

Active Travel Toolbox

The Strategic Investment Tool

Guidance notes

Delivered by Sustrans in partnership with:



The Strategic Investment Tool - Guidance notes
Making the Economic Case for Active Travel Toolkit
Active Travel Toolbox

Written by Sustrans with support from Dr Adrian Davis, The TAS Partnership Limited and Living Streets.



About Sustrans

Sustrans is the charity making it easier for people to walk and cycle.

We are engineers and educators, experts and advocates. We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute.

Sustrans works in partnership, bringing people together to find the right solutions. We make the case for walking and cycling by using robust evidence and showing what can be done.

We are grounded in communities and believe that grassroots support combined with political leadership drives real change, fast.

Join us on our journey. www.sustrans.org.uk

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Table of contents

03	Introduction
04	Inputs
04	Investment period
04	Investment location
05	Investment programme
08	Outputs
08	Additional trips
08	Costs
09	Other impacts
10	Chart outputs
11	Conclusion
11	Useful links
12	Annex A – Intervention datasets

1. Introduction

The primary purpose of the Strategic Investment Tool (SIT) is to help local authorities and local enterprise partnerships develop large scale programmes of investments in active travel.

Using evidence from the evaluations of a wide range of active travel interventions the SIT calculates the typical impact and cost of an investment programme consisting of a range of different intervention types.

It can be used for a number of purposes. For instance, by using the SIT to develop an investment programme that achieves some long term strategic target for active travel, it is possible to demonstrate how that target could be delivered and the scale of the investment that could be needed.

We do not recommend that this tool is used for any geographical unit smaller than a local authority, nor that the tool should be used for investment programmes consisting of small numbers of interventions¹.

It is also important to recognise that the SIT does not provide a 'one stop shop' for developing an investment strategy for cycling and walking. The outputs of the tool should be seen to be indicative rather than precise estimates and incorporated into the development process accordingly.

This document details the inputs required by the tool, and explains the resulting outputs. We use a case study set in the imaginary city of 'Edgecastle' (in the grey sections) to provide an example of how to input the data to the tool.

Edgecastle

- Approaching 500,000 residents (from 2011 census)
- Of which 200,000 are employed (from NOMIS)
- 200,000 households (2011 census)
- 150 schools (<https://www.gov.uk/government/publications/schools-in-england>)
- 325 medium and large employers (NOMIS)
- Two universities and 10 FE colleges
- 1 million cycling trips in 2015 (estimated from combination of automatic cycle count data and a cordon count)
- 6 million pedestrian trips in 2015 (estimated using data from the National Travel Survey)

When developing your programme of investment, you may find it useful to have this information to hand. Links to the data sources identified can be found at the end of this document.

1. The SIT was developed to respond to macro level inputs. While all values and assumptions in the tool are based on the best available evidence and optimism bias has been accounted for by using conservative assumptions, they will not hold true in all situations, particularly when either the geography covered by the proposed investment or the scale of the proposed investment is small.

2. Inputs

This section outlines the inputs to the tool.

2.1 Investment period

Before entering the details of your investment programme, you need to enter the year in which the programme is due to start and the number of years for which it will run. The tool has been developed so the maximum investment period is 10 years and can start in any year up to 2100.

It is recognised that discrete blocks of investment may not provide the optimum strategy for increasing cycling and walking. However, the SIT does not allow for overlapping programmes to be modelled within the same version of the tool. This can be resolved by using multiple copies of the SIT to model overlapping periods to simulate future funding plans.

The SIT uses financial years so it is assumed that the programme will start on 1st April in the first year and conclude on 31st March in the year following the final year.

The case study we use is due to start in 2017 and run for five years.

Investment period	
Starting year	2017
Investment period (years - maximum 10)	5

Figure 2-1 Investment period input

2.2 Investment location

You need to input the population of the geographical area covered by the investment programme to estimate the cost per person per year. This needs to include a forecast of how this will change over the period of the programme. If this forecast is not available, the current population should be used in all the cells.

