Natural England Commissioned Report NECR283

The economic and health impacts of walking on English coastal paths: A baseline for future evaluation

Volume 2 – Design and Methods

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Foreword

Natural England commission a range of reports from external contractors to provide evidence and advice to assist us in delivering our duties. The views in this report are those of the authors and do not necessarily represent those of Natural England.

Background

The creation of the England Coast Path (ECP) offers the unique opportunity to establish baseline data and to create a methodology that will enable the future evaluation of the economic, health and social impacts of improvements in coastal access that the ECP will bring.

A steering group of experts from Natural England and Defra was assembled to oversee the work. During 2016/17 a contract was let to develop a methodology.

In 2017/18 a further contract was let to refine and use that methodology to establish baseline data.

The intention is to repeat the methodology after the completion of the ECP in order to quantify the economic, health and social impact of the ECP.

This report should be cited as:

ICF, Sustrans, Cavill Associates and Blue Island Consulting (2019). The economic and health impacts of walking on English coastal paths: A baseline study for future evaluation. Baseline Assessment Volume 2. A report produced for Natural England.

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Keywords – England Coast Path, National Trail, Coastal access, Leisure walk, Visitors, Visitor survey, Wellbeing, Economic impact, Local economy, Health benefit, Economic valuation, Travel cost method

Further information
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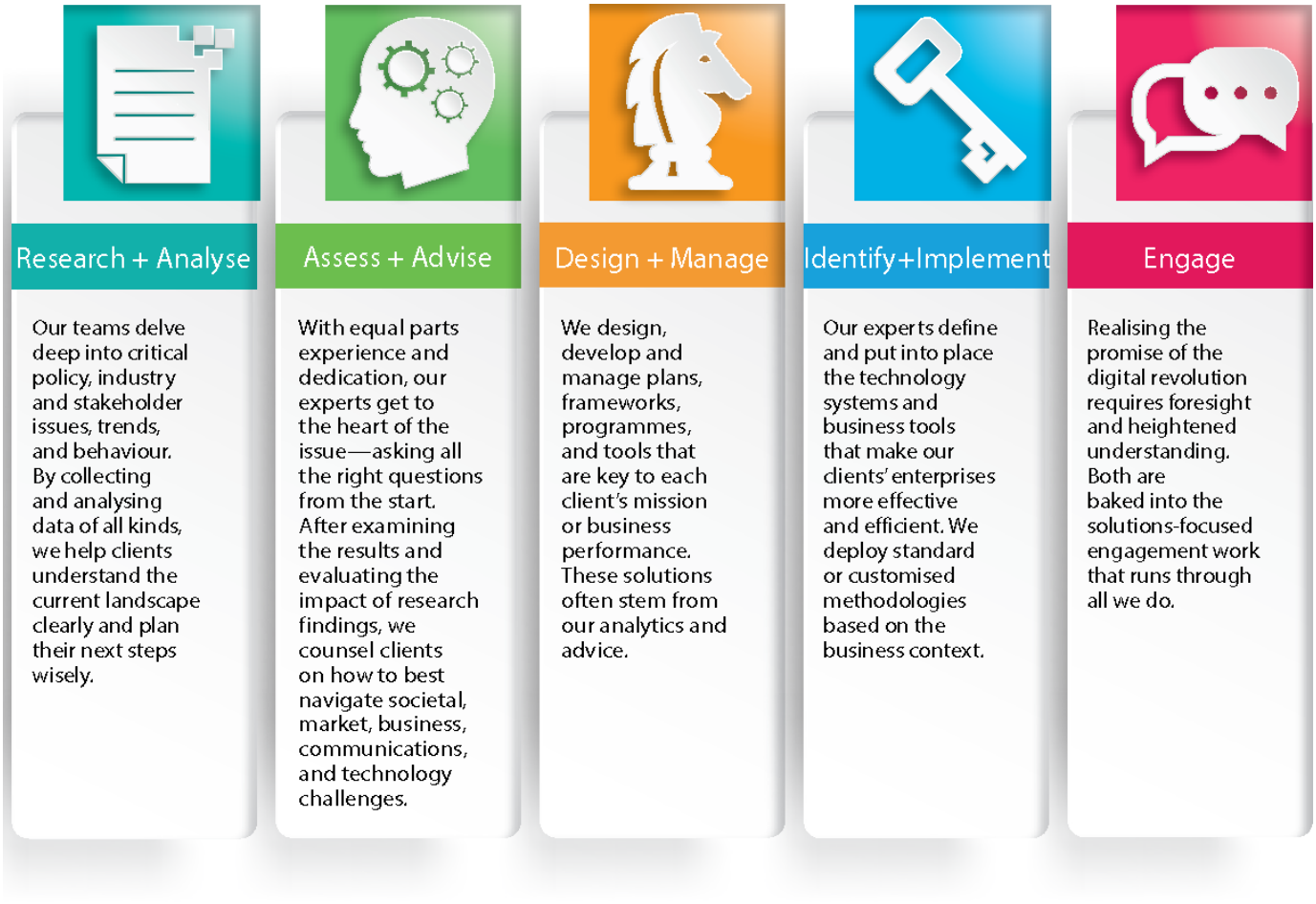

The economic and health impacts of walking on English coastal paths: A baseline study for future evaluation

Volume 2 - Design and Methods

A report submitted by ICF Consulting Services Limited
in association with

Sustrans, Cavill Associates, Blue Island Consulting

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Contents

1 Introduction

ICF, in partnership with Sustrans, Cavill Associates and Blue Island Consulting, were commissioned by Natural England to design an evaluation framework to evaluate the impacts of improvements in coastal access delivered by the England Coast Path Programme (the "Programme"), and subsequently to develop a baseline assessment as the first step of implementing that framework.

This is Volume 2 in a two volume series:

- Volume 1: Baseline Assessment – presents the result of the baseline assessment of the Programme's usage and benefits, carried out during 2017 and 2018.
- Volume 2: Design and Methods – introduces the overall evaluation design and details the specific methodologies used therein.

1.1 The Programme

The Marine and Coastal Access Act 2009 (henceforth 'the Act') formally established the "coastal access duty", which creates the legal obligation and process to create the "England Coast Path" ECP.

The ECP will join up existing coastal National Trails (e.g. the Cleveland Way, North Norfolk Coast Path and South West Coast Path), and address the intermittent nature of the coastal path in other areas. It will be a new 2,700 mile National Trail around all England's coast.

On 29 June 2012 the first stretch of the ECP – a 20 mile (32 km) stretch between Rufus Castle on Portland Bill and Lulworth Cove – was opened under the Marine and Coastal Access Act 2009. Since then coastal access rights have come into force on a total of 314 miles (506 km) under the accelerated program which began in April 2015. The aim is to complete the whole of the ECP by 2020. The Programme is providing access improvements in order to provide the rights of access necessary to complete the ECP. It is led by Natural England, delivered through eight regional hubs working with local partners.

1.2 The evaluation

By improving access to the coast, the Programme is expected to bring significant benefits to local economies and communities, recreational users, and public health. Natural England wishes to evaluate the Programme and to quantify and value its impacts, as far as possible. The purpose of the evaluation is to assess these impacts.

The evaluation will not assess the impact or process of the implementing the Programme itself (i.e. the impacts from construction activities and stakeholder engagement, how well the Programme implementation process worked, etc.).

The evaluation involves three principal phases:

- Phase 1 – completed in autumn 2016 through an ICF contract for Natural England, established a framework for the evaluation, setting out a proposed methodology for assessing its impacts, and providing draft research tools;
- Phase 2 – completed in spring 2018 through an ICF contract for Natural England, updated and applied the framework developed in Phase 1 to provide a baseline

analysis of the current use of English coastal paths and their impacts, against which future changes will be assessed; and

- Phase 3 – due to commence after 2020 will conduct an impact evaluation of the Programme in terms of the completed ECP's effect on usage and the resultant economic, social and health benefits.

1.3 Purpose and structure of this document

The purpose of the document is to provide a detailed guide that can be used in the future to complete an evaluation of the Programme, as well as providing a detailed methodology to accompany the evaluation baseline assessment. It presents a technical description of the evaluation framework and the proposed methods, as well as detailed description of the methods used to develop the baseline.

The report is structured as follows:

- Section 2 summarises the details of the Programme.
- Section 3 presents the overall evaluation framework, including a logic model, evaluation timing and approach to defining the counterfactual.
- Section 4 introduces the methodological components of the baseline assessment and evaluation.
- Section 5 details the sampling strategy that underpins the visitor survey and manual count as well as the bottom up component of the visitor volume model (VVM). It is supported by Annex A, which explains further how aspects of the sampling strategy were derived.
- Section 6 details the survey programme for the visitor survey, specifying the survey site locations and survey delivery procedures including quality assurance.
- Section 7 presents the visitor survey questionnaire.
- Section 8 introduces the VVM.
- Sections 9 to 11 set out the methods for three of the evaluation impact categories – economy, recreational wellbeing and physical health.
- Section 12 outlines the proposed methodology for the fourth impact category – community and society. The assessment method has a limited reliance on baseline data and will be implemented post-ECP completion at the point of evaluation. Hence the detailed methodology is not yet confirmed.

2 The Programme

The Marine and Coastal Access Act 2009[1] (henceforth 'the Act') formally established the "coastal access duty"[2] which creates the legal obligation and process to create the ECP. The Act states that the English coast is the coast of England adjacent to the sea, including the coast of any island (in the sea) in England (other than an excluded island[3]).

The Act allows for existing coastal access to be secured and improved and new access to be created in coastal places where it did not already exist. The Act also provides for a 'roll back' mechanism, allowing the coast path to be moved back if necessary e.g. in the event of coastal erosion or encroachment by the sea.

Two objectives are stated in the Act:

1. To secure a walking route around the whole of the English coast.
2. To secure an associated "margin" of land (known as 'spreading room) for the public to enjoy, either in conjunction with their access along the route line, or otherwise.

Achieving these objectives will result in the creation of the ECP. The ECP will join up existing coastal National Trails (e.g. the Cleveland Way, North Norfolk Coast Path and South West Coast Path), and address the intermittent nature of the coastal path in other areas. It will be a new 2,700 mile National Trail around all England's coast, expected to be completed by 2020. The improvements required are being delivered through the Programme.

Key terminology[4] is defined as follows:

- The route: the route line to which the first objective of the Act relates.
- The trail i.e. the England Coast Path: the path corridor through the coastal margin that the route follows as distinct from the wider areas of land within the coastal margin.
- The coastal margin (or margin / spreading room): the margin of land associated with the second objective of the Act, available to the public for enjoyment on foot.

2.1 Aspects of the Programme

2.1.1 Types of improvement

As at 2009[5], 34% of the English coast had no legal or recognised access[6] and there was a lack of continuity of access in respect of the remaining 66%. Sections with a secure and satisfactory path are regularly punctuated by sections without one, and

[1] Part 9 of MACAA reference

[2] This duty is upon Natural England and the Secretary of State

[3] An island is excluded if it is neither accessible (i.e. if it is not possible to walk to the island from the mainland or another island across the foreshore or a bridge, tunnel or causeway), nor an island specified by the Secretary of State by order as being included. The Isle of Wight is included.

[4] For further details see the key terms in Section 1.3 of: Natural England (2013). Coastal Access Natural England's Approved Scheme (July 2013). (NE446)

[5] Natural England (2009). Coastal access: An audit of coastal paths in England 2008-09.

[6] Of this, 48% had no path and 52% permissive or de facto access (i.e. not legally secure access).

the average length of coast along which a secure and satisfactory path was available was 3.0 kilometres (1.9 miles).

In delivering the objectives of the Act, the Programme is delivering a number of different types of improvements around the coast. The Programme will deliver an ECP whose access route conforms, and is managed, to National Trail standards.

There are 4 quality standards set by Natural England. They cover a range of factors from path condition to the social and economic benefits of the trail:

- Experience: The trails should be managed in a way which allows as many people as possible to enjoy a wide variety of walking and riding experiences along National Trails and through the English landscape.
- Enhancement: Constant improvements should be made to the trail and its associated routes. It should contribute to the enhancement of the landscape, nature and historic features within the trail corridor.
- Engagement: Build and sustain a community of interest in caring for the trail and the landscape through which it passes.
- Economy: The trails should create opportunities for local businesses to benefit from the use of the trails.

The Programme will create new or improved access - either physical access where there was none previously, or secure the legality of access, where this was not confirmed previously. The Programme is not delivering other forms of improvement, such as path maintenance or interpretation infrastructure.

The Programme is creating, improving and/or securing the trail as follows:

- The trail: The route usually follows existing walked lines on the ground – typically a mix of sections with an existing public right of way and sections without. By default, land within two metres of the trail becomes subject to the same rights. However, the landward edge may be adjusted to coincide with a physical feature e.g. a wall or fence.
- Coastal margin: Land seaward of the trail automatically becomes coastal margin. Land landward of the trail may become coastal margin, depending on the land type. The landward coastal margin may be set to coincide with a physical feature e.g. a wall or fence. Public access rights to the coastal margin, termed 'coastal access rights', are brought into force by Order under the Countryside and Rights of Way Act 2000 (the "CROW Act"). In some instances these coastal access rights replace existing rights e.g. for common land access, whilst in others the existing rights remain in place e.g. public access rights under section 15 of CROW[7].
- Excepted land: There are a number of types of land excepted from coastal access rights e.g. land covered by buildings, a park/garden, railway/road, military land; and land excepted outside the provision of an access strip for just the trail (i.e. no coastal margin) e.g. agricultural land, golf course, caravan/camping site[8].

Where there is an existing walked route (with legally secure access or otherwise) the Programme may:

[7] These are explained in more detail in Natural England (2013). Coastal Access Natural England's Approved Scheme (July 2013). (NE446)

[8] These are explained in more in Natural England (2013). Coastal Access Natural England's Approved Scheme (July 2013). (NE446)

- Add spreading room.
- Make very marginal adjustments to the route / spreading room.

To combat the effects of coastal erosion or encroachment by the sea on access, the Act permits 'roll-back' of the route to create new coastal path when required. It is estimated that overall, 17% of the coast may require roll back provision within 20 years, although this varies regionally. For example, in Durham, an area with a fast eroding coast, the figure rises to 57%.[9]

In addition, the Act allows for Natural England to create information boards for two reasons, focussed around information provision rather than interpretation:

- To identify / inform on the coastal route.
- To warn public of obstacles / hazards.

Hence, the route will be a signed and managed route enabling access to the entire length of the English coast (subject to some exceptions), with additional access to surrounding areas (particularly to seaward of the route) e.g. to access beaches, sand dunes and cliffs.

The ECP may create new access, secure legal access or add ECP branding to an existing legally secure route. The categories of access onto which the ECP is applied are:

- Multi-use route (legally secure e.g. a cycling route).
- Public highway (legally secure; access on a road).
- Public footpath (legally secure; public right of way for walking).
- Other existing walked route (no legal right of way in place).
- Not an existing walked route (no route exists).

