August 2024

Evaluation of the Greater Cambridge Partnership Investment Fund

Impact Evaluation Evidence Paper: Chisholm Trail Phase 1

Final

Contents

Executive Summary 1
1. Introduction 4
2. Research approach 7
3. Context, rationale and objectives 19
4. Project delivery 29
5. Outcomes and impacts 36
6. Conclusions 67

Executive Summary

1. This evidence paper sets out the findings of the impact evaluation of the Chisholm Trail Phase 1 supported by the Greater Cambridge Investment Fund, delivered as part of the evaluation of the Fund to inform the second Gateway Review. The evaluation was conducted by independent evaluators SQW between May 2023 and June 2024.

2. The Chisholm Trail Phase 1 is a new dedicated active travel route linking Cambridge North Station to Coldham's Lane. It is designed to increase levels of cycling and increase pedestrian activity (i.e. walking and wheeling), supporting modal shift, and contributing over the longer-term to reduced congestion in Cambridge. Construction of Phase 1 started in 2019 and completed in 2021, with the Trail opening to users in December 2021.

3. The principal focus of the evaluation was to assess whether the project can plausibly be considered to have led to increased levels of active travel by (cyclists and pedestrians), and associated modal shift from car usage.

4. Evidence was collated from two waves of 'intercept surveys' with cyclists and pedestrians, time-series data on active travel both pre and post the completion, time-series data on road traffic collisions, and qualitative research with stakeholders. Analysis of this evidence is presented in a series of Annexes with key findings drawn from the evidence presented in the main body of the evidence paper. The evaluation adopted a theory-based approach, applying the principles of Contribution Analysis, to reflect both the complexity of the delivery landscape and routes to impact, and methodological considerations and limitations.

Summary of findings

Has the intervention led to increased levels of cycling?

5. There is strong evidence that the Chisholm Trail Phase 1 has contributed to increased levels of cycling, with the effect more pronounced on less regular cyclists as may be expected. Other factors have influenced this outcome, and there is some evidence of displacement of cycling from other routes. However, the Trail appears to be the main or decisive factor in most cases where cycling levels have increased according to survey evidence. Both survey evidence and stakeholder feedback suggest that it has led to a material change in levels of cycling, as a result of the improved infrastructure. Secondary data also suggests that cycling 'on-trail' has increased well above the trend across the city since the opening of the Trail, albeit this is likely to be explained in part by displacement from other cycle routes across Cambridge.

Has the intervention led to modal shift?

6. There is strong evidence that the Chisholm Trail Phase 1 has contributed to modal shift. This has been primarily realised through individuals cycling, rather than driving. This may be

helping to alleviate congestion in the city, consistent with the rationale for the project. There is limited evidence of modal shift from driving to walking, which likely reflects the nature of pedestrian use of the Trail, most commonly for leisure/exercise.

Has the intervention led to increased levels of walking?

7. There is strong evidence that the Chisholm Trail Phase 1 has contributed to increased levels of walking. Evidence of displacement from other routes is limited, given the use of the Trail by pedestrians is most commonly for leisure and exercise. Other factors have influenced this outcome, but in most cases the Trail appears to be the key or decisive factor in influencing walking behaviours.

Has the intervention led to wider outcomes?

8. There is mixed evidence that the Chisholm Trail Phase 1 has contributed to wider outcomes. The evidence indicates that the Trail has made an important contribution to improved safety of active travel, enhanced access to green spaces and the local environment, and improved independence and wellbeing. The Trail has provided the enabling infrastructure to deliver these outcomes. The evidence on enhanced access to training and employment and enhanced attractiveness and deliverability of employment growth and housing development sites is inconclusive. The limited evidence on enhanced access to training is likely to reflect in part the available evidence base, with the surveys for the evaluation covering individuals aged 16+ only.

Is it reasonable to expect that positive economic outcomes will be realised in the future, that would not have occurred without the intervention, and is further evaluation evidence required?

9. The Chisholm Trail is expected to lead to two main groups of impacts in the future: transport-specific outcomes related to reduced congestion in/around Cambridge (and a reduction in CO2 emissions) as a result of increased modal share for cycling/walking, and broader positive effects on socio-economic conditions including public health and business productivity.

10. Overall, based on the evidence from this impact evaluation – and assuming usage of the Trail persists/increases – it is reasonable to expect that the Chisholm Trail Phase 1 will continue to support increased levels of cycling and walking and associated modal shift away from car usage to cycling, thereby helping to ease congestion in/around Cambridge. In turn, it is also reasonable to expect that the Trail has the potential to contribute to longer-term positive effects on socio-economic conditions, including improved public health (via increased active travel, air quality) and improved business productivity (via travel time savings), although evidence of progress towards the latter outcome is limited to date.

11. Phase 1 is part of a wider network, and completion of Phase 2 will be critical to fully realise intended benefits. It will be important to undertake further evaluation work to provide a

robust assessment of the longer-term transport effects and broader socio-economic impact of both phases of the Chisholm Trail.

1. Introduction

Introduction summary

This paper considers evidence of the impact of the Chisholm Trail Phase 1 project. It is one of a series of evidence papers that will inform an evaluation of the Greater Cambridge Investment Fund undertaken by an Independent Evaluation Panel for the Ministry of Housing, Communities & Local Government. Evaluation activities will be completed in October 2024 as part of a second Gateway Review to assure the next tranche of Investment Fund monies.

The Chisholm Trail Phase 1 is a new dedicated active travel route linking Cambridge North Station to Coldham's Lane. It is designed to increase levels of cycling and increase pedestrian activity (i.e. walking and wheeling), supporting modal shift, and contributing over the longer-term to reduced congestion in Cambridge.

Purpose

1.1 This evidence paper sets out the method and findings of the impact evaluation of the Chisholm Trail Phase 1 supported by the Greater Cambridge Investment Fund, delivered as part of the evaluation of the Fund to inform the second Gateway Review (GR#2). The evaluation was conducted by independent evaluators SQW between May 2023 and June 2024.

1.2 The contents of this Evidence Paper apply to the National Evaluation Framework (NEF) Performance Indicators summarised in Table 1-1, a summary of how the evaluation responds to each of these can be found in section 6.

Table 1-1: Performance Indicators for GR#2 relevant to this Evidence Paper

#	Performance Indicator
	Intervention impact
2B1	Description and evidence that all evaluation activities set out in an area's evaluation plan have been completed.
2B2	Evidence that each element of an intervention's logic model (i.e., inputs, activities, outputs and outcomes) has been delivered or materialised. Evidence can be quantitative or qualitative, but preference should be given to providing robust, quantitative evidence where possible.
2B3	Empirical evidence that the logic model has functioned as expected (i.e., that increases in the desired outcomes and impacts can be causally attributed to the intervention).

Source: DLUHC (2023) National Evaluation Framework for Investment Funds

Chisholm Trail Phase 1: Overview

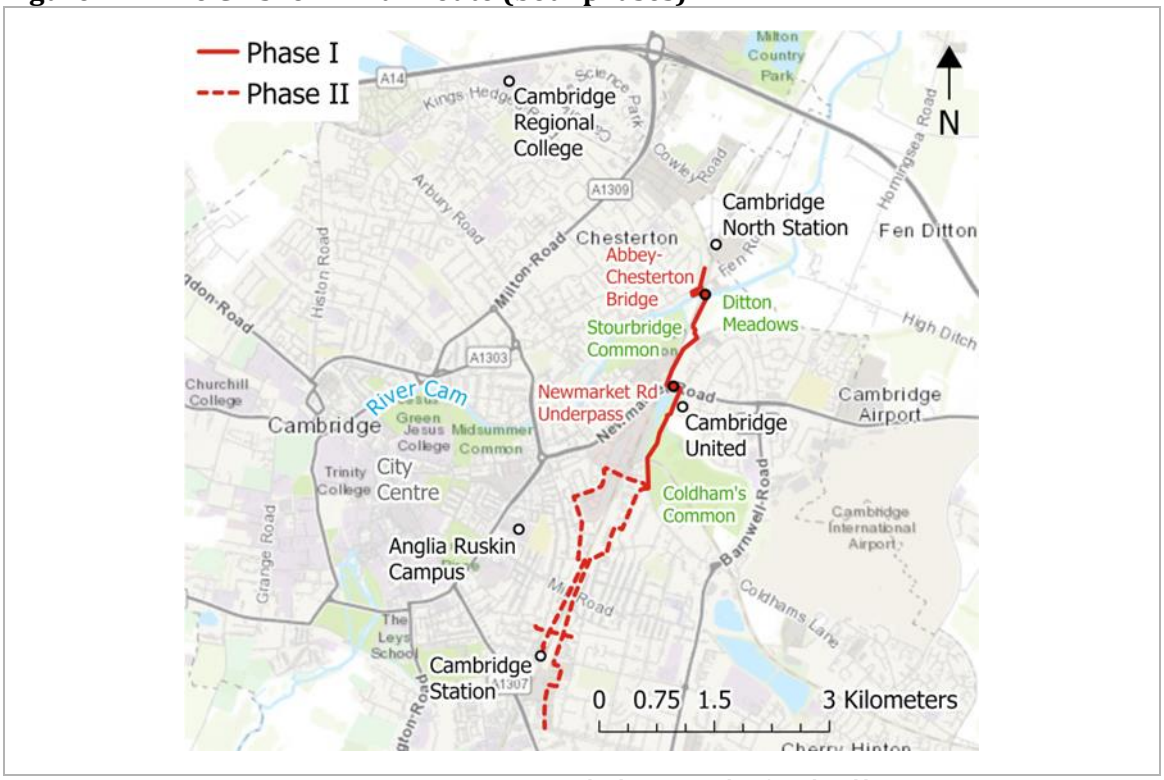
1.3 The Chisholm Trail is a new dedicated 3.5 km cycling and pedestrian link within the City of Cambridge designed to increase active travel in Cambridge, support modal shift away from using cars, and result in reduced congestion in/around Cambridge and limiting CO2 emissions. The segregated route also aims to make active travel safer, reducing the number of road traffic collisions involving cyclists and pedestrians, and enhance connectivity across the city.

1.4 The Chisholm Trail is being delivered in two Phases, which are supported by two separate (although linked) projects supported by the Greater Cambridge Investment Fund:

- Phase 1 provides a link from Cambridge North Station (in close proximity to several business and science parks) to Coldham's Lane, providing a dedicated new cycling and walking route including over the new Abbey-Chesterton Bridge which forms part of the project, better linking the station to employment sites in the city. Construction of this phase is complete with the route opening to users in December 2021.

- Phase 2 will create a further link from the end of Phase 1 at Coldham's Lane to Cambridge Station. Construction of this phase is ongoing with completion expected in 2025-26.

Figure 1-1: The Chisholm Trail route (both phases)



Source: Greater Cambridge Partnership / Produced by SQW 2024. Licence 100030994
Basemap: Esri UK, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA

1.5 **Phase 1 is the project covered by this Impact Evaluation**. Construction of Phase 1 started in 2019 and completed in 2021, with the Trail opening to users in December 2021. Unless otherwise stated, references to the Trail/Chisholm Trail in this evidence paper refer to the Phase 1 project covered by this impact evaluation.

Evidence paper structure

1.6 The remainder of this evidence paper is structured as follows:

- Section 2: Research approach
- Section 3: Context, rationale and objectives
- Section 4: Project delivery
- Section 5: Outcomes and impacts
- Section 6: Conclusions.

1.7 The following annexes are provided in a separate document:

- Annex A: Detailed approach to intercept surveys
- Annex B: Analysis of cycle and pedestrian counts
- Annex C: Analysis of traffic collisions data
- Annex D: Wave 2 survey results: Cyclists
- Annex E: Wave 2 survey results: Pedestrians
- Annex F: Wave 1 survey results
- Annex G: Evidence Assessment Criteria

2. Research approach

Research approach summary

The evidence in this paper meets the requirements of the National Evaluation Framework (NEF) which has been interpreted to the Greater Cambridge context in the Local Evaluation Framework (LEF). The principal focus of the evaluation was to assess whether the project can plausibly be considered to have led to increased levels of active travel (cyclists and pedestrians), and associated modal shift from car usage.

A logic model and theory of change were articulated in the LEF and informed the research method.

Evidence was collated from two waves of 'intercept surveys' with cyclists and pedestrians, time-series data on active travel both pre and post the completion of the project, time-series data on road traffic collisions, and qualitative research with stakeholders.

Analysis of this evidence is presented in a series of Annexes with key findings drawn from the evidence presented in the main body of the evidence paper. The evaluation adopted a theory-based approach, applying the principles of Contribution Analysis, to reflect both the complexity of the delivery landscape and routes to impact, and methodological considerations and limitations.

Method

2.1 As set out in the Local Evaluation Framework (LEF), the impact evaluation of Chisholm Trail Phase 1 used a theory-based approach. Data were sourced using mixed-methods in line with guidance in the National Evaluation Framework. Contribution analysis was used to test the data against a set of research questions to inform an evaluative assessment.

2.2 The principal focus of the evaluation was to assess whether the project can plausibly be considered to have led to increased levels of active travel – both cycling and pedestrian activity (i.e. walking and wheeling[1])– and associated modal shift from car usage, which is recognised as key to relieving the transport pressures acting as a constraint to the economic growth of Cambridge.

2.3 The project logic model proposed that there would be six theme specific outcomes that should be explored in the evaluation. These were:

[1] Please note that when we refer to walking throughout the evidence paper this includes all pedestrians, including wheelchair and mobility scooter users (consistent with the Highway Code) unless otherwise stated.

- increased cycle usage, including for work and education
- increased walking, including for work and school
- modal shift, leading to fewer numbers of vehicle trips made and reduced traffic congestion
- improved safety (via perceptions of safety and collisions data)
- enhanced local environment through improved air quality (via perceptions of the environment)[2]
- improved independence and wellbeing (via personal perception of these issues).

2.4 Alongside the theme specific outcomes, the evaluation also sought to gather evidence on the following broader outcomes, via perceptions of:

- enhanced access to training and employment and green spaces
- improved public health
- enhanced attractiveness and deliverability of employment growth and housing development sites.

2.5 The logic model also included two further outcomes: longer-term effects on improved business productivity, and CO2 savings via modal shift. These are not covered in this impact evaluation, as set out in the agreed LEF.

Sources of evidence

2.6 The key sources of evidence for the evaluation are summarised below. The data collection methods, assessment of robustness, and detailed data are presented in a series of annexes to this Evidence Paper. These annexes provide the evidence for our contribution analysis, and for IEP to generate their full evaluative assessment.

Intercept surveys of cyclists and pedestrians

2.7 Two surveys of cyclists and pedestrians are the core source of evidence for this impact evaluation. There were two main aims of the surveys:

- to gather data on users' travel behaviours, including any changes in behaviours as a result of the Chisholm Trail (to estimate quantitatively change in usage and modal shift), and

[2] It is noted that potential impacts on air quality will be considered at a programme level, with the findings included in GCP's Complementary Report.

any changes in the reasons for journeys (to estimate effects on usage for employment or education purposes)

- to gather data on effects of the Chisholm Trail on users' perceptions of safety, their independence and wellbeing, and access to training, employment and green space and the quality of the local environment.

2.8 The surveys also gathered data on satisfaction with the Chisholm Trail, to provide evidence on the potential wider effects and contribution of the scheme to active travel in Cambridge, and feedback to inform Phase 2.

2.9 Two waves of 'intercept surveys' were completed in July/August 2023 and April/May 2024. This involved the distribution of postcards with a link to an online survey to cyclists and pedestrians at two points on the Trail, at the southern entrance at Coldham's Lane and to the north of the Abbey-Chesterton Bridge (see details in Annex A). Pedestrians were also given the option of completing the survey face-to-face in both waves, although the vast majority completed the survey online.

2.10 The aim was to complete at least 200 survey responses, for both cyclists and pedestrians respectively in each wave. As set out in Table 2-1, the target was exceeded in both waves of the survey.

Table 2-1: Survey response rates

Mode	Wave 1: number of survey responses	Wave 2: number of survey responses
Cyclists	328	351
Pedestrians	293	242

Source: SQW. Figures include complete survey responses only.

2.11 The Wave 2 surveys asked respondents if they had completed a survey in Wave 1 (either as a cyclist or a pedestrian,). Of the 593 respondents across both surveys in Wave 2, 176 (30%) indicated they had done so, 337 (37%) that they had not, and 80 (13%) did not know or could not remember. This suggests that the two surveys captured data from at least 950 unique individuals engaged in active travel in Cambridge across the two survey waves. [3]

2.12 Whilst both surveys provide a strong evidence base, following feedback and guidance from the IEP at the Mid-Term Report stage, the decision was taken to use the Wave 2 survey as the primary evidence for the impact evaluation. This is discussed further in Section 2.

2.13 Further details on the practicalities of undertaking the surveys can be found in Annex A.

[3] 621 from Wave 1, and a further 337 in Wave 2 that had not completed a Wave 1 survey. Note that it is possible that individuals completed both the pedestrian and cyclist survey in one or both years, for example by taking a postcard on different days using different modes of travel. The estimate of the number of unique individuals should therefore be seen as a best estimate, not definitive.

Cycle and pedestrian counts

2.14 Time-series data on cycle and pedestrian counts was collated and analysed at three levels:

- **"on-trail locations"**, with data available at four points from a combination of existing counters and annual surveys; this included one counter that provided both pre- and post-opening data (the Cambridge Radial Survey 'River Cam Path') and three post-opening only data points
- **several "proximate locations"**, with data available at nine points from annual surveys, providing both pre- and post-opening data.
- **wider city-centre trends**, with data available at multiple points across Cambridge city from a combination of existing counters and annual surveys, largely providing both pre- and post-opening data.

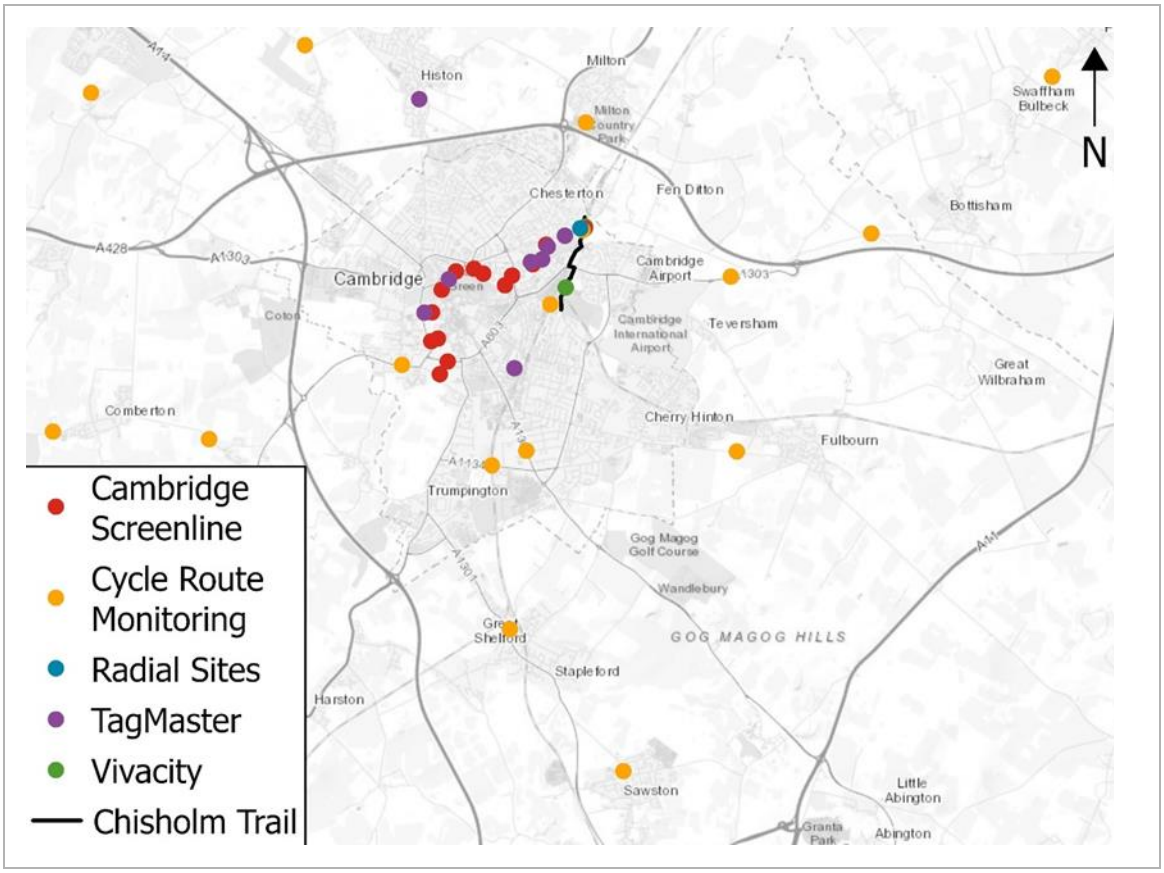
2.15 The sources of data on cycle and pedestrian counts, and the level at which the data was collated and analysed, are presented in Table 2-2 and Figure 2-1.

