Towns Fund Delivery Partner

Economic Case: Best Practice Guide – Annex A

May 2021

ARUP nichols FUTUREGOV copper Grant Thornton savills

Terms & Conditions

- This document has been developed by the Towns Fund Delivery Partner, a consortium led by Ove Arup & Partners Ltd with our partners, Grant Thornton UK LLP, Nichols Group Ltd, FutureGov Ltd, Copper Consultancy Ltd and Savills UK Ltd (collectively 'we'). The content of this document is for your general information and use only.
- Neither we nor any third parties provide any warranty or guarantee as to the accuracy, timeliness, performance, completeness or suitability of the information and materials found in this document for any particular purpose. You acknowledge that such information and materials may contain inaccuracies or errors and we expressly exclude liability for any such inaccuracies or errors to the fullest extent permitted by law.
- Your use of any information or materials contained in this document is entirely at your own risk, for which we shall not be liable.
- This document contains material which is owned by or licensed to us. This material includes, but is not limited to, the design, layout, look, appearance and graphics. Reproduction is prohibited other than in accordance with the copyright notice which can be found at townsfund.org.uk
- Unauthorised use of this document may give rise to a claim for damages and/or be a criminal offence.
- This document may also include links to other materials, websites or services. These links are provided for your convenience to provide further information. They do not signify that we explicitly endorse these materials, websites or services.
- Your use of this content and any dispute arising out of such use of the content is subject to the laws of England, Northern Ireland, Scotland and Wales.
- For formal Government guidance on Towns Fund please visit gov.uk

QUANTIFYING BENEFITS:
Local transport – Active Travel

Local transport – Active Travel

Introduction

This document provides guidance on how to quantify and monetise economic benefits related to active travel projects, primarily **projects designed to incentivise, facilitate and/or increase cycling and walking levels** within a defined study area.

The step-by-step guide on estimating economic benefits will cover:

- Tools and resources
- Identifying economic benefits
- How to calculate economic benefits
- Key considerations

Local transport – Active Travel

Towns Fund Delivery Partner

Tools and resources

There are a number of tools and resources available online which provides guidance on estimating economic benefits of active travel.

Policy documents

- Working together to promote active travel (Public Health England, May 2016)
- Investing in Cycling and Walking: The Economic Case for Action (Department for Transport, March 2015)
- Gear Change: A bold vision for cycling and walking (Department for Transport, 2020)

Best practice benchmark guidance and toolkits

- Active Mode Appraisal Toolkit (Department for Transport, May 2020)
- TAG Unit A5.1 Active Mode Appraisal (Department for Transport, May 2020)

Local transport – Active Travel

Towns Fund Delivery Partner

Identifying economic benefits

Project implementation designed to target walking and cycling can deliver a wide range of benefits. Linking back to the Case for Change outlined in the Strategic Case will help identify the benefits associated with the project, and the beneficiaries of the project.

To help you understand the economics benefits of the project**, logic mapping** is recommended to summarise the project need, the benefits sought and crucially, the strategic responses and changes required to address the service need while achieving the benefits. For more details, please refer to TFDP's Economic Case: Best Practice guidance.

The table on the right demonstrates the links that will need to be made between the Strategic Case and Economic Case, as well as examples of conventional benefits.

These should be used as a guide. The left column includes some of the typical issues that might drive a need for active transport investment.

