIM) implementation on project time and cost. By capturing detailed architectural and contextual data, BIM enhances construction practices by providing organized spatial information and facilitating informed design planning, construction delivery and related decision-making. Quantitative results reveal that BIM adoption reduces project timelines by an average of 20% and costs by 15%, while also decreasing design errors by 30% and RFIs by 25%.
Getting infrastructure projects right, McKinsey (2019) [70]	Research by McKinsey has identified that standardised project frameworks and specifications reduce cost. Consistent standards and documentation reduce planning and design time and cost, and also increase predictability for the supply chain which supports procurement efficiencies.
Department of Health / Environment – BIM case study [71]	This study examined the impact of implementing BIM Level 2 for a public sector building refurbishment. By standardising digital design coordination, asset information and data handover processes, BIM improved decision making across design, construction and facilities management. Quantitative analysis relating to a major building refurbishment at 39 Victoria Street found BIM enabled savings equivalent to ca. 3% of whole life expenditure. Savings were realised through improved design efficiency (with savings estimated at around 5% of design costs), reduced construction rework through clash detection, and lower operational and maintenance costs.
Cookham Wood Prison – BIM and data collaboration [72]	The Cookham Wood Prison project trialled a collaborative procurement approach supported by the adoption of Building Information Modelling (BIM) and the early integration of the client, consultants and contractors. This enabled the project to achieve cost savings of ca. 20%, due to early collaborative decision making that enabled cost saving innovations and improved efficiency before construction commenced, with BIM used as part of the integrated delivery approach to support more effective development and coordination of design and delivery information

[66] Valuing Urban Realm Business Cases in Public Spaces
[67] Source: Digital Efficiency Report - GOV.UK
[68] Source: Egis Rail, Light rail white paper, 2025
[69] Source: The impact of BIM on project time and cost: insights from case studies, Discover Materials
[70] Source: The importance of standardized infrastructure project frameworks | McKinsey
[71] Sources: PBC today and BIM Community
[72] Source: Cookham Wood case study – HM Government

3.5.8 Constraints and dependencies

Constraints

- **Limitations in evidence:** There is only a limited amount of published evidence that explores the demand impacts of wayfinding improvements. Various surveys identify improvements in perceptions of active travel and its attractiveness, but evidence around actual demand growth is limited to a few case studies – see sections 3.5.3 / 3.5.4. There are also limited case studies of cost efficiency savings from data standardisation and specification programmes directly comparable to the Pathways Project – the case studies identified having only broad similarities (see section 3.5.7). Consequently, the Economic Case in this study is based on high-level assumptions, with an uncertainty range reflected in the initial value calculations (see chapter 4). As part of the upcoming R&D programme, it is recommended that the project team gathers detailed evidence both of the demand impact (i.e. levels of walking, wheeling and cycling) pre- and post-implementation of wayfinding measures, and of cost efficiency savings amongst authority planners and designers.
- **Regulatory change:** Any changes to the way active travel signage is specified and administered resulting from the Pathways Project, including in relation to the TSRGD framework, would be likely to require ministerial approval and may require legislation. It is recommended that the project team obtains specialist advice and guidance relating to any formal change in duties for different public entities, and any associated legislative requirements.
- **Highway-related safety standards:** Any new system of signage must continue to comply with all relevant safety requirements associated with signs, markings or other assets on or around the public highway. New visual designs will need to congruent with other signage to avoid any potential confusion to drivers / other highway users. Any changes to positioning, frequency or prominence of signs will also need to align with relevant safety principles. Installation and maintenance works on or around the highway must also comply with safety regulations. It is recommended that the project team obtains advice on these aspects from a highways design specialist.

Dependencies

- **Acceptance and adoption by implementing authorities:** While the Pathways Project is proposing a centralised and coordinated entity to manage the programme, set standards, specify designs, and manage the Data System, the installation of physical wayfinding and signage assets will remain the responsibility of strategic highway authorities or local authorities that own or upkeep highways and pathways. The success of the project will depend on obtaining their support and buy-in, their acceptance of the project's principles and design specifications, and their proactive engagement with the Data System. It will be essential that the Pathways Project leadership effectively communicates and engages, to clearly articulate the scope and extent of changes proposed to signage and wayfinding and ensure these are fully understood and effectively implemented.
- **Data quality controls:** Development of the Data System must incorporate stringent standards and safeguards around data quality. Robust data capture processes must be defined to ensure route information is accurately and comprehensively reflected, with periodic auditing and verification. Access to the data for general or commercial use must be managed in a way that maintains its integrity – particularly any input around local attractions and amenities – with any external input verified and moderated to ensure content is both relevant and accurate, and that it does not convene any laws or regulations (e.g. GDPR, competition laws). Any methods used to capture usage data – e.g. counting technology, user categorisation – must comply with GDPR.
- **Availability of public funding:** Signage and wayfinding on / around highways or public rights of way is typically paid for entirely through public funds, as there is no realistic or viable way to levy payment for members of the public using / benefitting from the signage. Although in the long-term, the Pathways Project is expected to save costs through more cost-effective wayfinding implementation (see section 3.5.7), the initial R&D programme will require up-front public funding. This is discussed further in the Financial Case (chapter 6). It is important to note that, although the potential for the private sector to contribute towards the project is considered as part of the longlist options appraisal – see Table 18, section 3.7.3 – the extent of any private sector contribution is highly uncertain at this stage, therefore it is recommended the project team assumes, in the first instance, that development and roll-out are fully publicly funded.

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3.6 Project logic and objectives

3.6.1 Demand formula

As set out in the previous sections, a number of information-related factors will drive demand for active travel. These can be summarised conceptionally as a formula, depicted below.

AT = ((A x C x S) + M) x N

Whereby:
AT: Active Travel demand
A: Accessibility = distance + connectivity + time
C: Certainty = predictability + continuity
S: Safety = real + perceived risk
M: Motivation = awareness, enjoyment, identity
NT: Network effects = social norms, new habits, widening awareness

For each element of the formula, there are underpinning data sources and evidence, examples of which are summarised in Table 11.

Table 11: Active travel information formula – supporting evidence

Formula element	Supporting evidence
A: Accessibility = distance + connectivity + time	A number of studies demonstrate that reducing active travel distances through better wayfinding and signage will increase demand. These include City of Edmonton – Wayfinding Business Case, that found 57% of intercept and 56% of online respondents agreed or strongly agreed they would walk more or further if maps or signs like these were available [73]. Additionally, in Vancouver, 82% of survey participants indicated they were more likely to walk between places as a result of the maps [74]. The related journey time savings – both through shorter distances and less time spent finding the way – also increase demand. This is evident from Vandenberg et al., where they found that people 55% of subway journeys taken would have been quicker walking, showing that people making the journey simply didn't think about finding alternative ways to travel due to lack of information [75]. Better signage will also improve connectivity and visibility of linkages / interchanges between active travel and other modes (including public transport). The Liverpool City Region manual specifies that wayfinding designs should "visibly connect the regional network to local centres and public transport" [76].
C: Certainty = predictability + continuity	Better information on directions, route characteristics, distances and timings increases predictability of journeys, thereby increasing demand, as evidenced in Ryan Hill et al., where it is recognised the public are more likely to walk a route knowing how far it is and the time it would take beforehand. [77] More continuous and coherent signage coverage also makes active travel more attractive. The People Bridge in Cardiff was intended to increase cycling and pedestrian activity, however numbers reduced after installation due to lack of connectivity to other routes, meaning it was only used for recreation rather than active travel. [78] Those with disabilities benefit in particular from better route information, making journeys more predictable and less stressful. [79]
S: Safety = real + perceived risk	High-quality signage and wayfinding help improve safety – a key driver of active travel demand. Research found that 23% of respondents strongly agreed that signage would make them feel safer, a perception significantly more prevalent among female respondents. A better signposted, more predictable and orderly route will reduce perceptions of risk and potential barriers to active travel. Studies show that many users – in particular women – are discouraged from cycling due to safety concerns. Perceptions of safety add to reduced use. Well maintained areas help reduce this factor as seen in Ryan Hill et al [80]. Disabled people are also disproportionately affected by negative safety perceptions, associated with inadequate signage and information, despite data suggesting otherwise. [81]
M: Motivation = awareness, enjoyment, identity	Better information provision – e.g. details route characteristics and local amenities – can enhance the enjoyment of active travel, and increase motivation of people to walk, wheel or cycle. 25% of respondents in a wayfinding study strongly agreed that signposts would motivate them to walk further than originally planned. [82] Coherent signage with a distinct identity can increase feelings of familiarity, improving the quality of journeys. Studies show that a consistent signage system is essential for supporting new users of a route. [83]

[73] City of Edmonton - Wayfinding Business Case, Applied Information Group, 2014
[74] City of Edmonton - Wayfinding Business Case, Applied Information Group, 2014
[75] Walking and Walkability: Is Wayfinding a Missing Link? Implications for Public Health Practice
[76] Liverpool City Region Active Travel Wayfinding Manual
[77] Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace—Cross-sectional survey
[78] New walking and cycling infrastructure and modal shift in the UK: A quasi-experimental panel study - ScienceDirect
[79] Physical activity and the environment | Guidance | NICE
[80] Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace—Cross-sectional survey
[81] Population levels of, and inequalities in, active travel: A national, cross-sectional study of adults in Scotland
[82] Public perceptions on the role of wayfinding in the promotion of recreational walking routes in greenspace—Cross-sectional survey
[83] Liverpool City Region Active Travel Wayfinding Manual

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Formula element	Supporting evidence
N: Network effects = social norms, new habits, widening awareness	Prominent signage and wayfinding systems that are widely recognised and increase general levels of trust among the public. This effect has been demonstrated in research undertaken on the Legible London project, which found that utilising Transport for London typeface for this signage meant users were more inclined to trust the information. [*Note: need to obtain source for this finding – Applied to provide*]. Standardising signage identity can change general travel habits and increase awareness and acceptance of active travel as a social norm. Studies on population levels around active travel show that the psychological reassurance should be a critical component of forming new active travel habits. [84]

Overall, the combination of elements as discussed in Table 11, and encapsulated within the active travel demand formula, will drive increases in the levels of active travel.