Table 2-2: "On-trail", "proximate" and wider-city cycle and pedestrian counter data

Source of count data	"On-trail" locations	"Proximate" locations	Wider-city centre
Continuous traffic sensors - Vivacity	✓		
Continuous traffic counters – TagMaster (cyclists only)		✓	✓
CCC annual survey – Cambridge Screenline	✓	✓	✓
CCC annual survey - Cambridge Radial	✓		
CCC annual survey - Cycle Route Monitoring		✓	✓

Source: Chisholm Trail Phase 1 Mid-Term Impact Evaluation Evidence Paper

Figure 2-1: Location of on-trail", "proximate" and wider-city cycle and pedestrian counter data



Source: Cambridge and Peterborough Insight, GCP / Produced by SQW 2024. Licence 100030994
Base Map: Esri UK, Esri, HERE, Garmin, USGS, NGA

2.16 Further information on the cycle and pedestrian counts analysed can be found in Annex B.

Data on traffic collisions

2.17 Analysis of publicly available data on road traffic collisions (reported to the police) in Cambridgeshire covering the period start-April 2017 to end-March 2024 was completed.[4] The evaluation was primarily concerned with exploring whether the Trail has resulted in improved safety via a reduction in road traffic collisions involving pedestrians and cyclists. Therefore, the analysis focused on collisions that involved a bicycle as one of the vehicles, a cyclist casualty and/or had a pedestrian casualty. The severity of collisions – with each classified as either slight, serious, or fatal – was also analysed.[5]

2.18 Consistent with the Mid-Term Evidence Paper, overall trends in the frequency of collisions in Cambridgeshire, were compared with trends in the frequency of collisions occurring in close proximity to the Trail i.e. at 1.5km and 2.5km bands. See Annex C for further details. It should be noted that the available data on road traffic collisions does not include records of collisions

[4] Available here: https://data.cambridgeshireinsight.org.uk/dataset/cambridgeshire-road-traffic-collision-data
[5] Guidance on the severity of casualty is available here: https://assets.publishing.service.gov.uk/media/60d0cc968fa8f57cf3f0b3ad/stats20-2011.pdf

along the Chisholm Trail because it is not a public highway. Gathering such data, if available, would require bespoke access to/request of police records which was not proportionate for the evaluation.

2.19 Given the wide range of factors that contribute to the frequency of road traffic collisions, and also considering the modest volume of collisions in close proximity to the trail, the evaluation did not seek to directly attribute any changes to the project in quantitative terms. Rather, the traffic collisions data is contextual, with the evidence from surveys and consultations used to assess perceived improvements in safety.

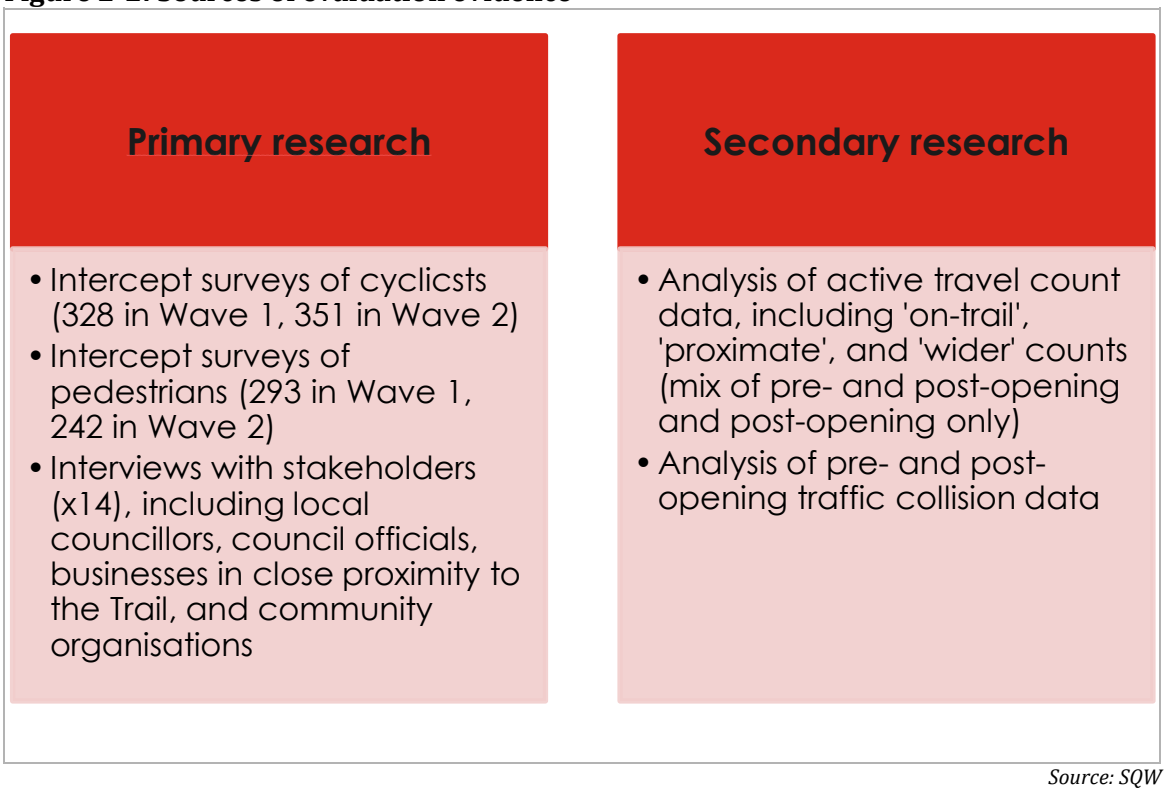
Qualitative research

2.20 Twelve consultations with 14 stakeholders were completed including local councillors, council officials, businesses in close proximity to the Trail, and community organisations. The primary focus of the consultations was to understand any effects of the Trail on the attractiveness and deliverability of new housing and employment sites near the route, access to training and employment opportunities, and any wider organisational benefits or effects of the Chisholm Trail Phase 1 (both direct and indirect).

Summary of sources of evidence and alignment with the LEF

2.21 The Figure below summarises the sources of evidence used for the impact evaluation.

Figure 2-2: Sources of evaluation evidence



Source: SQW

2.22 The evaluation method and approach largely followed that set out in the LEF, and confirmed in the mid-term report. However, some adjustments were made to the intercept surveys of cyclists and pedestrians.

2.23 First, the fieldwork for Wave 1 was completed later than anticipated in the LEF, in late-July/early-August, rather than June. As such, the survey was conducted outside of the standard school year (with summer term running to 19 July 2023 for local authority maintained schools in Cambridgeshire), and either partly (for Anglia Ruskin University) or fully (for Cambridge University) outside of the academic year for local universities. The potential for evidence from Wave 1 on outcomes related to increased cycle usage and walking for school/education related purposes was therefore limited. The evidence from Wave 1 also represented data on usage and perception in the summer holiday period, which may not reflect 'normal' conditions across the year. The LEF proposed that Wave 1 and Wave 2 would use consistent time-periods to allow both comparison of the results, and pooling of the data to provide a more robust evidence base on the post-intervention position (which would not be possible using different time-periods owing to seasonal variation in usage).

2.24 Following feedback and guidance from the IEP at the Mid-Term Report stage, the decision was taken to (i) undertake Wave 2 in late-April/early-May 2024 to coincide with school and university term times, and (ii) to use Wave 2 data as the principal source of primary evidence for the impact evaluation. Therefore, throughout this report references to 'the survey' or 'survey evidence' refer to evidence from Wave 2, unless otherwise specified. However, consistent with the theory-based approach, Wave 1 survey evidence has been used to complement and triangulate the Wave 2 data. Note that data from the two waves of survey have not been combined or compared statistically given the different time points of fieldwork.

2.25 Second, across the two waves of intercept surveys the number of fieldwork days differed to the proposals set out in the LEF in order to maximise the response rate, and to mitigate the impact of poor weather, which reduced usage of the Trail on several days. Wave 1 involved six fieldwork days – four weekday days and two weekend days. Wave 2 involved seven fieldwork days – five weekday days and two weekend days. See further details in Annex A.

Challenges with data collection

2.26 There were several challenges with data collection that need to be considered when interpreting the evidence:

- Consistent with the LEF and the Mid-Term Evidence Paper, the plan was to consult with landowners, developers, tenants and managing agents at relevant proximate business and science parks. A number of stakeholders across these groups were approached by the GCP to ask for their consent to be contacted by SQW. However, despite considerable efforts and a range of different opportunities for individuals to be involved, none of the individuals contacted responded to GCP. Evidence on any effects of the Trail on the

attractiveness and deliverability of new housing and employment sites near the route is therefore limited.

- The two Vivacity sensors on the Trail were expected to be the primary source of post-intervention data on usage of the Trail by cyclists and pedestrians. The scoping assessment at the Mid-Term stage concluded that the evaluation would collate and analyse data from November 2022 up until reporting period, assuming there were no data quality issues. However, in late-2023 the sensor at Ditton Meadows Bridge (sensor 66) failed and was replaced (now sensor 148) leading to a gap in data coverage.[6] Further, owing to vandalism of the sensor, gaps in data coverage continued throughout 2024, including during the fieldwork period for the intercept surveys. The sensor at Barnwell West Path (sensor 67) has continued to provide comprehensive and consistent data since the Mid-Term Evidence Paper.

- It was reported in the Mid-Term Evidence Paper that the final evaluation would analyse Spring 2024 survey data from the Screenline and Cycle Route Monitoring Surveys. However, due to the timing of the survey fieldwork (late April/May) and the time taken for CCC to receive (c. 4-6 weeks after the fieldwork) and quality assure that data, it was not possible to include 2024 data within the timescales of the evaluation. The implications of this on the evaluation are minimal. The Cycle Route Monitoring covers "proximate locations" and wider city centre trends, and is therefore contextual to understand longer-term cycling and walking trends in Cambridge. The Screenline Survey provides data on the Chisholm Trail Footbridge, however, it is an annual count, whereas the "on-trail" Vivacity sensors provide continuous post-intervention counts. Data from 2023 was available.

2.27 With regard to the intercept surveys several limitations are noted:

- The 7am-7pm time fieldwork period may have influenced the results, with users outside this time not captured, and potential differences in the use/purpose of usage. However, these hours were considered to be the most appropriate and proportionate to cover both commuting (on weekdays) and leisure (on weekends) usage. Further, this period included the points when effects on modal shift were expected to be most pronounced i.e. including both the morning and evening 'rush hour' period for commuting, school-related travel etc.

- As agreed in the LEF, individuals aged under 16 were excluded from completing the surveys. This needs to be recognised when considering outcomes related to increased cycle usage and walking for school/education related purposes.

- As set out above, the surveys were not undertaken during a consistent time-period each year. Therefore, due to seasonal variation in usage, it is not possible to pool the data across both waves of the survey. Whilst pooling the evidence would have provided a more robust

[6] Note, the historical data from the previous sensor was retained.

evidence base on the post-intervention position, the response rate from the second wave of the survey provides a reasonable level of confidence in the results (as discussed below).

Analysis and interpretation

Intercept surveys

2.28 For any survey of a sample, rather than the full population, the results are subject to potential response bias and a degree of uncertainty.

2.29 The exact population of users of the Trail is very challenging to determine with precision owing to (i) the multiple different locations for joining and leaving the Trail including between the Vivacity sensors (ii) the potential for users to be counted multiple times by individual sensors on the same journey (e.g. where they are making 'round trips') or separate journeys (e.g. where they are commuting and passing the sensor once on 'the way to work', and once 'on the way home') (iii) double counting between the two Vivacity sensors (i.e. the same individual travelling the full length of the Trail and counted at both points) and (iv) regular and repeat use of the Trail meaning that the same individual may use the Trail several times on the same day (for separate journeys) or on separate days, with aggregate totals (for both days and weeks) therefore potentially over-estimating the number of unique users. Precise data on the number of individuals using the Trail is therefore not possible.

2.30 However, these points noted, Vivacity data for Barnwell West Path (sensor 67) indicates that across the seven days of fieldwork there were approximately 11,450 cycling journeys (10,050 on weekdays and 1,400 on weekends) and 3,900 pedestrian journeys (2,750 on weekdays and 1,150 on weekends)[7]. If we assume, based on Wave 2 survey evidence, an 'adjustment ratio' from journeys to users of 2.7 for cyclists and 1.2 for pedestrians (that is, each cyclist uses the Trail on average approximately 2.7 times per week, and each pedestrian uses the Trail on average approximately 1.2 time per week[8]), this suggests a population of users (including those that use it multiple times over a seven day period) of 4,160 for cyclists and 3,120 for pedestrians.[9]

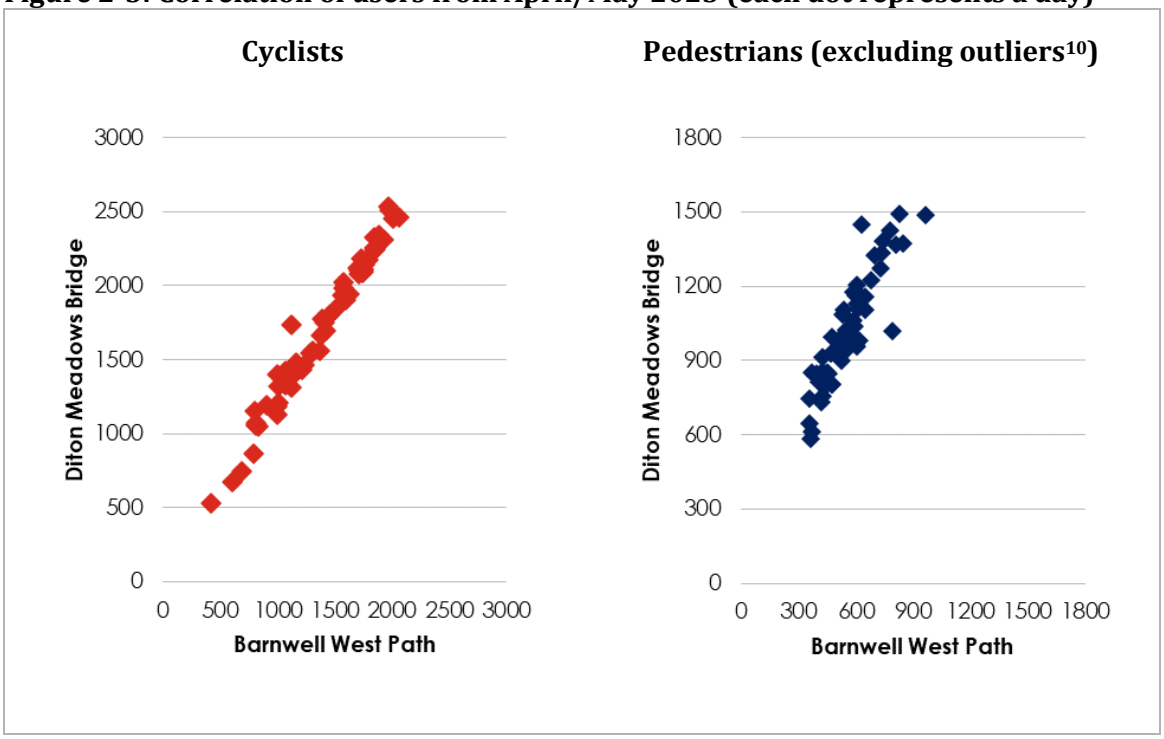
2.31 The Barnwell West Path sensor focuses on a specific location, and does not include the section of the Trail to the North, including around the new bridge, which historic data and qualitative feedback suggest is used heavily. Analysis of the Vivacity data for Barnwell West Path and Ditton Meadows Bridge from April/May 2023 (given the gaps in data for 2024) suggests a

[7] Note by this we mean a journey is equivalent to a single count on the sensor.
[8] The ratio is based on responses to questions on the regularity of the overall journey on the day they were handed the postcard, and how regularly they use the Trail for that journey. This has been estimated to calculate how many journeys on a weekly basis individuals are using the Trail, with the adjustment ratio then based on the number of respondents to the survey. Note, figures in the text have been rounded, from 2.751 and 1.257 for cyclists and pedestrians respectively.
[9] Several days have been excluded including those associated with football matches at Cambridge United (which are considered as 'non-neutral' according to DfT guidance), which were associated with far higher levels of use recorded on Barnwell West Path. However, the levels of use on these days indicate that the Trail is being frequently used for leisure purposes.

reasonable correlation overall between the two sensors, particularly for cyclists i.e. the two sensors counted a reasonably similar number of journeys over this period. This said, the count on Barnwell West Path was consistently around 20-25% lower than on Ditton Meadows Bridge.

2.32 For pedestrians, the sensor at Ditton Meadows Bridge also generally recorded a higher number of pedestrians (on average around 1,000 pedestrian journeys per day), compared to Barnwell West Path (on average around 550 pedestrian journeys per day). This suggests that the 3,900 pedestrian journeys on Barnwell West Path is likely to underestimate by some margin the number of journeys on the Trail overall, and in turn the population of users.

Figure 2-3: Correlation of users from April/May 2023 (each dot represents a day)



Source: SQW analysis of Vivacity data

2.33 If we assume based on this data that the number of users of the Trail overall was 25% higher for cyclists, and 50% higher for pedestrians than the Barnwell West Path data alone suggest in April/May 2024, this provides an estimated population of 5,200 cyclists and 4,680 pedestrians over the fieldwork period. In practice, the number of unique users may potentially be lower, with individuals passing the Barnwell West Path sensor in both directions on the same day. However, the level of this is unknown. If we assumed that half of the users passed the sensor going in both directions and applied a 0.75 adjustment, this would suggest a population of cyclists of approximately 3,900 and pedestrians of 3,500 over the fieldwork period.

[10] Several days have been excluded including those associated with football matches at Cambridge United, which were associated with far higher levels of use recorded on Barnwell West Path

2.34 Confidence intervals on the full sample for each survey (assuming a 95% confidence level) are set out below. This should be regarded as indicative given the uncertainty over the exact population of users. This said, **the analysis suggests that a good level of confidence can be placed in the findings, and the confidence intervals are within standard expectations**.[11]

Table 2-3: Confidence intervals for the Wave 2 intercept surveys

	Estimated population	Survey responses	Confidence interval (assuming a 95% confidence level)
Cyclists	3,902	351	+/- 5.00 pp
Pedestrians	3,509	242	+/- 6.08 pp

Source: SQW

2.35 It is highlighted that we do not know explicitly how representative the sample is related to active travel behaviours, or personal characteristics (e.g. age, sex) in the population. It is possible that survey respondents are those that are more likely to have been influenced by the Trail than those that did not collect a postcard and/or did not complete the survey even if they did, for example if they are more regular cyclists or pedestrians for exercise/leisure.

2.36 This said, recent evidence indicates that Greater Cambridge is the UK's leading city region for walking and cycling, with 45% of residents cycling at least once a week, and 56% of residents walking or wheeling at least five days a week.[12] Data from Sustrans suggests that rates of cycling and walking/wheeling are higher for men than women, which is consistent with our survey samples: of those that indicated they were either male or female in the cyclist and pedestrian survey (n= 343 and n=225), 61% and 54% were male respectively.

Analytical approach

2.37 Data sources were analysed using a range of techniques. Approaches to analysis included:

- **Quantitative analysis of closed questions from the intercept surveys using Excel**. This included question by question and cross-tabulation analysis (by travel mode and weekday/weekend).
- **Quantitative analysis of secondary data on cycling and pedestrian counts and traffic collisions using Excel, and GIS mapping** (where relevant). The approach to analysing these datasets is set out in detail in Annexes B and C.
- **Thematic analysis of qualitative evidence from the open survey questions and the stakeholder consultations**. On the latter, each consultation was written up by the interviewer from the SQW evaluation team using a standard template. All interview notes

[11] For example see ONS here: https://www.ons.gov.uk/methodology/methodologytopicsandstatisticalconcepts/uncertaintyandhowwemeasureit which indicates that a 95% confidence level is frequently used for surveys,
[12] Walking and Cycling Index 2023: Greater Cambridge (sustrans.org.uk)

were then uploaded to specialist qualitative data analysis software (MaxQDA) and analysed thematically for consistency of key messages or any differences across all interviewees.

- **Contribution analysis for the impact evaluation**. This used the evidence collected to test the logic model and theory of change, to assess the contribution of the Chisholm Trail Phase 1 to the outcomes observed. It does this by assessing the contribution of the project relative to other factors, drawing on relevant quantitative and qualitative data. This provides the basis for our evaluative assessment of the impact of the intervention. A 'contribution story' has been developed for each of the key outcomes; this is presented in the final section.

3. Context, rationale and objectives

Context, rationale and objectives summary

Levels of active travel, particularly cycling, are high in Greater Cambridge. However, pressures linked to congestion, travel and traffic continued to be acute, and barriers exist to higher levels of active travel including related to safety and the coverage and quality of active travel infrastructure.

The Chisholm Trail Phase 1 provided new dedicated off-road active travel infrastructure. The aim was to support those cycling to cycle more frequently, and those not cycling to start to use cycling as a mode of transport. This would lead to a modal shift away from using cars, resulting in reduced congestion in/around Cambridge.

The project also aimed to encourage higher levels of pedestrian activity, for both leisure/exercise, and for work and education purposes, and to provide the platform for the subsequent delivery of Phase 2.

Stakeholder consultation and survey evidence from users suggest the case for the project was strong. Key explanations for use of the Trail from cyclists were that it was quicker, safer and more comfortable/pleasant than alternatives, and enabled users to avoid certain roads or stretches of road. For pedestrians, the provision of better access to green spaces and other environmental amenities was also an important explanation for using the Trail.

3.1 In this section we provide background to the Chisholm Trail Phase 1 by outlining why the intervention was needed, and the anticipated outputs and outcomes to be generated, based on the 'logic model' for the intervention.

Context

Rationale

3.2 Levels of active travel, particularly cycling, are high in Greater Cambridge: at the 2021 Census, 31% of commutes to work were made by bicycle in Cambridge, and 9% in South Cambridgeshire, compared to 3% across England[13]. Further, 43% of residents cycled at least

[13] Census 2021, TS061 - Method used to travel to work. Data excludes those working mainly at or from home. Note, the ONS has identified some quality concerns with the travel to work data due to the impacts of the Covid-19 pandemic (for further information see here).

once per week for any purpose in Cambridge in 2021, and 22% in South Cambridgeshire, compared to 9% across England[14].