The sub-national population projections provided by the Office of National Statistics show that the population of Edgecastle is forecast to grow from just over 480,000 in 2017 to nearly 490,000 five years later.

Investment location	Year 1	Year 2	Year 3	Year 4	Year 5
Population of investment area	481,215	483,509	485,571	487,457	489,235

Figure 2-2 Investment location input

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/subnationalpopulationprojectionsexplorabledatasets>

2.3 Investment programme

You now need to design your programme of investment. This should be designed around what is realistically deliverable within the geography and timescale being considered. For instance, there is little point in planning hundreds of new routes to schools when there are only a handful of schools in your area.

Table 2-1 provides all the information needed to construct your investment programme from the 12 different intervention types included in the SIT. The data sources for the different interventions are given in Annex A.

Research published by the Department for Transport (2014) suggests that the maximum return on investment in active travel is achieved with 20%-40% revenue spending², so we recommend that your programme follows this balance of funding. The split between revenue and capital can be seen on the Results tab.

Data from national sources such as the Census and the Office of National Statistics should be used alongside locally available datasets to identify the number of interventions that could be delivered within the geography covered by your programme.

It is also important to consider the delivery period of the different interventions as the costs are spread across the whole delivery period. The tool identifies where cost overruns occur and we recommend adjusting your programme until these are eliminated.

2. Department for Transport, 2014. *Finding the optimum: Revenue / Capital Investment Balance for Sustainable Travel*

Table 2-1 Intervention types

Intervention	Details	Delivery unit	Delivery period (years) ³
New and improved routes	This intervention delivers an off road route linking clear origins and destinations, or joins up previously unconnected routes.	A route	1
Routes to schools	A similar intervention to the above, but with a focus on delivering safer routes to schools.	A route to school	1
Overcoming Physical Severance	This intervention delivers larger infrastructure projects that enable pedestrians and cyclists to cross a major obstruction such as a river or a main road.	A bridge or tunnel	1.5
Improving Cycling Facilities at Rail Stations and Bus Terminals	The Bike 'n' Ride (2011) programme forms the basis of this intervention category. This programme delivered additional secure bicycle parking, bike lockers and cycling 'hubs' and hire facilities.	A train or bus station	1
Schools Behaviour Change - high intensity	This intervention is based on Sustrans' Schools Officers. Officers deliver a range of high intensity engagement sessions with targeted primary and secondary schools. They can be focused on cycling or wider active travel. It assumes a schools officer will engage with 9 new schools a year.	A school	1
Schools Behaviour Change - low intensity (walking only)	This intervention involves promotion and events related to walking to school, often revolving around 'challenge' type activities where students are encouraged to record the amount of active travel to school they undertake as a motivation and peer support tool. It is less intensive than the engagement delivered by the other 'Schools Behaviour Change' intervention category.	A school	1
Community PTP	This intervention involves trained officers going door-to-door in the targeted area and offering advice to residents on how to best access and use active travel options.	Zone of 10,000 households	1
Community Behaviour Change - Intensive Intervention	Interventions within this category would typically seek to engage the residents of a community to take part in a range of different sessions to encourage them to use active travel more frequently. They types of activity include health walks, led cycle rides and active travel information hubs.	Community of 5,000 individuals	4
Workplaces Behaviour Change - High Intensity	This type of intervention revolves around trained officers delivering intensive behaviour change activities within a workplace environment. It assumes an officer will engage intensely with 8 workplaces over 2 years and have light-touch engagement with 10 others. An engagement rate of 20% of the workplaces in the area would be considered a realistic target.	A workplace	2
Workplaces Behaviour Change - Low Intensity	Interventions in this category are typically 'challenge' type interventions where employees are encouraged to record the amount of active travel they undertake as a motivation and peer support tool. Please note that the cost of this type of intervention is very dependent on the individual intervention as it largely revolves around the amount of promotion being delivered.	Employment zone of 30,000 workers	1
Access and promotion at Universities/FE college	This type of intervention revolve around trained officers delivering active travel promotions and behaviour change activities within a HE/FE environment.	A university/college	3