<table>
<tr><th>Project Drivers / Problems / Opportunities</th><th>Example benefits sought</th></tr>
<tr><td>Poor access to the town centre</td><td rowspan="4">• Improved physical activity
• Improved air quality
• Reduction in greenhouse gases
• Improved journey quality
• Improved accessibility</td></tr>
<tr><td>Current rates of active mode travel is inadequate to support healthy society objectives</td></tr>
<tr><td>Congestion and pollution on roads in the town centre due to demand for private vehicle use and insufficient multi modal options</td></tr>
<tr><td>Active mode travel is insufficient to cater for the footfall needed to encourage urban regeneration</td></tr>
</table>

Local transport – Active Travel

Towns Fund Delivery Partner

How to calculate economic benefits

There are a number of factors to consider when deciding which economics benefits can be assessed quantitatively or qualitatively, including:

- Is the required data/input available?
- How robust is your data/input?
- If you need to apply assumptions, how robust are they? Can they be supported by evidence/benchmark case studies?
- Which methodologies are available? How robust/established is the methodology?
- Is the methodology to be adopted recommended by the Green Book and supplementary guidance?

For walking and cycling schemes, the Green Book guidance recommends **DfT's Active Mode Appraisal Toolkit (AMAT)** to help calculate and monetise economic benefits. Figure 1 summarises the benefits of walking and cycling the toolkit quantifies.

Cost / Benefit Type	Benefit metrics	Description
Mode Shift	Congestion Benefit	Traffic congestion improvements as a result of a reduction in vehicle kilometres.
	Infrastructure maintenance	Reduced wear and tear on the roads, and therefore reduced maintenance costs, due to fewer vehicles travelling on the road infrastructure.
	Accident	Reduced road traffic accidents due to a reduction in car kilometres. Note that AMAT does not currently estimate changes in accidents from changes in numbers of cyclists or walkers or changes in infrastructure type e.g. introduction of segregated cycle lanes.
	Local Air Quality	Improvements in air quality from a reduction in car kilometres including changes in nitrous oxide (NOx) and particulate matter (PM).
	Noise	Improvements in noise pollution as a result of a reduction in car kilometres
	Greenhouse gases	A reduction in emissions of greenhouse gases due to a reduction in car kilometres.
Health	Reduced risk of premature death	Increased active travel delivers health benefits by reducing the risk of premature death.
	Absenteeism	Increased physical activity of individuals improves their health and therefore reduces their number of 'sick days', resulting in increased economic activity.
Journey quality	Journey Ambience	Benefits to new and existing cyclists or walkers as a result of improvements to infrastructure can relate to a perception of improved safety and/or environmental conditions.
Government impact	Indirect taxation	Typically, a reduction in car kilometres is associated with a reduction in fuel duty
	Government Costs	The cost to central and local government from the intervention. Note – these costs are different from those input into the User Cost Interface as they have been adjusted to 2010 prices and discounted to reflect the fact people prefer costs to occur later in the future.
Private Costs	Private Contribution	Business contributions to the intervention if appropriate.

Figure 1: Active travel benefits (and costs) output metrics (source: DfT, AMAT guide)

Local transport – Active Travel

- The model map in Figure 2 illustrates the layout, input, calculations and outputs of the AMAT.
- The AMAT Calculations box summarises the calculations that are undertaken based on the information input by the user into the User Interface Intervention and User Interface Costs worksheets.
- These in turn generate the model outputs shown on the Analysis of Costs and Benefits worksheet.