3.3 However, despite this high level of cycling, and major investments in transport infrastructure over the last decade in Greater Cambridge – notably the Cambridgeshire Guided Busway, significant improvements to the A14 and the new railway station at Cambridge North – pressures linked to congestion, travel and traffic continued to be acute in the city at the time of the development of the City Deal[15].

3.4 This was recognised as limiting the significant growth potential of the area, which is one of the most important sub-regional economies in the UK, with a substantial concentration of knowledge-based assets including the University of Cambridge, major research organisations and a cluster of research-intensive businesses. The nature of the challenge and the case for intervention was summarised in the City Deal itself, which stated that:

"In order to deliver more jobs and economic growth, the city region has to accommodate new and growing businesses and research centres and the people who work in them whilst ensuring ease of movement between key economic hubs … Development of the sustainable transport network will need to strengthen the employment hubs and high-tech clusters in Greater Cambridge by making movement between them more straightforward, efficient and convenient … The backbone of the proposed strategy is a transport network to link areas of population and employment within the City Deal area."

Greater Cambridge City Deal[16]

3.5 A key element of this proposed strategy set out in the City Deal was to develop *"a comprehensive network of pedestrian and cycle routes within Cambridge*", which would allow for significant increases in cycle use. In turn this would support carbon reduction objectives and promote high quality of life for local communities by minimising the environmental impact of transport whilst promoting the ability for Greater Cambridge to realise its economic growth ambitions.

Objectives

3.6 Against this strategic context, as part of a broader suite of investments through the Investment Fund to encourage people out of their cars and towards other modes of transport, the Chisholm Trail Phase 1 project sought to provide new dedicated off-road active travel infrastructure.

3.7 The expectation was that this would:

[14] Active Lives Survey by Sport England, Table CW0302: Proportion of adults who cycle, by any purpose, frequency, and local authority, England, November 2015 to November 2021
[15] For example, see GCP (2023) Making Connections Outline Business Case
[16] Greater_Cambridge_City_Deal_Document.pdf (publishing.service.gov.uk)

- remove some of the remaining barriers to cycling, through greater segregation of cycling and walking from motorised traffic
- provide quicker and safer routes across Cambridge
- enhance connectivity, by providing direct links between housing and employment growth points and public transport infrastructure, including a new bridge over the River Cam, better linking Cambridge North Station to employment sites in the city.

3.8 The aim was that, as a result of the project, those cycling intermittently in Greater Cambridge would cycle more frequently, and those not cycling previously would start to use cycling as a mode of transport, including for work and education. This would lead to a modal shift away from using cars, resulting in reduced congestion in/around Cambridge. Chisholm Trail Phase 1 also aimed to encourage higher levels of pedestrian activity, for both leisure/exercise, and for work and education purposes.

3.9 Importantly, Chisholm Trail Phase 1 would also provide the platform for the subsequent delivery of Phase 2, which would provide a continuous off-road link from Cambridge North to the Biomedical Campus in the south of the city, a key growth area.

Logic model

3.10 In evaluating publicly-funded projects, it is good practice to develop a 'logic model' which articulates explicitly the relationship between inputs, activities, outputs, and outcomes:

- inputs are the resources used by the project, including the investment fund resource
- activities are those tasks undertaken by the project
- outputs are the readily measurable results of those activities
- outcomes are the benefits attributable to the project including 'intermediate outcomes; for the direct beneficiaries of the project, and 'final outcomes' for the wider economy/society.

3.11 Logic models are useful devices to inform impact evaluation, as they encourage thinking about the steps required for a project to have its desired effects, and the nature of effects that can be covered in evaluation. Therefore, to be effective, a logic model should represent the causal theory about why and how a project might work over time, that is, the 'theory of change'.

3.12 The logic model for the Chisholm Trail Phase 1 is presented below. This was included as part of the Local Evaluation Framework to inform the impact evaluation, and the research methods adopted.

Table 3-1: Chisholm Trail Phase 1 logic model

Logic model title	Chisholm Trail Phase 1
Projects / projects covered by logic model	Chisholm Trail Phase 1

Theory of change:

Cycling usage is already high in Greater Cambridge. For example, at the 2021 Census, 31% of commutes to work were made by bicycle in Cambridge, and 9% in South Cambridgeshire, compared to 3% across England[17]. Further, 43% of residents cycled at least once per week for any purpose in Cambridge in 2021, and 22% in South Cambridgeshire, compared to 9% across England[18]. The intended theory of change is that new dedicated cycling infrastructure will remove some of the remaining barriers to cycling, in particular through greater segregation of cycling from motorised traffic, the provision of quicker and safer routes across Cambridge, and providing direct links between housing and employment growth points and public transport infrastructure, such that those cycling intermittently cycle more frequently and those not cycling at the moment will start to use cycling as a mode of transport for work and education. This further increase in cycling will represent a modal shift away from using cars, resulting in reduced congestion in/around Cambridge and so in CO2 emissions, and increase modal share for cycling. The segregated routes will make cycling safer, reducing the number of road traffic collisions involving cyclists. The route will also encourage higher levels of walking for both leisure/exercise, and for work and education purposes, Specifically, Phase 1 of the Chisholm Trail will link Cambridge North Station (in close proximity to several business and science parks) to Coldham's Lane, providing a dedicated new cycling and walking route including over the new Abbey-Chesterton Bridge which forms part of the project, better linking the station to employment sites in the city. Subsequently, Phase 2 (a separate project) a link to Cambridge Station and Addenbrooke's Hospital and the Biomedical Campus in the south.

Key assumptions: there is scope to increase cycling usage further, i.e. there remains a group of people that are open to start taking up cycling or cycling more often; housing and employment growth sites would be less accessible (such that success is adversely affected) without cycling improvements; and modal shift from motor vehicle not outweighed by general growth in traffic or people switching to driving/driving more as they see reductions in congestion.

Other factors: other projects that are designed to lead to modal shift such as bus priority measures; cycling schemes themselves are part of wider improvements to national cycling network, which has funding through Cycle City Ambition Grant; and provision of appropriate complementary infrastructure such as bike storage at employment sites.

Inputs	Activities	Outputs	Outcomes
Investment Fund inputs • £11.6m	• Existing cycle paths improved / enhanced (including widening and resurfacing) • New cycle paths developed	• Cycle routes become fully operational • Km of new or improved cycle paths	**Theme-specific outcomes** • Increased cycle usage, including for work and education, leading to modal shift (from cars to cycling) • Increased walking, including for work and school

[17] Census 2021, TS061 - Method used to travel to work. Data excludes those working mainly at or from home.
[18] Active Lives Survey by Sport England, Table CW0302: Proportion of adults who cycle, by any purpose, frequency, and local authority, England, November 2015 to November 2021

Other inputs (including staffing and in-kind) • £6.3m S106 developer contribution	• Associated infrastructure works (e.g. construction of a new underpass below Newmarket Road, construction of the Abbey-Chesterton Bridge Bridge)	• Associated infrastructure completed • Construction years of employment (i.e. to build infrastructure)	• Modal shift, leading to fewer numbers of vehicle trips made and reduced traffic congestion • Improved safety (including via reduction in road traffic collisions involving pedestrians and cyclists) • CO2 savings via modal shift • Enhanced local environment through improved air quality • Improved independence and wellbeing **Broader outcomes** • Enhanced access to training and employment • Enhanced access to green spaces • Enhanced attractiveness and deliverability of employment growth sites, e.g., North East Cambridge (15,000 new jobs), and wider city centre • Enhanced attractiveness and deliverability of new housing development sites, e.g. North East Cambridge (8,350 new homes) • Long-term positive effects on socio-economic conditions including: ➢ improved business productivity via travel time savings, agglomeration effect ➢ improved public health (via increased active travel, air quality)

Expected timescales for inputs / activities / delivery of outputs and outcomes

- Inputs over 2015-2021
- Activities spread over the period of inputs. The scheme opened in late-2021.
- Outputs realised on completion of the scheme in late-2021
- Construction employment realised during delivery of activities
- Theme-specific outcomes are expected to start to be realised from the scheme opening, and are expected to increase over time as behaviours are influenced and more people are encouraged to walk/cycle.
- Broader-outcomes listed above in relation to enhanced access and access and the attractiveness and deliverability of employment and housing sites can be expected to be realised following scheme opening, but it will take several years for this to be realised fully, and will depend on the status of each site and expected delivery periods. The long-term positive effects on socio-economic conditions are expected to take 3-5 years post-opening to start to be realised and observable.

Relationship to other projects

Other Investment Fund logic models:

- This scheme is related to the other Active Travel schemes in the Programme including the Greenways Programme and Cross-City Cycling Programme. It is also directly linked to the Chisholm Trail Phase 2 which will provide onward connection to Cambridge Railway Station from the end of this scheme.
- Other projects including City Access, Public Transport Corridor schemes (including Cambourne to Cambridge) and the Histon and Milton corridor schemes are all designed to reduce congestion and bring about modal shift from the car to public transport/ active travel
- Other schemes will also facilitate developments in wider city centre

Other non-Investment Fund activities:

- The scheme is linked to wider development around Cambridge including the North East Cambridge development.

Source: Greater Cambridge Partnership

Reflections on the logic model

3.13 It is not within the scope of the impact evaluation to assess formally the validity of the rationale for investment, or to comment on the appropriateness of the use of Investment Fund resources for the project; these are not issues covered in the relevant Performance Indicators. However, this noted, it is highlighted that **both stakeholder consultations completed for this evaluation, and the survey evidence from users (cyclists and pedestrians) suggest that the case for Chisholm Trail Phase 1 was strong.** This is important for the contribution analysis.

> **"It was needed. It is really important to have routes through and around the city which are alternatives to driving cars"**
>
> **Stakeholder**

3.14 There was consistent feedback from consultees that the project was needed, both to help address levels of congestion – and the associated challenges this brings related to the quality of the local environment and quality of life for residents – and address barriers to cycling and active travel. These barriers included, for example, the level of traffic on roads around the subsequent trail route, including Newmarket Road, which was reported by some stakeholder consultees to deter individuals from cycling owing to safety concerns and the level of emissions/pollution.

3.15 Responding to the need to enhance connectivity across the city, as part of the broader development of an effective and integrated active travel infrastructure, was also highlighted as important by consultees. This included the case for ensuring improved connectivity generally, and related to better linking the city centre, Cambridge North Station and new housing developments to the East and North of Cambridge specifically.

3.16 Some consultees also highlighted an important distributional argument: the project was seen as needed to provide improved accessibility to employment and educational opportunities, and access to leisure and recreational opportunities and assets, for people in the Abbey area of Cambridge in particular.

3.17 This area, which surrounds the Chisholm Trail, is one of the most deprived areas in Cambridge, with parts ranked in the 20% most deprived small areas in England in recent rankings[19]. Supporting enhanced infrastructure in this area was seen as important.

> **"People in Abbey won't cycle unless they think it is safe … Abbey is currently pretty cut off from the rest of the city and from other cycle infrastructure"**
>
> **Stakeholder**

3.18 To provide further insight into the case for the intervention, cyclist and pedestrian users of the Trail were asked both in the Wave 2 and Wave 1 surveys why they were using it for the part of their journey/their journey when they were handed the postcard.

3.19 For cyclists, the most common responses (each cited by at least half of respondents) in both the Wave 2 and Wave 1 surveys were the same:

- it was quicker than alternatives
- it was more comfortable / pleasant than alternatives
- it was safer than alternatives
- it enabled them to avoid certain roads or stretches of road.

3.20 These survey responses align strongly to stakeholder perspectives on the rationale for the project set out above related to enhanced connectivity (quicker), and addressing barriers to active travel (safer, more comfortable/pleasant, avoiding avoid certain roads or stretches of road).

3.21 The reasons for use for pedestrians was slightly different. However, the most commonly cited reasons were again consistent between Wave 2 and Wave 1. For pedestrians, the most common explanations for using the Trail in both waves of the survey were that:

- it was more comfortable/pleasant than alternatives

[19] Cambridge City Portrait: State of the City 2023 (cambridgeahead.co.uk)

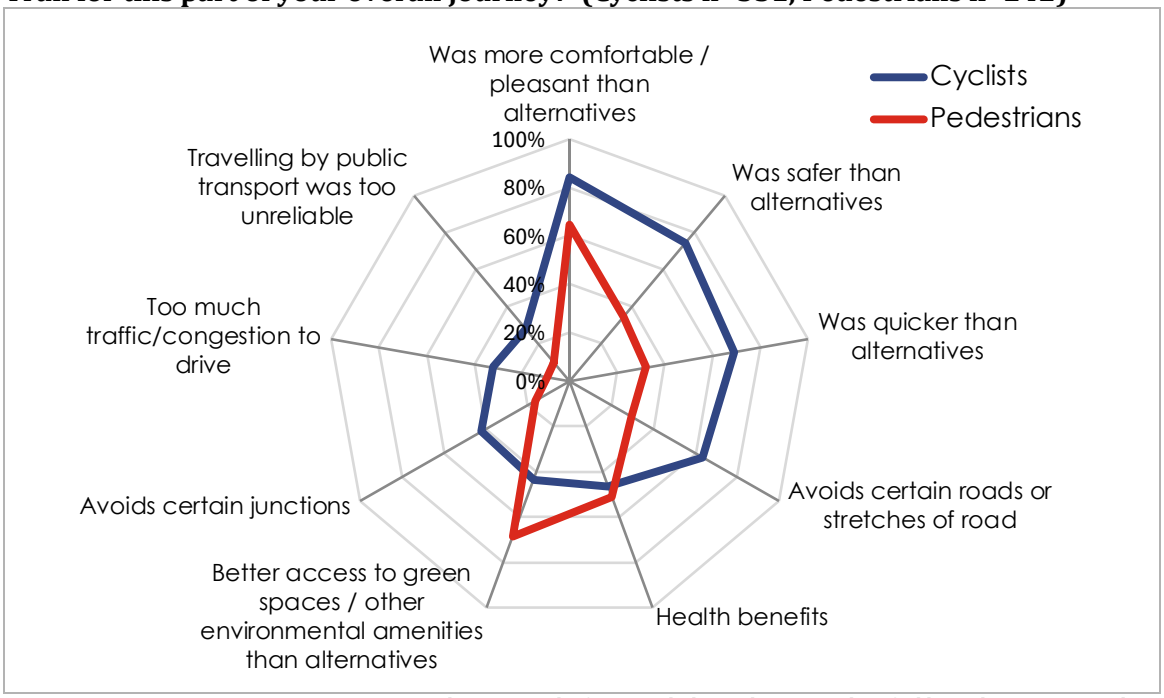
- it provided better access to green spaces and other environmental amenities than alternatives.

3.22 However, in both surveys, approaching, or over, a third of pedestrians did indicate that they used the Trail because it was quicker, safer than alternatives and/or enabled them to avoid certain roads or stretches of road.

3.23 Four other points are noted. First, for both cyclists and pedestrians, health benefits were also commonly identified as a reason for the use of the Trail. Specifically, around half of cyclists (46%) and pedestrians (51%) in the Wave 2 survey cited health benefits as an explanation for their use of the Trail.

3.24 Second, as shown below, the Wave 2 survey (and the feedback was similar in Wave 1) highlighted the wide range of reasons why individuals had chosen to use the Trail on the day they were handed the postcard. This demonstrates the variety of different needs addressed by the project. For example, whilst not the most common explanation, a third of cyclists indicated that they used the Trail for their journey because (in their view) there was too much traffic/congestion to drive.

Figure 3-1: Wave 2 survey evidence: 'Why did you choose to start using the Chisholm Trail for this part of your overall journey?' (Cyclists n=351, Pedestrians n=242)



Source: Wave 2 survey evidence. Note the figure excludes explanations identified by under 10% respondents

3.25 Third, as suggested by the Figure above, a range of different explanations for using the Trail for the journey covered by the survey were commonly cited by respondents. This was particularly evident for cyclists, where nearly two-thirds (62%) of respondents to the Wave 2 survey identified five or more explanations for why they had started using the Chisholm Trail. Multiple explanations were also common for pedestrians. However, the most common

response (for 32%) was a single reason, with better access to green spaces and other environmental amenities than alternatives the most cited single explanation.

3.26 This may suggest that the Chisholm is playing different roles for different groups of people. However, it is also noted that the Wave 2 survey open responses indicated that people use the Trail for a range of different reasons which is to be expected given its status as a shared trail for both cyclists and pedestrians, and the access it provides to different parts of the city and range of different assets and environments.

3.27 Fourth, most respondents to the Wave 2 survey were aware that the Chisholm Trail (i.e. where they were handed a postcard or in a small number of cases completed the survey) was a new walking and cycling route. The awareness rate was 86% for cyclists, and 78% for pedestrians (a similar proportion indicated awareness in Wave 1).

4. Project delivery

Project delivery summary

Construction of Phase 1 of the Chisholm Trail commenced in early 2019. The works included new and improved cycle paths, construction of a new underpass below Newmarket Road, and installation of Abbey-Chesterton Bridge. The Trail was opened to users in December 2021.

Actual Investment Fund expenditure on the Phase 1 was £10.95m (94.5% of planned expenditure). The project also received £6.97m in match funding, mainly from S106 contributions.

The data shows that the Trail is consistently used by cyclists and pedestrians with average daily flows ranging between c.1,200 and 2,500 journeys. Overall, the feedback from survey respondents and consultees indicates a high level of satisfaction with the quality of the Trail. However, areas for improvement were identified, notably lighting and signage/wayfinding.

4.1 This evidence paper focuses specifically on the evidence on the impact of the Chisholm Trail Phase 1. Progress evaluation issues are considered in the Progress Evaluation Evidence paper, and recapped here to frame the evidence of impact which follows.

Intervention chronology and coverage

4.2 A new north-south route for cycling and walking was first proposed in 1998 by local cycling campaigner Jim Chisholm. In January 2015, the Chisholm Trail was included in the GCP's five year programme along with a committed budget. Two contractors were appointed to deliver Phase 1 (Milestone infrastructure and Tarmac) and construction began in March 2019. The works included the construction of new cycle paths alongside improvements to existing paths (e.g. widening and resurfacing). In 2020, the Abbey-Chesterton bridge was lifted over the River Cam and in spring 2021 a new underpass was installed under Newmarket Road. Phase 1 of the Trail opened to users in December 2021.

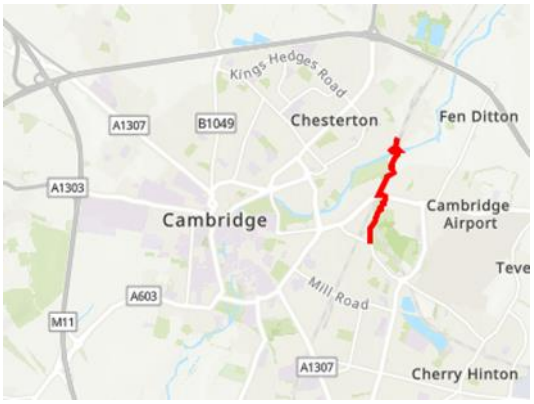
4.3 The 2 km dedicated cycling and walking route of Phase 1 links Cambridge North Station to Coldham's Lane. The location and spatial context of the project (and some images of the Trail and the Abbey-Chesterton Bridge for context) is set out in Figure 4-1.

Figure 4-1: Chisholm Trail Phase 1

Chisholm Trail Phase 1: detail



Chisholm Trail Phase 1: wider spatial context



Abbey-Chesterton Bridge



Chilsholm Trail near the new underpass below Newmarket Road



Source: Maps: GCP, Images: SQW. Basemap sources: Esri, CCIAGR, USGS, HERE, Garmin, Foursquare, FAO, METI/NASA.

Project expenditure

4.4 Actual Investment Fund expenditure on the Chisholm Trail Phase 1 was £10.95m, equating to 94.5% of planned expenditure. The project also received £6.97m in match funding (110% of planned match), mainly from S106 contributions.

4.5 The lower than anticipated Investment Fund expenditure was due to a settlement refund from one of the contractors that was higher than anticipated. The project was delivered under an Engineering and Construction Contract Option C which included a clause that any additional costs, or in this case savings, were to be divided between the contractor and the GCP. This below budget spend is positive for the GCP and in realising best value for public funding.

Table 4-1: Chisholm Trail Phase 1: Investment Fund Expenditure at Q4 2023-24

A: Planned Fund lifetime expenditure *(Source: LEF)*	B: Planned lifetime match funding *(Source: LEF)*	C: Planned expenditure by GR#2 Q4 2024-25 *(Source: GCP)*	D: Actual Fund expenditure by Q4 2022-23 *(Source: GCP)*	E: Actual match expenditure by Q4 2022-23 *(Source: GCP)*	F: % of planned Fund expenditure realised (D/A)
£11,590,000	£6,320,000	£16,227,000	£10,952,638	£6,973,362	94.5%

Source: Greater Cambridge Partnership

Project outputs

4.6 The outputs delivered by the Chisholm Trail Phase 1 are presented in Table 4-2. Outputs were delivered as planned by the completion of the project including 2 km of new or improved cycle / walking paths and a new 40 metre bridge over the River Cam.