Where the current coastal paths are formed on multi-use, public highway or public footpath routes, the effect of the ECP is simply to bring the route under the ECP branding. Where the ECP is formed over an existing walked route, the effect is to create legal access to this route. Where there is no existing route, the Programme creates a new route with legal access.

As such, in coastal stretches considered by the Programme to date, it is common for the resulting ECP to be made up of a mosaic of different types of existing routes, with new routes constructed to join them together in order to create the required continuity.

In 2009 it was estimated that 46% of the ECP will follow existing coastal footpaths, and 2% will follow existing coastal bridleways[10]. This leaves 52% to be formed of new routes, or of existing walked routes that do not currently have legally secure access.

2.1.2 Permitted activities on the ECP

Coastal access rights cover most types of open-air recreation on foot or by wheelchair. This includes walking, dog-walking, climbing, fishing and picnicking. Camping, horse riding or cycling may be permitted by virtue of prevailing existing rights, land owner's permission, traditional tolerance of the activities, rights to undertake some non-permitted activities such as horse and cycle access may be

[9] Natural England (2009). Coastal access: An audit of coastal paths in England 2008-09

[10] Natural England (2009). Coastal access: An audit of coastal paths in England 2008-09

given by either by an in-perpetuity dedication under section 16 of the CROW Act or through the relaxation of the restrictions under the CROW Act by direction[11].

2.2 Implementation and schedule of activity

Natural England's Coastal Access Scheme sets out the approach that Natural England will take to deliver the coastal access duty. The Programme represents the implementation of this approach. The Programme is delivering access improvements throughout the English coast, which is divided into 'stretches' of coastline.

For each stretch of coast, Natural England prepares a coastal access report, recommending to the Secretary of State the alignment of the route. This includes information on the route of the trail (including alternatives e.g. in the event of 'roll back'), the extent of the coastal margin, and a description of any local management deemed necessary. These reports are subject to public consultation prior to approval and there is an opportunity for persons to either make objections or representations, as appropriate, about the proposals in the report.

Public access rights to the trail are subsequently created under the Act upon approval by the Secretary of State of the Natural England coastal access report for the specific stretch of the coast.

Natural England has a duty under the Marine and Coastal Access Act to establish the England Coast Path (ECP). Eight regional hubs have been set up to deliver the Programme and complete the ECP in those areas. Natural England works with the access authorities, the Highways Authority (i.e. county council, etc.) or National Park Authorities, depending on location. Wider partnerships with other organisations such as the National Trust are also sought. Once rights are in place Natural England can delegate its role for the management of any exclusions or restrictions of access to the National Park Authority or Forestry Commission in relevant areas of land.

The ECP is due for completion by 2020. An overview of the implementation programme is available on the Government website[12]. Programme stretches fall into one of the following categories of progress:

- English coastal paths and associated access rights now open.
- Approved by the Secretary of State but not yet open as works currently underway with access authorities.
- Design work in progress by Natural England and not yet approved by Secretary of State.
- Work yet to start.

[11] Relaxation of restrictions by direction allows a land owner to relax the general CROW restriction on certain non-permitted activities such as horse riding and cycling in reference to either an area or a specific line. This gives users a revocable right and is not in perpetuity.

[12] https://www.gov.uk/government/collections/england-coast-path-improving-public-access-to-the-coast

3 The Evaluation Framework

3.1 The Programme Logic Model

3.1.1 Introduction

The Programme logic model sets out what the Programme does and what it is expected to achieve. It describes the main elements of the Programme: the activities that are undertaken; the outputs that are delivered by these activities; the short and long-term outcomes that result from these outputs; and ultimately the impacts that these outcomes are expected to have.

The Programme logic model was developed based on desk research of the available literature (Programme documents and broader literature) and discussions with Natural England.

The Programme logic model is structured as follows:

- **Inputs**: The financial and human resources, support and other inputs necessary to deliver the Programme.
- **Outputs**: Implementation of the Programme, using the available inputs, results in access improvements and the creation of the ECP.
- **Initial Outcomes**: Improved access via the ECP affects the nature and extent of coastal walking by individuals around the ECP. Intermediate outcomes represent the behavioural changes of users (current and new).
- **Final Outcomes**: Final outcomes reflect the changes in the flow of benefits that individuals receive from use of the ECP. This includes a variety of on-site benefits from the consumption of on-site goods and services i.e. coastal recreation, as well as consumption of off-site goods and services associated with their ECP usage e.g. local food and drink, accommodation, etc.
- **Impacts**: Impacts reflect the changes that occur to the economy and the local community and society as a result of final outcomes. For example, impacts of coastal area economic output or on coastal path walkers' physical health.

3.1.2 Objectives and impacts

The Act states the objectives of the Programme as being to secure a continuous ECP and enable enjoyment of the coastal area through the creation of spreading room around the ECP trail. For the purposes of the framework, the objectives are broken down as follows: to allow secure, long-term access to the entire coastline of England, providing benefits and economic opportunities to local communities, enhancing enjoyment and appreciation of landscape, geology and cultural heritage, and promoting healthy outdoor recreation.

The anticipated impacts reflect the ECP objectives. These are specified in the logic model as:

- Economic impacts (national and local)
- Recreation wellbeing impacts
- Health impacts
- Social impacts

3.1.3 Inputs and outputs

The Programme is being delivered by Natural England. The principal inputs to the Programme are:

- Staff resources within Natural England in order to plan and negotiate the investments to be made through the Programme.
- Budget for capital investments.
- Resources from Programme partners.

Whilst not a part of the Programme, there will also be a budget for ongoing maintenance of the ECP in line with Natural England's funding for National Trails generally.

The outputs of the Programme are principally improvements in coastal access through the creation of, or legal securing of, the preferred ECP route (including the trail and spreading room). These outputs will be permanent; protected from potential losses from coastal erosion or encroachment from the sea through the 'roll back' mechanism.

Whilst marketing and promotion are not formally part of the Programme, there are also a number of marketing and promotional outputs associated with the Programme.

3.1.3.1 Coastal access improvements

The ultimate output is a continuous (and permanent) path around the coast of England. Within each stretch, the Programme may deliver the following specific outputs:

- New coastal route (including necessary infrastructure e.g. bridges, stiles, gates, etc.) and/or creation of spreading room;
- Creation of legal security over existing non-legally secure trails and/or spreading room; and/or
- Improved access on existing coastal route through improved infrastructure e.g. gates.

3.1.3.2 Typology of Programme improvements

A typology of Programme improvements can be established to provide a more detailed consideration of the nature of access improvement outputs created by the Programme:

- Legality of access improvements only: legal access is secured on a part of the route which is currently used but may only have permissive or de facto rights of use.
- New route improvements and accessibility improvements to existing routes which improve continuity. Continuity improvements can be further broken down as:
    a. Localised accessibility improvements: incremental improvements which provide accessibility improvements e.g. new infrastructure such as gates which enhances ease of access without affecting the route.
    b. Localised quality improvements: improvements which provide an improvement in the ECP attributes e.g. a shift of the route closer to the sea.

c. Strategic access improvements: those which increase the functionality of the access network e.g. new bridges or new sections of the ECP route which allow existing routes to be joined together.

This typology is further refined for the purposes of the evaluation sampling strategy (see Section 5).

3.1.3.3 Promotional outputs

Planning and delivery of the Programme may result in both local and national promotion of new stretches of the ECP. The outputs of these activities may include:

- Press releases announcing the completion / opening of a new stretch of ECP.
- National Trail/ECP acorn branding on parts of the route not previously branded.

Activities by Programme partners and relevant interest groups may generate promotional outputs:

- Updating and sale of OS maps with newly created ECP routes.
- Updating of the National Trails website to indicate newly created ECP routes.
- Inclusion of information about new ECP routes within recreation and tourism materials by business and other organisations.
- Press releases by local partners or interest groups highlighting the extent of new ECP created.

These latter activities are not under the control of the Programme and hence may vary over time and space. However, they are an important driver of change in the logic model as they influence the behaviour of ECP users or potential users.

3.1.4 Summary logic model

Figure 3.1 provides a logic model, summarising the flow of impacts from the Programme.

Figure 3.1 Programme logic model

Objectives	To allow secure, long term access to the entire coastline of England, providing benefits and economic opportunities to local communities, enhancing enjoyment and appreciation of landscape, geology and cultural heritage, and promoting healthy outdoor recreation.			
Inputs	Capital investments Operating/maintenance expenditures Human resources and partnerships			
Outputs	New routes/ access to coast (including spreading room) Improvements in accessibility on existing routes Provision of legality of access on permissive or de facto routes Implementation of roll-back mechanism to ensure long-term accessibility			
Impact pathway	Economic impact	Recreation wellbeing impact	Health impact	Social impact
Initial outcomes	Increased visits by day trippers and staying visitors from outside local / national area	Increased recreational use of coast and enhanced quality of visits	Increase in walking/coastal recreation through improved access	Increased accessibility and use of shared outdoor space
Final outcomes	Increased expenditure by visitors in local / national economies	Increase in enjoyment from new visits to the ECP; enhanced enjoyment of each visit	Increase in physical activity rates by ECP users; enhanced mental well-being among recreational users	Enhanced social interactions, sense of community, sense of place, shared appreciation of local environment, equity of access, safety
Impacts	Enhanced Gross Value Added and employment in local /national economies	Increase in value of recreational wellbeing benefits among population of coastal footpath users	Increased health benefits[13] (reduced mortality and morbidity, enhanced mental health) and consequent savings in National Health Service (NHS) costs and productivity gains	Social and community benefits (social cohesion, community well-being, etc.)

[13] Health benefits may also be considered a type of social benefits.

3.2 Evaluation questions

The evaluation questions define the focus of the evaluation. The objective of this evaluation is to understand the impacts delivered by the Programme. The evaluation questions are:

- What are the impacts on local and national economies of the Programme?
- What are the recreational wellbeing impacts of the Programme?
- What are the physical and mental health impacts of the Programme?
- What are the social impacts of the Programme?

In assessing these impacts, the evaluation covers a number of facets of wellbeing: individual satisfaction/enjoyment estimated through the assessment of recreational wellbeing; health-related wellbeing; as well as community and broader societal aspects of wellbeing.

3.3 Baseline and counterfactual

A robust baseline and counterfactual are necessary in order to conduct an impact evaluation:

- Baseline: the baseline represents the state of any given indicator in 2017, prior to completion of the Programme intervention[14].
- Counterfactual: The counterfactual represents the future state of any given indicator had the Programme not occurred.

The evaluation seeks to compare the observed changes in indicators after the Programme with what would have been expected in the counterfactual. The difference between the two equates to the change that can be attributed to the Programme i.e. the impact.

It will not be possible to directly observe the counterfactual because the Programme is being implemented. It is therefore necessary to artificially construct estimates of the state of indicators in the counterfactual situation.

The following approaches are to be implemented for this evaluation:

1. 'Background trend' approach

Background trend counterfactual approaches drawn changes witnessed in broader populations (e.g. related to all coastal visits or all national walking activity) and bespoke comparison groups (e.g. non-coastal National Trail users). These are used to construct assumptions that can enable an estimate of the status of indicators under the counterfactual. This approach provides for some level of control for external factors. For example, macro trends such as population walking preferences and the weather will significantly affect both coastal path usage as well as these other background trend datasets (such as all coastal visits). A weakness is that these background trends may also be affected by the Programme, although the significance of the effect should be relatively small.

This approach will be applied to the estimates of visit volume, which provide the most critical input for all estimates of the economic, recreation wellbeing and physical health

[14] Agreement to undertake this study and assembly of the resource to deliver it, was only secured in time to begin data collection in 2017.

impacts. The approach will also be applied to aspects of the impact assessment methods. Further details are provided in the relevant method sections of this report.

2. Post-ECP direct report approach

This approach involves a survey respondent self-reporting their perception of a change in any given indicator due to the Programme i.e. the difference between the current indicator state and its state under the counterfactual. The respondent directly reports the net attributable change. The survey question is set up to encourage the respondent to consider how things may have changed under the counterfactual when determining their answer. This is most appropriate in situations where respondents may have a high awareness of the changes delivered by the Programme and its influence over the indicator under consideration. This approach will be applied for the local community aspects of social impacts being assessed at the point of evaluation through the proposed local community qualitative research approach.

3.4 Evaluation timing

The objective of the evaluation is to determine the impact of the Programme. The roll-out of the Programme is expected to be concluded in 2020. There is expected to be some delay in the full effects of the Programme being felt (due to a time lag between completion, visitor awareness of the improvements and decisions to visit). It is recommended that the evaluation is conducted no sooner than one year after the Programme completed the ECP i.e. not before 2021.

Undertaking the evaluation at a later date is feasible and may result in a greater effect being detected, depending on the extent of the time lag between ECP completion and effects on visit decisions. Due to the uncertainty regarding this time lag effect it is not feasible to establish a clear signal on the optimal year for evaluation.