The various elements of the demand formula interlink with the project's intended outcomes, as formulated through the Logic Map. This is discussed further in section below.

3.6.2 Project outcomes

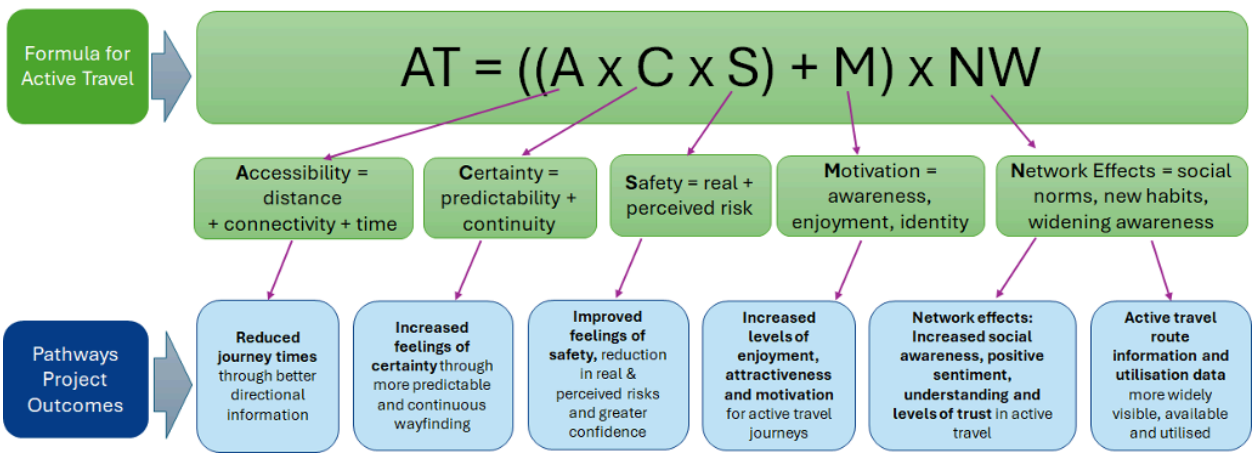
Drawing on the wayfinding evidence and analysis set out in the Case for Change (section 3.5), six project outcomes have been defined. These are associated with key components of the project including the 4 x systems (directional, awareness, behavioural, data), and they reflect the intended mid- to long-term impacts for society as a whole.

The outcomes are as follows:

- Reduced journey times through better directional information.
- Increased feelings of certainty through more predictable and continuous wayfinding.
- Improved feelings of safety, reduction in real & perceived risks and greater confidence.
- Increased levels of enjoyment, attractiveness and motivation for active travel journeys.
- Network effects: Increased social awareness, positive sentiment, understanding and levels of trust in active travel.
- Active travel route information and utilisation data more widely visible, available and utilised.

The outcomes also relate closely to key elements of the demand formula defined in section 3.5.7 above. These linkages are depicted in Figure 4.

Figure 4: Translation of demand formula into project outcomes



3.6.3 Logic map

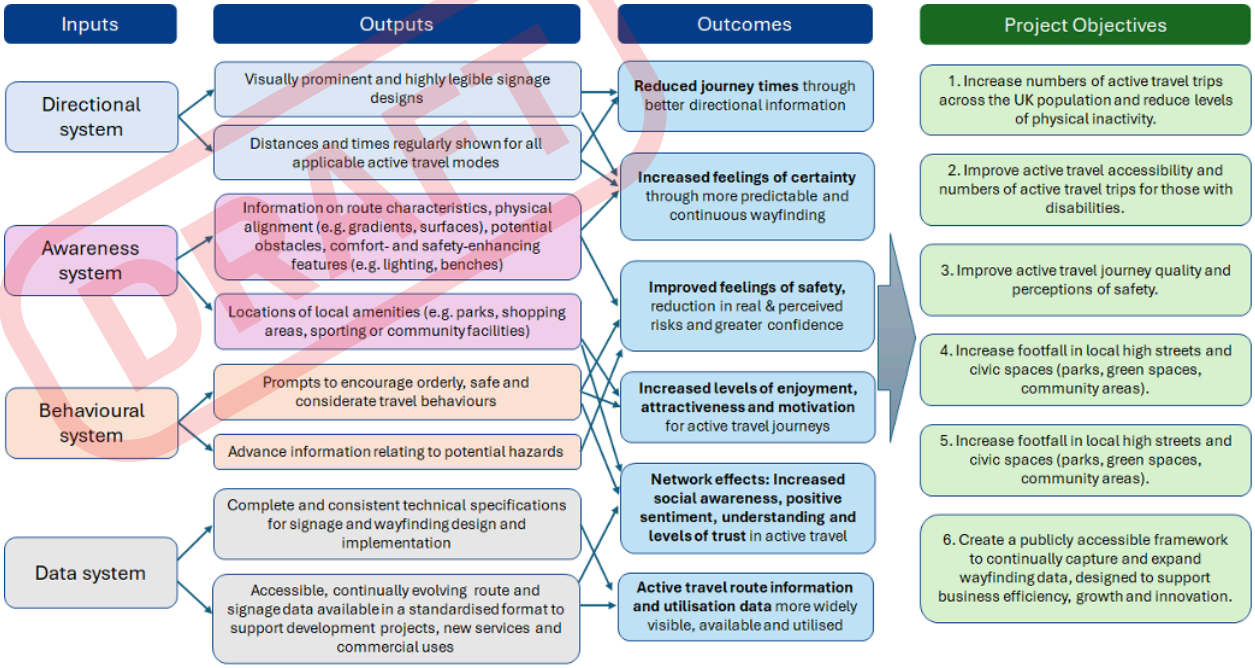
Drawing on the wayfinding evidence, analysis and demand formula set out in the Case for Change (section 3.5), it is possible to define an overarching logic map for the project. This comprises:

- Inputs: structuring and resources put into the project, and activities conducted. Outputs: the direct results of the project.
- Outcomes: mid- to long-term impacts of the project, from an overall societal perspective.
- Project Objectives: translation of the outputs and outcomes of the project into SMART (Specific, Measurable, Achievable, Realistic and Time-bound) objectives. These objectives inform the development and assessment of scheme options, and will also guide the ongoing development, implementation and subsequent evaluation of the project.

The logic map is depicted in Figure 5.

[84] Population levels of, and inequalities in, active travel: A national, cross-sectional study of adults in Scotland

Figure 5: Pathways Project – Logic Map



3.6.4 Project Objectives

Six Project Objectives have been defined, as set out in Table 12. These set out the case for change and reflect the intended long-term outcomes and impacts of the Pathways Project, as set out in the Logic Map discussed in the previous section.

The Project Objectives will inform the development and assessment of scheme options, and will also guide the ongoing development, implementation and subsequent evaluation of the project.

Table 12: Pathways Project – Project Objectives

Ref.	Project Objective
1	Increase numbers of active travel trips across the UK population and reduce levels of physical inactivity.
2	Improve active travel accessibility and numbers of active travel trips for those with disabilities.
3	Improve active travel journey quality and perceptions of safety.
4	Increase footfall in local high streets and civic spaces (parks, green spaces, community areas).
5	Create an accessible framework to continually capture and expand wayfinding data, designed to support enhanced information provision, business growth and innovation.
6	Reduce the costs for planning, design and installation of wayfinding infrastructure.

3.7 Initial options – indicative assessment

3.7.1 Longlist options identification

An initial longlist of potential options has been defined, using the Green Book "Options Framework Filter" to identify key areas of variability. This approach ensures a holistic assessment, identifying the full extent of potential alternative ways to achieve the project objectives.

Longlist options will be subject to an initial qualitative assessment, to then identify a shortlist of priority options that are subject to more detailed quantitative analysis in the Economic Case.

It is important to note that this assessment is indicative only and based on desktop appraisal by the consultant and client teams. Due to time and resource constraints, it has not been feasible to obtain inputs from experts and stakeholders. A more comprehensive longlist options assessment (via expert consultations, workshops etc.) as specified in the Green Book (section 4.28) is recommended as the project progresses towards Outline Business Case stage. [85]

The identification of initial longlist "Do Something" options, based on Options Framework Filter parameters, is set out in Table 13. The "Do Something" options are also compared to the "Business as Usual" (BAU) baseline, reflecting the status quo.