Table 4-2: Chisholm Trail Phase 1: Outputs

	Planned	Achieved	%
Cycle routes become fully operational (e.g. full length of route developed/improved, associated infrastructure improvements completed)	2	2	100%
Km of new or improved cycle paths	2	2	100%
Associated infrastructure completed (i.e. Abbey-Chesterton Bridge	1	1	100%
Construction years of employment (i.e. to build infrastructure) (FTE)	N/A	243.2	N/A

Source: Greater Cambridge Partnership March 2024

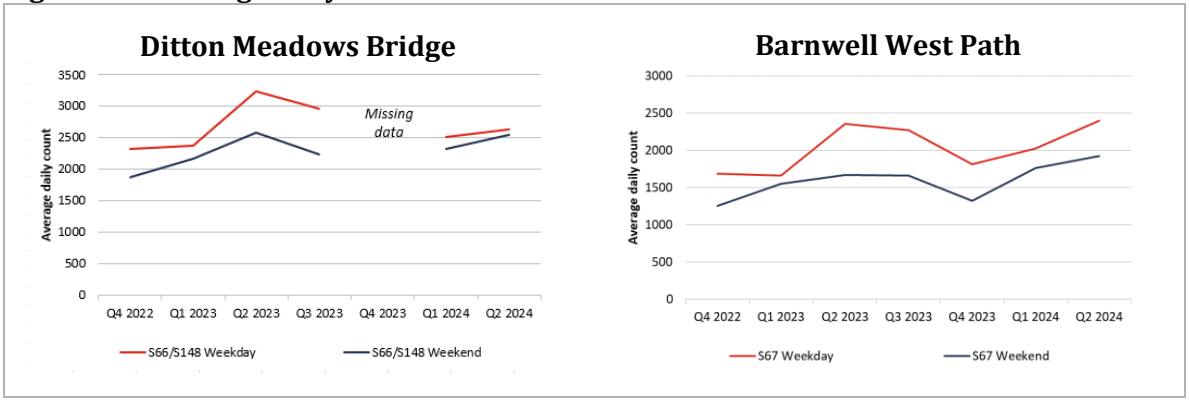
Reflections on delivery

Usage and user perspectives on delivery

4.7 This sub-section sets out headline evidence on usage of the Trail drawing on the Vivacity data, and evidence from survey respondents on the purpose of their journey, regularity of usage, and perspectives on the quality of the Trail.

4.8 Active travel count data from two locations on the Trail - Ditton Meadows Bridge (sensor 66/148) and Barnwell West Path (sensor 67) – shows that the **Trail has consistently been used by cyclists and pedestrians between Q4 2022** (i.e. when the sensors became operational) **and Q2 2024**. Across both sensors average daily active flows (cyclists and pedestrians) by quarter ranged from c.1,600-2,400 on weekdays and c.1,200-2,500 on weekends. As expected, seasonality influences usage of the Trail, with usage highest over the spring and summer months (see Figure 4-2). The sensors have been operational for less than two years. Therefore, it is not possible to comment on long-term usage trends at this point.

Figure 4-2: Average daily active travel counts on the Chisholm Trail Phase 1



Source: SQW analysis of Vivacity data. Note, sensor 66 failed and was replaced with sensor 148 in late 2023, hence there is missing data in Q4 2023.

4.9 In the context of the increased popularity generally of electric bikes ('e-bikes'), the Wave 2 survey captured evidence on whether cyclists were using a pedal cycle or an electric bicycle: 8% of respondents were using e-bikes, with the remainder (92%) using a pedal cycle. Qualitative feedback from the survey and stakeholder consultations also highlighted that the Trail is increasingly being used by e-scooters (including rentable scooters as part of the Voi electric bike and scooter trial in Cambridge[20]). However, this mode of travel was not the focus of the evaluation.

[20] Voi electric bike and scooter trial - Cambridge City Council

4.10 Survey evidence provides insight into the main purpose of respondent's journey on the day they were surveyed. **Overall, over half of surveyed cyclists using the Trail were commuting to/from work (53%),** and for weekdays this increased to 60%. In comparison, the **majority of pedestrians were using the Trail for pleasure or exercise (69%),** with only a small proportion commuting to/from work (10%). Whilst the proportion of cyclists using the Trail for pleasure or exercise was modest overall (9%), this increased to over half at the weekend (53%). These findings are largely consistent with the Wave 1 survey.

> **[The Trail] is a fantastic addition to cycling in Cambridge and I have used it regularly since it opened**
>
> **Survey respondent**

4.11 **The survey evidence indicates the Trail is being used regularly by its users.** Nearly three-quarters of cyclists (71%) and half of pedestrians (51%) surveyed stated they 'always' used the Trail when making the journey they were making when they were handed the postcard. Most of the remainder use it 'most of the time' (i.e. around three-quarters of the time) or 'some of the time' (i.e. around half of the time).

4.12 Interestingly, a high proportion (over 90%) of cyclists responding to the Wave 2 survey did not use any other means of transport for their overall journey. Of those that did (n=28), this was mainly walking or taking the train. A higher share (17%) of pedestrians indicated that they did use another means of transport for their overall journey; this was most commonly driving, cycling or taking the train.

4.13 **Use of the Trail also appears to be well-embedded by users**. Three-quarters of both cyclists and pedestrians surveyed that had used the Trail previously (i.e. excluding those using it for the first time on the day they were handed the postcard), stated that they had started using it more than a year ago.

> **It feels very integrated in Abbey life. Everyone knows the route**
>
> **Survey respondent**

4.14 **Overall satisfaction amongst surveyed users with the quality of the Chisholm Trail Phase 1 was high**. Most aspects were rated as 'very good' or 'good' by both cyclists and pedestrians. The quality of the surfacing was rated particularly highly (74% of cyclists and 64% of pedestrians rated it 'very good'). This said, there was some qualitative feedback that the surface is deteriorating in some areas and the signage could be improved particularly between Abbey-Chesterton Bridge and Cambridge North Station.

4.15 The aspect of the Trail rated 'very poor' or 'poor' by this highest proportion of respondents was lighting: 20% and 18% for cyclists and pedestrians respectively in the Wave 2 survey. Similar levels of dissatisfactions with lighting were found in the Wave 1 survey. In qualitative feedback for Wave 2, respondents explained that there is poor visibility at dusk/nighttime along the Trail, which can mean some users feel unsafe, and avoid using the Trail at these times of the day. However, lighting along the Trail is limited due to its potential ecological impacts. It is also notable that 14% of pedestrians rated overall safety as 'very poor'/ 'poor', which aligns with qualitative feedback regarding some safety concerns (this is discussed further in Section 5).

> **"I think the Trail is great, but I don't use it after dark as it has little lighting and can feel unsafe"**
>
> **Survey respondent**

Stakeholder perspectives on delivery

4.16 The stakeholder consultations corroborated the survey evidence set out above. Feedback indicated that stakeholders consistently believed that the Trail is well used by cyclists and pedestrians for both commuting and leisure purposes. Overall satisfaction with the project was high amongst stakeholders.

4.17 Consistent with the survey feedback, some areas for improvement were identified, notably lighting and signposting/wayfinding, for example, signposting the Chisholm Trail from the National Cycle Network Routes 51 and 11. In relation to the former, it was noted that additional lighting could be motion controlled and solar powered in order to relieve any environmental concerns, although the challenges associated with securing agreement (and consensus locally) on additional lighting were recognised. On the latter, the GCP are currently working on improving wayfinding, starting with a pilot on Linton Greenway which they plan to roll out to other routes including the Chisholm Trail.

> **"Lighting really is challenging … it's a conversation we're having everywhere. These routes are expected to cater for thousands of cyclists a day"**
>
> **Stakeholder**

4.18 Some issues relating to accessibility of the Trail were also raised, for example, it was reported that users on mobility scooters, disability adapted trikes or similar can find it challenging navigating some of the corners/sections of the route (including the cattle grids). The positioning of some of the bollards and chicanes

along the route were also raised as a cause of conflict between users of the Trail by stakeholders.

4.19 It is highlighted explicitly that assessing formally the Trail's design/engineering is not within the scope of this impact evaluation; these are considerations for the GCP to consider separately.

5. Outcomes and impacts

Outcomes and impacts summary

Data from on-trail sensors indicates that the Chisholm Trail is used regularly by cyclists, and survey evidence provides strong evidence that the Trail has contributed to both more cycling and a change in cycling behaviours for some groups of Trail users. The survey and secondary data indicate some displacement from other routes across the city. However, this is not unexpected and may often be desirable given the wider benefits of the Trail (e.g. enhanced safety and time savings).

The evidence from users of the Trail suggest that it has contributed strongly to modal shift from car to cycle. We estimate there may be around 290 journeys per weekday diverted from car to cycle associated with the Trail, which will help to alleviate congestion in the city.

Data from the on-trail sensors indicates that the Chisholm Trail is used regularly by pedestrians, although the number of pedestrian journeys is lower than cyclists. Survey evidence suggests that the Trail has encouraged increased levels of walking, but evidence of modal shift away from car to walking/wheeling is limited.

The evidence suggests that Chisholm Trail Phase 1 has delivered a range of wider outcomes, including improved safety, enhanced access to green spaces and the local environment, and improved independence and wellbeing amongst its users.

5.1 The logic model describes a set of core theme-specific outcomes that are the principal focus of the evaluation:

- increased levels of cycling
- modal shift (focused on cycling)
- increased levels of walking.

5.2 Other outcomes also captured in the logic model which have been considered in the evaluation include:

- improved safety (via perceptions of safety and collisions data)
- enhanced local environment through improved air quality (via perceptions of the environment)

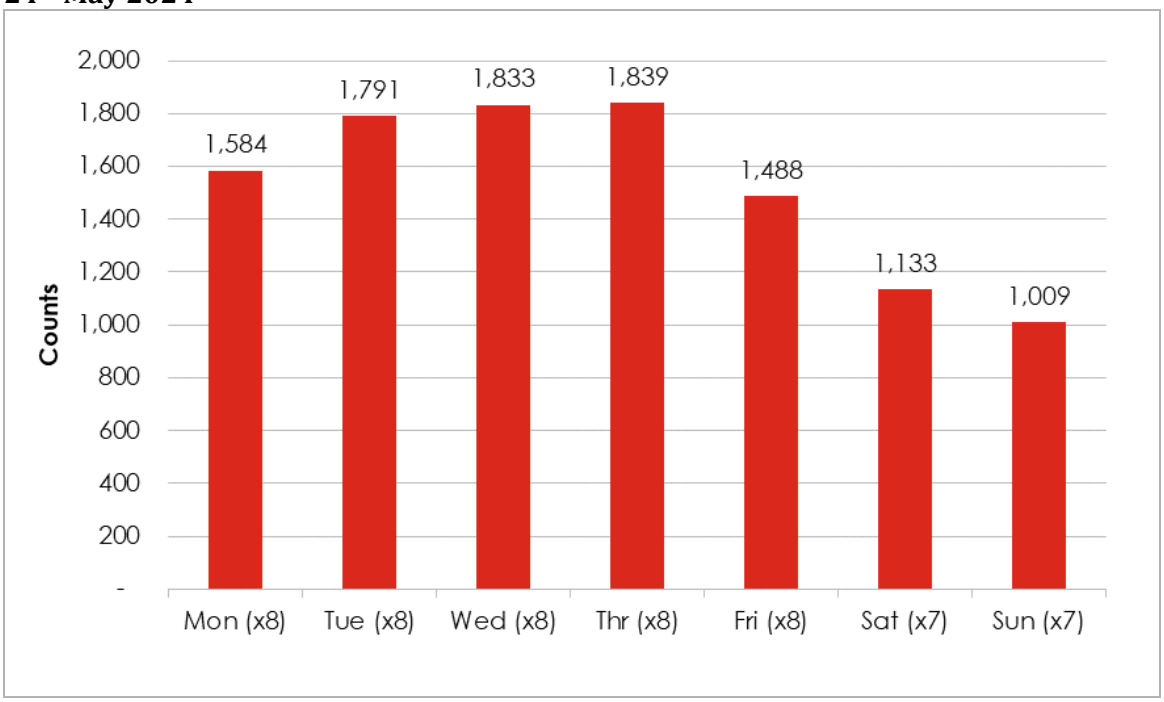
- improved independence and wellbeing (via personal perception of these issues).
- enhanced access to training and employment and green spaces
- improved public health
- enhanced attractiveness and deliverability of employment growth and housing development sites.

Core outcomes

Core outcome 1: Increased levels of cycling

5.3 **Data from 'on-trail' sensors indicates that the Chisholm Trail is used regularly by cyclists**. For example, over April-May 2024 (the period of Wave 2 of the survey fieldwork), the Vivacity sensor on Barnwell West Path (sensor 67), recorded on average approximately 1,500 cyclists per day; this varied from around 1,700 on weekdays, to around 1,070 on weekends. The average counts for this sensor for each day of the week over this period is set out below, with usage highest in mid-week (Tuesday to Thursday). This reflects the important role of the Trail for commuters; in the Wave 2 survey, 60% of weekday respondents indicated that commuting was the main purpose of their journey.

Figure 5-1: Average cyclists counts on Barnwell West Path (sensor 67) over 1st April – 24th May 2024



Source: SQW analysis of Vivacity data
Note: (x7) and (x8) refer to the number of that days of the week in the April-May 2024 period
Note: This period included two bank holiday Mondays (1st April and 6th May)

5.4 The survey evidence also indicates that:

- cyclists using the Trail do so regularly: 71% of all respondents to the Wave 2 survey that had used the Trail at least once before the journey on which they received the postcard (n=339), indicated that they 'always' used the Chisholm Trail when they were making that overall journey, and 19% 'most of the time'

- cyclists using the Trail are mainly regular cyclists; 91% of respondents to the Wave 2 survey indicated that they cycle in Cambridge at least three days per week (and 66% five or more days per week)

- cyclists using the Trail are experienced cyclists; 86% of respondents to the Wave 2 survey indicated that they had been cycling in Cambridge for at least three years (and 78% for five or more years).

5.5 Against this context, it is important to consider the extent to which the high usage of the Trail for cycling genuinely represents an *increase* level of cycling, or reflects principally a *change* in cycling behaviours (e.g. in terms of location, routes used). However, **survey responses provides strong evidence that the Trail has both led to more cycling *and* change in cycling behaviours**.

5.6 Several points are noted:

- first, in Wave 2, in relation to the specific journey on the day that individuals were handed the postcard, of all respondents (n=351), 14% indicated that if the Chisholm Trail had not been available for their journey, they would have travelled by car, and 3% that they would not have made the journey at all

- second, also in Wave 2, in relation to the overall period since the opening of the Trail in December 2021, of those respondents that were aware that the Chisholm Trail was a new active travel route (n=303)[21]

  - **54% said that it had encouraged them to cycle more often overall**; of this group (n=163), over half (51%) said that this was at least an extra 4-5 trips per month (and 36%, six or more)

  - **57% said that it had encouraged them to cycle instead of using another means of travel**; of this group (174), two-thirds (66%) said they had reduced/stopped driving as a result of the new route

  - **34% said that it had encouraged them to cycle for new reasons/purposes**; of this group (n=103), over half said that this was for pleasure or exercise (50%) and/or going to/from a leisure activity (56%), and over a third (34%) said it was for commuting

[21] The impacts of the Trail were asked for this group only. This may underestimate the impact of the Trail, as those that were not aware that it was a new route were excluded, even though it could in principle have influenced their behaviour.

- **33% said that it had encouraged them to cycle further on each trip taken**; of this group (n=100), over a quarter (26%) said that they were now cycling at least three miles further for each trip (and 15% five miles or more for each trip) as a result of the new route

- third, **the evidence was similar in the Wave 1 survey**, with 50% of relevant respondents to that survey (n=279, again focused on those that were aware that the Chisholm Trail was a new active travel route), saying that it had encouraged them to cycle more often overall, and similar proportions reporting an impact on the other effects listed above as found in Wave 2.

5.7 The survey evidence also suggests that the Trail has led to quicker journeys, which in turn may encourage higher levels of cycling longer-term, and is an important outcome itself. Specifically, over three-quarters (79%) of relevant respondents in Wave 2 of the survey indicated that the use of the Trail had reduced the time of their cycling journeys. In Wave 1 of the survey, 72% of relevant respondents identified this outcome. In both surveys, the time saved by respondents was generally up to 10 minutes, but around one in five respondents that indicated time savings stated this was between 10 and 20 minutes in both surveys. This is likely to be considered particularly important for commuters and this was a theme that emerged in the open responses to the survey, with cyclists highlighting the time saving benefits associated with commuting as a result of the Trail. Some examples are provided below. It is noted that alongside these positive comments, respondents also identified potential improvements, and highlighted the need for the completion of Phase 2 to realise the full benefits; we return to these issues below.

"The Chisholm Trail Phase 1 has cut at least 10 minutes from my commute to work and made it much safer as I can avoid traffic from cars all the way to XX."

"I think the trail is brilliant and means I can cycle to work rather than a longer commute by car or public transport."

"I love using the Chisholm Trail to cycle - it's cut my commute in half."

Wave 2 cycling survey respondents

5.8 Analysis by GCP of journey times to Cambridge North by cycle pre and post the opening of the Trail also corroborate the survey feedback. This is discussed more fully below (see 5.81).

5.9 Taken together this evidence from both waves of the survey – which provide evidence related both to a Spring period, and during the peak of the Summer period – suggests that the **Chisholm Trail has led to more frequent cycling, cycling for new reasons and individuals cycling further than previously**. It has also supported quicker cycling journeys.

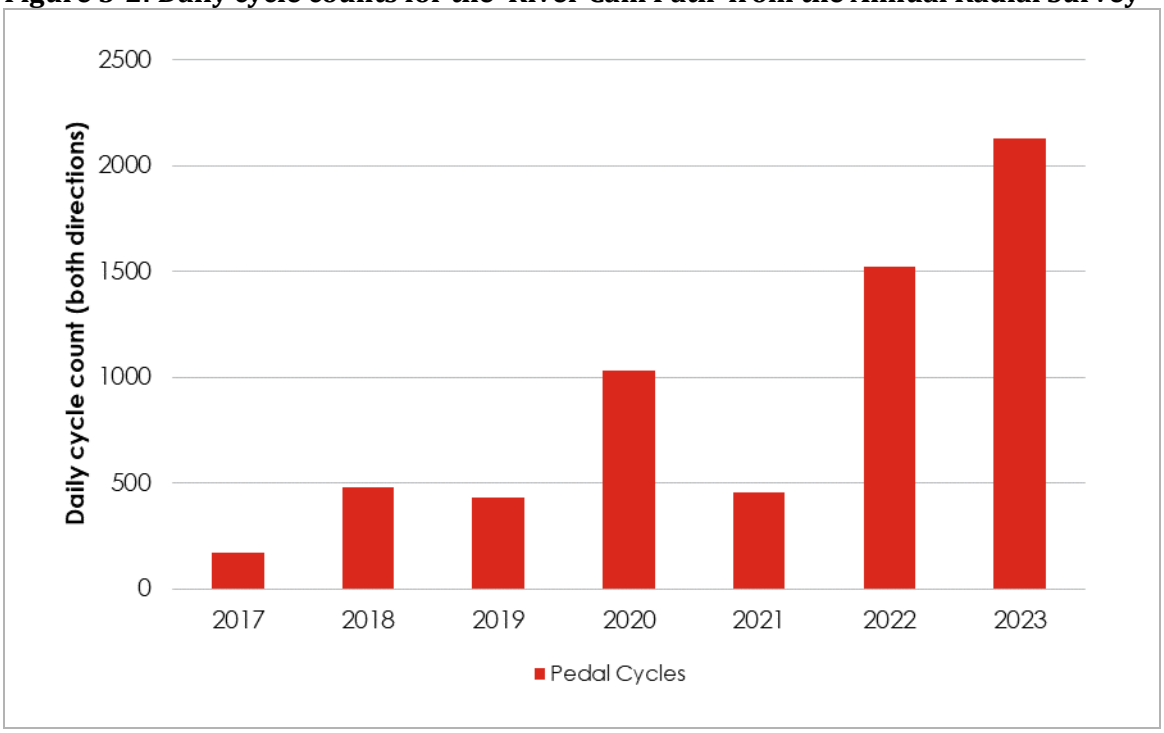
5.10 It is important to recognise that survey respondents were generally regular cyclists (as discussed above). This has two implications. First, it arguably highlights the contribution of

the Trail to increasing cycling, which has been realised even for individuals that were already regular cyclists. Second, however, survey respondents may not be representative of all cyclists using the Chisholm Trail. As discussed in Section 2, we are confident that the survey provides a statistically robust sample of cyclists in terms of the volume of users of the Trail. However, with no data on the population in terms of the regularity of their cycling, we do not know how representative the sample is related to behaviours. It is possible that survey respondents are those that are more likely to have been influenced by the Trail than those that did not collect a postcard and/or did not complete the survey even if they did. In this case, the effects based on the survey alone may be overestimating the effect on cycling levels.

5.11 This said, the proportion of survey respondents that indicated that the Trail had encouraged them to cycle more often overall was higher for respondents that reported they cycle under five days a week (62%, n=99) than those that reported they cycle at least five times a week (50%, n=201). The effect on less regular cyclists was therefore more pronounced in terms of increased levels of cycling. This is perhaps unsurprising as people who already cycle at least five times a week have less capacity to increase their cycling further.

5.12 Further, secondary data supports the finding the Trail has increased cycling levels, however, also indicates some displacement of cycling from other routes across Cambridge. Data from the Cambridgeshire County Council (CCC) Cambridge Radial Survey 'River Cam Path' location points to an increase in cycling levels associated with the Trail. The River Cam Path is an 'on-trail' location, with data collected at this site annually by CCC during a one-day survey undertaken in October. it provides both pre- and post- intervention data, with the survey location at a point on the Chisholm Trail that was available for cycling prior to the project (the path on the North side of the river to the west of the new Abbey-Chesterton Bridge). As shown below, the level of cycling observed in the Radial Survey in 2022 and 2023, following the opening of the Trail, was substantially higher than previously.