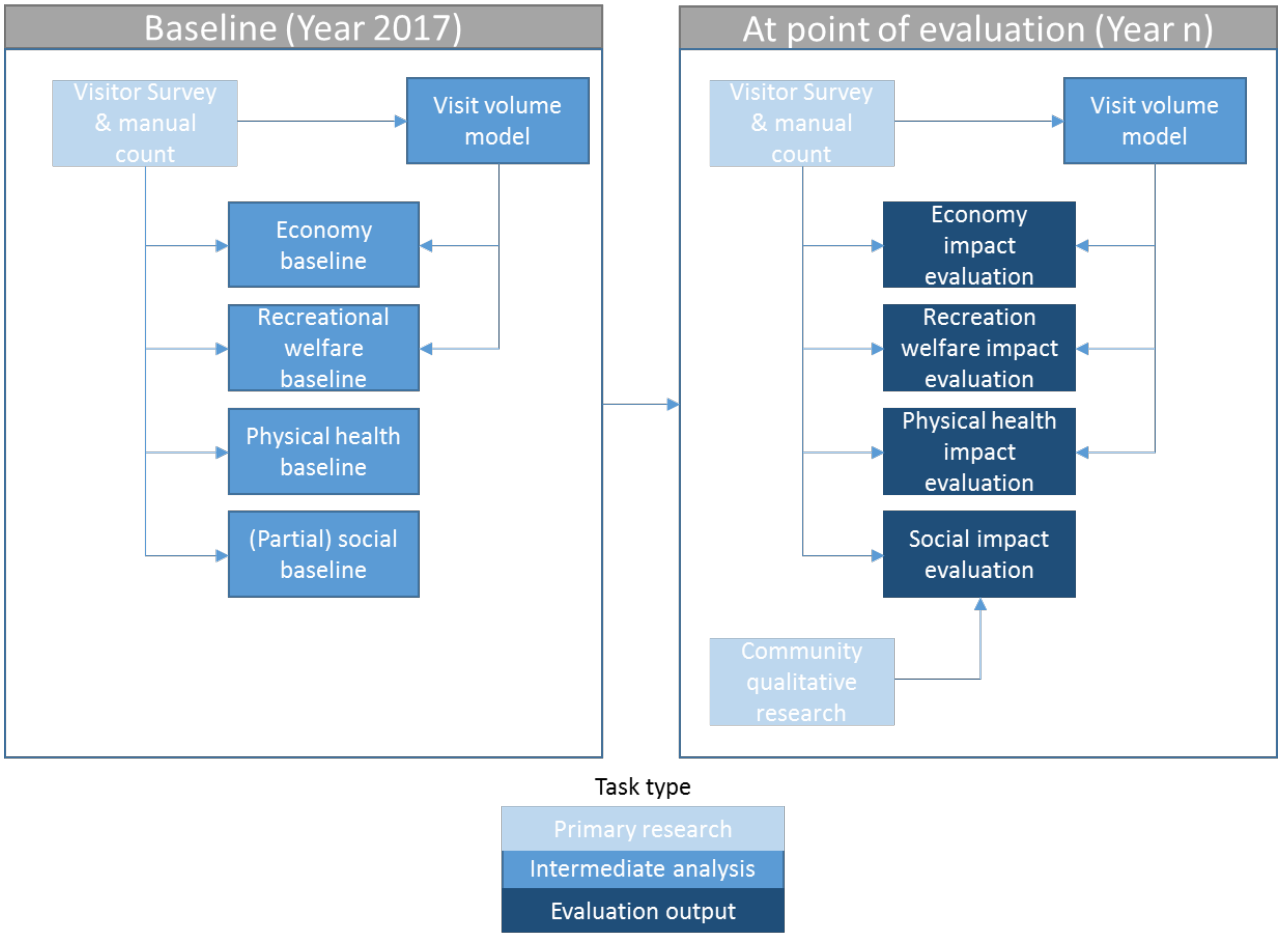
Ultimately, the policy relevance (i.e. what the results are to be used for and when the information is needed) of the evaluation is likely to be the most important determinant of the most appropriate year for evaluation after the Programme has completed the ECP.

4 An Introduction to the Evaluation Methods

4.1 Overview

This section sets out the proposed evaluation assessment methods[15]. Figure 4.1 provides a simplified overview of the evaluation approach, indicating the data collection and analyses to be undertaken in the baseline period and at the point of evaluation.

Figure 4.1 Overview of evaluation approach



4.2 Summary of each component

4.2.1 Primary research

There are two primary research tools that provide data to inform the baseline and evaluation analysis: (i) a visitor survey with manual count, which was conducted in the baseline year and will be repeated at the point of evaluation, and (ii) qualitative research with ECP local communities, to be conducted once at the point of evaluation.

[15] Details of alternative research options considered is summarised in Annex 6

4.2.1.1 Visitor survey and manual count

The visitor survey and manual count provide key information for use in the baseline and evaluation analysis. The visitor survey provides inputs to all aspects of the analyses, whilst the manual count provides an input to the VVM.

The visitor survey and manual count are conducted in tandem i.e. the manual count is undertaken by the survey team at the same time as interviewing path users. Both are underpinned by the same sampling strategy.

4.2.1.2 Community qualitative research

Participatory research is proposed that can provide: narrative and group consensus of community-based social effects, stakeholder mapping of locations and features of social value, and interpret how these have changed as a result of the Programme. This research will be conducted post-ECP.

4.2.2 Visitor volume model

Visitor volume is a critical input for the evaluation of the Programme. It provides a core input into the evaluation of economic impacts, recreational wellbeing impacts and physical health impacts. It uses both a bottom up method and a top down method.

The visitor volume model (VVM) draws on data from the visitor survey, manual counts and automatic people counters (APCs)[16] in order to generate a bottom up estimate of the current usage of existing English coastal paths[17]. In order to scale up the manual and APC point counts to provide overall estimates of usage of English coastal paths, each 1km stretch of the England coast was assigned to one of 22 different coastal categories with common characteristics. The data was analysed to produce an annual usage estimate for each of the 22 categories. These were then scaled up to provide an estimate of the number of walking trips on the coastal paths as a whole.

The strategy was designed to provide an estimate of walking trips across the coastal path at a national level. Regional estimates were developed by breaking down the usage estimates for each category in proportion to the length of category within that region. This means that the regional breakdown is indicative and is not based solely on data collected within that region

The top down method draws on data in existing national surveys of recreational activity to generate an estimate of coastal path usage. Multiple datasets are used to get full coverage of visitor types and a number of assumptions are used in assessing the degree to which the data represent users of coastal paths versus other types of coastal activities.

During the baseline analysis, following cross-analysis of the estimates, the bottom up estimate was taken as the preferred estimate. Triangulation with the top down estimate(s) provides support for this decision.

To support the evaluation analysis, the baseline assessment will be projected forward to produce an estimate of visit volume under a counterfactual scenario, drawing on background trends for key variables. The visit volume post-ECP is then compared to the counterfactual to determine the impact of the Programme.

[16] APC data for the full year of 2017 was used.

[17] Prior to full completion of the England Coast Path, it cannot be referred to as an entity. Hence the baseline data is derived from usage of existing English coastal paths.

4.2.3 Programme impact assessment methods

4.2.3.1 Contribution to the economy

The contribution to the economy is estimated using visitor expenditure data collected in the visitor survey, and scaling these up by the estimated numbers of visitors (from the VVM). Total expenditure estimates are adjusted, using evidence from the visitor survey, to account for the extent to which coastal paths were motivators for the visit and hence the extent to which expenditure can be attributed to these paths.

The economic impact of these expenditures is estimated in terms of its effects on economic output (Gross Value Added – GVA[18]) and employment (full time equivalent – FTE – jobs). These estimates are calculated using data from the Office for National Statistics' Annual Business Survey (ABS)[19] on the amount of GVA supported by each £1 of business turnover, and the turnover required to support one FTE job. The impacts are estimated for the national economy as a whole, and just for local coastal economies in England (the area within 10 miles of the coastal paths). At the local level, the estimates are based on expenditures by non-local visitors only; the effects of money spent by local people are excluded, as this is judged not to have an additional effect on the local economy. A local multiplier[20] is applied to take account of the multiplier effect – as money is re-spent locally by businesses (indirect effects) and employees (induced effects).

The baseline assessment will be projected forward to produce an estimate of the contribution to the economy under a counterfactual scenario, drawing on background trends for key variables. The contribution post-ECP is then compared to the counterfactual to determine the impact of the Programme.

4.2.3.2 Contribution to recreational wellbeing

The travel cost method (TCM) is used to estimate the wellbeing benefits that recreational visitors derive from their use of the coastal paths. The TCM applies economic analysis to observations on the time and travel costs incurred when individuals travel to coastal paths (taken from the visitor survey), in order to estimate the overall value that people derive from their visits. The economic model also takes account of the socio-economic characteristics of the individual, the characteristics of the path, and the characteristics of other potential recreation sites.

The baseline assessment will be projected forward to produce an estimate of recreational wellbeing under a counterfactual scenario, drawing on background trends for key variables. The recreational wellbeing contribution post-ECP is then compared to the counterfactual to determine the impact of the Programme.

4.2.3.3 Contribution to physical human health

Benefits to the physical health of coastal path users are made using the World Health Organization's (WHO) Health Economic Assessment Tool (HEAT) for walking and cycling. The HEAT tool estimates the effect of physical activity in reducing mortality, which can then be valued in monetary terms. It provides a conservative estimate as it

[18] Gross value added (GVA) is the measure of the value of goods and services produced in an area, industry or sector of an economy

[19] ONS (2017) Annual Business Survey, UK non-financial business economy

[20] A local multiplier of 1.25 is applied, based on the Homes and Communities Agency (2013) Additionality Guide: Fourth Edition 2014

does not estimate the benefits from reduced illness, such as diabetes or obesity-related conditions. The tool uses data on the total number of visitors (from the VVM) and average trip duration and frequency (from the visitor survey). The benefits of reduced mortality are estimated using Department for Transport estimates of the monetary value of a prevented fatality. Each life saved is currently valued at £1.735 million (in 2017 prices)[21]. The assessment provides an estimate of the number of deaths avoided and the economic value associated with this outcome.

The estimates are adjusted for substitution i.e. the extent to which use of the path is occurring instead of a non-physical activity, thereby providing a net increase in physical activity of the user.

The baseline assessment will be projected forward to estimate health benefits under the counterfactual scenario, drawing on background trends for key variables. The physical health contribution post-ECP is then compared to the counterfactual to determine the impact of the Programme.

4.2.3.4 Contribution to social benefits

The social benefits of the ECP will be assessed at the point of evaluation only. The evaluation will use qualitative research approaches such as case studies and local community research to examine the effects of the Programme after its completion. Social benefits are not therefore included in the baseline assessment. However, the visitor survey has collected baseline information about the social characteristics of coastal path users.

[21] Value of a life of £1.548m (in 2010 prices) from Department for Transport (2017). WebTAG: TAG data book, December 2017. Available at: https://www.gov.uk/government/publications/webtag-tag-data-book-december-2017. Inflated to 2017 prices using HM Treasury GDP deflator. Available at: https://www.gov.uk/government/collections/gdp-deflators-at-market-prices-and-money-gdp

5 Sampling Strategy

This section covers the design and development of the sampling strategy. The section covers:

- The purpose of the sampling strategy.
- Specifics of the strategy itself – including sample size, survey timings, and survey locations.
- Future considerations for follow-up evaluation.

5.1 Purpose of the sampling strategy

The purpose of the sampling strategy was to identify the locations on the English coast which, when route users were surveyed and manual counts undertaken at these locations, would give a representative sample of users and numbers across the whole of the English coastal paths.

The sampling strategy was developed to meet the following requirements:

- To produce a representative sample of English coastal paths, regardless of the current access permissions on different stretches.
- To produce a representative sample of coastal path users. Coastal path users are defined as someone going for a leisure walk on the coast, whether they know they are walking on the ECP or not. They do not include individuals who are crossing the path or who are on a coastal path for utility or non-leisure walking purposes such as shopping. Natural England considers the future ECP to be primarily a walking path. The focus of the evaluation, and therefore the survey, is on walkers rather than other potential users of (some stretches) of the route such as horse riders or cyclists.
- To identify locations that produce a representative sample of route users for the baseline and any follow up surveys conducted after the ECP has been established in 2020.
- To account for the fact that, for the baseline, surveys can only be conducted on the secure and permissive sections of the route. To allow analysis of manual count data, combined with automatic people data (APC) and survey responses, to provide a robust estimate of the number of walkers on English coastal paths in 2017.
- To enable extrapolation of survey responses to the total estimated population of English coastal path users.

The main component of the sampling strategy is concerned with identifying survey and count locations on the future ECP that will provide a representative sample of ECP users across the whole eventual path. The extrapolation of survey responses to the total population of walkers on English coastal paths is also reliant upon achieving a sufficient sample size to limit the margin of error.

The sample size required to allow extrapolation of survey results across the total population was key to determining resource requirements (i.e. no. of surveys required). Considered alongside the available budget, this determined the number of survey locations that could be incorporated into the survey programme. This in turn informed the scope of the sampling strategy with regard to how many survey locations could be incorporated into the strategy.

This sampling strategy outlines:

- The sample size required to extrapolate results to a wider population.
- When to survey.
- Where to survey.
- Who to survey.

5.2 The strategy

5.2.1 Sample size, survey timing and number of survey locations

5.2.1.1 The sample size required to extrapolate results to a wider population

The shift in visitor response due to the ECP may be relatively small. As such a 3% margin of error was considered to be an appropriate target. A representative sample of 1,100 people across the ECP would provide data reliable to plus or minus three percentage points from the sample result (i.e. there is 95% certainty that the 'true' value will fall within the range of +/-3%).

Significantly increasing the sample size has a less than proportionate effect on the overall reliability. For example, in order to reduce the margin of error from +/-3% to +/-1% would require a tenfold increase in the sample size (as shown in Table 5.1). This would increase the costs of the survey programme tenfold, which was considered to be disproportionate to the scope of the study.

In addition, for a given sample size Table 5.1 shows the relevant margin of error for different degrees of variability in responses. For example, for a sample of 1,100, where 50% of people respond with a particular answer, the margin of error would be 3%. Where responses are more skewed towards a particular answer (e.g. 90% of people respond with a particular answer), the margin of error reduces to 1.8 (for a sample of 1,100). Statistical tolerance (Table 5.1) considers the confidence interval and margin of error, so it can be stated that the results can be expected to fall within the specified margin of error 95% of the time.

Table 5.1 Test for statistical tolerance (at 95% confidence interval)

	Sampling tolerances[22] applicable to % at or near:		
	10% or 90%	30% or 70%	50% or 50%
Sample size	+/-	+/-	+/-
1,100 interviews	1.8	2.7	3.0
10,000 interviews	0.6	0.9	1.0

Outputs of the analysis were designed to be at the whole coastal path level. Subcomponents of the analysis were expected to require consideration of certain

[22] The column headings are sampling tolerances applicable to percentage point differences at or near these values. That is to say, for example, if you are looking for statistical certainty on a change in a value of 10% or 90% in the sample of 1,100, the percentage point change needs to exceed 1.8% to assure statistical significance. If the sample is 10,000, the percentage point change needs to be 0.6% for statistical significance. The percentage point change values for statistical significance increase as the sample responses approach a more even split because of the effect of variance within the sample.

subgroups, most notably visit type (local, day visitor, overnight visitor). Based on analysis of the national visitor surveys, it was approximated that the smallest subgroup could represent around 20% of the sampled visitors. Achieving over 2,000 survey responses would provide a 5% margin of error in the case that a subpopulation represented around 20% of the sample.

5.2.1.2 Sample size target

Sample size targets were set across the programme as a whole, not at individual sites.

A minimum target was set of 1,100 survey responses with a preferred target of 2,000 survey responses.

The baseline survey exceeded this target, with a total sample of 2,914 completed survey responses.

5.2.1.3 Number of survey days required

Based on past experience[23] it was estimated that between 15 and 25 interviews per day can be achieved on average by an on-site interviewer. Hence between 80 and 125 survey days was considered necessary to achieve a response of over 2,000 completed surveys.

5.2.1.4 Survey timing

To achieve a sample that was representative of typical usage across a year, an appropriate distribution was required of (i) term time to school holiday dates, (ii) weekdays to weekend days, and (iii) seasons.

In order to achieve (i) and (ii), the survey was conducted on the following types of day at each of the survey locations:

- 1 x weekday term time
- 1 x weekend term time
- 1 x weekday school holiday
- 1 x weekend school holiday

For each of the weekdays, a Tuesday, Wednesday or Thursday was selected. These weekdays are considered to be the most representative of typical usage, as they are the least likely to be influenced by weekend activity, bank holidays, etc. This was kept consistent at each site for both the holiday and term time day types.