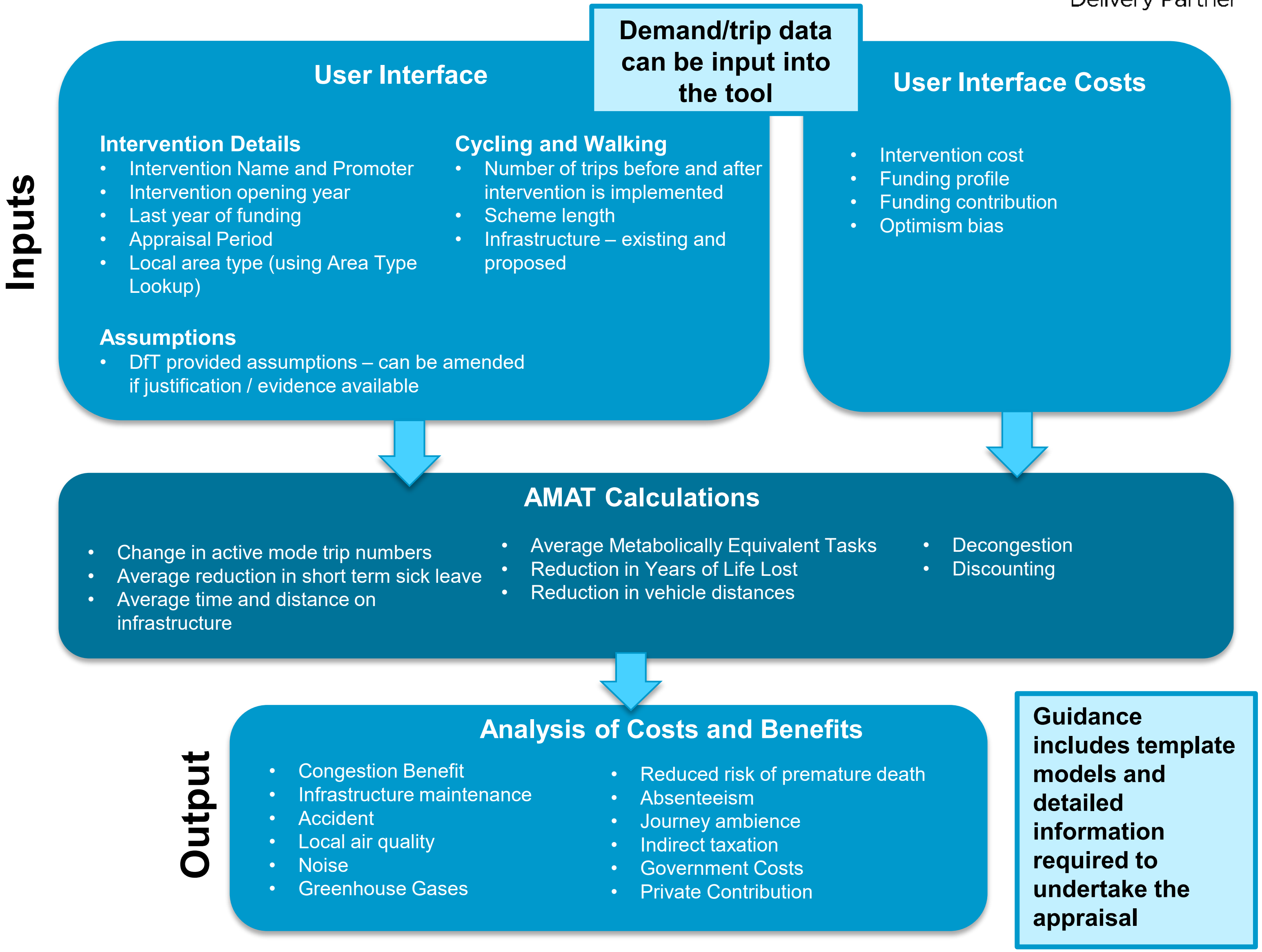

Figure 2: AMAT model structure (source: DfT, AMAT User Guide)

Local transport – Active Travel

Towns Fund Delivery Partner

Inputs

- Figure 3 illustrates the inputs to the toolkit. The user should complete the required inputs in this section of the User Interface Intervention worksheet if the proposed intervention involves cycling and/or walking infrastructure or behaviour change programmes promoting cycling and/or cycling.
- Estimating demand for walking and cycling is a challenging exercise due to limited (established) methodologies. If feasible, consulting with transport experts/consultants is recommended to agree on the approach to estimating demand.
- The inputs relating to walking and cycling infrastructure (highlighted in blue) are drop-down lists available to select from.
- Figure 4 (see overleaf) presents a worked example (source: DfT AMAT guidance) showcasing the inputs of a cycle scheme. The worked example on the right is taken from the Active Mode Appraisal Toolkit User Guide, providing an illustrative output from the excel based tool provided by the DfT.