Table 13: Studies showing increases in local footfall from wayfinding

Key Parameter	Pathways Project – longlist options	Baseline (BAU)	Summary
Service scope The intended extent / coverage	A new national wayfinding system, consistent across UK, and used for active travel routes on- and off-highway (*single option*).	National system for signage on / adjacent to highways (TSRGD), but no standard system for off-highway routes.	Continuation of a UK-wide scope and approach is the only viable option (i.e. no variant options assessed).
Service solution Physical, technical, practical and other solution characteristics	New wayfinding and signage programme designed for pedestrians, cyclists and wheelchair users including those with disabilities. Variant options: • "Do Minimum" option (1): improvements to the design (colours, size, layout etc.) and coverage of physical signage only, within existing TSRGD delivery framework. • "Do Less" option (2): a new bespoke digital app providing active travel users with enhanced wayfinding information (no physical infrastructure measures).- "Do Something" option (3): Pathways Project comprising 4 x systems (Behavioural; Awareness; Network; Data) per section 3.2.1. • "Do Something" option (3): Pathways Project comprising 4 x systems (Behavioural; Awareness; Network; Data) per section 3.2.1. • "Do Maximum" option (4): Pathways Project, plus new bespoke digital app for end users.	Physical signage installed on / next to highways using TSRGD specifications (similar characteristics to vehicle signage), with variable off-highway designs.	4 x variant options to assess against BAU.
Service delivery Entity responsible for delivery (public sector) plus any private sector role	Programme management and oversight options: • "Do Something" option (1): new dedicated team within DfT or ATE, providing full system specifications, implementation guidance and support, monitoring and data management. • "Do Something" option (2): new "Office for Active Travel" arms-length agency, answerable to DfT, with statutory responsibility for system design, oversight of implementation and data management. Note: no change to implementation arrangements for physical assets (signs, markings etc.), which continue to be led by strategic highway or local authorities.	Management and oversight of TSRGD framework by DfT. Delivery of physical assets by strategic highway / local authorities in line with TSRGD specifications.	2 x variant options to assess against BAU.

[85] See Chapter 8 (Recommendations).

Key Parameter	Pathways Project – longlist options	Baseline (BAU)	Summary
Implementation Phasing, piloting, roll-out process	Variant options: • "Do Something" option (1): "Big Bang" approach, rapid roll-out across full UK (within 5 years). • "Do Something" option (2): Initial R&D programme (2-3 years) followed by full national roll-out (over a 10-year period). • "Do Something" option (3): Long-term phasing (20 – 30 years) with hierarchy of location types, e.g. urban centres and more populous areas first, smaller centres / lower density areas later.	No programme of change – continuation of status quo	3 x variant options to assess against BAU.
Funding Public sector funding, private investors / sponsors, users	Variant options: • "Do Something" option (1): 100% public funding. Central government funds Pathways Project R&D phase. Strategic highway authorities or local authorities fund physical assets (signs, maps, markings etc.). • "Do Something" option (2): same as option 1 for programme management and physical assets, but Data System funded via hybrid of public funding and private investment / commercial use. • "Do Something" option (3): Same as option 2 for programme management (public funding) and data system (public-private hybrid), but with public-private hybrid approach for physical signage, allowing private businesses to use wayfinding signs / maps / markings for advertising purposes.	Active travel signage is entirely publicly funded.	3 x variant options to assess against BAU.

3.7.2 Critical success factors

Successful implementation of the Pathways Project and fulfilment of its aims will depend on a number of critical success factors, set out in Table 14.

These form the criteria for the indicative assessment of initial "longlist" options set out later in this chapter (see section 3.7).

Table 14: Critical Success Factors

Critical Success Factor	Assessment focus (key questions)
Strategic fit – fulfilment of Project Objectives (as defined in section 3.6.1)	
Increase numbers of active travel trips across the UK population and reduce levels of physical inactivity.	Is the proposed option likely to fulfil this objective?
Improve active travel accessibility and numbers of active travel trips for those with disabilities.	Is the proposed option likely to fulfil this objective?
Improve active travel journey quality and perceptions of safety.	Is the proposed option likely to fulfil this objective?
Increase footfall in local high streets and civic spaces (parks, green spaces, community areas).	Is the proposed option likely to fulfil this objective?
Create an accessible framework to continually capture and expand wayfinding data, designed to support enhanced information provision, business growth and innovation.	Is the proposed option likely to fulfil this objective?
Reduce the costs for planning, design and installation of wayfinding infrastructure.	Is the proposed option likely to fulfil this objective?
Viability	
Potential value for money	Will the proposed option optimise social value (reflected in valuation of economic benefits) relative to costs?
Supplier capacity and capability	Will the proposed option optimise social value (reflected in valuation of economic benefits) relative to costs?
Potential affordability	Are funding and / or financing sources available to pay for the option?
Potential achievability	Does the organisation (or organisations) responsible for delivery have the capabilities and skills needed to effectively implement the project?

3.7.3 Assessment matrix

Criteria fulfilment scores

Longlist assessment criteria are based on the Critical Success Factors that include fulfilment of the Project Objectives and option viability (see section 3.7.2). Scored are assigned against each individual criterion on the following basis:

- Positive assessment (✓): option is likely to fulfil the criterion fully / satisfactorily.
- Neutral assessment (?): option may or may not fulfil the criterion fully / satisfactorily, i.e. result uncertain.
- Negative assessment (×): option is not likely or able to fulfil the criterion fully / satisfactorily.
- Not applicable (n/a): the given criterion is not applicable or relevant to assessment of the given option.

Summary RAG rating

Drawing on the detailed assessment results, a Red-Amber-Green (RAG) rating is then applied to each option, reflecting the overall assessment result. This determines which longlist options are carried forward for detailed analysis in the Economic Case and which are discounted, whereby:

- **Red-rated options** are discounted, due to non-fulfilment of Project Objectives and / or non-viability.
- **Amber-rated options** are carried forward, as they largely fulfil the Project Objectives and are potentially viable, although they are less optimal than Green-rated options (see below).
- **Green-rated options** are carried forward as "preferred option", as they fulfil the Project Objectives most optimally and / or they have the greatest potential viability of the longlist options considered.

The longlist assessment results are presented on the pages that follow, whereby:

- Table 15 presents the assessment of the 4 x service solution options.
- Table 16 presents the assessment of the 2 x service delivery options.
- Table 17 presents the assessment of the 3 x implementation options.
- Table 18 presents the assessment of the 3 x funding options.

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Table 15: Service solution options – indicative longlist assessment

Service delivery option	Fulfilment of Project Objectives (1 – 6)						Viability				Overall result
	1: Increase active travel trips, reduce inactivity	2: Improve accessibility for those with disabilities	3. Improve journey quality and perceptions of safety	4: Increase footfall in local high streets and civic spaces	5: Create accessible data framework	6: Reduce costs for planning, design & installing	Potential value for money	Supplier capacity and capability	Potential affordability	Potential achievability	
"Do Minimum" (1): physical signage design and coverage improvements only within TSRGD framework	✔	✔	✔	✔	✗	✗	?	✔	✔	✔	Discount
	Limiting the project to physical signage designs and coverage only means that a new data framework would not be created. Opportunities for data innovation, integration of physical and digital information and improved data depth and quality of data would be lost, undermining potential value for money. Keeping the existing framework would mean that cost efficiencies in planning, design and installation activities would not be realised.										
"Do Less" (2): new bespoke app for active travel users with enhanced information (no changes to physical signage)	?	✗	?	?	✔	✗	?	✔	✔	✔	Discount
	Limiting the project to a digital app would automatically exclude anyone in the population that is not digitally fluent or capable of using such apps. This would particularly affect some disabled people including those with intellectual disabilities or visual impairments.										
"Do Something" (3): Full Pathways Project with 4 x systems (Directional; Awareness; Behavioural; Data)	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Preferred option
	This option fulfills all the Strategic Objectives, and is likely to be the most viable of the longlist options.										
"Do Maximum" (4): Full Pathways Project, plus new bespoke digital app	✔	✔	✔	✔	✔	✔	?	✔	?	✗	Discount
	This option fulfils all the Strategic Objectives. The development of a new digital app could provide additional functionality and visibility to end users, but it would add additional cost to the project, as well as significant time and complexity. Existing app developers in the market may be better placed to integrate active travel data from the Data System into their own established front-end apps, providing a better end-user experience. that already exist										

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Table 16: Service delivery options – indicative longlist assessment

Service delivery option	Fulfilment of Project Objectives (1 – 6)						Viability				Overall result
	1: Increase active travel trips, reduce inactivity	2: Improve accessibility for those with disabilities	3. Improve journey quality and perceptions of safety	4: Increase footfall in local high streets and civic spaces	5: Create accessible data framework	6: Reduce costs for planning, design & installing	Potential value for money	Supplier capacity and capability	Potential affordability	Potential achievability	
"Do Something" (1): new dedicated team within ATE or DfT, providing specifications, implementation guidance and support, monitoring and data management.	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Preferred option
	Given the established active travel and transport skills, capabilities and experience already existing within ATE and the DfT, a dedicated team embedded within either of these organisations would be well-placed to develop and oversee the Pathways Project.										
"Do Something" (2): new "Office for Active Travel" arms-length agency with statutory responsibility for design, oversight of implementation and data management	✔	✔	✔	✔	✔	✔	?	✔	?	✗	Discount
	An arms-length agency set-up to deliver the Pathways Project, with suitably qualified staff, would still be likely to achieve the project's strategic objectives. However, establishing such an agency would add significant complexity to the project, as well as time and cost. The Pathways Project will create more comprehensive, regularised wayfinding specifications that can then be implemented via existing delivery mechanisms, albeit more efficiently. Therefore, more formal, stringent oversight by a regulatory agency is not considered necessary if quality standards can already be achieved.										