For weekend days, a mixture of Saturday and Sundays were used, alternating between Saturday and Sunday for term time and school holiday types at each site (i.e. Saturday term time, then Sunday school holiday etc.) This provided an even spread of Saturday and Sunday dates across the survey sites.

To increase resilience to the weather or other random events, the survey dates for any given site were spread out over the survey period (as opposed to conducting the surveys over continuous days).

[23] This is based on Sustrans extensive experience delivering a programme of Route User Intercept Surveys with walkers and cyclists in rural and urban locations.

To account for seasonality (point iii), the survey programme ran from July 2017 to January 2018. This was the longest period feasible within the required timeframe of the study (which was constrained by funding). To further account for the impact of seasonality on usage levels, approximately 10% of surveys were conducted in winter. This was proportionate to usage estimates during this season from existing APCs. Surveys were distributed fairly evenly across the remaining months, dependent on logistical considerations.

5.2.1.5 Number of survey locations

Given the targeted sample size, the number of survey days required to achieve this and the preference to undertake surveys at each site on four days, 32 surveys locations were feasible. This equated to 128 survey days – at the upper end of the estimated need. This enabled us to achieve the required survey response level to extrapolate survey data to the wider population of coastal paths users (necessary to value the benefits of users across the path). It also maximised the number of survey locations within the available budget, which is integral to the VVM.

5.2.2 Survey locations

This section provides a summary of the methodology used to identify the 32 survey locations, and presents the survey locations themselves. A full methodology is included in Annex 1.

Sampling strategies are typically based on the demographics of the population who live and work in the area of interest. However, because the ECP attracts users from all over the country, and because usage levels and demographics are not readily available (hence the need to gather the data) a different approach was taken to determine the location of the surveys.

This approach was based on the overarching assumption that the route of the ECP can be broken down into segments and classified in such a way that similar segments of the route will attract the same type and volume of users.

When considering where to survey it was therefore necessary to consider the geographic characteristics of the path, and how geographic variation may be associated with different levels and types of usage on the path.

There are two key factors that are considered to affect levels of usage and the type of users. They can broadly be defined as the demand for the English coastal paths and the accessibility of English coastal paths or, the number of people who could access English coastal paths and the ease of that access. The level of demand also relates to the desirability of the route in question; is it appealing to route users?

Because there are no data pertaining to these factors precisely, other sources of data were required to represent them. The following seven variables were explored for the sampling strategy, before being refined to just four:

- The rural/urban classification of the route segment
- The size of the population near to the route
- The distance to the nearest public road
- The segment's current access permissions
- The route segment's Public Rights of Way status
- The landscape traversed by the route segment

- Whether the segment of the route is on a named long distance route.

The variables were explored using coastal path audit data provided by Natural England[24] to determine a number of categories of path with common characteristics. By distributing surveys across these categories, it was possible to collect a sample of data that can be considered representative of the path as a whole.

The proposed England Coast Path was split into 13,163 small segments, 1,204 of which cover locations where there is no existing path, each a maximum of 1km long. The path was split into segments of this size for two main reasons:

- A balance of computational efficiency (more segments = more time to run process).
- The accuracy of the segmentation (more segments = more precision with assigning segments to different categories).

Following analysis of the previously listed seven different variables, 960 possible categories of route (combining different variables, listed above) were identified. The analysis was then refined in order to produce a categorisation of no more than 32 categories – so that at least one of the 32 survey locations could be allocated to each of the categories.

Exploring the correlation of variables and combining variable-categories, the categorisation was refined and resulted in 22 different categories of route of similar characteristics. These categories were based on combinations of classifications relating to four variables:

- Rural/urban classification.
- Population gravity quartile (Q1 low population gravity to Q4 high population gravity)[25].
- Distance from the public road.
- Access Permissions.

Table 5.2 shows the finalised route categories.

Each of the 11,959 segments of the route where there is existing path was then assigned to one of the 22 categories according to its characteristics.

One survey location was then randomly assigned to each of the 22 categories using a random number generator in R (a pseudo-random code designed for sampling). The remaining 10 survey locations were then distributed proportionally among the categories according to the length of route in each section[26]. Table 5.3 shows the number of surveys assigned to each route category.

[24] Natural England (2009). Coastal access: An audit of coastal paths in England 2008-09

[25] Population gravity is a function of the population near to a location (such as a count site, or route segment) that accounts for the proximity of that population to the location in question. This reflects the impact on demand of the size of the nearby population but also reflects the perception that this impact on demand diminishes as the distance from the location in question increases.

[26] Note, as there is such a disparity between the number of coastal path kilometres in each 'secure' category as compared to the 'permissive and de facto' equivalent (according to the other variables), the remaining surveys were only distributed among the 'secure' categories.

Table 5.2 Finalised route categories

Rural Urban Category	Population gravity quartile	Distance from public road	Access permissions	Route length (km)	% of surveyable route length	Number of segments	% of surveyable segments
Urban	Q4	Not applicable	Secure access	766	20%	1,794	15%
Urban	Q4	Not applicable	Permissive and de facto access	169	5%	284	2%
Rural	Q1	> median	Secure access	356	10%	1,809	15%
Rural	Q1	> median	Permissive and de facto access	102	3%	265	2%
Rural	Q3	> median	Secure access	390	10%	997	8%
Rural	Q3	> median	Permissive and de facto access	61	2%	105	1%
Rural	Q2	> median	Secure access	373	10%	1,522	13%
Rural	Q2	> median	Permissive and de facto access	70	2%	146	1%
Rural	Q3	<= median	Secure access	299	8%	1,181	10%
Rural	Q3	<= median	Permissive and de facto access	40	1%	126	1%
Rural	Q2	<= median	Secure access	229	6%	1,067	9%
Rural	Q2	<= median	Permissive and de facto access	53	1%	152	1%
Rural	Q4	> median	Secure access	218	6%	385	3%
Rural	Q4	> median	Permissive and de facto access	34	1%	66	1%
Rural	Q4	<= median	Secure access	152	4%	386	3%
Rural	Q4	<= median	Permissive and de facto access	36	1%	74	1%
Urban	Q3	Not applicable	Secure access	151	4%	498	4%
Urban	Q3	Not applicable	Permissive and de facto access	36	1%	83	1%
Rural	Q1	<= median	Secure access	142	4%	784	7%
Rural	Q1	<= median	Permissive and de facto access	31	1%	122	1%
Urban	Q1 and Q2	Not applicable	Secure access	26	1%	99	1%
Urban	Q2	Not applicable	Permissive and de facto access	7	0%	14	0%

Table 5.3 Number of surveys to be assigned to each route category

Rural Urban Category	Population gravity quartile	Distance from public road	Access permissions	Number of surveys
Urban	Q4	Not applicable	Secure access	3
			Permissive and de facto access	1
Rural	Q1	> median	Secure access	2
			Permissive and de facto access	1
Rural	Q3	> median	Secure access	2
			Permissive and de facto access	1
Rural	Q2	> median	Secure access	2
			Permissive and de facto access	1
Rural	Q3	<= median	Secure access	2
			Permissive and de facto access	1
Rural	Q2	<= median	Secure access	2
			Permissive and de facto access	1
Rural	Q4	> median	Secure access	2
			Permissive and de facto access	1
Rural	Q4	<= median	Secure access	2
			Permissive and de facto access	1
Urban	Q3	Not applicable	Secure access	2
			Permissive and de facto access	1
Rural	Q1	<= median	Secure access	1
			Permissive and de facto access	1
Urban	Q2	Not applicable	Secure access	1
			Permissive and de facto access	1

5.2.3 Definition of a coastal paths user and selection of users for interview

The definition of a ‘user’ of the ECP was established in consultation with Natural England. Natural England consider the ECP to be primarily a walking path hence the focus of the evaluation, and therefore the survey, is on leisure walkers rather than other potential users.

Route users are defined as someone going for a leisure walk on the ECP, whether they know they are walking on the ECP or not. This excludes: individuals who are on the route of the ECP for utility or non-leisure walking purposes such as shopping; those traveling by another mode (e.g. horse or bike); those who may cross the path, but are not walking in the direction of the path itself; those who are clearly at work (e.g. maintenance staff); pedestrians engaged in another activity (e.g. fishing).

To reduce interviewer bias, a ‘next to pass’ approach was taken. This means that the next walker to pass the survey point was approached by the surveyor. It removes the need for any judgements as to which walkers meet a pre-defined criteria, which may be open to bias.

Where potential interviewees were in groups, the individual interviewee was selected at random e.g. the person with the next birthday[27].

Individuals under 16 years old were excluded for Data Protection purposes, to avoid surveyors having to make judgements regarding the individual's ability to consent.

5.3 Future considerations

The sampling strategy is intended to be replicable for use in a follow-up evaluation. In theory, survey sites used in future need only be in the same categories rather than in the same locations. However, it would be preferable to survey in the same locations where possible as this will allow comparison of change within each site. As the route category that applies to of each segment on the ECP may change, the future evaluator will need to review updated route audit information. Based on this they can then review survey locations to ensure that all categories of the route are sampled.

[27] Although this should not be insisted upon if the group are unwilling to adopt such an approach. It is preferable to secure the interview rather than insist on the random selection of the individual responding on behalf of the group

6 Survey Programme

This section outlines the practical implementation of the sampling strategy. It covers:

- A strategy to support appropriate choice of specific survey site for the interviewers within each previously randomly selected survey location.
- Details of final survey sites.
- Overview of completed survey programme.
- Survey scheduling process.
- Quality assurance process.

6.1 Survey site strategy

The Sampling Strategy provided 32 survey locations. Within each selected location (which are <1km long stretches of coast), there were a number of practical considerations to ensure the identification of a suitable survey site. Prior to final selection a verification exercise took place to ensure their appropriateness.

6.1.1.1 Why is survey site choice within a location important?

The survey was piloted at two coastal locations. It provided for feedback from both the interviewees and interviewers on both the survey site and the questionnaire, as well as providing test respondent data. Further details on the pilot can be found in Annex 5.

Sustrans' past experience delivering over 1,000 route user surveys, supported by this feedback from the survey pilot, indicated a number of practical considerations to ensure a safe and productive survey site. For example, feedback from the surveyors delivering the pilot survey at Wells Quay provided the following feedback on that specific survey site:

- Not all pedestrians could be invited to be interviewed due to the flow of vehicular traffic (working vehicles on the quay).
- The surveyor had to look for potential respondents both in front of him (on a footpath adjacent to the road) as well as behind him (on the quayside).
- The quayside is a working area, with fisherman constantly walking back and forth – this skews the count, or makes it more difficult to count users.
- The survey location was immediately adjacent to piles of lobster pots, emitting a 'nauseating and distracting odour'.
- The survey point was directly in front of a seemingly popular crabbing site for local families, milling around the quay but not necessarily going for a walk.

6.1.2 Survey site selection criteria

Based on past experience and the feedback above, the following criteria were developed to identify a suitable survey site within any given survey location:

- Aim to avoid a survey site where ECP users may be outnumbered by non-ECP users. Such sites are likely to include working locations, car parks, visitor attractions, and sites adjacent to businesses and services (including shops, cafes, restaurants and other amenities).

- Locate the survey site on a clear path (i.e. not too broad or open to allow ease of a count across a linear point rather than attempting a count across a broad stretch of beach or promenade). For example, where segments comprise an open stretch of beach or promenade, a survey site may be identified where this intersects with a clear path).
- The survey site should not be too narrow – to ensure that the surveyor can deliver the survey without impinging on users of the path.
- The survey site should be safe and secure for the surveyor (and comfortable enough to deliver a full day surveying).

6.1.3 Verification of the suitability of survey locations and sites

The sampling strategy provided a random sample of survey locations. These locations underwent the following process to ensure that they were appropriate:

- An initial list of 32 locations were randomly selected in accordance with the criteria outlined in the Sampling Strategy
- All locations underwent ex-ante screening via GoogleEarth to identify any potential issues and to identify a preferred survey site. This was marked on a map and shared with Natural England (available here https://share.sustrans.org.uk/share/Handlers/AnonymousDownload.ashx?file=7117ebbf)
- Feedback was then gathered from Natural England advisors with local knowledge of each location. The advisors were provided with maps and asked the following questions:
  - Do you think that [the proposed survey site] is a good place to survey people going for leisure walks on the current and potential future route of the England Coast Path?
  - If not, why not? Is there any alternative site within the bounds of the path shown in the specific location map that you think would be a better survey site?
  - If there are multiple parallel paths in the vicinity or if the path is on a beach […] is there an optimal path to survey on/where on the beach should the surveyor locate themselves? If you do not think that there is an optimal site here then please briefly explain why.
  - Is there anything in the specific site identified that is likely to cause problems for the surveyor? This could range from odorous bins or fishing gear, industry or vehicle movements, or other safety concerns.
  - What sort of people use the route at this site? Is it likely that people going for leisure walks will be obscured by a large number of people who are in the location for other purposes (shopping, utility trips, local short-cut etc.)? If so, are there areas within this location where the volume of non-leisure users may be minimised?
  - Do you know if there are a lot of non-local tourist visitors in this location?

Following this process, one survey location[28] and nine survey sites were amended in the final list. Feedback from contacts at Natural England was also considered when scheduling dates and briefing surveyors at each site. In particular this covered any

[28] Owthorne, East Riding of Yorkshire was originally selected as a survey location, however due to construction work to stabilize the sea wall, it was deemed unsuitable. Flamborough Cliffs was selected as an alternative survey location, in the same region and category as the original selection.

permissions that needed to be sought prior to conducting the surveys, as well as key local contacts. This would require a fresh review for the follow-up evaluation as permissions status and the relevant contacts may well have changed.

The final survey locations and sites retain the required distribution across coastal path categories, in conformance with the sampling strategy, but have undergone a practical ground-truth exercise.

Figure 6.1 shows the final survey locations. Table 6.1 provides the details of the locations including survey site coordinates. Table 6.1 also shows ECP category classification (as per the sampling strategy) and scheduling category information.