3. When including interventions with delivery periods greater than one year, you should enter the total number of interventions you want to deliver in the first year that you are proposing to begin delivery. The SIT accounts for the multi-year delivery of the intervention in the production of the outputs. Additional rounds of the multi-year intervention can be included in the investment programme either following the conclusion of the previous round or overlapping with the delivery of the previous round.

Note, this is a hypothetical example of what could be delivered in a geography like Edgecastle. It is not a recommended investment package and is for illustration purposes only.

Table 2-2 Edgecastle investment programme

Intervention	Rationale	Number
New and improved routes	The city strategy calls for the development of 5 radial routes into the city centre. Assume delivery of two substantial elements of each route.	10
Routes to schools	Assume delivery to 33% of schools.	50
Overcoming Physical Severance	One river crossing and two motorway bridges.	3
Improving Cycling Facilities at Rail Stations and Bus Terminals	The NAPATAN database indicates that there are around 25 train stations within the Edgecastle area. Assume the same number of bus stations, and assume delivery at 50% of transport hubs.	25
Schools Behaviour Change - high Intensity	Delivery at 50% schools within the five year programme, based on a rolling five year programme, with 15 schools receiving an intervention each year.	75
Schools Behaviour Change - low intensity (walking only)	Matched with high intensity programme	75
Community PTP	There are approximately 200,000 households in Edgecastle. Assume delivery rate of one intervention per 10,000 households.	20
Community Behaviour Change - Intensive Intervention	Assume delivery at a rate of one intervention per 25,000 population (up to a max of 10)	10
Workplaces Behaviour Change - High Intensity	Aim to engage with 20% of medium or large employers	65
Workplaces Behaviour Change - Low Intensity	Deliver one intervention per 30,000 employees.	7
Access and promotion at Universities	Deliver at both universities in Edgecastle twice over the investment period to capture new intake.	4
Access and promotion at Further Education Colleges	Deliver at 50% of FE institutions twice over the investment period to capture new intake.	10

The programme is then entered into the SIT (Figure 2-3). A number of programmes have been front loaded in the programme to prevent cost overruns.

Investment programme	Year 1	Year 2	Year 3	Year 4	Year 5
New and improved routes	2	2	2	2	2
Routes to schools	10	10	10	10	10
Overcoming Physical Severance	1	1	1		
Improving Cycling Facilities at Rail Stations and Bus Terminals	5	5	5	5	5
Schools Behaviour Change - High Intensity	15	15	15	15	15
Schools Behaviour Change - Low Intensity (walking only)	15	15	15	15	15
Community PTP	4	4	4	4	4
Community Behaviour Change - Intensive Intervention	5	5			
Workplaces Behaviour Change - High Intensity	16	16	16	17	
Workplaces Behaviour Change - Low Intensity	2	2	1	1	1
Access and promotion at Universities	2		2		
Access and promotion at Further Education Colleges	5		5		

Figure 2-3 Investment programme

3. Outputs

This part of the document explains the output tab of the SIT. These are calculated once the investment programme has been entered into the tool.

3.1 Additional trips

The figures presented at the top of the tab are the new cycling and walking trips that will take place in the final year of the investment programme. The investment programme should be designed to deliver maximum impact in this year.

Immediately below is the breakdown of the additional trips that are delivered in each year of the investment programme. It also shows the new trips that will take place as a result of the intervention programme in the years after investment has ended. It will show a gradual decline in usage from the peak in the final year of investment, based on the decay rates associated with each intervention type.