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Table 17: Implementation options – indicative longlist assessment

Implementation option	Fulfilment of Project Objectives (1 – 6)						Viability				Overall result
	1: Increase active travel trips, reduce inactivity	2: Improve accessibility for those with disabilities	3. Improve journey quality and perceptions of safety	4: Increase footfall in local high streets and civic spaces	5: Create accessible data framework	6: Reduce costs for planning, design & installing	Potential value for money	Supplier capacity and capability	Potential affordability	Potential achievability	
"Do Something" (1): "Big Bang" approach, rapid roll-out across full UK (within 5 years)	✔	✔	✔	✔	?	✔	?	✔	✔	✗	Discount
	The roll-out of a completely new wayfinding system within a five-year period is unlikely to be achievable. Time is needed to refine designs, develop the Data System, test the implementation approach and obtain feedback (including from scheme planners and designers, as well as members of the public using the system). This lack of time would limit opportunities to optimise the project, undermining the benefits and value for money.										
"Do Something" (2): Initial R&D programme (2 - 3 years) followed by national roll-out (over a 10 year period)	✔	✔	✔	✔	✔	✔	✔	✔	✔	?	Preferred option
	A 2-3 year R&D phase is optimal for developing, refining and testing the Pathways Project, obtaining data and feedback, and optimising the project designs, specifications, and Data System in preparation for full-scale national roll-out. A proactive, data-oriented research programme will build the foundations needed for subsequent effective roll-out on a national scale.										
"Do Something" (3): Long-term phasing (up to 20 – 30 years) with hierarchy of location types	✔	✔	✔	✔	✔	✔	?	✔	✔	?	Carry forward
	Phasing of the Pathways Project over a longer-term (20 – 30 year period) would limit momentum and undermine the benefits case, with changes implemented at a low intensity making universal acceptance of changes more difficult. Planning and coordinating change over such a long period would also bring practical challenges, as the policy, economic and social context would change considerably over such a period.										

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Table 18: Funding options – indicative longlist assessment

Funding option	Fulfilment of Project Objectives (1 – 6)						Viability				Overall result
	1: Increase active travel trips, reduce inactivity	2: Improve accessibility for those with disabilities	3. Improve journey quality and perceptions of safety	4: Increase footfall in local high streets and civic spaces	5: Create accessible data framework	6: Reduce costs for planning, design & installing	Potential value for money	Supplier capacity and capability	Potential affordability	Potential achievability	
"Do Something" (1): 100% public funding. Central government funds Pathways Project R&D phase. Strategic highway authorities or local authorities fund physical assets	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Preferred option
	Full public funding is the most viable and practicable approach for the Pathways Project. The funding "ask" is expected to be limited to around £5 million, to pay for the initial 2-3 year R&D programme (see chapter 6 for further details). In the long-term, the project is expected to deliver cost savings overall, due to more cost-efficient design, planning and installation (see section 3.5.7) which will far outweigh any ongoing costs for delivering the project.										
"Do Something" (2): public funding for R&D programme management and physical assets, Data System funded via hybrid of public funding and private sector investment / commercial use	✔	✔	✔	✔	?	✔	✔	✔	✔	?	Carry forward
	Private sector investors could identify a commercial use for active travel data if, for example, this helps navigate active travel users to shops and businesses. In such a case, there could be opportunities for investors to part-fund the Data System, in return for gaining access and the right to use the data commercially. However, such an approach could add complexity and time – particularly during the R&D phase. Furthermore, this could undermine the accessibility of the Data System, since commercial operators could demand a degree of exclusivity in their data access in return for any investment.										
"Do Something" (3): public funding for R&D programme management, public-private hybrid approach for data system and physical signage (including use of signage for business adverts)	✔	✗	?	✔	?	✔	?	✔	✔	?	Discount
	Allowing businesses to use physical wayfinding signage / markings for advertising purposes would reduce their uniformity and clarity, directly undermining the key aim of Pathways Project to improve accessibility through clearer, more standardised and better quality signage. Adding advertising and branding to signs could have particularly adverse and confusing effects for those with mental disabilities, visual impairments or those who are neurodivergent.										

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3.7.4 Longlist assessment results

Based on the detailed longlist assessment in section 3.7.3, a number of potential "Do Something" options relative to the key parameters have been identified and prioritised for further analysis in the Economic Case, with other longlist options discounted. The longlist assessment results are summarised in Table 19.

Table 19: Longlist assessment results – Summary

Key Parameter	Central "Do Something" option (preferred)	Alternative "Do Something" options	Discounted options
Service solution	✔ "Do Something" (3): Full Pathways Project with 4 x systems (Directional; Awareness; Behavioural; Data)	N/A	✗ "Do Minimum" (1): physical signage design and coverage improvements only ✗ "Do Less" (2): new bespoke app for active travel users with enhanced information (no changes to physical signage) ✗ "Do Maximum" (4): Full Pathways Project, plus bespoke digital app
Service delivery	✔ "Do Something" (1): new team within ATE or DfT, providing specifications, guidance monitoring, data management.	N/A	✗ "Do Something" (2): new "Office for Active Travel" with statutory responsibility for design, oversight of implementation and data management
Implementation	✔ "Do Something" (2): Initial R&D programme (2 - 3 years) followed by national roll-out (over a 10-year period)	"Do Something" (3): Long-term phasing (up to 20 – 30 years) with hierarchy of location types	✗ "Do Something" (1): "Big Bang" approach, rapid roll-out across full UK (within 5 years)
Funding	✔ "Do Something" (1): 100% public funding.	"Do Something" (2): hybrid public-private funding of Data System	✗ "Do Something" (3): hybrid public-private funding of Data System and physical signage (including use of signage for adverts)

3.8 Summary

The Pathways Project has a strong Strategic Case. It will support increased levels of active travel, particularly for those with disabilities, by improving the quality, visibility, accessibility and coverage of active travel wayfinding and signage.

There is a clear case for intervention, with current wayfinding characterised by designs that are often unclear and ambiguous, signage that is poorly positioned or maintained, and piecemeal coverage, with significant gaps as well as inconsistencies in how wayfinding is installed. Key guidance sources and specifications, including TSRGD and LTN 1/20, lack clarity and are open to interpretation, resulting in both inefficiency and poor practice.

The Pathways Project directly addresses all of the above issues. It will create clearer, more consistent and better implemented wayfinding that makes routes easier to understand and use for everyone. Signs will be more visible and legible, developed by design experts and tested with members of the public, while the new Data System will capture the key information needed for those walking, wheeling or cycling to have a well-informed, comfortable journey and make this available for planners and designs of wayfinding infrastructure – enabling better, more informative wayfinding to be developed over time in both physical and digital formats. Disabled people will be given more detailed information around the route's characteristics, enabling them to travel with greater confidence. and additional information will be built-in to wayfinding signage and information systems.

The Pathways Project is built on a sound logic and rationale and will help make active travel journeys more attractive and accessible, increasing overall demand. This is validated via the project's Logic Map, from which a series of Project Objectives can be defined to measure success against as it progresses.

The Project Objectives and critical success factors have been used to analyse and test initial variant

approaches – reflected in the Longlist assessment. On this basis, the following longlist options have been identified as the "preferred way forward":

- Service solution: Full Pathways Project implementation (including the 4 x systems outlined in section 3.2.1).
- Service delivery: A new dedicated team within ATE or DfT, providing specifications, guidance monitoring, data management.
- Implementation: Initial R&D programme (2-3 years) followed by a national roll-out (over a 10-year period)
- Funding: 100% public funding.

The longlist assessment informs the subsequent Economic Case analysis, with the above factors combined within the central "Do Something" option. This is compared to the baseline "business as usual" scenario, in order to gauge the economic costs and benefits. See Chapter 4 for details.

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4 Economic Case

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4.1 Introduction

The purpose of the Economic Case is to assess the value for money of the Pathways Project, reflecting its benefits and costs to society as a whole. A calculation model has been developed to measure economic impacts over time, with monetary values assigned to reflect relative values of the different benefit and cost categories.

We note results will be presented as a range of estimates (high / medium / low) to reflect uncertainties in the current early-stage analysis.

4.2 Methodology

The economic analysis is based on comparison of a "Do Something" scenario involving delivery of Pathways Project with a baseline "business as usual" scenario representing continuation of the status quo.

The following three variant "Do Something" options have been defined, based on the longlist options appraisal set out in the Strategic Case (see section 3.7):

- **Central "Do Something" Option I:** Rollout of full Pathways Project with an initial R&D programme (2 – 3 years) followed by full 10-year national roll-out, 100% publicly funded.
- **Alternative "Do Something" Option II:** Same as Option I except for implementation, with a longer-term implementation timeframe of 20-30 years.
- **Alternative "Do Something" Option III:** Same as Option I except for funding, with hybrid public-private funding of Data System.

We note that, due to limitations in the time available for this stage of work, this initial SOBC the analysis is limited to only the central "Do Something" Option (I). Comparative analysis of the alternative "Do Something" options (II and III) will be undertaken at a later stage of the analysis.

The economic model developed for this analysis combines elements of the DfT's AMAT tool [86] with additional calculations to capture benefits associated with reduced illness and associated NHS cost savings (section 4.3.5) plus long-term cost savings from more efficient implementation (section 4.3.3).