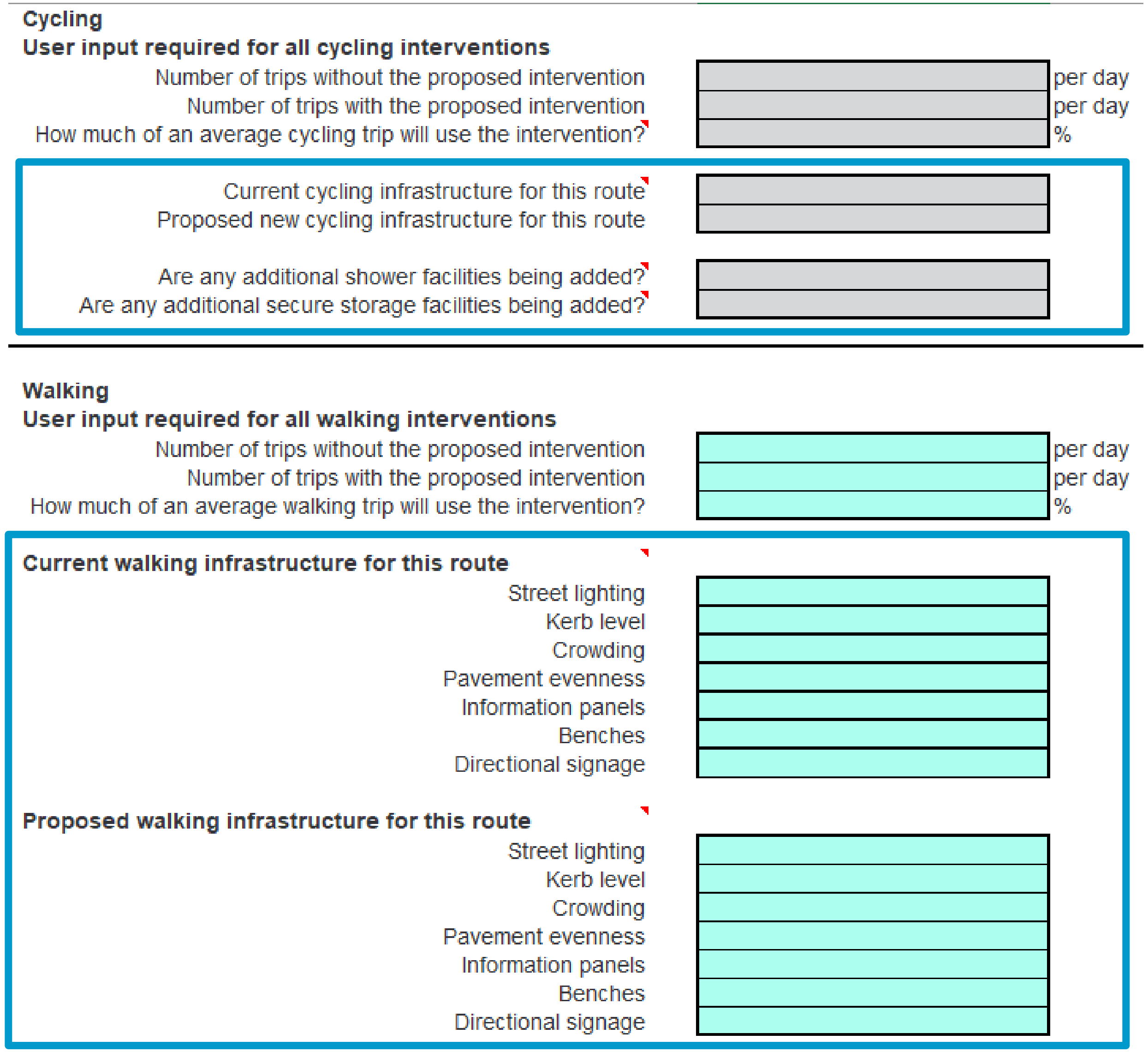

Figure 3: AMAT inputs (source: DfT, AMAT User Guide)

Local transport – Active Travel

Inputs

The inputs relating to the number of trips before and after the intervention implementation will need to be provided directly.