Figure 6.1 Distribution of survey locations

Table 6.1 Survey locations with site coordinates, category classification, and survey scheduling category

Survey location	Govt. Office	Classification as per sampling strategy categories				Site coordinates		Survey scheduling info		
		Rural/ Urban	Pop. gravity quartile	Dist. From public road	Access permissions	Easting	Northing	Survey ref	Survey cat	Survey cat group
Capel-le-Ferne, Dover	South East	Urban	Q4	Not applicable	Secure access	624100	136530	1	1	1 or 2
Westfield, Allerdale	North West	Urban	Q4	Not applicable	Secure access	299015	527428	2	1	1 or 2
Wheatcroft, Scarborough	Yorkshire & Humber	Urban	Q4	Not applicable	Secure access	505768	485996	3	1	1 or 2
Leasowe, Wirral	North West	Urban	Q4	Not applicable	Permissive and de facto access	327027	392190	4	2	1 or 2
Annaside, Copeland	North West	Rural	Q1	> median	Secure access	308786	486231	5	3	3 or 4
Wells-next-the-Sea, North Norfolk	East of England	Rural	Q1	> median	Secure access	592649	343740	6	3	3 or 4
Cheswick, Berwick-upon-Tweed	North East	Rural	Q1	> median	Permissive and de facto access	403841	647207	7	4	3 or 4
Wallasea Island, Rochford	East of England	Rural	Q3	> median	Secure access	593880	193950	8	5	5 or 6
Flamborough, East Riding of Yorkshire	Yorkshire & Humber	Rural	Q3	> median	Secure access	521900	469210	9	5	5 or 6
Acre Street, Chichester	South East	Rural	Q3	> median	Permissive and de facto access	477783	99421	10	6	5 or 6
Horsey, North Norfolk	East of England	Rural	Q2	> median	Secure access	646886	323701	11	7	7 or 8
Lee, North Devon	South West	Rural	Q2	> median	Secure access	247103	146712	12	7	7 or 8

North Cotes Airfield, East Lindsey	East Midlands	Rural	Q2	> median	Permissive and de facto access	537020	403490	13	8	7 or 8
Walmer, Dover	South East	Rural	Q3	<= median	Secure access	637840	150310	14	9	9 or 10
Perranuthnoe, Penwith	South West	Rural	Q3	<= median	Secure access	154185	29105	15	9	9 or 10
Shotley, Babergh	East of England	Rural	Q3	<= median	Permissive and de facto access	623397	234131	16	10	9 or 10
Flamborough cliffs, East Riding of Yorkshire	Yorkshire & Humber	Rural	Q2	<= median	Secure access	523749	472099	17	11	11 or 12
Camber, Rother	South East	Rural	Q2	<= median	Secure access	597630	118324	18	11	11 or 12
Barbican, Caradon	South West	Rural	Q2	<= median	Permissive and de facto access	226720	54147	19	12	11 or 12
Dawdon Colliery, Easington	North East	Rural	Q4	> median	Secure access	443878	546893	20	13	13 or 14
Old Hartley, North Tyneside	North East	Rural	Q4	> median	Secure access	434270	576230	21	13	13 or 14
Bridge, Caradon	South West	Rural	Q4	> median	Permissive and de facto access	245936	52139	22	14	13 or 14
Capel Street, Dover	South East	Rural	Q4	<= median	Secure access	626552	138643	23	15	15 or 16
Marske-by-the-Sea, Redcar and Cleveland	North East	Rural	Q4	<= median	Secure access	463786	522870	24	15	15 or 16
Bovesand, South Hams	South West	Rural	Q4	<= median	Permissive and de facto access	248775	51200	25	16	15 or 16
Birling Gap, Wealden	South East	Urban	Q3	Not applicable	Secure access	557309	95389	26	17	17 or 18
Ginns, Copeland	North West	Urban	Q3	Not applicable	Secure access	296771	518177	27	17	17 or 18

Torrs Park, North Devon	South West	Urban	Q3	Not applicable	Permissive and de facto access	251195	147581	28	18	17 or 18
Port Gaverne, North Cornwall	South West	Rural	Q1	<= median	Secure access	200589	81037	29	19	19 or 20
Penare, Restormel	South West	Rural	Q1	<= median	Permissive and de facto access	199187	40583	30	20	19 or 20
Walton-on-the-Naze, Tendring	East of England	Urban	Q2	Not applicable	Secure access	626540	223584	31	21	21 or 22
Chapel Point, East Lindsey	East Midlands	Urban	Q2	Not applicable	Permissive and de facto access	556130	373640	32	22	21 or 22

6.1.4 Survey Scheduling Process

To determine the order of the surveys, each region was allocated into one of two groups (see Table 6.2). Each of these groups was rotated on a weekly basis. Sites were selected from the different regions to be surveyed in each cycle. This provided a spread of surveying locations across the coastal path throughout the survey programme. This helped mitigate against seasonal effects and also the risk of surveying the same people walking within a given region at different sites (e.g. if they were on a holiday).

Table 6.2 Allocation of English regions to survey scheduling groups

Group 1	Group 2
North West	South West
East of England	North East
Yorkshire & Humber	East Midlands
South East	

Table 6.3 provides an overview of the survey programme.

Table 6.3 Overview of survey dates

Survey site	Survey date 1	Survey date 2	Survey date 3	Survey date 4	Comments/ issues
North Cotes Airfield, East Lindsey	02/08/2017	20/08/2017	16/09/2017	-	No access to path for final day, unable to reschedule within project timeframe
Chapel Point, East Lindsey	18/07/2017	22/07/2017	01/08/2017	17/09/2017	
Wells-next-the-Sea, North Norfolk	27/07/2017	29/07/2017	10/09/2017	21/09/2017	
Wallasea Island, Rochford	25/07/2017	13/08/2017	09/09/2017	19/09/2017	
Horsey, North Norfolk	24/08/2017	26/08/2017	5/10/17	24/09/2017	
Shotley, Babergh	09/08/2017	24/09/2017	04/10/2017	30/12/2017	
Walton-on-the-Naze, Tendring	23/08/2017	27/08/2017	23/09/2017	08/11/2017	
Cheswick, Berwick-upon-Tweed	05/08/2017	15/08/2017	26/09/2017	05/11/2017	
Dawdon Colliery, Easington	17/08/2017	03/09/2017	14/10/2017	11/01/2018	
Old Hartley, North Tyneside	19/07/2017	23/07/2017	02/08/2017	16/09/2017	
Marske-by-the-Sea, Redcar and Cleveland	29/08/2017	02/09/2017	10/10/2017	15/10/2017	
Westfield, Allerdale	25/07/2017	12/08/2017	10/09/2017	19/09/2017	

Survey site	Survey date 1	Survey date 2	Survey date 3	Survey date 4	Comments/ issues
Leasowe, Wirral	26/08/2017	20/09/2017	08/10/2017	-	Last day cancelled due to Storm Eleanor, unable to reschedule within project
Annaside, Copeland	09/09/2017	21/09/2017	26/10/2017	29/10/2017	
Ginns, Copeland	13/07/2017	15/07/2017	27/07/2017	30/07/2017	
Capel-le-Ferne, Dover	26/07/2017	29/07/2017	20/09/2017	10/09/2017	
Acre Street, Chichester	09/09/2017	20/09/2017	25/10/2017	31/12/2017	
Walmer, Dover	10/08/2017	12/08/2017	08/10/2017	12/10/2017	
Camber, Rother	24/08/2017	27/08/2017	21/09/2017	07/10/2017	
Capel Street, Dover	26/08/2017	24/09/2017	17/10/2017	02/01/2017	
Birling Gap, Wealden	13/08/2017	22/08/2017	03/10/2017	11/11/2017	
Lee, North Devon	06/08/2017	14/09/2017	30/09/2017	28/12/2017	
Perranuthnoe, Penwith	17/08/2017	02/09/2017	14/09/2017	17/09/2017	
Barbican, Caradon	01/08/2017	19/08/2017	17/09/2017	12/12/2017	
Bridge, Caradon	16/08/2017	20/08/2017	13/09/2017	14/10/2017	
Bovesand, South Hams	20/07/2017	22/07/2017	03/08/2017	06/08/2017	
Torrs Park, North Devon	30/08/2017	03/09/2017	27/09/2017	14/10/2017	
Port Gaverne, North Cornwall	15/08/2017	02/09/2017	12/09/2017	14/01/2017	
Penare, Restormel	31/08/2017	03/09/2017	28/09/2017	30/09/2017	
Wheatcroft, Scarborough	10/08/2017	13/08/2017	23/09/2017	23/11/2017	
Flamborough, East Riding of Yorkshire	23/08/2017	09/09/2017	04/10/2017	29/10/2017	
Flamborough Cliffs, East Riding of Yorkshire	24/08/2017	10/09/2017	19/10/2017	28/10/2017	A walker suffered an injury on 10/9/17 causing the path to be closed for approximately 2.5 hours

6.1.4.2 Length of survey day

Between 7am and 7pm all user types (pedestrians, cyclists, wheelchair users, joggers and 'other') were counted but only pedestrians on the route were approached for interview. The surveyors endeavoured to follow the 7am to 7pm timeframe. However, when there were particular health and safety concerns these had to be mitigated. In autumn and winter months this included shorter survey days, limited to a maximum duration on site of dawn-to-dusk.

6.2 Overview of survey delivery

The England Coast Path survey programme ran from July 2017 to January 2018. Table 6.4 shows the achieved delivery of the programme against target.

Table 6.4 Survey delivery against targets

	Target	Actual
Number of survey locations	32	32
Total no. of survey days	128	126
Total no. of respondents	1,100 - 2,000	2,914

Surveys were successfully completed at all 32 survey locations identified through the sampling strategy. The total number of respondents exceeded the target. In total 2,919 surveys were completed. Of these, five of these were only partially completed and were excluded from the analysis.

Table 6.4 indicates that only 126 survey days were completed rather than the targeted 128. Two survey days (at North Coates Airfield in East Lindsey and Leasowe in Wirral) were cancelled in the winter months due to inclement weather, and could not be rescheduled within the timeline of the project. This did not impact on the analysis, as sufficient survey data was yielded within each category.

Table 6.5 provides an overview of the total number of questionnaires completed per site. The completion percentage is the number of questionnaires completed as a percentage of the total manual count of pedestrians (aged over 16). This is not strictly a response rate, as not every pedestrian will have been approached (e.g. pedestrians may pass the surveyor when they are already busy conducting a survey). This is therefore referred to as a completion rate per site.

Table 6.5 Overview of questionnaire completion rate per site

Site	Pedestrian user count	Surveys completed*	Completion percentage
North Cotes Airfield, East Lindsey	13	3	23%
Chapel Point, East Lindsey	529	154	29%
Wells-next-the-Sea, North Norfolk	677	184	27%
Wallasea Island, Rochford	16	8	50%
Horsey, North Norfolk	1,541	161	10%
Shotley, Babergh	98	43	44%
Walton-on-the-Naze, Tendring	2,090	167	8%
Cheswick, Berwick-upon-Tweed	234	80	34%
Dawdon Colliery, Easington	376	133	35%
Old Hartley, North Tyneside	1,802	214	12%
Marske-by-the-Sea, Redcar and Cleveland	195	82	42%
Westfield, Allerdale	115	48	42%
Leasowe, Wirral	1,221	100	8.%
Annaside, Copeland**	0	0	0%
Ginns, Copeland	372	78	21%
Capel-le-Ferne, Dover	659	110	17%

Site	Pedestrian user count	Surveys completed*	Completion percentage
Acre Street, Chichester	245	36	15%
Walmer, Dover	2,690	207	8%
Camber, Rother	1,401	102	7%
Capel Street, Dover	329	27	8%
Birling Gap, Wealden	3,015	156	5%
Lee, North Devon	438	98	22%
Perranuthnoe, Penwith	686	143	21%
Barbican, Caradon	498	67	14%
Bridge, Caradon	163	50	31%
Bovesand, South Hams	296	61	21%
Torrs Park, North Devon	273	57	21%
Port Gaverne, North Cornwall	265	53	20%
Penare, Restormel	76	28	37%
Wheatcroft, Scarborough	333	117	35%
Flamborough, East Riding of Yorkshire	237	82	35%
Flamborough Cliffs, East Riding of Yorkshire	261	65	25%
Total	**21,144**	**2,914**	**14%**

**Excludes five surveys terminated early as respondent was not using the coastal path for walking.*
***Survey site recorded zero visitors on the days the survey was undertaken*.

6.3 Quality Assurance

6.3.1 Quality assurance of survey delivery

Survey quality was ensured by making use of several quality assurance procedures from the different partners involved, following the agreed methodologies within the Baseline Design Report, and transparent and collaborative communication between the partners.

6.3.1.1 High and established standards for survey delivery

The delivery of surveys was outsourced to CTS Traffic & Transportation.

Sustrans have worked with CTS for over a decade and together have conducted over 500 similar surveys and counts for projects across the United Kingdom. Over this period of time, some of the methodologies and forms used have evolved, but the fundamental approach has remained consistent and is a tried and tested approach for delivering quality results. The data CTS have supplied to Sustrans in previous projects has been scrutinised and published by the Department for Transport and a number of other private and public sector organisations. CTS are a preferred supplier for data collection for Sustrans, having successfully come through a tendering process in 2013 and a refresh in 2015.

6.3.1.2 Supporting documentation

Sustrans provided the survey team at CTS with a consistent set of supporting documents that provided clear instructions and expected standards:

- Two different aspect ratio maps as well as precise eastings and northings were supplied for each survey location.
- When scheduling survey dates with the contractor CTS, the rationale regarding the day type structure was clearly explained to ensure they understood the sampling approach. This allowed for suitable preparation and staff allocation to be performed well in advance. CTS could propose suitable dates in relation to their schedule, whilst ensuring that the dates fitted the sampling criteria.
- The survey form was discussed and agreed with CTS, who were also supplied with a coded version of the survey form and a comprehensive set of instructions for how the survey should be conducted.

6.3.1.3 Staff briefing

Each surveyor was briefed in advance of the survey day by a member of CTS central staff, who relayed survey instructions and explained the different components of the survey and how they interact. On the day of the survey, the Survey Supervisor also provided an on-site recap of the brief to the Junior Surveyor.

6.3.1.4 Feedback

There were several opportunities for those delivering the survey to provide feedback. This included the two briefing sessions outlined above, but also during the survey. Surveyors were briefed to immediately raise any issues on the day that may impact on survey delivery (e.g. maintenance works that may influence specific survey location). This was provided directly to the CTS central team (weekends) and/or Sustrans (weekdays). Surveyors were also actively encouraged to provide (less urgent) feedback on the process following completion of the survey. This allowed for ongoing monitoring and review of progress throughout the survey programme. In addition, there was a section within the data collection form asking for contextual information (e.g. particular observations about usage or weather). These were supplied to Sustrans on submission of the completed dataset, accompanied by at least one site photo from a survey day. Additionally, the Senior Surveyor reported on the performance of the Junior Surveyor.

As the survey days at each site were spread across seven months, the survey team provided high level survey performance indicators estimating the count and completed surveys from each survey day at the end of each month. This was provided to Sustrans and shared with Natural England at progress update meetings.

6.3.1.5 Issues that arose and mitigation actions taken

As is usual when delivering a comprehensive survey programme, some issues did arise. These issues are listed in Table 6.6, which also shows the process followed to resolve the issue and the subsequent outcome.

Table 6.6 Reported issues and outcomes within survey delivery

Issue	Process followed	Outcome
Unavoidable surveyor absences There have been instances of surveyors being unable to perform their task on the planned day of the	The survey team provide briefs to surveyors in advance of the survey date and on the day of the survey as well. During these briefs, if the surveyor is unavailable and a	There were four instances where this issue occurred. In each of the four instances, suitable alternate survey days were undertaken.