The analysis of cost impacts accounts for both the costs incurred for implementing the project and cost savings in the wider transport budget resulting from more efficient wayfinding delivery.

Benefits will accrue as a result of incremental increases in active travel demand. Low-, medium- and high-case estimates have been made (see section 4.3.4). The resultant benefits include health-related benefits, reduced negative impacts of car usage (with some of the additional active travel journeys replacing car trips) and improved journey quality (amenity benefit).

[86] Refer to the DfT Active Mode Appraisal Toolkit (AMAT) user guide for details.

The full list of quantified cost and benefit impacts included in this analysis are set out in Table 20.

Table 20: Studies showing increases in local footfall from wayfinding

Quantified impact	Description	Approach / source
Cost impacts		
Pathways Project costs	Direct costs of Pathways Project development, delivery and ongoing management. Includes initial R&D phase and subsequent management / operation of project.	Costs provided by Pathways Project team (see section 4.3.1).
Cost efficiency impacts	Cost savings for strategic highway authorities / local authorities from more efficient planning / design / installation of wayfinding assets.	SOBC analysis (see section 4.3.3).
Economic benefits		
Congestion benefit	Traffic congestion improvements as a result of a reduction in vehicle kilometres.	AMAT-based calculation.
Infrastructure maintenance	Reduced maintenance costs, due to fewer vehicles travelling on the road infrastructure.	AMAT-based calculation.
Reduced accidents	Reduced road traffic accidents due to a reduction in car kilometres.	AMAT-based calculation.
Local air quality	Improvements in air quality from a reduction in car kilometres including changes in nitric oxide (NOx) and particulate matter (PM).	AMAT-based calculation.
Reduced noise	Improvements in noise pollution as a result of a reduction in car kilometres	AMAT-based calculation.
Greenhouse gases	A reduction in emissions of greenhouse gases due to a reduction in car kilometres.	AMAT-based calculation.
Reduced risk of premature death	Increased active travel delivers health benefits by reducing the risk of premature death.	AMAT-based calculation.
Absenteeism	Increased physical activity of individuals improves their health and reduces their number of 'sick days', resulting in increased economic activity.	AMAT-based calculation.
Journey ambience	Benefits relating to a perception of improved safety and/or environmental conditions.	AMAT-based calculation.
Indirect taxation	Typically, a reduction in car kilometres is associated with a reduction in fuel duty	AMAT-based calculation.
Reduced prevalence of serious illness	Cost savings to the NHS resulting from reduced prevalence of serious illnesses, due to a reduction in levels of physical inactivity.	SOBC analysis (see section 4.3.5).

4.3 Key inputs and assumptions

4.3.1 Calculation scope and parameters

The calculation of benefits and costs covers an appraisal period that includes the three-year R&D phase (2027-2029) plus the subsequent 30-year period following commencement of full scheme roll-out (2030 – 2059). A 30-year period post-full implementation is considered an appropriate length of time due to the significant and long-lasting changes in active travel wayfinding practice, physical signage infrastructure and underpinning data standards that the Pathways Project will deliver, the impact of which will last several decades.

Monetary values discounted over time, with an annual discount rate of 3.5% applied for years 1 – 30 of the appraisal period, and 3.0% applied for year 31 onwards (in line with Green Book standards).

Economic impacts are viewed through a national lens, i.e. impacts of Pathways Project on the whole of the UK. This does not account for localised economic impacts. For example, additional expenditure in local high streets is excluded, because this is likely to result in displacement (i.e. expenditure reductions elsewhere) and does not represent a benefit in overall net terms.

A full list of calculation parameters is set out in Table 25.

Table 21: Economic Case – calculation parameters

Parameter	Approach / values applied
Appraisal period	30 years (2027 – 2056)
Project timeframes	Initial R&D Phase (2027 – 2029), full roll-out and operation (2030 onwards)
Discount rate	3.5% p.a. (years 1 – 30), 3.0% p.a. (year 31 onwards)
Timeframe for adoption of more cost-efficient practices	Cost efficient practices adopted over a 10-year period, starting 2030 and reaching full impact from 2039 onwards. (See section 4.3.3)
Timeframe for physical wayfinding improvements	Improvements in physical wayfinding, signage, markets etc. made over a 20-year period, starting 2030 and reaching full impact from 2049 onwards (see section 4.3.4).

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4.3.2 Pathways Project costs

Costs for implementation of the Pathways Project comprise the following:

- £5 million (current prices) to pay for the 3-year R&D programme, spread evenly over the years 2027 – 2029 (£1.67 million per annum).
- £1.5 million p.a. (current prices) ongoing costs post-R&D phase (2030 onwards).

For further details of the project costs please refer to section 6.2 of the Financial Case.

4.3.3 Wider cost efficiency impact

As discussed in section 3.2.5, it is estimated that highways authorities and local authorities spend approximately £40 million p.a. on planning, design and installation of active travel wayfinding (signs, markings, route maps etc.).

The Pathways Project will provide comprehensive and well-structured guidance, underpinned by location- and route-specific information captured through the Data System. This is expected to significantly reduce active travel wayfinding installation costs.

As discussed in section 3.5.7, previous data standardisation and digital design programmes have been shown to deliver significant cost savings – although the level of direct comparability with the Pathways Project is limited. To account for uncertainty (and applying a generally conservative approach), the following assumptions have been applied for this analysis:

- **Low case:** 5% reduction in wayfinding planning, design and installation costs.
- **Medium case:** 10% reduction in wayfinding planning, design and installation costs.
- **High case:** 15% reduction in wayfinding planning, design and installation costs.

It assumed that following commencement of full project roll-out (2030 onwards), the adoption of more efficient wayfinding practices amongst highways and local authorities (and resultant achievement of cost savings) will take place over a 10-year period, with a 10% increase in adoption rate each year from 2030 up to 2039, i.e. starting with 10% in 2030 up to 100% in 2039 and beyond.

The resulting calculation of cost saving is presented in section 4.4 below.

4.3.4 Increases in active travel demand

Background and key assumptions

The Pathways Project is expected to drive increased demand for active travel by improving the visibility, accessibility and attractiveness of active travel journeys. A range of case studies and data sources show that wayfinding and signage improvements increase both positive perceptions and actual demand for active travel (see sections 3.5.3 to 3.5.5). However, limitations remain in the evidence available – with few case studies directly comparable to Pathways Project. Reflecting this, and applying a generally conservative approach, the following assumptions have been made for areas in which Pathways Project improvements have been implemented:

- **Low case:** 1.5% increase in numbers of active travel trips.
- **Medium case:** 2.5% increase in numbers of active travel trips.
- **High case:** 3.5% increase in numbers of active travel trips.

Other key parameters that inform the calculation of additional trips include the following:

- **Population cohort:** Additional active travel trips undertaken by children have not been considered in this analysis, and benefit calculations apply only to the adult population (18+). This is because the extent of benefits for under-18s will be small compared to benefits for the adult population. Furthermore, the calculation of such benefits is complex and not practicable within the timeframe of this study.
- **Health-related benefits:** benefits associated with improved health (reduced prevalence of serious illnesses, lower workplace absenteeism, reduced risk of premature death) only apply to those undertaking additional active travel trips who were previously physically inactive. It is assumed that, for the additional trips Pathways Project generates, the following applies:

- Amongst the non-disabled adult population, 18% of additional trips by males and 22% of additional trips by females will be undertaken by those who were previously physically inactive.
- Amongst the disabled adult population, 35.5% of additional trips by males and 43.5% of additional trips by females will be undertaken by those who were previously physically inactive.
- Note: the above percentage values reflect the proportion of physically inactive persons amongst the UK adult population as a whole. [87]

- **Project coverage:** Although designed for roll-out across the whole of the UK, it is assumed the Pathways Project will have less impact outside built-up areas due to lower population density, a higher degree of car dependency and less scope on rural roads for signage placement (with fewer pavements, structure, intersections etc.). For this study it is assumed 10% of the UK population resides in such areas [88]. On this basis, the following adjustment has been made to the estimated adult population cohort included in the benefit calculations:
  - Total UK adult population: 56,000,000 * 90% (study cohort) = **50,400,000**
- **Demand lag time:** It is assumed highway authorities and local authorities will take 20 years to fully implement enhanced wayfinding assets, signage and markings across the UK. On this basis, following commencement of full roll-out (2030) the uplift in active trips is assumed to take 20 years to fully materialise, with a 5% increase the share of total extra demand each year in, up to full achievement of the demand uplift in 2049 and beyond.

Current active travel demand (no. trips)

Based on the above assumptions, increased demand reflected in additional walking and cycling trips across the UK has been calculated and inputted into the economic model, via a two-step process. The first step is to determine the total number of active travel trips across the UK adult population cohort included in the study. This has been calculated using figures from the National Travel Survey 2025, as set out in Table 22 below.

Table 22: Estimated total active travel trips across cohort adult population

Key parameter	A: Cohort population	B: Average no. trips per person p.a. [89]	C: Total no. trips p.a.	D: Total no. trips per day
Walking trips	50,400,000	267	13,470,324,598	36,904,999
Cycling trips	50,400,000	15	766,449,602	2,099,862

Uplift in active travel demand

Taking the daily trip figures set out in the table above, the assumed percentage uplifts in demand (low-, medium- and high-case) are then applied, to derive an estimate of the total numbers of additional active travel trips per day once the programme has taken full effect. The resulting increase in walking and cycling trips is summarised in Table 23. [90]

[87] Levels of physical activity are based on data reported by the House of Commons library (2025) and Activity Alliance.