Figure 3-1 shows the impact of the investment programme that has been developed for Edgecastle. The final year of the programme will see over 2 million new bicycle trips being made, and over new 12 million walking trips.

This compares with the baseline figures from 2015, when one million cycling trips and six million walking trips took place. If we assume that this level of usage remained static, the investment programme has delivered a 200% increase in cycling and walking.

ADDITIONAL TRIPS											
Forecast new cycling trips in 2021		2,399,420									
Forecast new walking trips in 2021		12,035,064									
Annual breakdowns	2017	2018	2019	2020	2021	Post investment 2022	Post investment 2023	Post investment 2024	Post investment 2025	Post investment 2026	
Forecast annual cycle trips	337,340	1,943,683	1,626,430	2,174,075	2,399,420	2,367,641	2,159,285	1,956,472	1,800,536	1,649,647	
Forecast annual walking trips	2,668,002	8,176,262	10,637,260	11,275,921	12,035,064	10,981,514	8,145,904	6,521,680	5,417,627	4,523,366	

Figure 3-1 Additional trips output

3.2 Costs

This section of the output tab details the costs of the investment programme, and also splits it by capital and revenue spending.

It shows the average cost per head per year across the programme time frame and any costs that will be incurred after the end of the programme as a result of overruns in intervention delivery periods. It also provides a breakdown of the costs incurred in each year of the programme. Costs are adjusted for inflation according to the year in which they are defrayed.

The costs of delivering these additional trips in Edgecastle comes to over £41 million over the five years of the programme. This is nearly £17 per person per year. We can see that the programme that has been developed falls within the 20%-40% boundary for revenue expenditure.

COSTS						
Total		£41,125,041				
	Capital	£26,079,132	63%			
	Revenue	£15,045,909	37%			
Average cost per head per year		£16.94				
Costs after end of investment programme		£0				
Annual breakdown		2017	2018	2019	2020	2021
Total (£m)		7	9	11	8	7
	Capital (£m)	5	5	7	5	4
	Revenue (£m)	3	3	4	3	3
Cost per head (£)		15	18	22	16	14

Figure 3-2 Cost output

3.3 Other impacts

The final section of the outputs details some of the deliverables that will result from your programme of investment, including the kilometres of new route and the number of beneficiaries.

The investment programme in Edgecastle results in nearly 100km of new route being built and results in nearly 25,000 pupils being intensively engaged.

OTHER IMPACTS	
Length of route created (km)	95
Number of beneficiaries	288,404
Number of schools receiving new routes	50
Number of schools intensively engaged	150
Number of pupils intensively engaged	24,270
Households engaged	100,000
Number of workplaces engaged	72
Number of employees engaged	79,312
New cycle parking spaces	4,429
Rail stations receiving improvements	25
Number of HE and FE institutions engaged	7

Figure 3-3 Other impacts output

3.4 Chart outputs

The SIT produces four charts that can be used to illustrate reporting around the use of the tool.

- A breakdown of the additional cyclist trips delivered by each intervention type in each year of the programme (example Chart 3-1)
- A breakdown of the additional pedestrian trips delivered by each intervention type in each year of the programme
- An annual breakdown of costs by intervention type
- The split between capital and revenue spending in each year of the programme

The charts are produced without titles so they can be easily incorporated into any reporting.