Issue	Process followed	Outcome
survey due to unavoidable circumstances on the day of the survey such as illness or personal issues.	suitable replacement cannot be found due to the short notice of the absence, the survey day is cancelled. Sustrans are informed and a suitable alternative day is arranged based on the criteria outlined in the sampling and survey site strategies.	
Unexpected infrastructure works on path There was one instance where the path was inaccessible due to unexpected infrastructure works taking place on the day of the survey.	Site selection was cross checked with regional Natural England staff to gain local insight into the accessibility of the selected paths. In this instance the lack of accessibility was only known when visiting the site to conduct the survey. The survey team reported the infrastructure works to Sustrans and concluded the survey should be cancelled. The regional Natural England contact was asked about the extent of the works. It was confirmed the works would be ongoing and therefore the site was no longer suitable for surveying. Following the survey site selection process outlined in the sampling strategy and survey site strategy, a suitable alternative site was selected in agreement with the regional contact.	A suitable alternate survey site was selected for the two of the four surveying that had not yet been delivered.
Obtaining survey permission from land owner There were five sites where it was unclear or complicated to obtain permission to conduct the survey on the path.	Once all survey sites were selected using the site selection process conducted by Sustrans, CTS contacted the relevant land owners to obtain permission to conduct the surveys. Where this was not possible the survey team informed Sustrans. Sustrans liaised with Natural England who supplied regional contacts for more localised information. The regional contacts provided contact information to Sustrans who subsequently shared this with the survey team.	Suitable permissions were gained prior to all surveys.
Negative feedback from surveyor For one of the survey days, a surveyor who had been commissioned by the survey team passed on negative feedback regarding the data collection	The feedback was taken seriously and the individual was replied to by Sustrans. A review of the methodology was conducted in relation to the feedback and discussed with the survey team. The feedback was deemed to be largely	Reassurances about the processes used for recruiting the surveyor and the experience of using the methodology across a variety of other survey projects was supplied to Natural England in relation to the feedback given.

Issue	Process followed	Outcome
methodology directly to Sustrans and Natural England.	invalid and impractical to meet the needs of the project. Sustrans and CTS discussed the processes for recruiting surveyors to the surveyor roster. It was established that as part of the standard review process, this individual had been 'deactivated' after this single day of surveying and therefore would not be used by CTS in the future for this project or any other. Despite being deemed unsuitable for future projects, the Survey Supervisor believed the data collected by the individual was reliable.	The steps taken to engage with the feedback were also outlined to Natural England who confirmed they felt due process had been followed.

6.3.2 Quality assurance of received data

6.3.2.1 Data Checking

Quality assurance checks were undertaken by Sustrans on receipt of the data from the surveyors. The checks included, but were not limited to:

- Completeness of the data set (e.g. has data been received for all the questions in the survey and do the number of responses per survey match the reported response rate).
- Review of any significant gaps in responses for individual questions (e.g. non response to specific questions).
- Comparison of count/survey response to previous survey responses conducted in similar weather conditions.
- Check for correct coding (e.g. Do the codes match the coding guidance? Are survey responses in the correct format – be it numeric, open text, etc?).

If for any reason there were queries or questions about the data, it was returned to the survey team for correction / discussion.

6.4 Future Considerations

Overall the survey completion rates and response rates indicate that the survey programme was designed and managed effectively. However, surveying over the winter months did lead to a number of survey dates needing to be rescheduled. Two of these could not be rescheduled within the lifetime of the project. There was a tight turnaround from completion of the survey programme in January to reporting in March. Whilst analytic models could be developed prior to this, this left little contingency. A greater contingency period would be advisable for future survey programmes.

7 Survey Questionnaire

7.1 Introduction

The visitor survey was one of the three primary research tools used to generate data on which the baseline assessment was made. The survey questionnaire sets out the questions posed to English coastal paths users. The questionnaire is included in Annex 2.

The visitor survey provides important data contributing to the VVM and to each of the impact pathway assessments. It is an essential element of the evaluation research.

7.2 Survey structure and questions

The survey structure was informed by the data needs of the VVM and the assessment methods for each impact type.

Where feasible survey questions were designed to mirror those asked in other relevant surveys, notably the Monitor of Engagement with the Natural Environment survey[29] (MENE) and the England National Trails survey[30]. The purpose of this was to provide benchmarks which were subsequently used to contextualise the results.

Table 7.1 Survey structure

Survey section	Relevance for baseline analysis
Introduction	Provide and record basic information
Attitudinal information	Social and community effects
Visit characteristics - Travel distance and time - Trip characteristics and motivation	VVM, economic impact, recreational wellbeing, physical health
Expenditure	Economic impact
Use of alternative sites & displacement	Economic impact, recreational wellbeing, physical health
Group and respondent information - Group characteristics - Respondent socioeconomics	All

7.3 Development and refinement of the questionnaire

The visitor survey questionnaire was developed iteratively. It was first developed when the evaluation framework was designed[31], and then refined when the baseline assessment was undertaken. At this latter point the questionnaire was subject to both an initial review by the study team and then a pilot at two coastal locations, to ensure that it was fit for purpose (see Annex 5 for further details on the pilot). The survey pilot

[29] For further details see: https://www.gov.uk/government/collections/monitor-of-engagement-with-the-natural-environment-survey-purpose-and-results

[30] TSE Research (2015). National Trails 2014 Visitor Survey. Final report of results

[31] ICF, Sustrans, Cavill Associates (2016). Production of a framework for evaluation of the economic, health and social impacts of improvements in coastal access delivered by the English Coast Path Programme. Evaluation Framework – Final Report.

tested the questionnaire with nearly 40 coastal path users in two locations. It provided feedback from both the interviewees and interviewers, as well as respondent data to test the assessment methods.

As a result of the reviews and pilot the following actions were taken:

- Additional questions were added to collect information required to implement, or better implement, the assessment methods.
- Questions were restructured or reworded to improve the clarity and routing.
- Questions were simplified (e.g. number of categories to choose from) to reduce time required for completion, but without inhibiting implementation of the assessment methods.
- Questions were deleted to reduce time required for completion, but without inhibiting implementation of the assessment methods, or to remove redundant questions following review of the assessment method data needs.

7.4 Weighted analysis of survey responses

The visitor survey respondents make up a sample of the population of the people using the path. However, this sample is biased towards the people who are willing to stop and complete the survey. This means that the sample is unrepresentative of all users.

To mitigate against this bias, the survey data is weighted according to some of the characteristics of the population which have been recorded by the simultaneous manual count conducted at each site.

The manual count categorises users (using interviewers' judgement) by broad age band (under 16, 16-64, 65+), gender (female and male), mode of travel (walking, cycling and other), and the day type on which they were recorded (term weekday, term weekend day, holiday weekday, holiday weekend day). The respondents to the simultaneous visitor survey were also categorised in the same way, using the answers they provide to the survey.

Because the manual count is also used to estimate the total number of trips taking place each year, the total trips being made by users in each category is also calculated by using the proportions recorded by the manual count. Table 1 shows a hypothetical example from Site A (with a reduced number of categories to fit on the table). In Table 7.2, the number of adult trips per year by 16-64 year old females is calculated by multiplying total trips (200,000) by the groups proportion of trips in the manual count (35%), so: 200,000 x 0.35 = 70,000.

Table 7.1 Example population and sample categories from survey site A

Gender	Age	Population proportion (from manual count)	Adult trips per year (calculated by multiplying total trips of 200,000 by the 'population proportion')	Survey responses (from the survey)
Female	16-64	35%	70,000	6
	65+	10%	20,000	3
Male	16-64	25%	50,000	30
	65+	30%	60,000	21
TOTAL		100%	200,000	60

The purpose of the weighting is to use the sample (the survey respondents) to represent the population (the annualised manual count). In this example, we want 6 survey responses to represent the 16-64 year old females making 70,000 trips each year. This means that each of the 6 surveys should represent 1/6 of the total population in this category. Therefore the weight assigned to each of the survey responses in this category is 70,000 / 6 = 11,666.67.[32]

In the ECPP survey weighting the same process is followed for each survey location, based on the proportion of people counted in each category, to calculate a single weight value for each category for that location. An ECPP category includes all the previously stated variables of interest e.g. one category is "all 16-64 year old female pedestrians, recorded on term weekdays". The weight calculated for this particular group from the survey conducted at Capel-le-Ferne in Dover in the ECPP analysis was 1104.89. The calculation of weights is carried out as part of the R processing of the survey and count data, conducted for each survey site independently.

These weights were then used in the calculation of the survey results so that the results are more closely representative of the population of coastal paths users.

7.5 Visit and visitor characteristic analysis

7.5.1 Analysis results

This section provides data tables used for the analysis of visit and visitor characteristics (as presented in Section 2.2 of the Volume 1 Baseline Report). The tables present the distribution of responses based on the weighted sample.

[32] Note, this weight would be more commonly presented as a proportional weight rather than as the absolute number of people in the population being represented by the individual survey response. In this case the weight would be 3.5 (35% / 10%). These weights are equivalent, they are simply using a different base (60 in this footnote, to reflect the total number of surveys, or 200,000 to reflect the size of the population in the main example). To demonstrate this consider that 60 / 3.5 = 200,000 / 11,666,67.

Table 7.2 Type of visitors

Visitor type	Number of respondents	% of weighted responses
Local day visitor	1409	50.8%
Non-local day visitor	376	15.4%
Overnight visitor	1082	33.8%
Total respondents	2867	100%

Table 7.3 Gender of visitors

Gender		Number of respondents[33]	% of weighted responses			
			All respondents	Local day visitor	Non-local day visitor	Overnight visitor
Male		1609	52.0%	49.1%	54.8%	53.8%
Female		1251	48.0%	50.9%	45.2%	46.2%

Table 7.4 Age profile of visitors

Age	Number of respondents	% of weighted responses			
		All respondents	Local day visitor	Non-local day visitor	Overnight visitor
16-24	99	3.2%	3.9%	0.9%	3.1%
25-34	257	9.5%	8.5%	12.8%	9.7%
35-44	376	13.1%	12.4%	12.9%	14.1%
45-54	651	21.6%	20.1%	20.8%	24.2%
55-64	764	24.8%	23.9%	22.1%	27.4%
65-74	605	23.3%	25.6%	25.8%	18.6%
75+	107	4.6%	5.6%	4.7%	2.9%

[33] An additional 3 respondents chose 'Other' (2) or 'Do not wish to say' (1)

Table 7.5 Ethnic group of visitors

Ethnic group	Number of respondents	% of weighted responses			
		All respondents	Local day visitor	Non-local day visitor	Overnight visitor
White: English/ Welsh/ Scottish/ Northern Irish/ British	2604	89.5%	94.4%	90.1%	81.8%
Any other white background	166	8.3%	4.4%	7.9%	14.5%
All other backgrounds	42	1.6%	1.1%	1.6%	2.5%
Did not wish to say	16	0.6%	0.2%	0.5%	1.2%

**More detailed categories were used in the survey to capture ethnicity, but have been grouped due to the relatively low number of responses in these categories (see Questionnaire in Annex 2)*

Table 7.6 Employment status of visitors

Employment status	Number of respondents	% of weighted responses			
		All respondents	Local day visitor	Non-local day visitor	Overnight visitor
Full-time paid work	1379	44.9%	38.0%	47.9%	54.0%
Part-time paid work	400	15.2%	17.0%	14.4%	12.8%
Retired	933	34.3%	38.2%	31.8%	29.5%
Not in paid employment	46	2.0%	2.5%	2.4%	0.9%
Other	81	3.1%	3.6%	3.3%	2.2%
Did not wish to say	23	0.6%	0.7%	0.3%	0.7%

Table 7.7 Annual income levels of visitors

Annual income	Number of respondents	% of weighted responses			
		All respondents	Local day visitor	Non-local day visitor	Overnight visitor
Less than £10,000	115	4.6%	5.7%	6.2%	2.3%
£10,000 - £29,999	648	25.3%	30.5%	20.4%	19.5%
£30,000 - £49,999	489	16.9%	14.7%	19.9%	19.1%
£50,000 - £69,999	291	9.0%	6.0%	11.7%	12.2%
£70,000 - £89,999	138	4.0%	3.2%	3.3%	5.4%
£90,000 & over	136	4.9%	3.5%	7.0%	6.0%
Did not wish to say	1045	35.3%	36.4%	31.5%	35.4%

Table 7.8 Level of education of visitors

Level of education	Number of respondents	% of weighted responses			
		All respondents	Local day visitor	Non-local day visitor	Overnight visitor
Degree or degree equivalent or above	1286	46.8%	38.3%	50.4%	57.8%
A levels or equivalent	698	24.8%	27.1%	25.4%	21.1%
Other qualification below A level	584	18.3%	22.0%	17.7%	13.0%
No qualification	206	7.5%	9.9%	3.9%	5.5%
Did not wish to say	88	2.6%	2.7%	2.6%	2.5%

Table 7.9 Types of visitor groups

Type of visitor group	Number of respondents	% of weighted responses			
		All respondents	Local day visitor	Non-local day visitor	Overnight visitor
Alone	1103	41.5%	61.2%	23.6%	20.1%
Adult couple	1016	34.3%	23.6%	40.4%	47.8%
Family	421	12.7%	7.5%	18.5%	17.9%
Friend(s)	269	9.5%	6.6%	13.4%	12.1%
Other	54	2.0%	1.2%	4.1%	2.2%

Table 7.10 Mode of travel to the coastal path

Mode of travel	Number of respondents	% of weighted responses			
		All respondents	Local day visitor	Non-local day visitor	Overnight visitor
By car (or van)	1438	53.0%	51.1%	77.4%	44.7%
On foot / walking	1249	39.4%	46.1%	4.7%	45.1%
Other	180	7.6%	2.8%	18.0%	10.2%

Table 7.11 Visitor views on the personal benefits of using English coastal paths

Visitor views	Number of respondents / weighted responses	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
I felt close to nature	Number of respondents	1857	765	191	47	5	2
	% of weighted responses	61.0%	29.6%	7.4%	1.8%	0.3%	0.0%
I learned something new about nature	Number of respondents	785	713	876	437	39	17
	% of weighted responses	25.9%	23.4%	28.8%	19.6%	1.8%	0.6%
I took time to appreciate my surroundings	Number of respondents	2130	598	98	35	2	4
	% of weighted responses	72.0%	22.4%	3.6%	1.8%	0.1%	0.1%
It made me feel refreshed and revitalised	Number of respondents	2163	594	83	21	1	5
	% of weighted responses	75.4%	21.3%	2.5%	0.7%	0.0%	0.2%
It made me feel calm and relaxed	Number of respondents	2151	612	78	19	3	4
	% of weighted responses	74.5%	21.9%	2.9%	0.6%	0.1%	0.0%
I enjoyed it	Number of respondents	2468	375	17	2	0	5
	% of weighted responses	86.0%	13.3%	0.5%	0.1%	0.0%	0.1%

Table 7.12 Visitors' likely alternative activities where coastal paths not accessible

Alternative activities	Number of respondents	% of weighted responses			
		All respondents	Local day visitor	Non-local day visitor	Overnight visitor
Done a physical activity in the local area	2192	70.6%	80.9%	52.2%	63.6%
Done a physical activity somewhere else near the coast	350	15.5%	9.6%	26.0%	19.5%
Done a physical activity somewhere else away from the coast	79	3.6%	2.1%	10.1%	3.0%
Done a non-physical activity (locally or not)	59	2.6%	1.1%	2.8%	4.8%
Stayed at home	42	1.6%	1.6%	2.2%	1.4%
Don't know	136	6.1%	4.8%	6.7%	7.7%

7.5.2 Cross group analysis statistical test results

Statistical significance tests were conducted for a sub-set of survey questions, comparing local visitor, non-local day visitor and overnight visitor responses. This used a combination of the Kruskal Wallis H test and post-hoc analysis of pairwise comparisons.