Figure 5-2: Daily cycle counts for the 'River Cam Path' from the Annual Radial Survey



Source: SQW analysis of CCC Cambridge Radial Survey

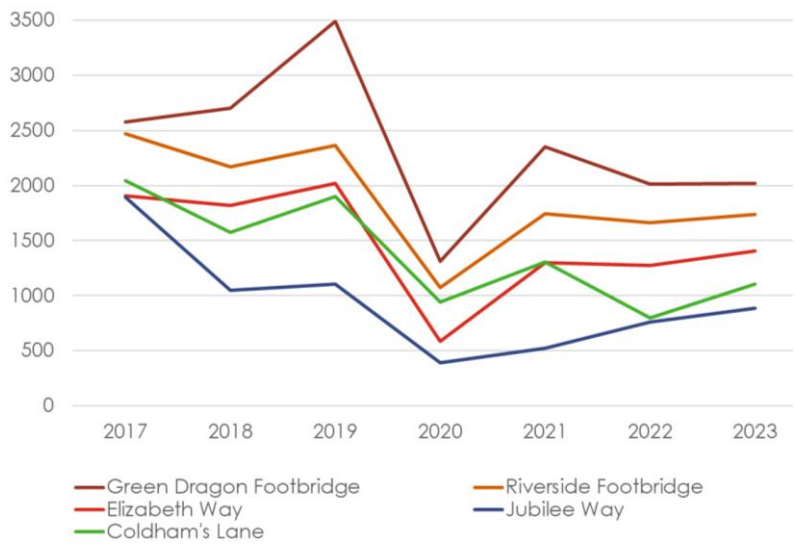
5.13 This data should be treated with some care. The survey location will capture cyclists travelling on the river path that are not users of the wider Chisholm Trail. However, the change in usage post-opening of the Chisholm Trail (including the new bridge) is notable, with around 1,500 and 2,000 cyclists daily in 2022 and 2023 respectively, compared to under 500 in previous years (except 2020, which is likely to have been influenced by COVID-19 conditions). Further, the data is consistent with the CCC Screenline Survey on the Abbey-Chesterton Bridge, which recorded an average of around 1,500 cycles in May 2022 and 1,900 in May 2023.

5.14 Further, this trend is noticeably different to that witnessed across the 'proximate locations'. Across these nine sensors/locations, there is no evidence of a consistent increase in cycling levels between the pre- and post-period. Cycling levels in 2022 and 2023 were largely consistent – if generally somewhat lower – than those prior to the pandemic, with cycling levels not yet returning to earlier levels in many cases. This might suggest that the noticeable increase in levels of cycling at the River Cam Path is not owing to a broader trend in levels of cycling across the area around the Trail, and is attributable in part at least to the effects of the Trail, and the increased cycling suggested by the survey, alongside a potential legacy from the pandemic. This could also be influenced by displacement from other routes, as discussed elsewhere in the report.

Figure 5-3: Cycling trends at the 'proximate locations'

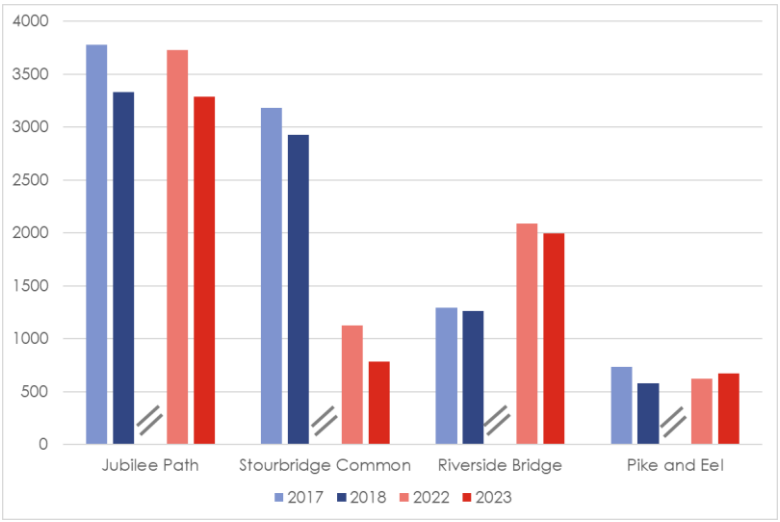
Data from the CCC Screenline Survey and Annual Cycle Route Monitoring locations: data available each year 2017-2023

The y-axis shows the average daily counts for cycling journeys at each location, based on an average across two days (except Jubilee Way and Coldham's Lane counted on one day) in April / May each year



Data from the TagMaster locations: data for 2017-2018 and 2022-23 (no data available for 2019-2021)

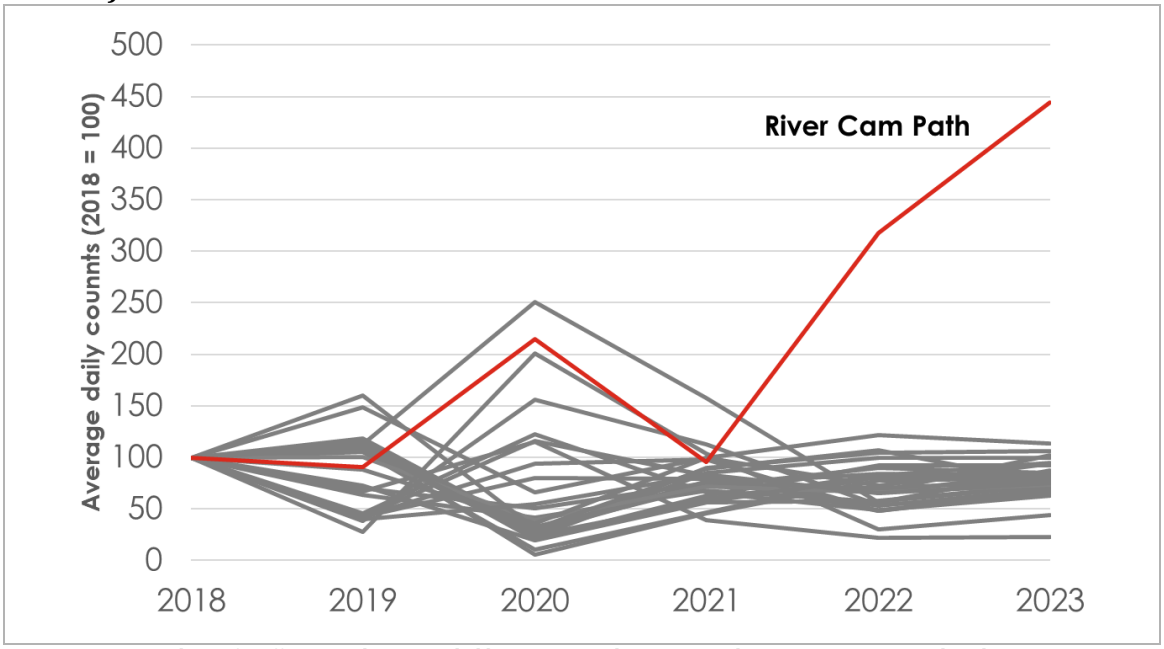
The y-axis shows the average daily counts for cycling journeys at each location, based on an average across a seven day period in June in each year



Source: SQW analysis of Screenline Survey, Annual Cycle Route Monitoring and TagMaster data provided by CCC. Note, CCC annual survey data is collected between 7am and 7pm and TagMaster data is 24hrs.

5.15 The data on the River Cam Path is also clearly differentiated from wider cycling trends across the city, as shown below. Again, this data should be treated with caution as it draws on indexed data from 2018 across a range of different sensors/collection methods (Screenline Survey, Annual Cycle Route Monitoring, and TagMaster Sensors). However, the variance in the trend between the River Cam Path post-opening of the Trail late-2021 and other locations across the city is notable.

Figure 5-4: Wider Cycling trends across the city centre, and River Cam Path (indexed to 2018)

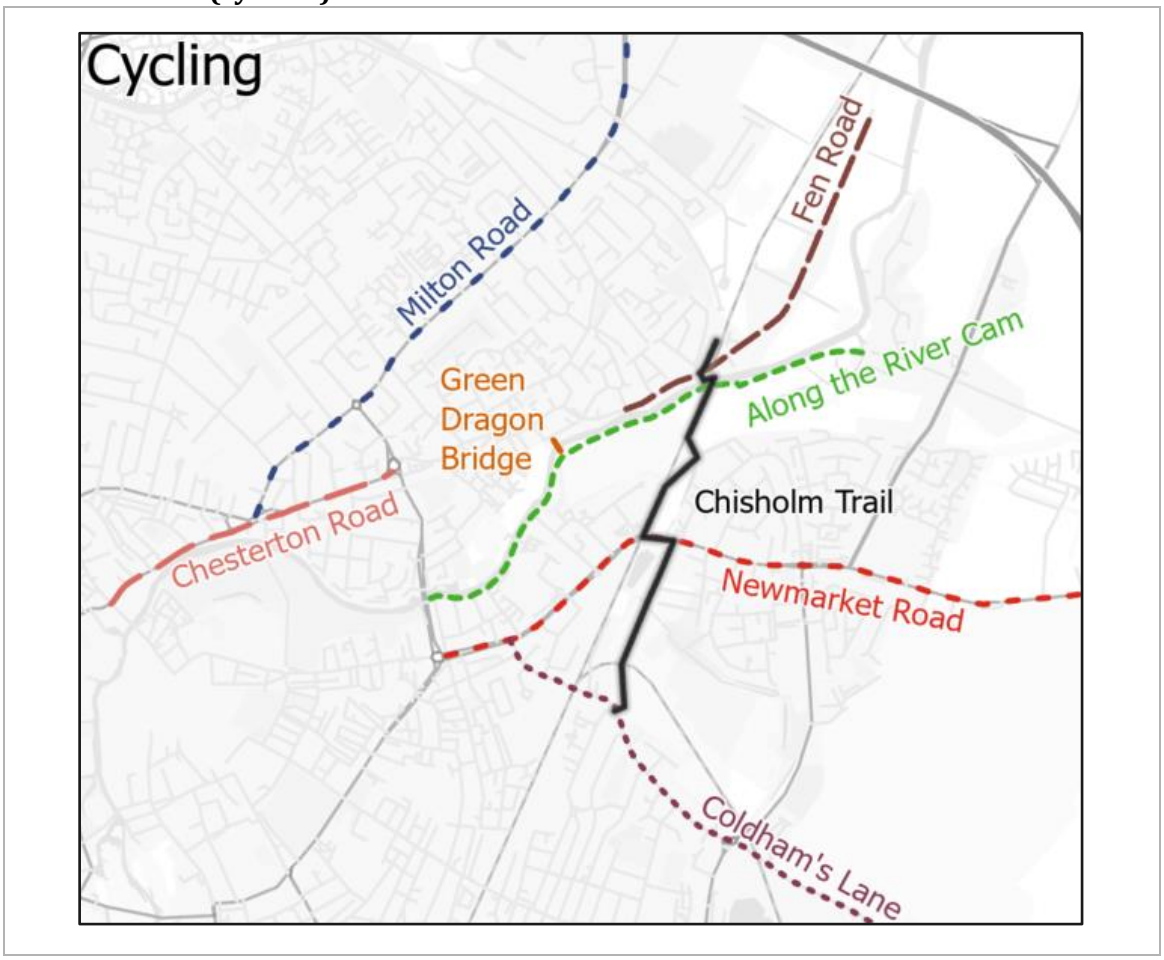


Source: SQW analysis of traffic count data provided by CCC: Annual River Screenline, TagMaster, Annual Cycle Route Monitoring, Annual Cambridge Radial

5.16 There is evidence from the Wave 2 survey that the Chisholm Trail may have led to some displacement of cycling from elsewhere, which may also inform the data on the proximate locations set out above. This is not unexpected given that a majority (71%) of Wave 2 cyclist survey respondents indicated that if the Chisholm Trail had not been available for their journey, they would have travelled via the same mode (i.e. cycling) but using a different route. Further, of those respondents that were aware that the Chisholm Trail was a new active travel route (n=303), 56% stated that the Chisholm Trail has led them to cycle less regularly on other routes or locations in and around Cambridge since December 2021 (albeit the regularity of cycling and journey length had increased for a majority).

5.17 Respondents that indicated they had used other routes less regularly were asked to provide details of what routes they now used less as a result of the Chisholm Trail. The very wide range of potential origins and destinations across the c.170 relevant respondents, with different journey purposes and directions, as well as varied levels of detail provided, means that the data are complicated (and it is not appropriate to seek to quantify the effects on individual roads/routes). However, the routes most commonly cited are shown below.

Figure 5-5: Routes commonly cited as being used less regularly as a result of the Chisholm Trail (cyclists)



Source: SQW analysis of Wave 2 survey data
Basemap: Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

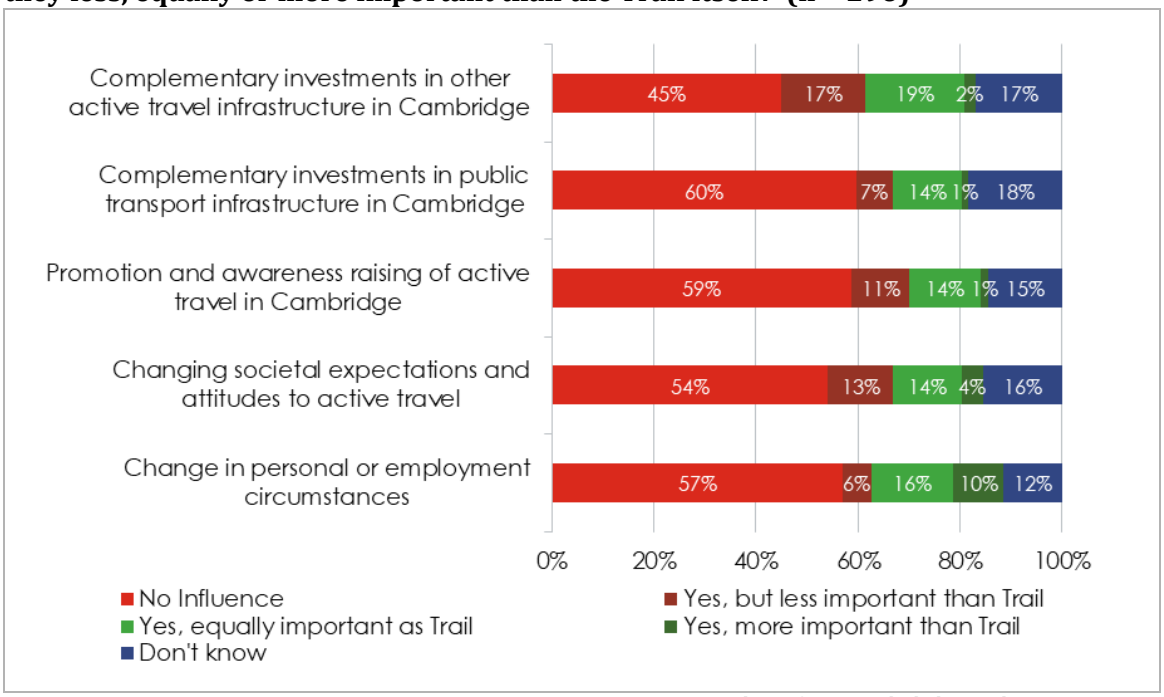
5.18 Direct attribution is not possible. However, it is interesting to note that Screenline Survey cycling counts on the Green Dragon Bridge were lower in 2022 and 2023 (post opening of the Trail) than 2021 (before opening, and prior to the pandemic). This may potentially reflect transfer of usage to the Chisholm Trail (with the Abbey-Chesterton bridge an alternative route to cross the river) as suggested by the survey. In this context, helping to ease the pressure on the Green Dragon Bridge was cited as an impact of the Trail in stakeholder consultations. It is also noted that reduced use of Newmarket Road, Coldham's Lane and other on-road routes may also have positive effects in terms of safety for both cyclists and other road users and therefore be desirable overall; this is discussed more fully below.

5.19 Other factors have also influenced the increased levels of cycling suggested by respondents to the Wave 2 survey. Complementary investment in other active travel infrastructure was the most common other factor influencing behaviours associated with cycling on the Chisholm Trail. Change in personal or employment circumstances was also more important than the Trail for some respondents, but this was a low proportion overall (around 10% of respondents). However, each of the factors included in the survey were seen to have had no

influence on cycling patterns associated with the Chisholm Trail since December 2021 by approaching or over half of Wave 2 survey respondents.

5.20 Overall, whilst other factors do appear to be important in some cases, this is rarely more important than the Trail. This suggests that the contribution of the Trail to the reported increased frequency and length of cycling journeys, and changes in behaviours related to cycling for new reasons and instead of using another means of travel is high.

Figure 5-6: Responses to "Did any of the following factors influence your cycling patterns associated with the Chisholm Trail since December 2021, and would you say they less, equally or more important than the Trail itself?' (n = 296)



Source: SQW analysis of Wave 2 Chisholm Trail intercept surveys

5.21 Further, as noted above, whilst there does appear to be some 'displacement' of cycling from other routes across Cambridge, the increase in cycling counts observed on the Trail through the River Cam Path data, and the self-reported survey evidence of impact on cycling behaviours by users (both in Wave 2 and the earlier survey from Wave 1), provides plausible and strong evidence that the project has led to increased cycle usage.

5.22 Three other points are noted. First, the evidence of the impact of the Trail in relation to increasing cycling to access education (as anticipated in the logic model) is limited. Just 6% of 'weekday' respondents to the Wave 2 survey (n=289) indicated that the main purpose of their journey on the day they were handed the postcard was to travel to/from a place of education or accompanying a child/student (to/from school); by contrast, 60% indicated that they were commuting. This may reflect potentially the sample of respondents with individuals aged under 16 excluded from completing the survey.

5.23 However, stakeholder feedback did highlight the improved access by cycling to Cambridge Regional College in Kings Hedges enabled by the Trail, including from areas to the south of the River Cam. The role of the Trail in providing a safe cycling route for children was also cited, for example one stakeholder reported the following:

"There are a lot of children that live in Abbey that go to school in Chesterton … The bridge and Trail is making that easy for them to do that journey by bicycle or walking when they might have been driven before, or it's just making a much pleasanter journey."

Stakeholder consultee

5.24 Second, an important theme from stakeholder consultations was the effects of the pandemic and subsequent increased levels of home working on cycling (and wider active travel) overall. Data from across the full set of 'wider' locations for the evaluation (see Annex B) indicate that levels of cycling recovered to some extent in Cambridge in 2022 and 2023. However, they had not returned to pre-pandemic levels by this point.[22]

A lot of people are now working from home a couple of days a week, so overall journey numbers are lower … [the Trail] has increased active travel, but the other issues are supressing the overall rates

Stakeholder

5.25 The role of the Chisholm Trail in this context was seen to be complex and evolving over time. For some stakeholders an important impact of the project was to in part mitigate against post-pandemic decreases in levels of cycling overall. From this perspective, any potential modest increases in levels of cycling needing to be seen against the context of overall reductions in levels – at least for commuting purposes across the full working week. Other stakeholders noted that it will take time for the full effects of the Trail to be realised as longer-term patterns of home working become established.

5.26 Third, an important theme from stakeholders was the need to recognise Phase 1 as the 'first half' of the full project, and as part of the broader cycling and public transport infrastructure in the area. This was seen to influence the level of usage and potential impact of Phase 1 by stakeholders. It also highlights the relationships between the project and other investments, including completed schemes within the Investment Fund

It's one piece of a big jigsaw. We need the whole jigsaw

Stakeholder

[22] Cycling levels were not back to pre-pandemic levels until early 2024 as reported in CCC's analysis here: https://cambridgeshireinsight.org.uk/roads-transport-and-active-travel/transport-data-insights/

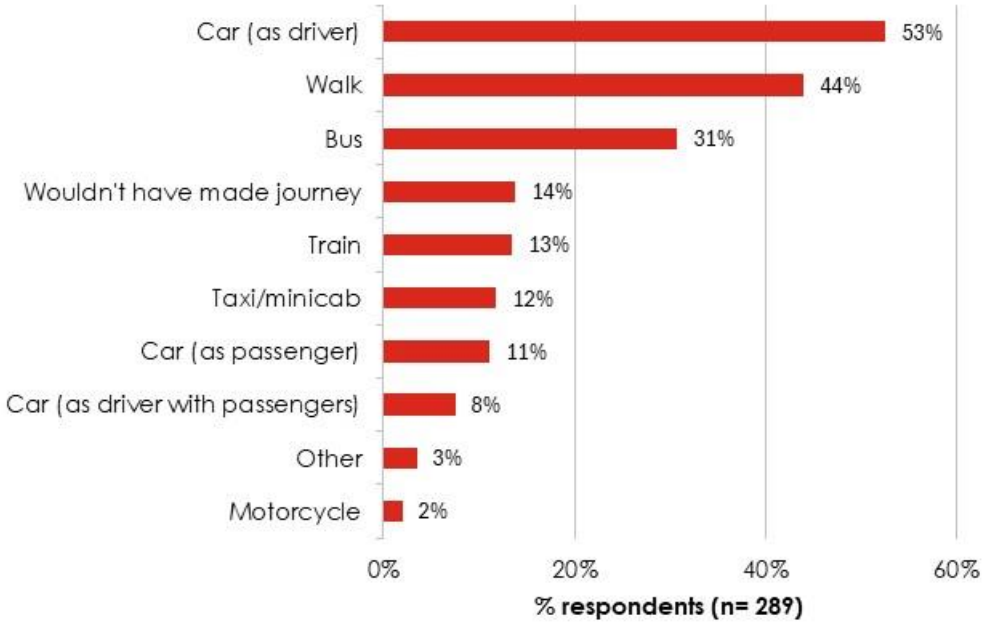
(such as Histon Road), on-going schemes within the Investment Fund (such as Greenways and Phase 2 of the Chisholm Trail) and investment across the areas active and public transport network more broadly (such as Cambridge South station). This is consistent with the feedback from the survey that investment in other active travel infrastructure was seen to influence cycling behaviours associated with the Trail by over a third of relevant respondents[23], and public transport by a fifth. The importance of progressing Phase 2, and the need for this to realise the full benefits from Phase 1 was also a common theme from respondents to the Wave 2 survey.