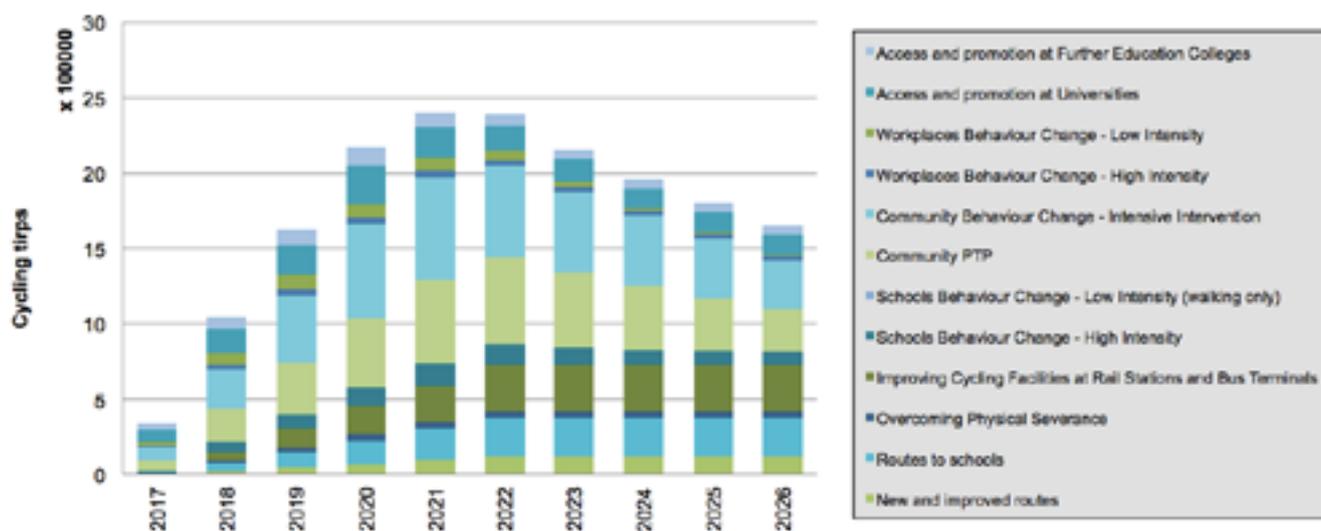


Chart 3-1 Additional cyclist trips delivered by the Edgecastle investment programme

4. Conclusion

The Strategic Investment Tool will help you to design a programme of investment that could be practically delivered in a geographically defined area, and calculates the resulting cost and impact of that programme.

Used correctly, although the outputs should be seen as indicative rather than precise estimates, the tool provides valuable information for planners and policy makers when developing a long term active travel strategy.

Useful links

Nomis: free access to the most detailed and up-to-date official UK labour market statistics

<https://www.nomisweb.co.uk/>

Schools, pupils and their characteristics: statistics on the number and characteristics of schools and pupils.

<https://www.gov.uk/government/collections/statistics-school-and-pupil-numbers>

ONS population projections:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections#datasets>

National Travel Survey:

<https://www.gov.uk/government/collections/national-travel-survey-statistics>

2011 census:

<https://www.ons.gov.uk/census/2011census/2011censusdata>

5. Annex A – Intervention datasets

Intervention	Data source
New and improved routes	Evaluations of the Scottish Government's Community Links and the Department for Transport's Linking Communities.
Routes to schools	Evaluations of Department for Transport Links to Schools.
Overcoming Physical Severance	Usage data from Big Lottery's Connect2 programme of investment.
Improving Cycling Facilities at Rail Stations and Bus Terminals	Bike 'n' Ride evaluation (MVA Consultancy, 2011).
Schools Behaviour Change - high intensity	Hands Up surveys conducted as part of Bike It programme.
Schools Behaviour Change - low intensity (walking only)	Evaluations of Living Streets' Walk Once a Week and Free Your Feet programmes.
Community PTP	Pre and post intervention beneficiary surveys from PTP programmes delivered by Sustrans.
Community Behaviour Change - Intensive Intervention	Living Streets' Fitter for Walking and Step Out in London programmes. Sustrans' Active Travel projects.
Workplaces Behaviour Change - High Intensity	LSTF Active Travel East Sussex.
Workplaces Behaviour Change - Low Intensity	Pre and post intervention surveys from Living Streets' Walk to Work programme and Sustrans' Workplace Challenges.
Access and promotion at Universities	Evaluation of UCycle Nottingham.
Access and promotion at Further Education Colleges	