The Kruskal Wallis H test is a nonparametric test used to establish whether or not there is statistical variation in responses, with reference to one or more explanatory variables. These tests are used in cases where the data is not distributed normally and can indicate if there are statistically significant differences between two or more groups of an independent categorical variable, in this case visitor type. The Kruskal Wallis H test does not specify which particular groups are statistically different from each other, only that a significance difference exist in the responses received by different types of visitors. To determine which of the three groups of visitors was significantly different from each other a post-hoc analysis of pairwise comparison was conducted (where the results from the Kruskal Wallis H test outlined that a significance difference existed between the different types of visitors).

The results of the analysis are presented in Table 7.13. In the table, Visitor type 1 are local visitors, type 2 are non-local day visitors, and type 3 are overnight visitors.

Table 7.13 Results of Kruskal Wallis H test and pairwise comparisons

Survey question	Statistical significance (p-value)	Pairwise Comparisons (between visitor types)
Q10	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*
Q11	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*
Q12	*p<0.05*	Visitor type 1-2 are sign. different (p<0.05)
		Visitor type 1-3 are sign. different (p<0.05)
		Visitor type 2-3 are not sign. different *(p>0.05)*
Q15	*p<0.05*	Visitor type 1-2 are sign. different (p<0.05)
		Visitor type 1-3 are sign. different (p<0.05)
		Visitor type 2-3 are not sign. different *(p>0.05)*
Q18	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*
Q22	*p<0.05*	Visitor type 1-2 are sign. different *(p<0.05)*
		Visitor type 1-2 are sign. different *(p<0.05)*
		Visitor type 2-3 are not sign. different *(p>0.05)*
Q23	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*
Q25	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*
Q26	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*

Survey question	Statistical significance (p-value)	Pairwise Comparisons (between visitor types)
Q27	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*
Q28	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*
Q29	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*
Q30	*p<0.05*	All pairwise comparisons are sign. different *(p<0.05)*

7.6 Future considerations

When the survey is re-run at the point of evaluation, the follow points outlined in Table 7.14 should be considered regarding the questionnaire design. They present an opportunity for a minor reduction in survey length. This itself may be preferable (although survey length was not found to be a problem by interviewees when delivering the survey). Alternatively there may be an opportunity to include additional questions which aid aspects of the evaluation e.g. on awareness of the Programme and the (what will be) newly created ECP brand. Such opportunities should be considered at the point of evaluation.

Table 7.14 Survey question lessons

Question	Comment / lesson
Q7: What is the address of the place you travelled from to get here today (postcode; if unknown: village/town and county) AND Q3. Where in the UK do you live? (postcode; if unknown: village/town and county	The questions were used to support the TCM analysis of travel distance and time. A large proportion of respondents did not provide postcodes. In such cases villages/towns were stated. This reduced the accuracy of the TCM analysis. Further, where towns/villages were recorded, an associated country often was not recorded. Where there were multiple towns/villages of that name in the UK cross-referencing was required to confirm the correct one to use in the analysis. **Lesson**: Ensure that interviewers understand that there is a preference for postcodes and target this information. Where a postcode is not given, ensure that the county as well as town/village is recorded.
Q5. Are you staying in the local area	The question was intended to support local expenditure estimates. However this information was adequately collected in the question on expenditure. **Lesson**: Question is redundant and can be removed
Q13. If no, how long do you think that you will spend in the local area today? (hours / minutes	The question was intended to provide additional data for the TCM, however was considered unnecessary and solely the time spent on the path was used in the analysis.

Question	Comment / lesson
	Lesson: Question is redundant and can be removed.
Q19. If answer to Q19 is [to do an activity 'somewhere else'] Where specifically would you have gone?	The question was intended to support the analysis of substitute sites in the TCM. The low response rate and level of detail (i.e. alternate distance to substitute site) meant that it was not used in the TCM, with a dummy variable based on Q18 included instead (see Section 10). **Lesson**: Question is redundant and can be removed.
Q24(ii). What is the mobility status of members of your group?	The question was intended to provide information on accessibility to support social impact analysis. The question was inconsistently responded to and numbers did not always match total group numbers previously reported. Not strictly necessary question as respondent mobility was not required for the baseline analysis. **Lesson**: depending on importance attached to this in the final social impact methodology, consider rephrasing the question or removing.
Q30. Your household's approximate income before tax (please tick)	The question had a particularly low response rate. Only 57% of respondents indicated their household income level. To address this, a 'predicted income' was estimated for the missing 43%. 'Predicted income' was estimated by first regressing income against a number of socio-economic characteristics of those respondents who stated their incomes in the survey (see Section 10.4.2.1). **Lesson:** To try to increase the response rate, surveyors may wish to stress the importance of the question and that no personal data is collected that would allow the respondents to be identified. However a low response is likely in any future survey.

8 Visitor Volume Model

This section outlines the design and development of the Visitor Volume Model (VVM). The sections provide:

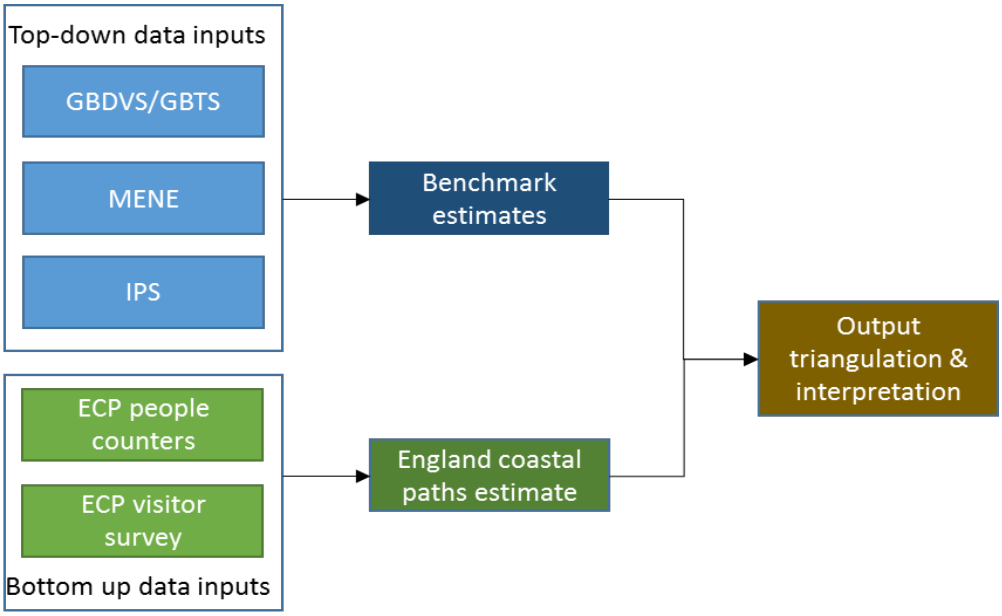
- An introduction outlining the purpose of the VVM.
- An overview of data sources and processes required to implement the VVM.
- A detailed outline of the bottom-up component of the VVM (utilising fieldwork conducted through this study).
- A detailed outline of the top-down component of the VVM (utilising existing national datasets).
- A discussion of approaches to counterfactual analysis for future evaluators.

8.1 Introduction

The Visitor Volume Model (VVM) is a critical input for the ECP evaluation. It provides an estimate of the number of coastal path visits, which is a core input into the evaluation of economic impacts, recreational wellbeing impacts and physical health impacts.

The VVM draws on and triangulates multiple sources of available data. The data sources feed into two components of the model – a top-down and a bottom-up model (see Figure 8.1). It was used to generate the baseline estimate of the number of walkers on English coastal paths in 2017, and is intended to be replicable post-ECP completion at the point of evaluation.

Figure 8.1 Illustrative ECP visit volume model



The next section provides an overview of how the VVM was implemented. The subsequent sections then outline in more detail the methodologies for specific components of the VVM.

8.2 Implementation of the VVM

8.2.1 Bottom-up model component

The bottom-up component of the Visitor Volume Model uses data from the following sources:

- 21 Automatic people counters
- 32 Manual counts of people walking
- Survey of visitors to the English coastal paths, conducted at 32 locations with a total 2,919 responses.

All of these sources provide data that was collected at sites on English coastal paths, as determined by the sampling strategy and survey site strategy.

As per the sampling strategy, the English coast was divided into 13,163 segments[34] each no more than 1km long. Each segment was then assigned to one of 22 categories (see Table 5.2 for information on the categories). Visitor volume estimates from the segments subject to the survey work were then applied to all other segments of the English coast within each category (i.e. those with common characteristics). An overall estimate was achieved by summing the visitor volume across all segments of the English coast.

8.2.2 Top-down model component

The top-down component draws on analysis of a number of existing national datasets in order to provide a set of estimates for coastal visits in England where walking was one of the activities undertaken.

This included analysis from the following data sources:

- Natural England's Monitor of Engagement with the Natural Environment (MENE)
- Great Britain Day Visits Survey (GBDVS)
- Great Britain Tourism Survey (GBTS)
- International Passenger Survey (IPS).

These datasets do not allow walking on English coastal paths to be explicitly identified. Certain assumptions are necessary to produce a top-down usage estimate.

8.2.2.1 Monitor of Engagement with the Natural Environment (MENE) – toward an estimate of users of English costal paths

MENE is a national survey that collects data on people's visits to the natural environment, including geocoded data on the origin and destination of people's visits. It is based on an annual sample of 40,000 adults in England, using in-home interviews. The latest set of published statistics covers the period March 2009 to February 2016 and was published in May 2017[35].

[34] Of the 13,163 segments, 1,204 were marked as 'no access' and usage was therefore assumed to be '0'

[35] Available at: https://www.gov.uk/government/collections/monitor-of-engagement-with-the-natural-environment-survey-purpose-and-results

8.2.2.2 The Great Britain Day Visits Survey (GBDVS)

The Great Britain Day Visits Survey (GBDVS) measures the volume, value and trip characteristics of tourism day visits in Britain. It is commissioned by Visit England, Visit Scotland and Visit Wales. The survey was launched in 2011 and uses an online methodology, with weekly interviews and an annual sample of 35,364 adults. The latest published report presents statistics from 2015[36], with the survey currently expected to run until 2019.

8.2.2.3 Great Britain Tourism Survey (GBTS)

The Great Britain Tourist Survey (GBTS) measures the volume and value of overnight domestic tourism in Britain. It is commissioned by Visit England, Visit Scotland and Visit Wales. The survey has undergone a number of versions since it was first introduced in 1989. The current dataset is comparable from 2006-2016. The survey is based on 100,000 responses comprised of weekly face to face surveys with 20,000 adults in Great Britain.

8.2.2.4 International Passenger Survey (IPS)

IPS is produced by the Office of National Statistics and collects information about passengers entering and leaving the UK. Between 700,000-800,000 interviews a year are completed, of which 250,000 are used to provide estimates. IPS contains a distinct dataset on overseas residents' visits to the UK, which is the data of relevance to our study.

The data provides estimates of tourism to UK counties and 'top 50 cities', including visitor volume and expenditure. Monthly breakdowns are available, showing seasonal variation. However, the location and activity information (which is 'purpose of trip' such as holiday, business, etc.) does not provide the granularity required to estimate volume of usage on English coastal paths, or more broadly coastal activity. IPS is therefore of limited use with regards to the development of the Visitor Volume Model other than providing an estimate of the overall volume of overseas tourists within the UK and seasonal trends in overseas tourists.

8.2.3 Output triangulation and interpretation

Three estimations of the number of walking trips on English coastal paths were generated through the model:

- One estimate from the bottom-up model.
- Two alternative estimates from combinations of estimates from the top down model.

The triangulation process compares the three estimates and considers the strengths and weaknesses of the underlying data in seeking to address the question of how many walking trips are made per year on English coastal paths.

The bottom-up estimate of the VVM was *a priori* considered to provide the most robust estimate of the number of walking trips on coastal paths. None of the top down datasets give specific data on use of coastal walking paths. Hence estimates from the national datasets are dependent on a number of broad assumptions to estimate

[36] Available at: https://www.visitbritain.org/sites/default/files/vb-corporate/Documents-Library/documents/England-documents/gbdvs_annual_report_2015_13.06.16.pdf

usage. By contrast, the bottom up model is based on data collected on coastal paths themselves and designed specifically for the purpose of the evaluation. This includes continuous data collected from automatic people counters over a full year (2017), additional manual counts and survey data at 32 locations over 126 days over a seven month period (July 2017 to January 2018).

The triangulation process demonstrated that the bottom-up estimate lay within the range of the top down estimates. This provided confidence in the *a priori* assumption that the bottom up method provided the most robust estimate of the number of walking trips on coastal paths.

In the original VVM design, consideration was given to attempting to converge the bottom-up and top down estimates. However the assumptions required to produce estimates through the national datasets do not support data convergence as there are not sufficient points of cross-reference between the datasets. The preferred VVM output (the bottom up estimate) has therefore not been adjusted in relation to the national datasets (the top down estimate). This approach will also make for a more easily replicable VVM in future, in order to assess change in the volume of walking trips on the English coastal paths over time.

8.3 Bottom-up Visitor Volume Model Method

This section details the method behind the bottom up component of the VVM that has been used to estimate the annual number of visits to the ECP. Note that throughout this section, the phrases ‘number of visits’ and ‘usage’ are used synonymously.

The basic method behind the model was as follows:

- Categorise segments of the ECP route either as per the sampling strategy or some other categorisation approach.
- Estimate the visitor volume on those segments where count data are available.
- Apply the estimated visitor volume to segments in the same categories where count data are not available.
- Sum the visitor volume across all segments to give an overall estimate.

In addition, and similarly to the sampling strategy, the bottom up model meets the following criteria:

- It produces an estimate of the number of visits to the whole ECP, regardless of the current access permissions on different stretches.
- It produces an estimate of the volume of ECP users, not just everyone on the route. Route users are defined as someone going for a leisure walk on the ECP, whether they know they are walking on the ECP or not. The definition does not cover individuals who are crossing the ECP or who are on the route of the ECP for utility or other non-walking purposes such as shopping.
- The VVM produces an estimate of visits to the ECP for the baseline study and can be replicated for any follow up estimate once the Programme has completed the ECP post-2020.