[88] Note: The proportion of the UK population living outside built-up areas varies depending on how this is defined. ONS data indicate ca. 95% of the population live in built-up areas (settlements of at least 100 persons); in contrast, a recent IBIS World study suggests only 84.4% of the population reside in "urban areas". For this study, a rough mid-point estimate of 90% has been taken as the share of the population living in significant built-up areas that can benefit from the Pathways Project's improved signage and wayfinding.

[89] Source: National Travel Survey 2025 (workbook NTS 0303)

[90] Note: the full demand uplift is assumed to take 20 years to materialize. By this time, there will be additional underlying growth in existing trip numbers due to general population growth (see Annex A, "background growth in trips"). For simplicity, this background growth is not included in the figures shown in Table 26, but is included in the economic model from which benefits are calculated.

Table 23: Estimated total active travel trips across cohort adult population

	Current trips per day	No. additional trips per day (based on % uplifts)		
		Low – 1.5%	Medium – 2.5%	High– 3.5%
Walking	36,904,999	553,575	922,625	1,291,675
Cycling	2,099,862	31,498	52,497	73,495

4.3.5 Health-related benefits

Additional trips amongst those who were previously physically inactive

There is wide-ranging evidence showing that physical exercise – including walking, wheeling and cycling – can reduce the risk of serious illness. For this analysis, the benefits associated with improvements in health (reduced prevalence of serious illnesses, lower workplace absenteeism, reduced risk of premature death – see Table 20) are assumed to apply only to those who were previously physically inactive.

It is assumed that, of the additional trips generated via the Pathways Project, 18% of additional trips by males and 22% of additional trips by females will be undertaken by those who were previously physically inactive (equating to 20.04% across both genders). These percentages values reflect the proportion of physically inactive persons amongst the UK adult population as a whole. [91] On this basis, an estimate has been made of the number of persons becoming physically active, who were previously physically inactive, on the following basis:

- Total population cohort for the study: 50,400,000
- Cohort population assumed to be physically inactive: 10,100,160 (= 10.04% of total cohort)
- Number of physically inactive persons assumed to take-up walking / wheeling / cycling due to the Pathways Project:
  - Low case: 151,502 persons (= 1.5% of physically inactive cohort population)
  - Medium case: 252,504 persons (= 2.5% of physically inactive cohort population)
  - High case: 353,506 persons (= 3.5% of physically inactive cohort population)

Reduced prevalence of serious illness

Amongst previously inactive persons, it is assumed that with the uptake in active travel outlined above, the prevalence of serious illnesses amongst this group will reduce.

The reductions in prevalence have been applied to assumed average levels of illness prevalence amongst the cohort population. Baseline levels of prevalence (pre-intervention) are summarised in Table 24.

Table 24: Baseline prevalence of serious illnesses (pre-intervention) amongst cohort

Quantified impact	Male adults	Female adults	References
Type 2 Diabetes	550	480	Diabetes, Obesity and Metabolism[92]
Coronary Heart Disease	690	369	World Heart Foundation[93]
Breast Cancer	–	180	Department of Health and Social Care[94]
Colon Cancer	90	60	Department of Health and Social Care[95]
Alzheimer's Disease	343	624	The Lancet[96]
Depression	445	698	National Library of Medicine[97]

Within the economic model, a baseline assumed annual prevalence of serious illness amongst the previously inactive adult population cohort has been calculated based on the figures in Table 24.

The next calculation stage involves percentage reductions in illness prevalence. The assumed reductions are summarised in Table 25.

[91] Levels of physical activity are based on data reported by the House of Commons library (2025) and Activity Alliance.
[92] Source: The incidence of type 2 diabetes in the United Kingdom
[93] Source: United Kingdom - World Heart Observatory
[94] Source: Health trends and variation in England, 2025
[95] Source: Health trends and variation in England, 2025
[96] Source: Effect of increasing active travel in urban England and Wales on costs to the NHS
[97] Source: Incidence of depression and antidepressant prescription

Table 25: Reduced illness prevalence from uptake in active travel (%)

Quantified impact	Low case	Medium case	High case	Lag time*	References
Type 2 Diabetes	30%	35%	40%	10 years	Health matters: physical activity - prevention and management of long-term conditions[98]
Coronary Heart Disease	20%	27.5%	35%	10 years	NHS – benefits of exercise[99]
Breast Cancer	10%	15%	20%	15 years	NHS – benefits of exercise[100]
Colon Cancer	15%	20%	25%	15 years	NHS – benefits of exercise[101]
Alzheimer's Disease	20%	25%	30%	15 years	Health matters: physical activity - prevention and management of long-term conditions[102]
Depression	20%	25%	30%	1 year	NHS – benefits of exercise[103]

* Note: lag time is the assumed average time taken for reduced illness prevalence to take effect, following an individual's uptake of physical activity.

Costs of NHS treatment

The reduced prevalence of illnesses will result in avoided costs for the NHS, due to fewer people requiring medical treatment. Cost reductions have been calculated based on the estimated average costs of medical treatment set out in Table 26.

Table 26: Average costs for treatment of serious illnesses (current prices)

Quantified impact	Average treatment cost per person	References
Type 2 Diabetes	£2,200 per annum	The Lancet[104]
Coronary Heart Disease	£1,550 per annum	British Heart Foundation[105]
Breast Cancer	£8,000 total treatment cost	Demos UK[106]
Colon Cancer	£6,000 total treatment cost	ISPOR[107]
Alzheimer's Disease	£2,425 per annum	Alzheimer's Society[108]
Depression	£1,600 per annum	University of York[109]

Combining the above cost figures with the reduced prevalence of illness, the resultant savings in treatment costs for the NHS have been calculated. See section 4.4.

4.3.6 Optimism bias

An optimism bias allowance of 46% has been applied to the initial R&D programme costs. This is the standard rate recommended for active travel infrastructure projects at SOBC stage of development.[110]

[98] Source: Health matters: physical activity - prevention and management of long-term conditions
[99] Source: Benefits of exercise - NHS
[100] Source: Benefits of exercise - NHS
[101] Source: Benefits of exercise - NHS
[102] Source: Health matters: physical activity - prevention and management of long-term conditions
[103] Source: Benefits of exercise - NHS
[104] Source: Effect of increasing active travel in urban England and Wales on costs to the NHS
[105] Source: Heart & Circulatory Disease Statistics 2025 - BHF
[106] Source: Cost-of-Breast-Cancer-Report.pdf
[107] Source: Impact of Stage at Cancer Diagnosis on Total Healthcare Costs
[108] Source: What are the costs of dementia diagnosis and care in the UK? | Alzheimer's Society
[109] Source: Rising costs of mental healthcare in England - University of York
[110] Source: DfT TAG guidance (Tag unit A1-2 cost estimation)

4.4 Results

4.4.1 Cost impacts

Results from the analysis of cost impacts resulting from development and implementation of the Pathways Project are set out in Table 27 below.

Table 27: Pathways Project cost impacts analysis – results

Cost impact - full appraisal period (2027 - 2059) (£,000s, Present Values)	Low case	Medium case	High case
Pathways Project costs			
Investment costs	6,414	6,414	6,414
Operating costs	17,505	17,505	17,505
Total project costs	**23,919**	**23,919**	**23,919**
Indirect cost saving impacts			
More efficient wayfinding implementation by highway authorities and local authorities	26,921	53,842	80,763
Reduced infrastructure maintenance (fewer vehicle trips from mode switch to active travel)	715	1,192	1,669
Total project costs	**23,919**	**23,919**	**23,919**
Project costs minus cost savings			
Net cost impact (PVC)	-3,717	-31,115	-58,513

The results show that the Pathways Project will deliver cost savings over the appraisal period that exceed the direct costs of the project under all three scenarios. Even under the low case scenario with highly conservative efficiency assumptions applied (see section 4.3.3), the resulting cost savings will outweigh the project costs. Under the medium case scenario, the cost savings will be more than double the project costs with a net cost reduction of over £30 million (Present Value) while the high case would deliver a net cost reduction of just under £60 million (Present Value).

4.4.2 Economic benefits

Results from the analysis of economic benefits resulting from implementation of the Pathways Project are set out in Table 27 below.

Table 28: Pathways Project cost impacts analysis – results

Economic benefits - full appraisal period (2027 - 2059) (£,000s, Present Values)	Low case	Medium case	High case
Congestion benefit	153,182	255,303	357,424
Reduced road vehicle accidents	17,170	28,617	40,064
Local air quality	776	1,294	1,811
Reduced noise	1,077	1,795	2,514
Greenhouse gas reductions	8,731	14,551	20,372
Reduced risk of premature death	548,542	914,236	1,279,930
Reduced absenteeism	132,372	220,620	308,868
Journey ambience	378,210	380,087	381,964
Indirect taxation	5,437	9,062	12,687

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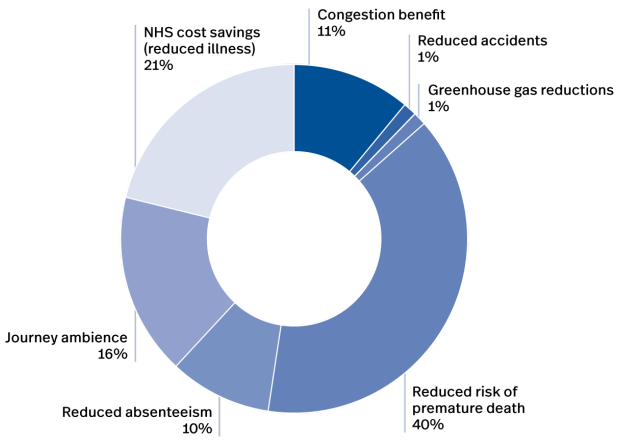
Economic benefits - full appraisal period (2027 - 2059) (£,000s, Present Values)	Low case	Medium case	High case
NHS cost savings (reduced illness)	240,142	491,473	815,792
Total benefits (PVB)	**1,485,640**	**2,317,039**	**3,221,427**

The results show that the Pathways Project will deliver substantial economic benefits, which over the full appraisal period are many times greater than the direct project costs discussed in the previous section. In Present Value terms, the low case scenario, with conservative assumptions applied, would deliver just under £1.5 billion of benefits over the appraisal period, while the medium case would deliver £2.3 billion of benefits and the high case over £3.2 billion of benefits.