Core outcome 2: Modal shift

5.27 Respondents to the Wave 2 survey were asked to respond to two questions[24] to provide an indication of the potential modal shift related to the specific journey they were undertaking when handed the postcard for the survey. The responses are set out below. Note that for the purpose of this analysis, we have focused on respondents related to weekday journeys. Full data for all respondents, including those making trips on the weekend are in Annex D.

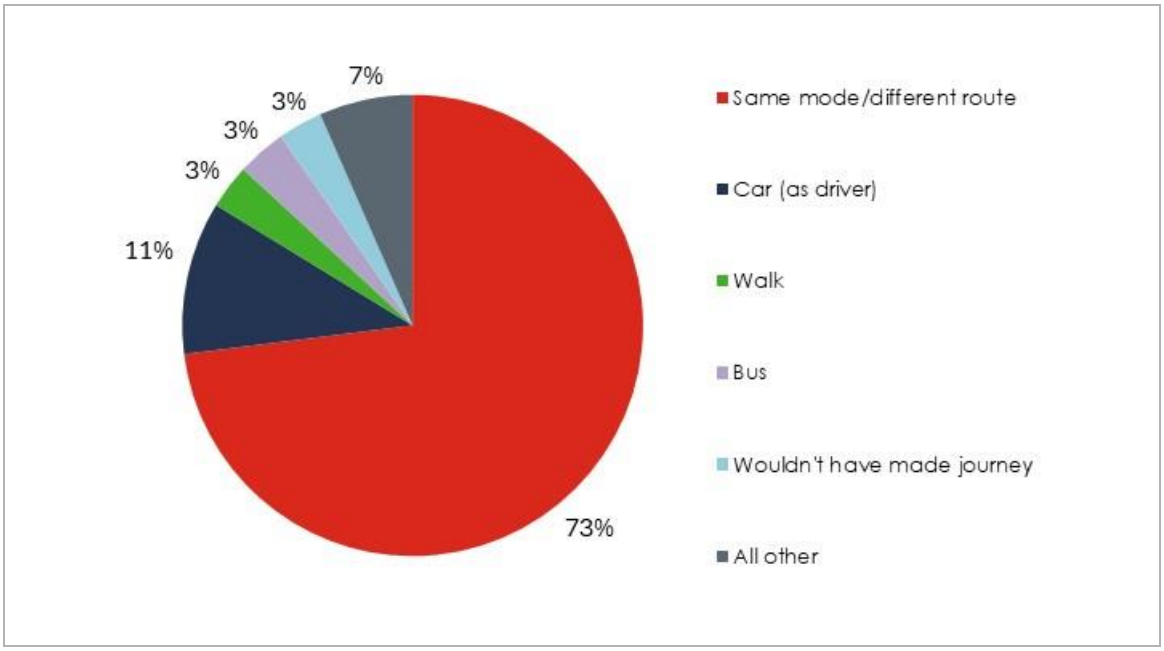
Figure 5-7: Wave 2 survey feedback on modal shift

Which other modes of transport could you have used to make this part of today's overall journey? (multiple choice)



If the Chisholm Trail had not been available for this part of today's overall journey how would you have travelled? Single response (n=289)

[23] i.e. those aware that they were cycling on a new walking and cycling route.
[24] Based on a recommendation from the IEP, drawing on DfT guidance.



Source: SQW analysis of Wave 2 Chisholm Trail intercept surveys

5.28 **Both perspectives suggest that the Trail has led to modal shift**. Car (as driver) was the most common alternative option cited. Further, 13% of respondents indicated that they would have travelled by car or taxi/minicab for their part of the journey they used the Chisholm Trail on the day they were handed the postcard. In aggregate terms, of the 289 relevant weekday journeys covered by the survey, 37 are therefore likely to have been made by car (including taxi/minicab) rather than cycling without the Chisholm Trail.

5.29 To estimate the potential scale of this at a population/total level, we have scaled this up to the number of journeys on the Trail across the five weekday survey days. As noted above, this is complicated by missing Vivacity data on the sensor for Ditton Meadows Bridge. We have therefore used two assumptions:

- a lower-case, which is based on the number of weekday journeys recorded on the Barnwell West Path only: 10,065 journeys
- a higher-case, which is based on the assumption that the number of weekday journeys on the Trail is 25% higher than suggested for the Barnwell West Path, using the data from the April-May 2023 period (with two full months of days used to avoid outliers associated with individual days and variable weather): 12,581 journeys

5.30 As set out in the table below, using a mid-point between the two cases, the analysis suggests that the Chisholm Trail may have diverted an estimated 1,450 journeys from car to cycle over the five day fieldwork period. This equates to around 290 journeys per weekday diverted

from car to cycle.[25] This may be helping to alleviate congestion in the city, consistent with the rationale for the project.

Table 5-1: Quantitative estimates of modal shift

	Number of cycling journeys	Estimated journeys diverted from car (13%) – total	Estimated journeys diverted from car (13%) – daily
Lower case	10,065	1,289	258
Higher case	12,581	1,611	322
Mid-point	11,323	1,450	290

Source: SQW analysis of Wave 2 intercept survey and Vivacity data

5.31 The Wave 2 survey also provides further evidence of plausible modal shift. Specifically, 174 of the 303 relevant respondents to the survey indicated that the Trail has encouraged them to cycle instead of using another means of travel, of which 115 (66%) said this was instead of driving, and a further 16 (9%) instead of taking a taxi/minicab. This evidence refers to behaviours over the period from December 2021 onwards overall, so it cannot be used to estimate a daily figure. However, this does point to a modal shift effect related to long-term behaviours as a result of the Trail.

5.32 There were also some examples of modal shift from stakeholders consulted that were employers in the area. For example, one reported changes in employee behaviour, noting in relation to employees traveling to their location:

"Those that are cycling are probably those that would have driven … [they] are now cycling – because there is a safe and quick route that they can cycle down, they're now more likely to cycle."

Stakeholder consultee

5.33 More broadly, both the stakeholder consultations and the open question in the Wave 2 survey demonstrated a perception of modal shift influenced by the Trail, drawing on personal experiences and perspectives. It is also noted that modal shift was suggested in the Wave 1 survey, where half of survey respondents stated that the Trail had encouraged them to cycle instead of using another means of travel since December 2021. Of this group (n=139), over two-thirds said they had reduced or stopped driving as a result of the Trail.

5.34 Consistent with the evidence on cycling behaviours, other factors may also be influencing this modal shift. Stakeholders noted both the increased cost of driving (associated with petrol costs and the wider costs of living) and the overall levels of congestion in Cambridge as contributing to modal shift, encouraging people towards cycling rather than driving.

[25] In practice, the characteristics of the population will influence modal shift, however, the characteristics of Trail users is not known. Therefore, available data has been used to calculate a credible estimate.

However, the infrastructure provided by the Trail was seen as crucial to enable individuals to make these different choices, for both commuting journeys by cycle, and wider reasons for travelling.

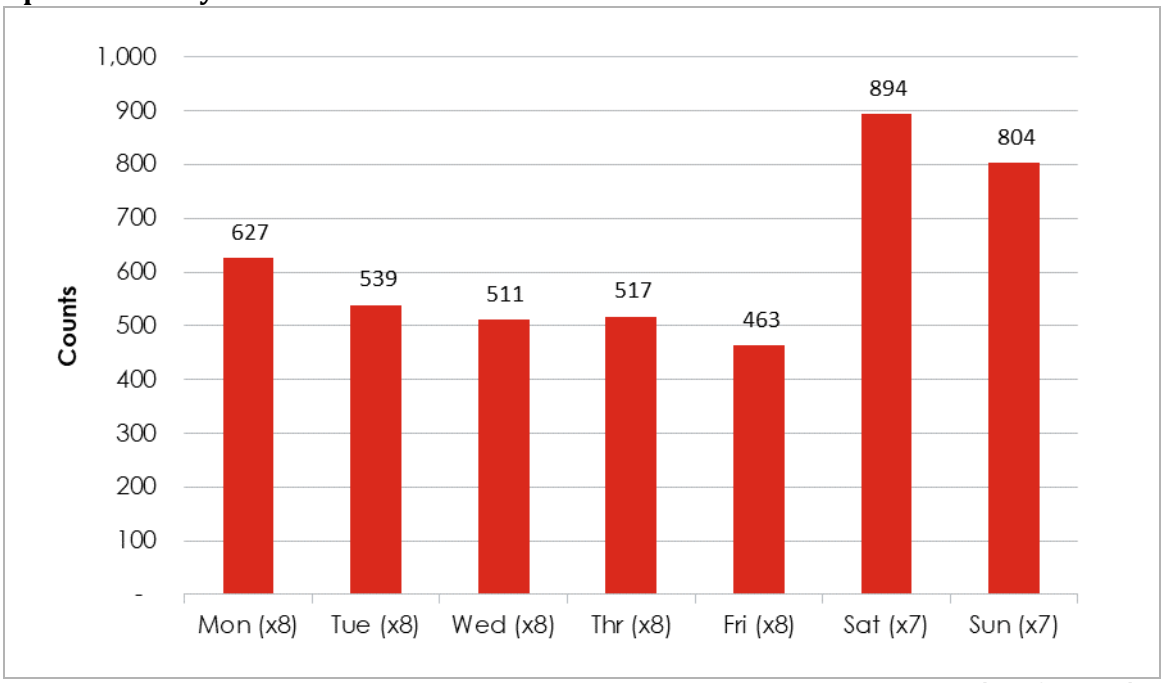
5.35 There is also some evidence of modal shift related to pedestrians: half of survey respondents in Wave 2 indicated that the Trail had encouraged them to walk instead of using another means of travel since December 2021, with around half of these indicating this was modal shift from driving. However, there was limited modal shift related to specific journeys, with under 5% of pedestrians indicating that they would have driven on the journey when they were handed the postcard if the Chisholm Trail had not been available. This likely reflects the nature of pedestrian use of the Trail, most commonly for leisure/exercise. This effect has therefore not been quantified, as the impact on modal shift for travel is likely to be marginal overall.

Core outcome 3: Increased levels of walking

5.36 Data from the on-trail sensors indicates that the Chisholm Trail is used regularly by pedestrians, although the number of pedestrian journeys is lower than cyclists. For example, over April-May 2024, the Vivacity sensor on Barnwell West Path, recorded on average approximately 600 pedestrian journeys per day; this varied from around 530 on weekdays, to around 850 on weekends.[26] As illustrated in Figure 5-8, in contrast to cycle counts, average pedestrian counts for this sensor were highest at the weekend. This reflects the importance of the Trail as a walking route for pleasure/exercise, as suggested in both waves of the intercept surveys. This is corroborated by the consultation feedback which emphasised that the route is well used by pedestrians, particularly as a leisure and exercise route. This includes people using the Trail to walk - often from the city centre or Cambridge North Station - to football matches at the Cledara Abbey Stadium located adjacent to the Trail.

[26] Note that he Vivacity sensors are trained to recognise a person walking and classify it as a 'pedestrian'. Therefore, the Vivacity data does not include other types of pedestrians such as wheelchair users.

Figure 5-8: Average pedestrian counts on Barnwell West Path (sensor 67) over 1st April – 24th May 2024



Source: SQW analysis of Vivacity data
Note: (x7) and (x8) refer to the number of that days of the week in the April-May 2024 period
Note: This period included two bank holiday Mondays (1st April and 6th May)

5.37 **The survey evidence also suggests that the Trail has encouraged increased levels of walking**. For example, a fifth of respondents (20%, 47) in Wave 2 indicated that they would not have made the journey had the Trail not been available for this part of their journey. Further, a small proportion (8%, 20) of respondents said they would have otherwise used non-active travel modes of transport (i.e. car, bus, train).

5.38 Further, in relation to the overall effects of the Trail, the Wave 2 survey found (n=189):

- **Two-thirds (66%, 124) of respondents have been encouraged to walk more often overall because of the new route.** The frequency of additional walking trips is encouraging, with the majority making at least an extra two trips per month (82%, 101) because of the Trail, of which over a third complete six or more additional trips per month (38%, 47).

- **The Trail has encouraged over half of respondents (56%, 105) to walk further on each trip they take.** Around half of respondents (53%, 56) are walking more than one mile further for each trip because of the Trail.

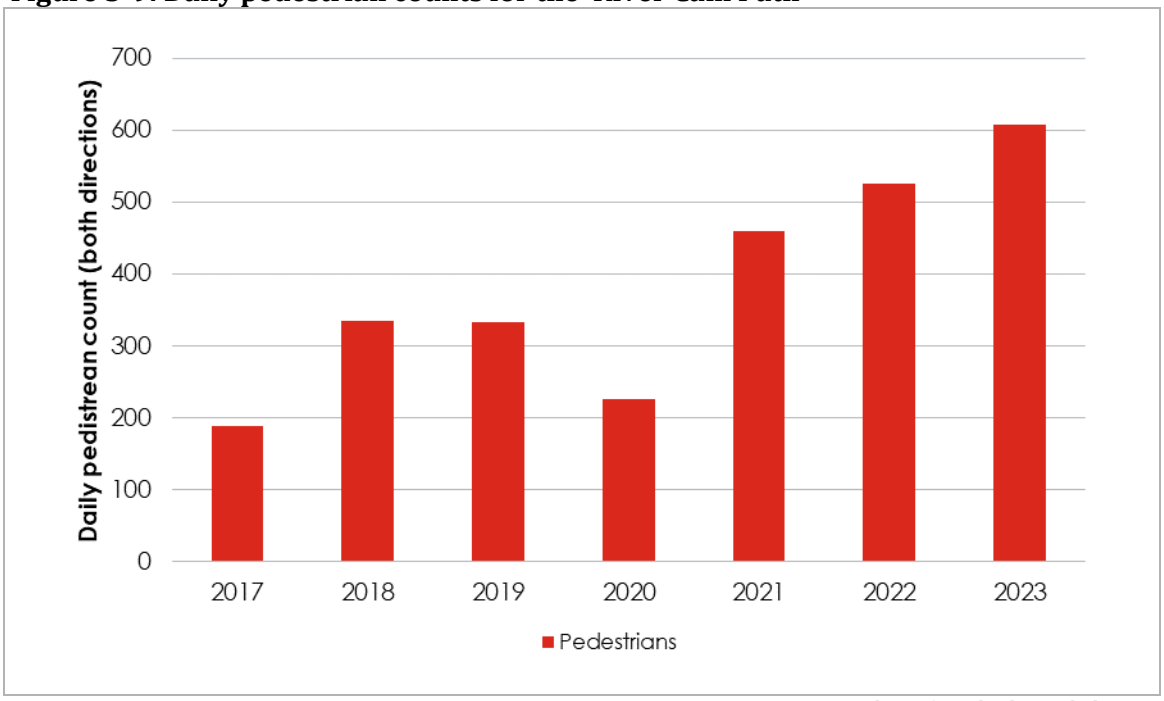
- **The Trail has encouraged half of respondents (51%, 96) to walk instead of using another means of travel**. Half of respondents (52%, 50) reported that they have reduced or stopped driving a car as a result of the new route. This suggests that the Trail is contributing to the overall strategic objective of encouraging people out of their cars and

onto other modes of transport (albeit evidence of modal shift for the specific journey covered by the survey was modest as discussed above).

5.39 For context, it is worth noting that respondents to the survey were generally regular pedestrians: 80% reported walking at least three days a week for exercise or leisure. Further, 41% indicated that they had walked more for exercise or leisure in the past year than previously. The most common explanations for this were personal: 'getting fit' and because 'walking is enjoyable'. As with the cyclist survey, this both accentuates the impacts of the Trail and demonstrates that the findings may potentially overestimate the effects based on the survey sample. The proportion of respondents indicating that the Trail had encouraged them to walk more did not vary by regularity of walking (with around two-thirds reporting this across those that walk less and more regularly overall).

5.40 Data from the Cambridge Radial Survey 'River Cam Path' location suggest the Trail may have had a modest impact in relation to pedestrians. As shown below, the number of pedestrian journeys observed in 2022 and 2023 following the opening of the Trail in December 2021 was higher than previous years (with the survey completed in October each year).

Figure 5-9: Daily pedestrian counts for the 'River Cam Path'



Source: SQW analysis of Cambridge Radial Survey

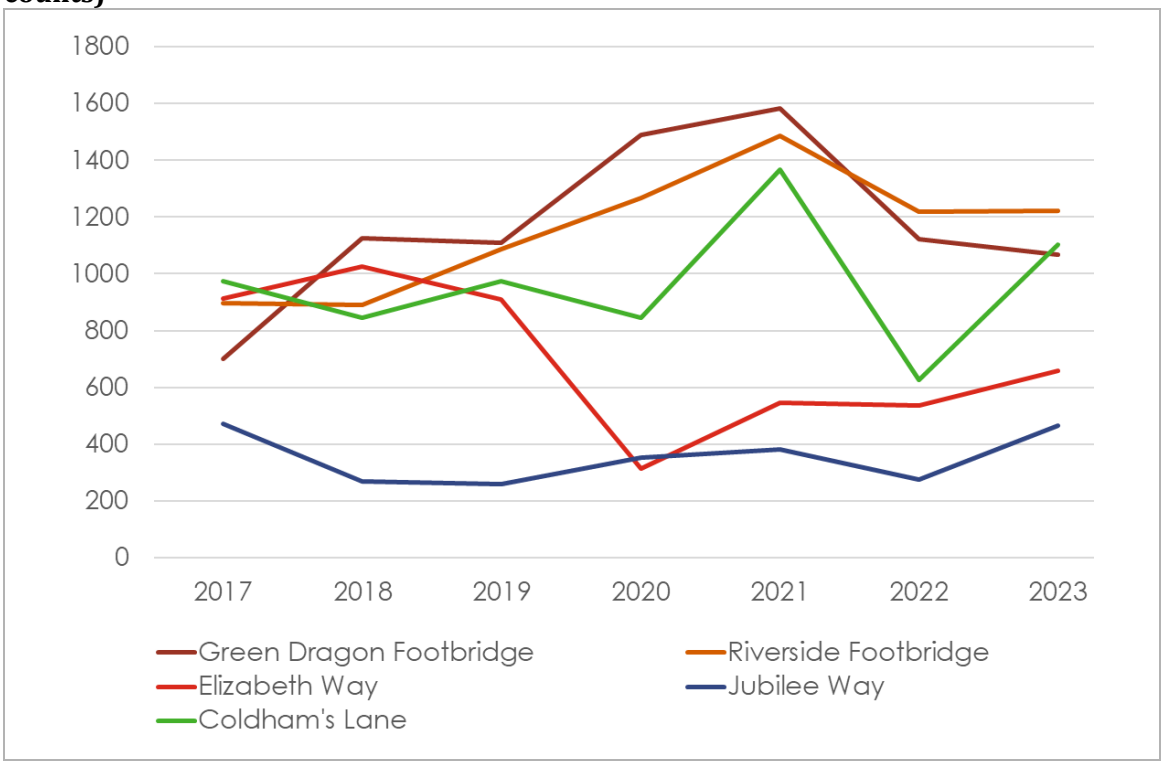
5.41 Further, pedestrian counts in 2022 and 2023 were substantially higher than in 2017 and 2018 prior to the construction of the Trail and the subsequent period impacted by the pandemic. This was in contrast to the 'proximate locations'. As shown below, all five 'proximate locations' where pedestrian data is available[27], saw a *reduction* in pedestrian counts between

[27] This does not include the TagMaster sensor proximate locations, as the sensors do not count pedestrians

2021 and 2022.[28] The trend was inconsistent between 2022 and 2023, albeit Green Dragon Footbridge continued to see a decline in pedestrian activity.

5.42 Viewed alongside the Wave 2 survey evidence of self-reported effects, both in relation to supporting pedestrian journeys that would otherwise not have been completed, or increasing the regularity of walking, this does suggest the Trail may have contributed to increased level of walking relative to other locations across the city.