Input	Sources/assumptions
No. of trips without the proposed intervention (no. trips per day)	Historic cycling/walking footfall data is recommended to be used to obtain the baseline ("Do Nothing" scenario). Relevant growth factors may be applied to derive future projections.
No. of trips with the proposed intervention (no. trips per day)	Projecting the no. of trips as a result of implementing the proposed intervention can be challenging as there is very limited guidance. Deriving the post-intervention implementation impact may involve a combination (or choice) between logit-choice modelling, literature review of post evaluations, or rule-of-thumb. As a rule of thumb, the no. of trips may also be derived through a comparison between the scheme length and average cycle trip distances. If available, an active travel/transport expert may be able to support the assessment. For more information, please refer to TAG A5.1.1 (section 2.2-2.4)
How much of an average cycling trip will use the intervention? (%)	Benchmark assumptions from previous business cases/case studies available online is recommended.

Worked Example – For the purposes of our Clifton Road Active Mode Corridor scheme we have assumed the following:

- Currently 200 cycle trips are undertaken per day on the corridor. A comparative study for a similar scheme has indicated the scheme could increase cycling trips by around 30%. Based on the assumption of 200 trips currently, a 30% increase would forecast 260 daily cycling trips with the scheme.
- Our Clifton Road Active Mode Corridor scheme is 1.0 km in length. The average length of a cycling trip in the NTS is 4.84km. Therefore, the average proportion of a trip using our scheme infrastructure is expected to be 20.66%, i.e. 1.0 / 4.84 = 0.2066).
- We have selected that there is currently no existing provision of any formal cycle infrastructure. Our scheme will involve the provision of off-road segregated cycle lanes.
- The scheme is not assumed to either provide showers or secure bike storage facilities.

Cycling			Evidence/Source
Number of trips without the proposed scheme	200	per day	Based on count data available
Number of trips with the proposed scheme	260	per day	30% uplift anticipated based on similar scheme elsewhere
The average proportion of a trip which uses the scheme infrastructure	20.66%	%	maximum 100%
Current cycling infrastructure for this route	No provision		Currently no provision along the route
Proposed new cycling infrastructure for this route	On-road segregated cycle lane		An on road segregated cycle lane is proposed
Are any additional shower facilities being added?	No		
Are any additional secure storage facilities being added?	No		

Figure 4: Worked example – inputs (source: DfT, AMAT User Guide pg 14)

Local transport – Active Travel

Assumptions

- The toolkit also provides default assumptions.
- Compared to road / rail schemes, the appraisal period for active travel projects tends to be shorter than the recommended 60 years by DfT's TAG.
- The user should only update these values if they have supporting evidence, that reflects local circumstances;
- Many of the assumptions are based on travel patterns revealed from the National Travel Survey (NTS).
- Figure 5 presents the worked example of the assumptions used to inform the modelling.

Worked Example – The default assumptions have been used for this worked example.

Assumptions - to be changed with local or modelling evidence if available

Default TAG assumptions have already been entered. Users should only revise these if they can provide supporting evidence.
Any additional evidence should be described in column H.

Decay rate	0.00%	%	

TAG A5.1 explains that the impact of a cycling scheme is likely to diminish year by year following investment.
The decay rate has been set at 0% for an infrastructure investment.
For revenue-funded initiatives, such as cycle training or personalised travel planning, the decay rate may be positive.
The default assumption is that 0% of new users are already active. This means all new users experience scheme-related health impacts.