Health-related impacts (reduced risk of premature death, reduced absenteeism and NHS cost savings) account for around 70% of benefits under the medium case, with improved journey ambience accounting for ca. 16% of benefits and reduced congestion accounting for around 11%. The distribution of benefits across different categories under the medium case scenario is illustrated in Figure 6.

Figure 6: Economic benefits (full appraisal period) – distribution by category (medium case)



Value for Money according to Green Book standards.

In addition to the project's positive financial impact, the Economic Case analysis identifies substantial economic benefits, principally due to improved health outcomes resulting from higher levels of active travel. In present value terms, it is estimated that over the full appraisal period (30 years from the start of full roll-out), the project will deliver between £1.5 billion and £3.2 billion in economic benefits. These economic benefits that are many times greater in value than the project's direct implementation costs.

It is important to note that, given the current early stage in the project's development, plus the limited number of previous case studies directly comparable to the Pathways Project (as discussed in sections 4.3.3 and 4.3.4) there remains significant uncertainty around the precise extent of cost efficiencies and economic benefits the project is likely to achieve. It is recommended that, as part of the forthcoming R&D phase, detailed evidence is gathered around the project's emerging impacts in these areas.

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4.5 Summary

This initial SOBC-stage analysis presents a strongly positive Economic Case for the Pathways Project.

It is estimated the project will deliver long-term cost efficiencies that exceed its implementation costs in all scenarios modelled (low-, medium- and high-cases). This results in a financially positive outcome, with the project representing “very high” Value for Money according to Green Book standards.

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The Pathways Project

5 Commercial Case

5.1 Introduction

The purpose of the Commercial Case is to assess the viability of the Pathways Project, by reviewing delivery and procurement arrangements, and appraising the capacity of the market to deliver the project. It considers the supplier market for both production of wayfinding assets and their installation around the transport network.

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5.2 Delivery and procurement arrangements

Delivery of the Pathways Project will involve the set-up of a dedicated team or division within government (likely to be part of Active Travel England, as discussed in section 3.7) to redesign and standardise active travel signage and establish the data system to support more comprehensive, effective and most cost-efficient signage implementation.

The Pathways Project does not require any market or structural changes for physical wayfinding installation; it is expected to be deliverable via existing processes. Physical wayfinding infrastructure will continue to be installed by the relevant national highway or local authorities, who already have the jurisdiction needed to install and maintain signage and markings on or around roads and other public rights of way (including for active travel, which generally falls under the same TSRGD specifications as vehicular signage – see section 3.2.5).

Both the designs of road signage and markings and the processes to implement them are highly regulated and often safety critical. Consequently, a significant degree of oversight is needed from authority officials to ensure compliance with relevant standards. Suppliers of wayfinding signs and markings and contractors installing them must meet detailed technical specifications, and often require accreditation. However, as discussed in section 3.5.7, the Pathways Project and its data system will enable highway officials to design, plan, specify and implement active travel wayfinding more efficiently, saving time and cost.

5.2 Delivery and procurement arrangements

All signs on or around the public highway in the UK must follow the UK Traffic Signs Regulations and General Directions (TSRGD) for design and use (see section 3.2.5 for further details). Since 2013, permanent fixed signs must also demonstrate conformity with BS EN 12899-1 (or CE marking).

Manufacturers of UK road signs require formal certifications. The National Highways Sector Scheme 9A[111] covers quality management for manufacturing permanent or temporary road traffic signs[112].

[111] National Highway Sector Schemes: certification for contractors and subcontractors

[112] ISO 9001:2015 - Quality management systems — Requirements

These accreditations, and the use of certified reflective materials, are often required for contracts. Highways England and many local highway authorities routinely demand NHSS9A certification from sign suppliers.

Although highly regulated, these specifications are clearly defined and accessible to a wide range of manufacturers and suppliers. A range of contracts are tendered in the sector, ensuring an active and price-competitive market[113]. Government tender portals publish hundreds of signage contracts per year consisting of road signs, street nameplates and wayfinding. An example of a larger-scale contract is the Eastern Shires Purchasing Organisation (ESPO) national framework for signs, valued at about £18 million [114]. In contrast, Nottingham City Council's four-year framework for permanent and temporary signs is an example of a smaller contract, valued at about £0.84 million[115]. According to recent industry analysis report, 6.5% growth was reported in the sector in 2025[116].

Some examples of UK road sign suppliers are listed in Table 29.

Most UK road sign suppliers are domestic to the UK, despite some materials and other inputs being international. Reflective material, for example, typically comes from international suppliers. Swarco Group Ltd (Austria) recently supplied a UK framework. UK manufacturers often source film and laminate materials from abroad also but assemble final signs in the UK so that TSRGD/BS standards are met.

5.4 Signage and wayfinding installation

In the UK, responsibility for supplying, installing and maintaining traffic and wayfinding signs on public highways lies with the relevant highway authority in the area. They must ensure appropriate traffic signs are provided and maintained to meet the requirements of the TSRGD[117]. Strategic routes, such as motorways and major A-roads, typically fall into the jurisdiction of National Highways, while other routes are normally the responsibility of local authorities.

Table 29: UK road sign suppliers - examples

UK Road Sign Suppliers	
PWS Signs (UK)	Specialises in permanent and temporary road signs (incl. electronic and solar models) for highway authorities and infrastructure projects. All products meet TSRGD & BS EN 12899 standards for safety.
Messagemaker Displays (UK)	Specialist in electronic traffic signs (variable message signs), vehicle activated signs and LED displays used on roads and construction sites.
Tennants UK	Long established manufacturer of reflective road signs and highway safety products, supplying permanent and temporary signs nationwide.
Britian's Bravest Manufacturing Co. (UK)	A social enterprise sign manufacturer employing veterans and people with disabilities. BBMC produces permanent motorway signage.
Road Signs Direct	Major national supplier of road signs. Supplies small and large projects with fast distribution and competitive pricing.

Placement and maintenance activities must be authorised and scheduled by council offices within the highways department. For example, Aberdeen City Council's policy confirms that only the roads authority or its authorised agents may erect, maintain or remove signs on its road network unless specific permission is granted to an external applicant, and that responsibility for safe installation and removal rests with the authority or appointed contractor. [118]

Private sector contractors, some of which supply and install signage, typically engage with public sector bodies for specific situations only. Local authorities appoint specialist installers through competitive procurement arrangements for complex junction signing, temporary works, or large-scale pedestrian and cycle wayfinding schemes. The contractors may be engaged under framework arrangements or direct contracts to increase available resources and delivery.

The National Highways Sector Schemes (NHSS) are an integrated quality management scheme, bespoke to highways specialisms [119]. Some schemes such as the NHSS 9B, cover installation of non-electrical sign elements[120]. Registration if NHSS is required for contractors working on specified elements of highways projects.

[113] Traffic Signs Market in the United Kingdom
[114] ESPO National Framework Agreement
[115] CPU 7758 Highways Permanent and Temporary Signs
[116] Road Traffic Signs, industry analysis and market report.
[117] Road Traffic Regulation Act 1967
[118] Road Sign Policy
[119] National Highway Sector Schemes: certification for contractors and subcontractors
[120] Schedule of Suppliers - Lantra

Road surface, cycle and pedestrian markings are generally installed by specialist private contractors rather than internal council employees [121]. Many local authorities engage registered and accredited contractors for these services to ensure quality and compliance with TSRGD and safety standards. NHSS 7 is relevant for ensuring the quality and safety of road marking [122], but not required by all authorities outside of the strategic road network.

5.5 Summary

The Pathways Project is deliverable within existing industry structures for public signage and wayfinding. There are established functions within government through which it can be developed, managed and administered, whilst highway authorities and local authorities have the capability and jurisdiction to oversee implementation, and a mature and competitive supplier market for production of physical assets and their installation.

The Pathways Project will provide significantly improved design quality, detail and coverage that will enable highway authorities to implement wayfinding in a far more effective and cost-efficient way. As discussed in section 3.3, guidance underpinning active travel signage lacks clarity and is open to interpretation, resulting in inconsistent practice and inefficiency. The Pathways Project will deliver clearer, more detailed route-specific information that reduces the design and planning burden for authority designers, engineers and contractors, saving time and costs.

[121] Road markings are the future | Government Business

[122] NHSS Scheme 7

6 Financial Case

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6.1 Introduction

The purpose of the Financial Case is to assess the affordability of the Pathways Project. This includes a review of project costs (focusing primarily on the initial R&D phase) and expected funding arrangements.