Figure 5-10: Pedestrian counts on 'proximate location' (y-axis shows average daily counts)

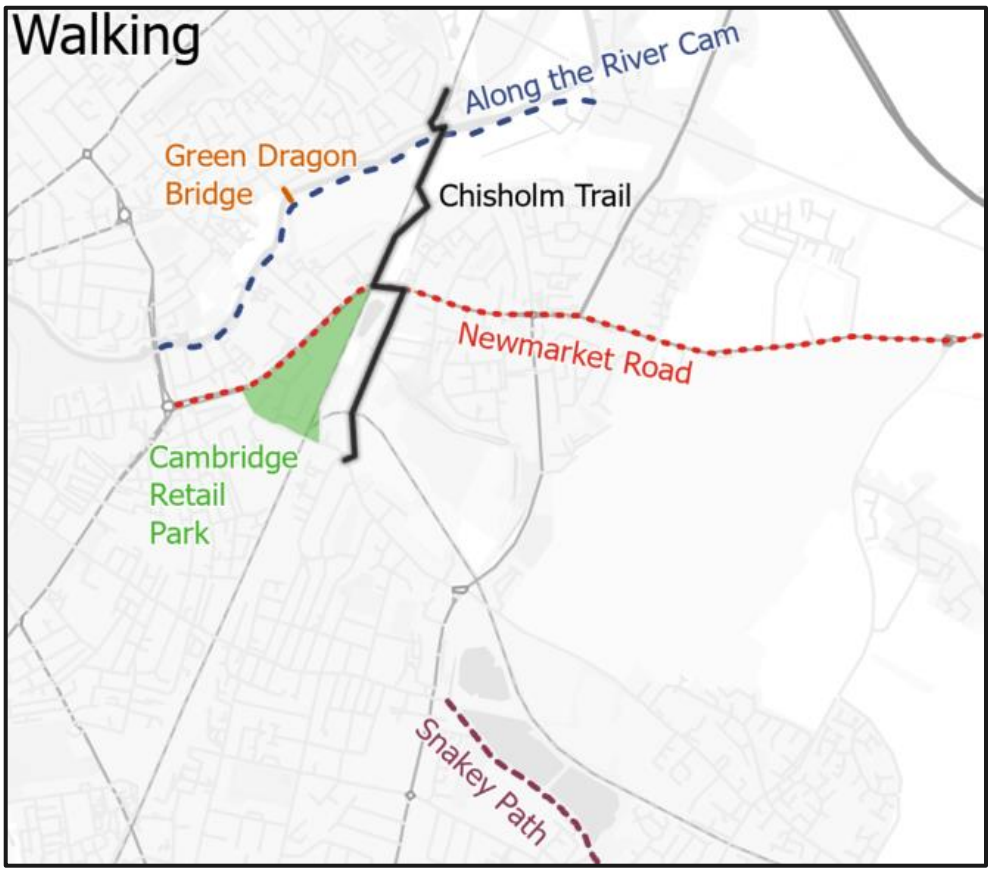


Source: SQW analysis of data provided by CCC: Annual River Screenline, Annual Cycle Route Monitoring

5.43 In this context, it is notable **that the level of 'displacement' of pedestrian activity from other locations appears to be limited**: only around a third of respondents stated that the Chisholm Trail has led them to walk less regularly on other routes or locations in and around Cambridge since December 2021. The most common locations (see Figure 5-11) where there was some displacement reported included Newmarket Road, along the River Cam, the Green Dragon Bridge, Snakey Path (an off-road path used by walkers and cyclists to the south of the Chisholm Trail), and to a lesser extent, in and around Cambridge Retail Park. The lower level of displacement – relative to cyclists – likely reflects the nature of the of the Trail by pedestrians, which is more driven generally by leisure and exercise than commuting.

[28] Caution should be taken when interpreting the survey data from Spring 2021 due to the impact of the Covid-19 pandemic.

Figure 5-11: Routes commonly cited as being used less regularly as a result of the Chisholm Trail (pedestrians)

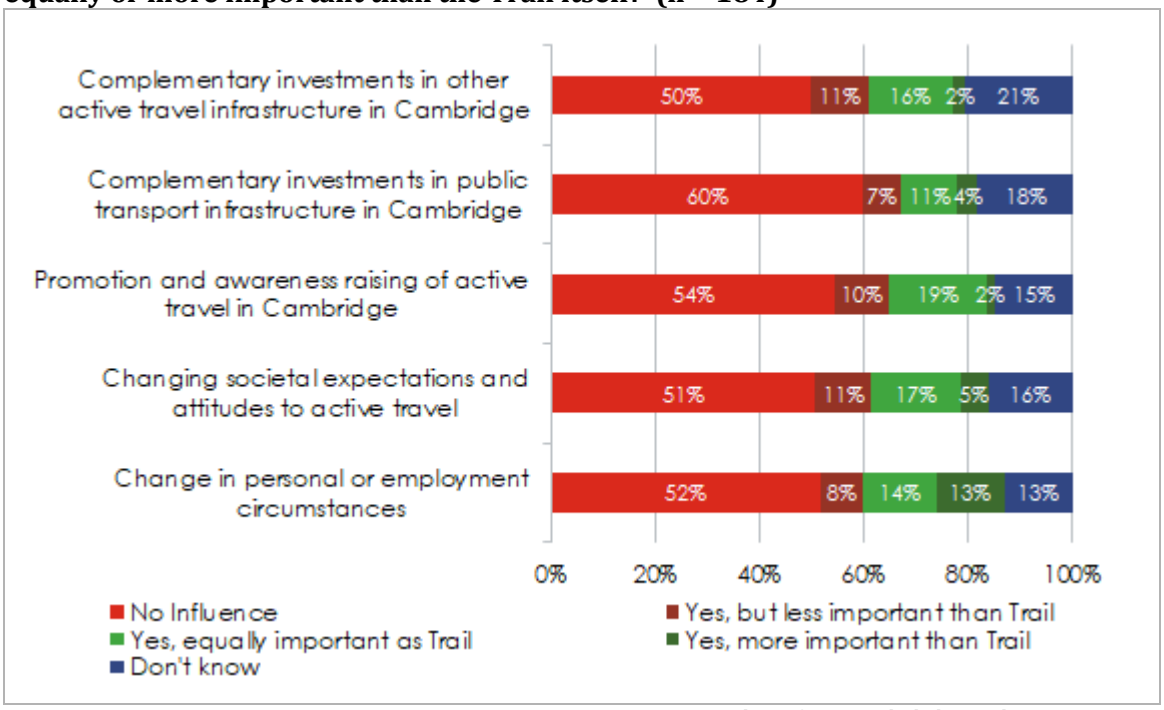


Source: SQW analysis of Wave 2 survey data
Basemap: Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

5.44 The Trail's relative contribution to influencing walking patterns has been high according to the Wave 2 survey. As shown in Figure 5-12**,** all potential factors identified in the survey were rated as having 'no influence' on walking patterns on the Chisholm Trail by at least half of survey respondents. However, the survey highlights the role of promotion and awareness raising of active travel in Cambridge, changing societal expectations and attitudes to active travel, and complementary investments in other active travel infrastructure in Cambridge in influencing walking behaviours. The consultation evidence similarly highlighted that a reported general increase in walking alongside other transport infrastructure investments are likely to have influenced the outcomes observed.

5.45 Only a small proportion of respondents identified other factors as being more important than the Trail in influencing their walking patterns. It is not unexpected (and consistent with the evidence from cyclists) that a change in personal or employment circumstances was the most commonly identified factor as more important than the Trail (13%, 24).

Figure 5-12: 'Did any of the following factors influence your walking patterns associated with the Chisholm Trail since December 2021, and would you say they less, equally or more important than the Trail itself?' (n = 184)



Source: SQW analysis of Wave 2 Chisholm Trail intercept surveys

Other outcomes

Improved safety

5.46 **There is strong evidence from the surveys that people perceive the Trail to have improved their safety.** The evidence is particularly strong in relation to cycling, where the vast majority of Wave 2 survey respondents agreed that the Trail has improved the safety of their cycling activity (92%, 279). The new route has improved safety in various ways, but enabling cyclists to avoid certain roads or stretches of road was cited by the majority of respondents (96%, 268). For example, the busy Newmarket Road was frequently cited as a road which is now used less by cyclists because of the Chisholm Trail (see Figure 5-5 above). Linked to this, the majority of respondents rated their overall safety on the Trail as a cyclist as 'very good' or 'good' (88%, 307).

> **"I use the Chisholm Trail instead of the Coldham's Lane bridge and Newmarket Road. It is a much more pleasant, safer and quicker route across the river"**
>
> **Survey respondent**

5.47 Evidence from the consultations provides further insight into the effects on safety for cyclists. Whilst stakeholders acknowledged that cycling rates in Cambridge are high in comparison to other UK cities, feedback highlighted that safety remains a barrier to increasing levels of cycling further. Stakeholders emphasised that the Trail is an off-road route, so users are less concerned about colliding with traffic.

5.48 Further, there was feedback that the Trail is helping to reduce collisions with pedestrians on Green Dragon Bridge, a route which the survey indicates is now used less by cyclists (corroborated with secondary data, as discussed above). The Trail also connects with other routes, such as the guided busway, which allows for safer cycling over a longer-distance.

> **"Having the Chisholm Trail will allow less confident cyclists to cycle more"**
>
> **Stakeholder**

5.49 Stakeholders reported that the Chisholm Trail will help to increase the confidence of new or less confident cyclists, and in turn, increase levels of cycling. It also offers a safe route for children to (learn to) cycle which has the potential to deliver a range of benefits over the longer-term.

5.50 Improved safety for pedestrians is also suggested by the survey evidence, although the effect appears to be more modest than in relation to cyclists: two-thirds of Wave 2 survey respondents indicated that the Trail has improved their safety as a pedestrian (67%, 127). Most pedestrians said this was because the Trail helps them to avoid certain roads or stretches of road (82%, 104). Pedestrians rated overall safety on the Trail less favourably than cyclists: around two-thirds of respondents rated their overall safety as a pedestrian on the Trail as 'very good' or 'good' (69%, 164), but 14% thought it was 'poor' or 'very poor'.

5.51 Reflecting the feedback discussed in Section 4, the lack of lighting was commonly raised by both cyclists and pedestrians as a safety issue. For pedestrians, other safety concerns centred around the speed of cyclists, with some advocating more signage, widening of the route and/or segregation of the path for cyclists and pedestrians to help prevent collisions. Some cyclists mentioned safety concerns associated with several connections along the route (e.g. coming on / off the Trail at Fen Road) and the cattle grids, whilst the need to grit the Trail more regularly in Winter to avoid unsafe icy conditions was also cited. Similar issues regarding safety were raised by stakeholders. It should be noted that the maintenance of the Trail (such as gritting and street cleaning) is the responsibility of CCC.

5.52 Further, when Wave 2 survey respondents that had also completed the Wave 1 survey were asked about changes since July/August 2023, both cyclists and pedestrians frequently mentioned that they feel less safe using the Trail now (i.e. in April/May 2024) than previously. The reasons why focused on a reported increase in the speed of cyclists (including e-bikes/e-scooters), a rise in the (illegal) reported use of motorised vehicles (e.g. mopeds and quadbikes) on the Trail, and increased antisocial behaviour and crime (including drug dealing) along the Trail (particularly under the Newmarket Road underpass). These are wider issues which are not within the GCP's remit.

> **"As a pedestrian, the increased use of electric scooters and electric motor bikes on this route is proving a danger. They travel very fast and in a dangerous fashion"**
>
> **Survey respondent**

5.53 To complement the primary evidence on perception of safety for individuals, we have also considered secondary data on road traffic collisions (that involved a bicycle as one of the vehicles, a cyclist casualty and/or had a pedestrian casualty) in the area surrounding the Trail, covering the period from 2017/18 through to 2023/24. Several points are noted (with more details set out in Annex C):

- There was a steady reduction in the number of collisions in the area surrounding the Trail over the 2017/18 to 2023/24 period, broadly from around 30 a year at the start of the period to around 20 a year by the end of the period. This reduction was in line with – albeit slightly more pronounced than – the trend in Cambridge more widely (a reduction of 39% in the area surrounding the Trail, compared to 30% across Cambridge).

- The proportion of collisions ranked as either fatal or serious over the time period increased across Cambridge overall. However, in the immediate vicinity of the Trail (i.e. within 1.5km) the proportion of fatal/serious collisions has decreased over recent years.

- The spatial pattern of collisions in the area surrounding the Trail has remained similar pre- and post-opening, although there does appear to be a reduction in the concentration of collisions on and around Newmarket Road in the period following the Trail's opening.

5.54 As set out in Section 2, given the wide range of factors that contribute to the frequency of road traffic collisions, it is not possible to directly attribute these changes to the Trail in quantitative terms. However, triangulated with the survey evidence which indicates perceptions of improved safety for cyclists in particular, together with a reduction of cycling/walking along Newmarket Road, it is plausible that the Trail has had an influence on reducing traffic collisions in the area. Further, there is strong evidence that cyclists perceive

that the Trail has helped to make their overall journeys safer, enabling them to avoid particular roads or junctions. **Taken together, the evidence suggests that the Trail has delivered against the anticipated outcome of improved safety**.

Enhanced access to green spaces

5.55 Most Wave 2 survey respondents strongly agreed/agreed that the Trail has enhanced their access to green spaces and other environmental amenities (87% of pedestrians and 82% of cyclists). This was consistent with the evidence from the Wave 1 survey. Access to green space is particularly important for local residents and approximately a fifth of survey respondents (who provided valid data on home postcode) reside in the Abbey ward.[29]

5.56 Interestingly, in both waves of the survey, and across both cyclists and pedestrians, 'enhanced access to green spaces and other environmental amenities' was the statement related to wider outcomes that the highest share of respondents indicated they 'strongly agreed' with (see Annex D and E). This is consistent with the rationale for using the Trail; as noted previously, for pedestrians, better access to green space was also the most common reason why pedestrians started to use the Chisholm Trail for their journey.

5.57 It is also notable that the proportion of cyclists in the Wave 2 survey indicating that the Trail had enhanced access to green spaces and other environmental amenities was the same for both 'commuters' and 'non-commuters' on the day they were handed the postcard (both slightly over 80% indicating an effect). This suggests that whilst the Trail is providing an important 'practical' route for individuals to get to work, this is also generating wider benefits in relation to access to green space and environmental amenities. Indeed, the ability for a more pleasant commute was a key theme in open responses to the survey amongst cyclists, as illustrated with an example opposite. This is important in terms of wider quality of life benefits, and helping to attract people to, and retain them in, the area.

> **"I love the Trail! It has changed my commute completely, I now cycle though fields instead of busy roads and my ride is quicker"**
>
> **Survey respondent**

5.58 As illustrated in the quotes below, qualitative feedback from survey respondents also highlights how the Trail is seen to have both created a new route through green spaces, and help to connect-up a network with other green routes, such as the River Cam Path. The new

[29] 93 out of n=435. Note, the number of respondents who live in the Abbey ward is approximate as the survey only collected postcodes without the final digit.

trees/hedgerow which have been planted, as well as the wildlife enjoyed along the route, were also commonly mentioned by survey respondents.

"It has had a massive impact on my access to other green space and walking routes … This new access has made me far more likely to walk for leisure and exercise as it is a much more attractive walking route. I would say it has had a very positive impact on my quality of life and enhanced the area in which I live".

"It's a great Trail that provides a connection with nature. Otherwise, I'd be walking along the busy Newmarket Road which is loud and often heavy with traffic".

"We enjoy the access to green space and cleaner air, as well as being able to watch seasons change in planting and wildlife".

Wave 2 survey respondents

5.59 Stakeholder feedback also emphasised the role of the Trail in increasing access to green spaces in Cambridge. For example, prior to the project the route across Coldham's Common was described as "difficult" by one stakeholder, so upgrades to the route has significantly improved access across the Common.

Enhanced local environment

5.60 Triangulating the evidence from the intercept surveys and consultations, the findings suggest that the Chisholm Trail Phase 1 is seen to have enhanced the local environment.

5.61 For example, in relation to the survey evidence:

- first, overall satisfaction amongst surveyed users with the quality of the Trail was high (as set out in Section 4)
- second, as set out above, there is strong evidence from the Wave 2 survey that access to green spaces and other environmental amenities has improved
- third, as set about above, there is strong evidence from the Wave 2 survey that users perceive the Trail to have improved their safety, suggesting an improved local environment.
- in both waves of the surveys, one of the most common responses (each cited by at least half of respondents) for why people choose to start using the Trail, was because it was more comfortable/pleasant than alternatives.

5.62 The qualitative feedback also emphasises how the Trail provides a more pleasant environment for travel, compared with alternatives which were often along congested and polluted roads. The resurfaced paths, along with the trees/hedgerows planted were also considered important here.

> **"I enjoy using the path as a cyclist because it is safe and apart from some junctions to cross it is very pleasant, quieter and more scenic than to be on the main roads"**
>
> **Survey respondent**

5.63 This said, stakeholders raised some concerns that the improvements to the local environment may be benefiting some groups (e.g. cyclists) more than others (e.g. pedestrians and those with poor mobility), given concerns over the speed and use of the Trail by cyclists which may deter other users. Concerns were also raised regarding the environmental impacts of the Trail including increased litter. Some environmental issues were also identified in the research related to provision and protection for local wildlife in the area around the Trail.[30] In this context, GCP have indicated that all projects are subject to a full ecological survey before any work is carried out and this work was undertaken ahead of the construction of the Chisholm Trail. As part of the project, areas of biodiversity enhancement were created to ensure any environmental impacts of the route were mitigated. More broadly, in December 2021, the GCP Executive Board agreed it would pursue 20% Biodiversity Net Gain across the infrastructure programme as a whole. While Phase 1 of the Chisholm Trail predated this target, all GCP projects receiving final approval from November 2021 onward, including Chisholm Trail Phase 2, are in scope for the programme wide target.

[30] This issue has been raised locally and been reported in the press/news. See for example here: Cambridge trail users urged to watch out for crossing toads - BBC News

Improved public health

5.64 This outcome was primarily explored in the intercept surveys via perceptions of physical health.[31] Wellbeing and mental health effects are discussed below. In the Wave 2 survey, around two-thirds of pedestrians and cyclists reported that the Trail had improved their physical health (70% and 67% respectively). Given most survey respondents are regular cyclists or pedestrians (>80% cycle/walk in Cambridge for exercise or leisure at least three days per week), this is a notable finding. Further, the Wave 2 survey findings were more positive than Wave 1, which found 62% and 56% of pedestrians and cyclists respectively agreed that the Trail had improved their physical health. This may reflect in part the on-going use of the Trail over a longer period (i.e. accounting for the further 8-10 months).

> **"I feel it has encouraged me to walk more, which has benefits for my physical and mental health"**
>
> **Survey respondent**

5.65 As set out above, the Wave 2 survey indicates that the Trail has encouraged people to cycle/walk more often, further distances, and in some cases instead of using non-active modes of travel. This further supports user perceptions that the Trail has led to improved physical health.

5.66 Qualitative feedback from the Wave 2 survey highlighted that by improving accessibility and the local environment, users have been encouraged to exercise more, which they believed to be beneficial for their physical health. Over the longer-term, stakeholders referenced the wider potential physical health benefits for the city's population associated with increased cycling / walking owing to active travel projects like the Chisholm Trail.

5.67 It is important to note that a very wide range of factors unrelated to the Trail will impact on physical and mental health of individuals, and public health overall. In this context, the feedback on the role of other complementary investments in active travel infrastructure influencing behaviours associated with the Trail for both cyclists and pedestrians is important. The Trail is one part of a wider network of investments which may be contributing to this outcome. However, the feedback from the survey suggests that it has played an important role, as perceived by users.

Improved independence and wellbeing

5.68 Both waves of the intercept surveys provide strong evidence that the Trail has improved users' wellbeing. The Wave 2 survey found that over four-fifths (82%, n=303) of cyclists and

[31] We have not sought to quantify or assess formally the impacts of the Trail on public health in the area.

three-quarters of pedestrians (73%, n=189) agreed the Trail had improved their overall sense of wellbeing. The Wave 1 survey findings were very similar. Again, this is a notable finding given the majority of the survey respondents are regular cyclists or pedestrians.

5.69 The quotes below from Wave 2 survey respondents illustrate how the Trail has helped improve wellbeing, including through enhanced access to green space and increased physical activity. This was corroborated by the stakeholder consultations.

"It brings beautiful scenery to my cycle to work, which I find helps immensely with my mental wellbeing".

"I would say it has had a very positive impact on my quality of life and enhanced the area in which I live".

"The route has improved my fitness and wellbeing and it is the most enjoyable part of my commute to work at the Cambridge Biomedical Campus".

Wave 2 survey respondents

5.70 Further, there is some evidence of wellbeing benefits for staff from organisations / businesses located on or near the Trail. This includes a small number of organisations directly using the Trail to support staff wellbeing, for example by using it for 'walk and talk' meetings or as part of monthly wellbeing activities. More broadly, where staff were using the Trail to commute to work, stakeholders thought it may be supporting staff wellbeing by providing a more pleasant, less stressful journey to work.

5.71 The evidence on effects on independence is more mixed. The Wave 2 survey found that around half of cyclists (47%, n=303) and over a third of pedestrians (40%, n=189) agreed that the Trail had improved their overall sense of independence. Again, the Wave 1 survey results were similar. Improving access to different locations across the city is linked to independence, and the qualitative feedback from survey respondents and stakeholders highlights the role of the Trail in enhancing access and connectivity, particularly for residents of the Abbey Ward. Supporting the independence of young people in the Abbey Ward was also mentioned in the stakeholder consultations. This said, for some users (e.g. young people cycling / walking to and from school) the feedback suggests that completion of Phase 2 is required before the route is considered safe to use independently.

"It gives me a lot more opportunities and choices to do different walks and cycling routes, and gives me different options to travel from different parts of the city"

Survey respondent

5.72 It is important to recognise that the user surveys were completed by adults and young adults only (those under 16 were excluded). Respondents were generally regular cyclists and walkers. A lower share of respondents reporting effects on independence than other benefits is perhaps not unexpected at an aggregate level. However, the qualitative feedback highlights how this can vary, and in some cases, and for some individuals, the benefits in relation to independence (including confidence to cycle), have been important.

5.73 Evidence from the Wave 2 survey and stakeholder consultations also emphasised how the Trail has effectively created a new public space. The feedback highlighted how the Trail has become a location for people to meet and spend time with family and friends (e.g. sitting near the Abbey-Chesterton Bridge, having picnics on the Common etc), which did not occur to the same extent prior to the Trail.

Enhanced access to training and employment

5.74 The survey evidence suggests that the Trail has improved access to training and employment for some individuals: 29% of cyclists and 19% of pedestrians in the Wave 2 surveys 'strongly agreed/'agreed' that the Trail has enhanced access to training and employment opportunities.[32] The findings from the Wave 1 surveys were similar. It is important to recognise that a majority (around two thirds) of survey respondents were in employment across both waves/user groups, and most of the remaining respondents were retired. This may have influenced the responses.

5.75 Some examples of how the new route has improved access to employment (notably at the Science Park) are included below.

"I work in the Science Park, so would not have considered this if the Chisholm Trail didn't exist due to the difficulty of driving or cycling across Cambridge".