Cycling

Average length of trip	4.84	km	National Travel Survey Data 2012-14
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	11.00%	%	Literature Review carried out by RAND Europe/Systra for DfT
Proportion otherwise using a taxi	8.00%	%	Literature Review carried out by RAND Europe/Systra for DfT

Walking

Average length of trip	1.1	km	National Travel Survey Data 2012-2014
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	11.00%	%	Assumed to be the same as cycling diversion factors
Proportion otherwise using a taxi	8.00%	%	Assumed to be the same as cycling diversion factors

Figure 5: Worked example – default assumptions (source: DfT, AMAT User Guide pg 16)

Local transport – Active Travel

Outputs

- Once you have provided the inputs and assumptions, the AMAT toolkit will automatically quantify and monetise the benefits of the project.
- Throughout this section, we have only focused on using the toolkit to derive economic benefits. The toolkit can be used also to process economic costs, and subsequently calculate the BCR. For more details on the economics costs, please refer to TFDP's Economic Case: Best Practice guidance.
- The worked example of the output summarised can be found in Figure 6.
- Please note, the present value benefits and costs are presented in 2010 discounted prices. For the purpose of Towns Fund, you may need to rebase the values to the current year.

Worked Example – The results of the Clifton Road Active Mode Corridor scheme assessment are presented in the AMCB table below (in 2010 prices and values).

- The scheme resulted in a PVB of £489,580.
- The scheme resulted in a PVC of £271,840
- Scheme BCR of £489,580 / £271,840 = 1.80

This therefore means that to implement this proposal, for each pound of spending by central and local government, the scheme is expected to deliver £1.80 of benefit representing medium value for money.

Analysis of Monetised Costs and Benefits (in £'000s)	
Congestion benefit	17.14
Infrastructure	0.10
Accident	2.93
Local air quality	0.41
Noise	0.20
Greenhouse gases	0.66
Reduced risk of premature death	336.43
Absenteeism	42.82
Journey ambience	90.53
Indirect taxation	-1.54
Government costs	271.93
Private contribution	0.00
PVB	489.58
PVC	271.84
BCR	**1.80**

Benefits by type:		
Mode shift	19.89	4.1%
Health	379.25	77.4%
Journey quality	90.53	18.5%

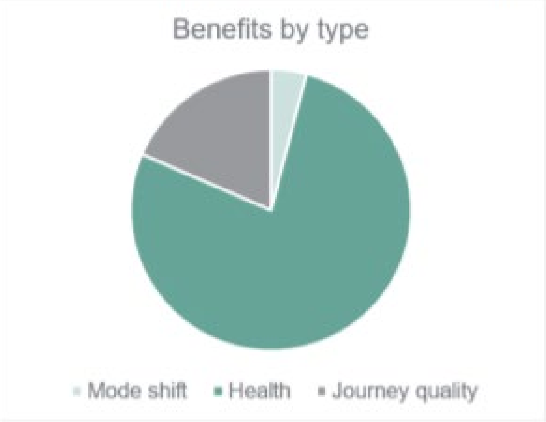

Figure 6: Worked example – outputs (source: DfT, AMAT User Guide, pg 23)

Key considerations

Towns Fund Delivery Partner

When calculating the economics benefits of active travel, the following considerations needs to be accounted for:

- Caution is required when converting figures (e.g. number of pedestrians and cyclists) into annual totals as they can be subject to seasonality. If you have footfall counts for a day when footfall is likely to be higher or lower than average (e.g. because of weather, a public holiday, time of year), it is unlikely to be appropriate to simply multiply this by the total number of days in the year to obtain an annual figure. This is applicable for all modes, but arguably more relevant when applying annualisation factors for walking and cycling.

- An up-front investment might boost the number of pedestrians or cyclists initially, but this could tail off over time without continued investment. Ensure that your assumptions for what happens to demand over time and/or your assumed appraisal period are credible in this respect.

- Census journey to work data is a very useful data source, although the most recent year of data available is 2011. Consideration will need to be given to how to adjust those figures to reach base values for later years.

Towns ©
Fund
Delivery Partner