6.2 Project costs

The forthcoming R&D phase of the Pathways Project will require an estimated funding amount of £5 million (current prices). This amount has been calculated by Applied Information Group, and comprises the cost elements summarised in Table 30.

Table 30: Pathways Project cost estimate – R&D stage (current prices)

Activity	Cost
Set-up and initial pilots	
Governance and running the project	£0.3 million
Stakeholder comms and government engagement	£0.3 million
User-led Innovation and prototyping	£1.2 million
Pilot level systematisation	£0.6 million
Delivering 3x first pilots and testing	£0.8 million
Sub-total (first stage)	**£3.2 million**
Second pilots	
Second pilots cost	**£1.2 million**
Full systematisation	
Full systematisation cost	**£0.6 million**
Total cost (R&D Phase)	
Total	**£5.0 million**

The above cost estimates are based on experience from previous large-scale wayfinding and systemisation programmes (e.g. Legible London, global digital navigation systems, and complex multi-stakeholder pilots).

An additional "bottom-up" calculation has been undertaken by Applied Information Group, to validate the above estimate, by breaking the early phases into ca. 25 discrete work packages and costing them individually. This analysis has produced an estimated total cost of £3.2 million – which matches the top-down estimate of activities prior to second pilots, as shown in Table 30.

It is important to note that the above estimate currently does not include contingency, delays, wider stakeholder needs or any requirement for more pilots beyond those currently envisaged (see section 7.3 for details).

Following completion of the R&D Phase (2030 onwards), the ongoing operation of the project as it is fully rolled-out is expected to require only a limited amount of resourcing. It is assumed that a small team (likely to comprise 10 – 15 persons) will be retained to maintain design and data standards, manage stakeholder relations and governance, and support the ongoing enhancement of the Data System. A cost of £1.5 million p.a. has been assumed for this period, and included in the Economic Case calculations (see section 4.3.2).

6.3 Funding arrangements

It is expected that the initial R&D Phase of the project will be fully publicly funded via central government. This is likely to be encompassed within the funding package agreed for CWIS3 [123] (The Third Cycling and Walking Investment Strategy). See section 3.2.2 for further details of CWIS3.

As outlined in initial longlist options appraisal (section 3.7 of the Strategic Case), there may be scope for part-private funding of the Data System once the project enters the full roll-out phase. However, such an approach requires further analysis of its feasibility and potential risks associated with such an approach.

6.4 Summary

The initial R&D Phase of the Pathways Project is likely to be funded via the CWIS3 funding process. Given the comparatively modest amount required – ca. £5 million over three years – it is expected to be affordable within existing / planned transport budgets.

The long-term funding requirement is also modest – estimated at £1.5 million per annum. Furthermore, the project is expected to enable cost savings that will, in the long-term, outweigh its direct costs (see section 4.4.1).

In summary, the Pathways Project has a strongly positive Financial Case, and is expected to be affordable in both the short and the long-term.

It is important to note the costs included in this analysis are based on initial estimates provided by Applied Information Group. It is recommended that more extensive cost estimates are prepared, with detailed resource plans and phasing of activities, as the project moves toward commencement of the R&D phase.

[123] Source: The third cycling and walking investment strategy (CWIS3) - GOV.UK

7 Management Case

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7.1 Introduction

The purpose of the Management Case is to assess the deliverability of the Pathways Project. This includes a review of governance and oversight arrangements (focusing primarily on the initial R&D phase of the project), the programme phasing and timeline for delivery.

7.2 Project governance

The current governance structure for the Pathways Project is focused around the Programme Board. This serves as a senior governing body and steering group for the project, providing sponsorship and making the primary decisions. Senior representatives from key funding and stakeholder organisations are represented on the board, including Active Travel England, the Department for Transport, and various national and regional transportation bodies such as Transport for Wales, Transport for Scotland TfL and the Local Government Association.

Other elements of the project governance structure include:

- An Advisory Group, to strengthen governance and oversight as the programme progresses towards delivery. This will comprise experts and public representatives tasked with ensuring the wayfinding system is intuitively designed for the public and practical for implementation. It will provide guidance for the Programme Board, drawing on the expertise from sectors such as disability advocacy, urban design, behavioural economics, and academic research.
- The Stakeholder Group, is intended to bring together all the pilot and implementation partners to ensure the developed system is affordable and easily adoptable by local authorities. This group will include local and combined authorities, as well as representatives from ADEPT, Transport for Wales, and the National Trust, ensuring alignment with broader government targets.

7.3 Delivery programme

R&D Phase

The R&D Phase of Pathways Project will last three years. For the economic appraisal in this study, it is assumed to run over the period 2027-2029.

Phase 1: This will be the main research and development period, with a focus on evaluating how well walking and cycling navigation schemes work in the UK. This stage involves designing and launching the first pilot, which covers three complete areas chosen to represent typical urban settings found across the country.

The following three candidate locations are being considered:

- One rural town (Abergavenny – c.14,000 population, ~10km2)
- One suburb (Greenstead – c.14,000 population, ~4km2)
- One inner city (Liverpool community – c. 20,000 people, ~5km2)

Phase 2: A second pilot phase will involve 6-7 other typical urban forms. Although 7–10 pilots may be needed to test the full range of possible urban forms, team experience indicates that the first three pilots will address 80% of issues.

Evidence will be gathered throughout the R&D Phase to continually enhance and optimise the project, including improving wayfinding and signage designs, expand the Data System and gather data to support ongoing development of the business case for the project.

Full public launch

Following completion of the R&D Phase, from 2030 onwards the Pathways Project will begin a period of scaling and national roll-out. This will enable, over time, the full benefits of the project to be realised.

7.4 Summary

The Pathways Project has a strong governance structure in place, with sponsorship from key stakeholders in the UK government including Active Travel England. This will help provide the support and guidance needed to progress the project, and secure wider stakeholder support.

The proposed phasing – with ca. 3 years of R&D to prior to full national roll-out – provides an effective timeframe to test, pilot and optimise the project, enabling it to achieve maximum long-term impact.

As the project moves towards R&D phase commencement, it is expected that organisational arrangements, scoping and phasing of activities and pilots will be developed in further detail. It is recommended that, as part of this process, the project team defines a detailed process for data gathering, monitoring and analysis of its economic and financial impacts – in particular:

- how the project is affecting local authority wayfinding implementation practices and associated costs, and;
- how it is affecting levels of active travel (walking, wheeling, cycling), as well as perceptions of active travel, at pilot locations.

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8 Recommendations

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Based on the analysis presented in this document, the following recommendations are made:

- **Evidence gathering:** As part of the upcoming R&D phase of the project, it is recommended that the project team establishes a detailed process for data gathering, monitoring and analysis of the Pathways Project's economic and financial impacts. This should include:
  - how the project is affecting local authority wayfinding implementation practices and associated costs, and;
  - how it is affecting levels of active travel (walking, wheeling, cycling), as well as perceptions of active travel, at pilot locations.
- **Regulatory change:** It is recommended that the project team obtains specialist advice and guidance relating to any formal change in duties for different public entities that could arise as a result of changes / improvements to wayfinding design and development practices, and any associated regulatory or legislative requirements, to ensure these are workable and deliverable.
- **Highways-related safety standards:** It is recommended the project team obtains advice from a highways design specialist regarding continuing compliance with all relevant safety requirements associated with signs, markings or other assets on or around the public highway, to ensure all relevant requirements can be fully complied with through the development, R&D and implementation of the project.
- **Cost estimates:** to support the project's ongoing development and strengthen the evidence base for the business case, it is recommended that more extensive project cost estimates are prepared, with detailed resource plans and phasing of activities.

Annex A: Detailed Economic Model parameters

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Detailed parameters underpinning the economic model from which the results in chapter 4 are reproduced in Table 31. We note this table is derived from the DfT's AMAT model, which has been used to support this analysis.

Table 31: Detailed economic model parameters

Assumption	Value	Unit	Source
General			
Decay rate	0.00%	%	
Cycling			
Average length of trip	5.71	km	National Travel Survey Data 2018-22
Average speed	15	km/h	National Travel Survey Data 2016
Proportion of cyclists who are employed	56.40%	%	National Travel Survey Data 2018
Proportion otherwise using a car	24.00%	%	As recommended in a 2022 study - see section 3.7.1 in TAG A5.1
Proportion otherwise using a taxi	6.00%	%	As recommended in a 2022 study - see section 3.7.1 in TAG A5.1
Walking			
Average length of trip	1.18	km	National Travel Survey Data 2018-22
Average speed	5	km/h	National Travel Survey Data 2016
Proportion of pedestrians who are employed	56.40%	%	National Travel Survey Data 2018
Proportion otherwise using a car	24.00%	%	Assumed to be the same as cycling diversion factors
Proportion otherwise using a taxi	6.00%	%	Assumed to be the same as cycling diversion factors
Additional Information			
Return journeys	90%	%	National Travel Survey Data 2018
Background growth rate in trips	0.75%	%	National Travel Survey Data 2006-2016
Period over which this growth rate applies	20	years	Assumption based on TAG
Number of days for which intervention data is applicable per year	253	per year	Number of working days per year (365 minus weekends minus public holidays)
Car occupancy rate	1.6		Source: National Travel Survey 2002-16
Taxi occupancy rate	2.4		Source: TAG Data Book 2010

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