"[The] Trail is an excellent piece of travel infrastructure, alternative routes and methods of transport are slower and less enjoyable. Without it, it would be much less appealing to work at the Science Park".

Wave 2 survey respondents

5.76 There was some feedback from stakeholders that the Trail should, in principle, improve access to training and employment opportunities. For example, one stakeholder noted that "*because of the Trail, people in the Abbey Ward can now access new and different jobs".* However, there is insufficient evidence to comment on whether this has occurred in practice to date. This said, some organisations/businesses located on or near the Trail provided examples of how the new route has impacted accessibility:

[32] Considering non-retired respondents only (n=412), the proportion of respondents marginally increased to 31% of cyclists and 23% of pedestrians.

- several organisations mentioned using the Trail to travel to meeting locations
- one organisation noted volunteers from outside the local area using the Trail to travel to / from volunteer work
- one stakeholder cited an example of someone choosing the location of their start-up business partly based on the existence of the Trail.

5.77 Improvements to lighting (enabling people to travel to/from work or training in the dark) and completion of Phase 2 of the Trail (connecting the Trail to employment/education locations in the centre) were commonly raised by both survey respondents and stakeholders as key factors in delivering more fully against this outcome in future.

Enhanced attractiveness and deliverability of employment growth and housing development sites

5.78 The evaluation found limited evidence of the Trail enhancing the attractiveness and deliverability of employment growth and housing development sites. However, some feedback from stakeholders highlighted the importance of the Trail in providing an active travel route in close proximity to recent and planned employment and housing development sites. For example, stakeholders thought the Trail complemented the various North East/North West Cambridge developments by enhancing connectivity between these areas, Cambridge North Station, and the city centre. Indeed, one stakeholder noted that some housing developments like Marleigh[33] (near Cambridge Airport), actively promote the ease of travelling from Marleigh to the city centre and other destinations via new and improved cycling and walking trails (including through Ditton Meadows).

[33] https://marleigh-cambridge.co.uk/

Wider strategic perspectives

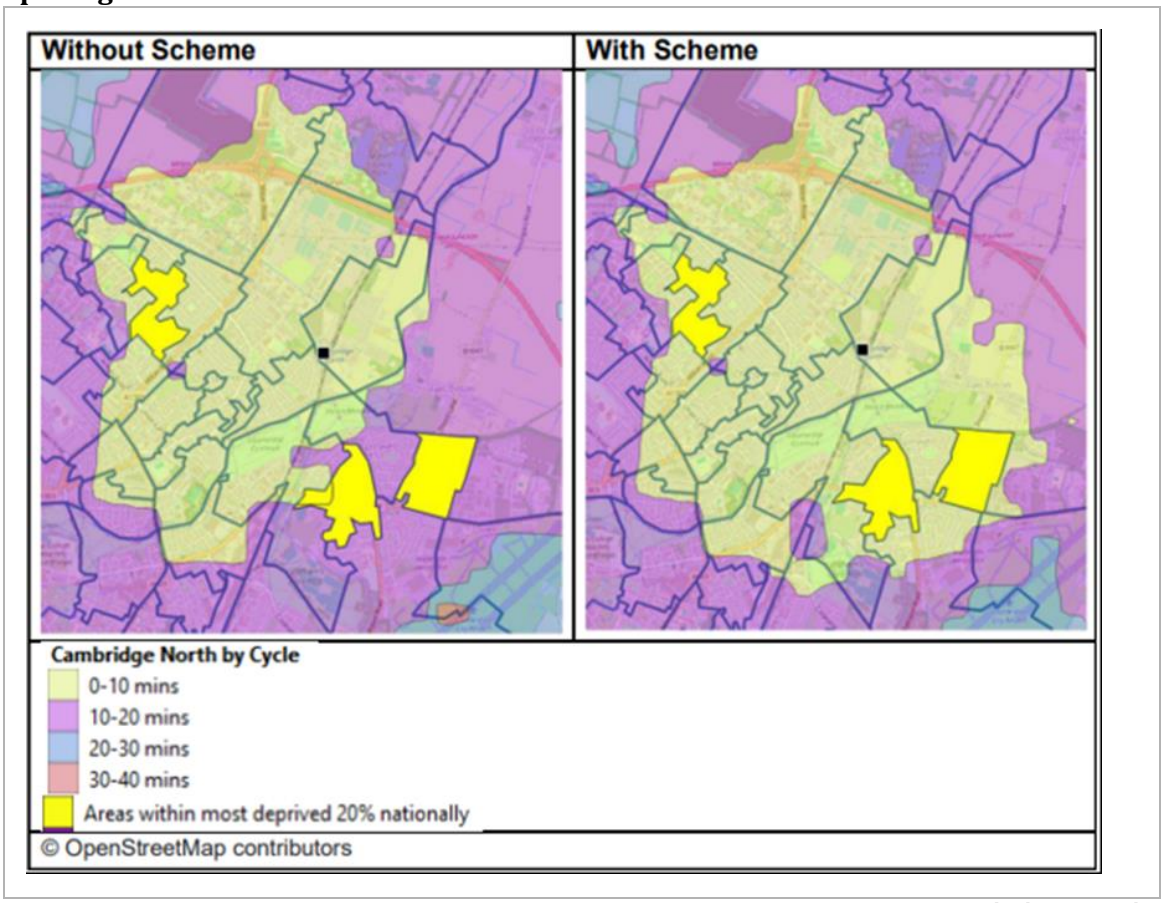
5.79 In addition to the outcomes discussed above, enhanced connectivity as a positive outcome was a common theme raised by both stakeholders and survey respondents. This aligns with the overall aim of the Chisholm Trail to enhance connectivity across the city.

> **"I think the Chisholm Trail is helpful not just as a route on its own, but it's about the connectivity it provides across the wider network, but also between places"**
>
> **Stakeholder**

5.80 Stakeholders and survey respondents commonly mentioned that the Trail had had a positive impact on connectivity by creating a route between Coldham's Lane and Cambridge North Station that did not exist previously. In doing so, it provides improved connections with, and between, major employment sites (such as the Science Park), educational institutions (such as Cambridge Regional College) and other transport infrastructure in the city, including the guided busways in the south and the north and Greenways. In particular, the connectivity benefits for residents in the Abbey and Chesterton wards were noted. Stakeholders frequently mentioned that Abbey Ward has historically felt isolated and less well connected compared with other areas of the city, and therefore, the Trail is an important asset in enhancing connectivity.

5.81 Analysis by GCP (provided to SQW for the evaluation) of journey times to Cambridge North by cycle corroborate this feedback. As shown in the Figure below, the data indicate that accessibility to Cambridge North station for residents in the south of the Abbey Ward (including in two of the 20% most deprived areas of the country) improved following the opening of the Trail, with residents in a wider area able to access the station by cycle within ten minutes.

Figure 5-13: Cycle journey times to Cambridge North by cycle pre and post the opening of Chisholm Trail Phase 1



Source: Greater Cambridge Partnership

5.82 As mentioned elsewhere, both stakeholders and survey respondents emphasised the importance of delivering Phase 2 to integrate the Trail more fully into the wider travel network and further enhancing connectivity. It was also noted that the Chisholm Trail alone is not sufficient to fully address local connectivity challenges, with further investment in infrastructure required.

5.83 The project's strategic contribution is also important. Taken together the evidence on increased levels of cycling and walking and associated modal shift is important in supporting Greater Cambridge to realise its strategic agenda to address congestion which is a barrier to economic growth. Whilst the evaluation is not seeking to quantify (i.e. in GVA terms) the impacts of the Trail on local economic growth directly, the evidence on modal shift indicates the potential longer-term contribution of the Trail in helping to alleviate congestion challenges, unlocking and enabling further economic growth in Cambridge.

6. Conclusions

6.1 This section sets out the conclusions of the impact evaluation to inform the overall evaluation of the GCP Investment Fund at the second Gateway Review. The conclusions are structured around three key questions consistent across all impact evaluations and the outcomes anticipated in the logic model. It finishes with an assessment of one of the Key Performance Indicators in the NEF to appraise the quality of the evidence used in the evaluation.

Findings and evaluative assessment

6.2 Below we outline the conclusions against each research question identified by the NEF for impact evaluations. The conclusions on the first question are set out in the form of a 'contribution story' for each core outcome and wider outcomes drawing on the contribution analysis. This is based on the triangulation of both quantitative and qualitative data across different sources as detailed in the main body of the paper and supporting Annexes.

Is there evidence of positive economic outcomes at this stage, that would not have occurred without the intervention?

Core outcomes

Has the intervention led to increased levels of cycling?

6.3 There is strong evidence that the Chisholm Trail Phase 1 has contributed to increased levels of cycling, with the effect more pronounced on less regular cyclists as may be expected. Other factors have influenced this outcome, and there is some evidence of displacement of cycling from other routes. However, the Trail appears to be the main or decisive factor in most cases where cycling levels have increased according to survey evidence. Both survey evidence and stakeholder feedback suggest that it has led to a material change in levels of cycling, as a result of the improved infrastructure. Secondary data also suggests that cycling 'on-trail' has increased well above the trend across the city since the opening of the Trail, however this is likely to be explained in part by displacement from other cycle routes across Cambridge.

6.4 The underpinning theory for the project in relation to increase levels of cycling is clear and well-established, with the new dedicated space for cyclists (and pedestrians) providing a new route across the city, and a safer, quicker and more attractive/pleasant cycling experience. Survey evidence from Wave 2 – corroborated by Wave 1 – suggests it has led to people cycling more, cycling instead of using other forms of transport, and cycling for new reasons. Notably, in both waves of the survey, over half of relevant respondents said the Trail had encouraged them to cycle more often overall. The impact of the Trail on levels of cycling for work appears to be pronounced. The impact on cycling for education purposes is more limited (however, as noted earlier this may in part reflect the survey excluding under 16s).

6.5 Other factors have influenced the increased levels of cycling observed, including other complementary investments in active travel. However, the Trail was seen to be the only or most important factor by a majority of respondents to the Wave 2 survey; this was consistent with qualitative feedback. There is some evidence of displacement from other routes in the city. However, this may have helped to relieve pressures on other locations – such as the Green Dragon bridge – and may often be desirable given the improved cycling experience.

6.6 The survey evidence is supported by secondary data from the River Cam Path 'on-trail' location. Levels of cycling observed post-intervention were noticeably higher than pre-intervention, and this trend was not observed at 'proximate locations' or across the city.

6.7 Caution is needed with the survey data – largely from regular cyclists, and therefore with limited evidence of people cycling for the first time as a result of the Trail – and secondary data, which remains unstable overall post-pandemic, and given the specific location of the River Cam Path 'on-trail' location which is likely to capture individuals travelling on an east-west axis, not the wider Trail. However, taken together, and supported by the stakeholder feedback that consistently recognised the effects of the Trail in encouraging more cycling, the range of different sources represent strong evidence that the project has made a material contribution to increased level of cycling since opening.

Has the intervention led to modal shift?

6.8 There is strong evidence that the Chisholm Trail Phase 1 has contributed to modal shift. This has been primarily realised through individuals cycling, rather than driving. This may be helping to alleviate congestion in the city, consistent with the rationale for the project. There is limited evidence of modal shift from driving to walking, which likely reflects the nature of pedestrian use of the Trail, most commonly for leisure/exercise

6.9 The underpinning theory for the project in relation to model shift is clear and well-established, with cycle journeys encouraged and facilitated by the Trail replacing car journeys. Based on survey evidence, we estimate that around 290 journeys per weekday may be diverted from car to cycle owing to the Chisholm Trail. Further, over half of cyclists in the Wave 2 survey indicated that the Trail had encouraged them to cycle instead of using another means of travel since December 2021, with most of these indicating this was modal shift from driving. Similar evidence was provided in the Wave 1 survey. Both the stakeholder consultations and the open question in the Wave 2 survey demonstrated a perception of modal shift influenced by the Trail, drawing on personal experiences and perspectives.

6.10 Consistent with the evidence on cycling behaviours, other factors may also be influencing modal shift. Stakeholders noted both the increased cost of driving (petrol costs and the wider cost of living) and levels of congestion in Cambridge as contributing to modal shift i.e. encouraging people to cycle rather than drive. However, the infrastructure provided by the Trail was seen as crucial to enable individuals to make these different choices, for both

commuting, and wider reasons for travelling. The survey, supported by stakeholder feedback, represents strong evidence that the project has contributed to modal shift since opening.

Has the intervention led to increased levels of walking?

6.11 There is strong evidence that the Chisholm Trail Phase 1 has contributed to increased levels of walking. Evidence of displacement from other routes is limited, given the use of the Trail by pedestrians is most commonly for leisure and exercise. Other factors have influenced this outcome, but in most cases the Trail appears to be the key or decisive factor in influencing walking behaviours.

6.12 The underpinning theory for the project in relation to increasing levels of walking is clear, with the new dedicated space for pedestrians (and cyclists) providing a new route across the city, and a safer, quicker and more attractive/pleasant walking experience. Survey evidence from Wave 2 – and corroborated by Wave 1 – suggests that it has led to people walking more often, walking further, and walking instead of using other forms of transport. Notably, in both waves of the survey, over half of relevant respondents stated that the Trail had encouraged them to walk more often overall (and this effect was more pronounced in Wave 2). The impact of the Trail on levels of walking for pleasure and exercise appears to be most pronounced. The impact on walking for work and education purposes is more limited.

6.13 Other factors have contributed to this outcome, including changes in personal or employment circumstances of users. However, the Trail was considered to be most or equally important compared to these other factors by most survey respondents. Further, displacement from other routes appears to be limited, reflecting the use of the Trail by pedestrians for leisure/exercise.

6.14 The survey evidence is supported by secondary data from the River Cam Path 'on-trail' location. Levels of walking observed post-intervention were modestly higher than pre-intervention, and this trend was not observed at the relevant 'proximate locations'.

6.15 Caution is needed with the survey data – largely from regular walkers – and secondary data, which remains unstable overall post-pandemic, and given the specific location of the River Cam Path 'on-trail' location (as noted above). However, taken together they present plausible evidence that the project has contributed directly to increased levels of walking.

Wider outcomes

Has the intervention led to wider outcomes?

6.16 There is mixed evidence that the Chisholm Trail Phase 1 has contributed to wider outcomes. The evidence indicates that the Trail has made an important contribution to improved safety of active travel, enhanced access to green spaces and the local environment, and improved independence and wellbeing. The Trail has provided the enabling infrastructure to deliver

these outcomes. The evidence on enhanced access to training and employment and enhanced attractiveness and deliverability of employment growth and housing development sites is inconclusive.

6.17 The rationale to improve the safety of cycling and walking in the city by providing a dedicated off-road route was clear. The survey evidence from Wave 2 – and corroborated by the stakeholder consultations and Wave 1 survey – suggests the Trail has helped to improve the safety of cycling/walking activity for users. The evidence is particularly strong for cyclists where the vast majority of survey respondents (92%) agreed the Trail had improved the safety of their cycling activity. The survey evidence also indicates the Trail has had positive effects on access to green spaces, the local environment, health, independence and wellbeing.

6.18 It is not possible to claim that the Trail has a material impact on enhanced access to training and employment, and enhanced attractiveness and deliverability of employment growth and housing development sites. Further research would need to be undertaken in future to explore whether the Trail has delivered against these outcomes.

Is it reasonable to expect that positive economic outcomes will be realised in the future, that would not have occurred without the intervention?

6.19 The Chisholm Trail is expected to lead to two main groups of impacts in the future: transport-specific outcomes related to reduced congestion in/around Cambridge (and a reduction in CO2 emissions) as a result of increased modal share for cycling/walking, and broader positive effects on socio-economic conditions including public health and business productivity.

6.20 Overall, based on the evidence from this impact evaluation – and assuming usage of the Trail persists/increases – it is reasonable to expect that the Chisholm Trail Phase 1 will continue to support increased levels of cycling and walking and associated modal shift away from car usage to cycling, thereby helping to ease congestion in/around Cambridge. In turn, it is also reasonable to expect that the Trail has the potential to contribute to longer-term positive effects on socio-economic conditions, including improved public health (via increased active travel, air quality) and improved business productivity (via travel time savings), although evidence of progress towards the latter outcome is limited to date.

6.21 Several factors will influence the longer-term outcomes of the Trail, including maintenance and issues with design such as lighting and wayfinding. Further, Phase 1 is part of a wider network, therefore completion of Phase 2 will be critical to fully realise intended benefits.

6.22 A wide range of other factors influence cycling and pedestrian behaviours, with complementary investment in other active travel infrastructure in Cambridge (such as Greenways) the most commonly identified other factor by survey respondents. This said, as noted above, the Wave 2 survey evidence suggests that in most cases, the Trail itself is seen as the key or decisive factor in influencing cycling and walking behaviours associated with the Trail.

Is further evaluation evidence required in the future to provide a credible assessment of the overall contribution of the intervention to economic outcomes, and if so when should this be delivered?

6.23 Looking forward, the evidence emphasises the importance of completing Phase 2 of the Chisholm Trail to Cambridge Station, and further embedding the Trail into the wider active travel network, in order to realise the benefits of the project in full. In this context, it will be important to undertake further evaluation work to provide a robust assessment of the longer-term transport effects and broader socio-economic impact of both phases of the Chisholm Trail, including additionality and contribution. Assuming Phase 2 is completed and opened as planned in early 2026, it is recommended that an impact evaluation should be delivered within 3-5 years post Gateway Review #2.

6.24 Any future evaluation should include primary research with users of the Trail (via intercept surveys at different locations along the entire Trail), as well as follow-up research stakeholders including, local educational institutions, employers and community and representative groups, landowners and developers, and councillors / council officials. This should complement analysis of relevant monitoring and secondary data (including cycle/walking counts and traffic collisions data).

6.25 GCP may also wish to consider undertaking baseline survey research prior to the completion of Phase 2, to enable a subsequent assessment to provide a pre- and post-position assessment on behaviours. This was not possible for this impact evaluation, with research design undertaken in 2023, following the opening of Phase 1 in December 2021. This could include potentially longitudinal research with a cohort of cyclists/pedestrians to understand if (and why) the Chisholm Trail overall (i.e. Phases 1 and 2) has changed their behaviours, and gather robust data on modal shift effects.

Application and method

Has the method used followed that set out in the Local Evaluation Framework?

6.26 The evaluation method and approach followed that set out in the LEF and subsequently adjusted in the mid-term paper. Some changes were made to the timing of research design following feedback from the IEP, and coverage of secondary data used owing to changes in data collection timing by external providers and/or gaps in data coverage (notably for one of the Vivacity sensors). The most substantive change following feedback and guidance from the IEP at the mid-term stage was to undertake Wave 2 of the survey in late-April/early-May 2024 to coincide with school and university term times (rather than repeat the survey in July / August as per Wave 1). As a result, the survey data from the two years could not be pooled, as suggested in the LEF. Instead Wave 2 data was used as the principal source of primary evidence for the impact evaluation.

Confirmation of quality of method (Nesta rating)

6.27 The Nesta Standards of Evidence provide an approach to evaluate the quality of evidence used to measure the impact of a programme. The aim is to "*know how confident we can be in the evidence provided to show that an intervention is having a positive impact*"[34]. As outlined in the LEF, the evidence used in the evaluation of Chisholm Trail Phase 1 was assessed at Level 2 by the IEP. At Level 2, the evidence shows positive change from the intervention but cannot confirm the intervention caused this changed. This informed the contribution analysis approach and the conclusions set out in the report.

Is the method clearly described so that it could be replicated?

6.28 A full method statement, relating to the use of contribution analysis, the sources of evidence required and the rationale for the exclusion of other approaches, is discussed in the LEF. The Mid Term report presented the scoping evidence and assessed the extent to which the method could be applied given the potential evidence available. The main body of this Evidence Paper and the Annexes report data collection methods and analysis.

Are the sources of data used robust?

6.29 Two waves of surveys of cyclists and pedestrians were completed, with the Wave 2 survey representing the core evidence base used in the evaluation. This survey was completed at the time recommended by the IEP at the mid-term stage (late-April/early-May 2024), and was extended to seven days of fieldwork to maximise the sample (and mitigate the impacts of poor weather conditions). Secondary data was drawn from automated systems and annual surveys completed by Cambridgeshire County Council, and traffic data reported to police.

If using a survey, is the sampling and response rate reasonable?

6.30 The sample achieved of 351 cyclists and 242 pedestrians in Wave 2 exceeded the target agreed in the LEF, of 200 in each case. Analysis of the likely population of users suggests that the survey samples are within acceptable confidence intervals, around +/- 5pp for the cyclists and +/- 6 pp for pedestrians assuming a population based on Vivacity automated counts. This provides an acceptable level of confidence in the representativeness of the results. The Wave 1 survey evidence has been used to corroborate and validate the findings from Wave 2.

Have a sufficient number of interviews been conducted, with an appropriate range of participants?

6.31 Twelve consultations with 14 stakeholders were completed including local councillors, council officials, businesses in close proximity to the Trail, and community organisations.

[34] https://www.nesta.org.uk/feature/innovation-methods/standards-evidence/

Consistent with the approach set out in the LEF stakeholders were nominated by GCP and represented organisations and individuals with a range of different perspectives on the Trail.

6.32 It was not possible to consult with landowners and developers and tenants and managing agents at relevant proximate business and science parks. A number of stakeholders across these groups were approached by the GCP to ask for their consent to be contacted by SQW. None of the individuals contacted responded to GCP.

Is it clear how quality assurance and independence have been ensured in the process?

6.33 SQW is an independent research consultancy, and the research team which conducted the evaluation is wholly independent of the GCP. Conducting quality research is the responsibility of every researcher in the team. The research team was led by a Project Director who oversaw the quality of the research processes undertaken and quality assured the outputs produced.