8.3.1 Categorising the English Coast for the bottom up model

The categorisation of the English Coast for the bottom up model replicated that employed by the sampling strategy, splitting the English Coast into 22 categories.

Alternative approaches were also explored, but rejected. These alternatives were considered because:

- The categorisation of the English Coast for the sampling strategy was designed to account for different types of visitor, not just the volume of visits. It may therefore have been possible to simplify the categorisation when estimating visitor volume.
- If it were possible to reduce the number of categories for the bottom up model, this would provide a greater number of data points per category.
- Communicating the volume of visits on a length of route is made more complicated when there are more categories.

To explore the possibility of a bottom up model with fewer categories, data from Automatic People Counters (APC) located on the route were used. The expectation was that by categorising the APC according to the volume of visits recorded, a simpler classification system may provide sufficient explanation of the differences in visits seen at the APC sites.

However, whilst the analysis of APC data indicated some variations, this was not strong enough to provide sufficient justification for using them to classify the number of visits to English coastal paths. As a result, the categorisation used in the sampling strategy was replicated in the VVM methodology.

Further details on the analysis undertaken on the APC data is provided in Annex 3.

8.3.1.1 Categorising the APC using the sampling strategy categories

In 2016 Natural England funded the installation of 16 new APCs. The location of these counters was limited by the need for:

- A good mobile phone signal (the mechanism by which data is transmitted).
- Landowner agreement to install the counter (and ability to access the site).
- Local authority willingness to support ongoing maintenance.

It was not feasible to move these counters for the benefit of the study i.e. to re-match their locations to those most optimal for the sampling strategy.

Table 8.1 shows the categories that each APC falls into.

Table 8.1 APC categorisation

Counter name	Rural urban category	Population gravity quartile	Distance from nearest public road	Access permissions
Blue Anchor Bay	Rural	Q2	> median	Secure access
Clevedon	Urban	Q4	Not applicable	Permissive and de facto access
Doniford Bridge	Rural	Q2	<= median	Secure access
Galley Hall	Rural	Q3	<= median	Secure access
Harwich Coast Essex	Urban	Q3	Not applicable	Secure access
Holme Dunes NNR	Rural	Q1	> median	Secure access
Itchenor	Rural	Q3	> median	Secure access
Northey Island Causeway	Rural	Q4	> median	Secure access
Pegwell Bay	Urban	Q4	Not applicable	Secure access
Pylewell	Rural	Q3	> median	Permissive and de facto access
Rocket Post Field	Rural	Q1	> median	Secure access
Ryehope Dean	Urban	Q4	Not applicable	Secure access
Saltburn	Rural	Q4	<= median	Secure access
Sandwich Peninsula	Rural	Q4	> median	Secure access
Sea Pasture Reserve Silecroft	Rural	Q1	<= median	Permissive and de facto access
Strete Gate	Rural	Q1	<= median	Secure access
Teesdale Way	Urban	Q4	Not applicable	Secure access
Trimingham	Rural	Q3	> median	Secure access
Undercliffs Natural Nature Reserve	Rural	Q2	> median	Secure access
Waxham	Rural	Q1	<= median	Secure access
Winterton Ness	Rural	Q2	> median	Secure access

Summarising this table by category (Table 8.2), it can be seen that only one secure access category does not include any counters, although eight of the 11 permissive and de facto access categories do not include any counters.

Table 8.2 Number of APC in each category

Rural urban category	Population gravity quartile	Distance from nearest public road	Access permissions	Number of APC	Number of surveys
Rural	Q2	> median	Secure access	3	2
Urban	Q4	Not applicable	Secure access	3	3
Rural	Q1	> median	Secure access	2	2
Rural	Q3	> median	Secure access	2	2
Rural	Q4	> median	Secure access	2	2
Rural	Q1	<= median	Secure access	2	1
Rural	Q1	<= median	Permissive and de facto access	1	1
Rural	Q2	<= median	Secure access	1	2
Rural	Q3	<= median	Secure access	1	2
Rural	Q3	> median	Permissive and de facto access	1	1
Rural	Q4	<= median	Secure access	1	2
Urban	Q3	Not applicable	Secure access	1	2
Urban	Q4	Not applicable	Permissive and de facto access	1	1
Rural	Q1	> median	Permissive and de facto access	0	1
Rural	Q2	> median	Permissive and de facto access	0	1
Rural	Q3	<= median	Permissive and de facto access	0	1
Rural	Q2	<= median	Permissive and de facto access	0	1
Rural	Q4	> median	Permissive and de facto access	0	1
Rural	Q4	<= median	Permissive and de facto access	0	1
Urban	Q3	Not applicable	Permissive and de facto access	0	1
Urban	Q2	Not applicable	Secure access	0	1
Urban	Q2	Not applicable	Permissive and de facto access	0	1

Table 8.3 shows that, with the exception of the permissive and de facto category, none of the variable categories are under-represented by the APC, although there are substantially more APC in rural than in urban areas. However, the number of counters in Q3 and Q4 of the population gravity variable suggests more of these counters are located in the urban fringe rather than very rural locations.

It is worth noting in respect of the small number of counters in the permissive and de facto categories, that this type of path only makes up 14% of English coastal paths. A similar proportion of APC cover this type of path.

This analysis indicates that the categorisation developed for the sampling strategy can be applied to the bottom up model as there are sufficient point estimates (from the APC and the manual counts) located within each category to provide a robust estimate of the number of visits in each category.

Table 8.3 Number of APC by variable category

Variable	Category	Number of APC	Number of surveys
Rural urban category	**Rural**	16	23
	Urban	5	9
Population gravity quartile	**Q1**	5	5
	Q2	4	8
	Q3	5	9
	Q4	7	10
Distance from public road (only applies to 'Rural' segments)	**<= median**	6	11
	> median	10	12
Access permissions	**Secure access**	18	21
	Permissive and de facto access	3	11

8.3.2 Estimating usage at count sites

The levels of usage recorded by each manual count and APC need to be standardised. This is because the manual counts were conducted at different times of the year and so usage will vary by season. In addition the APC do not all have complete 365 day datasets, so are subject to a similar issue, although to a much lesser degree.

This standardisation was completed for the manual count data using the method outlined below. However, it was not necessary to apply the same process to the APC data, as the majority of sites (17 of 21) had over 200 days of data – more than sufficient for a robust estimate of usage. The remaining 4 sites also had sufficient volumes of data for confidence in the resulting estimate of usage.

Following the process to standardise the manual count estimates of usage, the average annual daily total (AADT) for each site is calculated.

8.3.2.1 Standardisation of manual count data

The industry convention is to measure traffic flows in AADT, the average number of trips per day in a single year. This approach was used for the bottom up component of the VVM. The AADT is simple to calculate when a full year of data are available for a site. It is simply the mean of the daily totals. However, the calculation is more complicated when fewer than 365 days of data are available.

Sustrans has an established method for estimating cycling AADTs when there is less than a full year of data. The method used is adapted from Sustrans' standard method. The method takes into account both the seasonality of visits and the variation in visits seen between week days and weekend days and between term time and school holidays (depending on the dates on which the count is conducted).

The manual counts of visitors were compared with the seasonal visit distributions from approximately 20 'reference counters'. A reference counter is an APC where a full year of data is available (i.e. count data have been collected for each day in a single year).

For each reference counter, the monthly average (mean) twelve hour daily total (MADT) was calculated, using data from 7am – 7pm. The twelve hour count was used for comparison with the manual count data. These MADT values gave a seasonal (i.e. a daily average usage per month) distribution for each reference counter.

The AADT for each reference counter was also calculated (using the full 24 hours of data). From this the proportional relationship between the 12 hour MADT in each month and the AADT was calculated.

It was assumed that the manual count location had the same seasonal distribution of visits, hence this (MADT to AADT) proportional relationship was also assumed to hold for the manual count location. This proportional relationship from each reference counter was applied to the manual count data and multiplied by 365, to estimate a series of annual visit estimates for the manual count location.

Because the manual count was conducted on different day types (i.e. weekdays or weekends, school term time or school holidays), the above process was followed for each day type and then summed to give a single figure for the number of visits. The mean of these estimates (one from each reference counter) was then calculated to give the final annual estimate of usage. This was then divided by 365 to give an estimated AADT.

This method does have limitations: the seasonal distribution of visits is unique to each site and depends on a wide variety of factors, not least the variation in visit purposes of people using the ECP. Furthermore, there is substantial variation in the volume of visits across a month, particularly in months where there is a transition between seasons. This means that counts from that month may not be representative of visits for the whole month.

Despite these limitations, this method minimised some of the potential risk of using count data, especially when the survey periods are relatively short. Moreover, this method allowed comparable usage figures to be obtained for all manual count locations.

A hypothetical example calculation of deriving an annual usage estimate (AUE) from manual count data is included in Annex 4.

8.3.3 Interim steps for estimating usage on English coastal paths

Before calculating the number of leisure walking trips on English coastal paths each year, three interim calculations were required:

- **The proportion of people walking on English coastal paths**: The data collected by the manual counts and the APCs represent all pedestrian activity recorded at that location. Using the data collected by the visitor survey, the proportion of people making a 'walking trip' was calculated and applied to the count data. This calculation included all those who said they were 'walking with a dog' or 'walking without a dog', and excluded those who said 'other'.
- **The 'non-secure' factor:** the level of usage on permissive and de facto access paths as compared to usage on paths with secure access, was considered. The theory of change of the ECP programme holds that changing the access permissions on a stretch of path will change the way that the stretch is used,

including changing the volume of visits. Although the number of count sites on permissive and de facto access paths is proportionate to the total length of this type of path, once the categorisation is applied, there are eight categories where just a single manual count would be used to estimate the usage across all kilometres in each category. To try to avoid this, the counts from the permissive and de facto categories (including the APC data) were used to calculate a 'non-secure' factor, which was an estimate of the difference in usage between secure and non-secure stretches of path.

- **The average leisure walk trip distance**: To calculate the final estimate of leisure walking trips on English coastal paths, it was necessary to estimate the average length of each trip.

This section goes on to outline the process for each of these steps.

8.3.3.1 The proportion of people making 'leisure walks' on English coastal paths

The purpose of the bottom up model is to estimate the number of people using English coastal paths for a leisure walk, not simply the number of people recorded on the paths. This was estimated using the data collected by the visitor survey from the following question:

- How are you travelling along the coastal path today?
  - Walking, not with a dog
  - Walking, with a dog
  - Other

Only one respondent was recorded as 'Other' across all sites, so it was assumed that 100% of people counted (whether by manual count data or APC) are taking leisure walks on the paths.

8.3.3.2 The 'non-secure' factor

The non-sector factor was examined but found not to be significant. Hence it was not applied. This sub-section outlines the analysis undertaken on the non-secure factor.

The non-secure factor was calculated as follows:

- A total of 11 manual counts were conducted on permissive and de facto English coastal path segments, to go alongside the three APCs on this type of path.
- The 14 most similar count sites of the 39 sites on secure segments were identified. This was based on a subjective assessment of a map, and the level of usage recorded at each site.
- This formed two groups of 14 AADTs.
- The percentage difference between the sum of the group's AADTs was calculated.
- This figure was used as the non-secure factor: the estimated difference in usage that results from a difference in access permissions.
- If the resulting factor was found to be significantly different from 1, it was applied to the level of usage estimated on the secure path in each category to estimate the level of usage on the equivalent permissive and de facto category.

The non-secure factor was calculated as 0.597. This would seem to indicate that non-secure segments of the ECP see slightly over half the usage seen on secure segments.

However, there is not a significant difference between the AADTs seen on comparable[37] secure and non-secure segments (Welch Two Sample t-test, $p > 0.05$). As a result, the non-secure factor was not applied. Instead the data collected from non-secure segments was assumed to be representative of usage in these categories and was used in the same way as the data collected on secure segments.

8.3.3.3 The average leisure walk trip distance

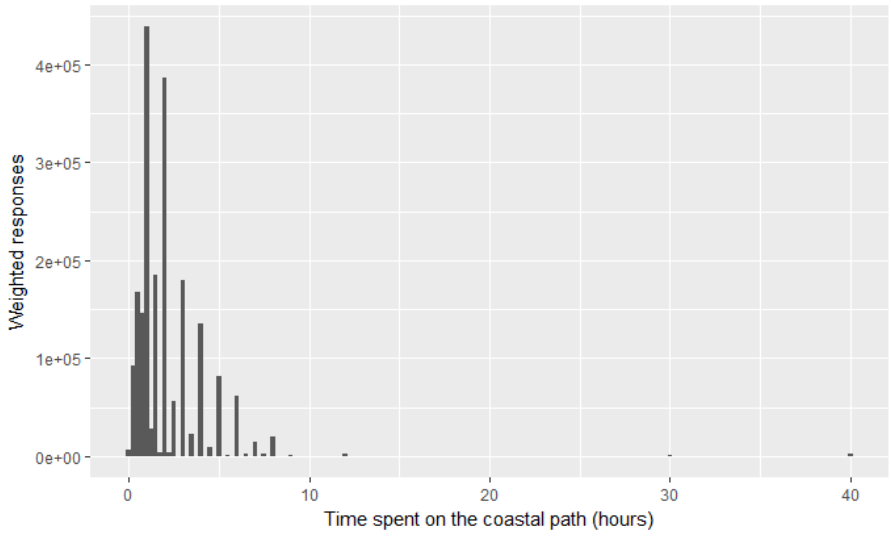
The trip distance is used in the bottom up model to estimate the number of trips that are required to achieve the 'usage kilometres'. Usage kilometres have been calculated using the AADTs from the manual counts and APCs and multiplying the estimate by the number of path kilometres in each category.

The trip distance was calculated using responses to the following question from the Visitor Survey:

- How long do you think you will spend on the coastal path today? (hours/ minutes)

Figure 8.2 shows the distribution of the weighted survey responses[38]. There are a number of extreme outlying values, and it is clear from the gaps in the distribution that responses are rounded to the nearest 30 or 60 minutes. The median value therefore gives the most reliable indication of central tendency as the effect of outlying values on the resulting value is minimised. The weighted median trip length is 90 minutes. Multiplying this by an average walking speed of 4kph[39] gives an average trip distance of 6km. An average walking speed of 4kph was used, based on guidance from the Ramblers which allows for a range of abilities and a range of terrain. There is no authoritative research to draw on directly for this estimate. The Ramblers Association guidance was taken as it is a widely available and commonly referenced estimate.

Figure 8.2 Weighted histogram of trip durations



[37] Comparable sites are identified using a visual inspection of a satellite image of the site location and comparing the levels of usage recorded at each site.

[38] See Section 7.4 for further discussion on weighting.

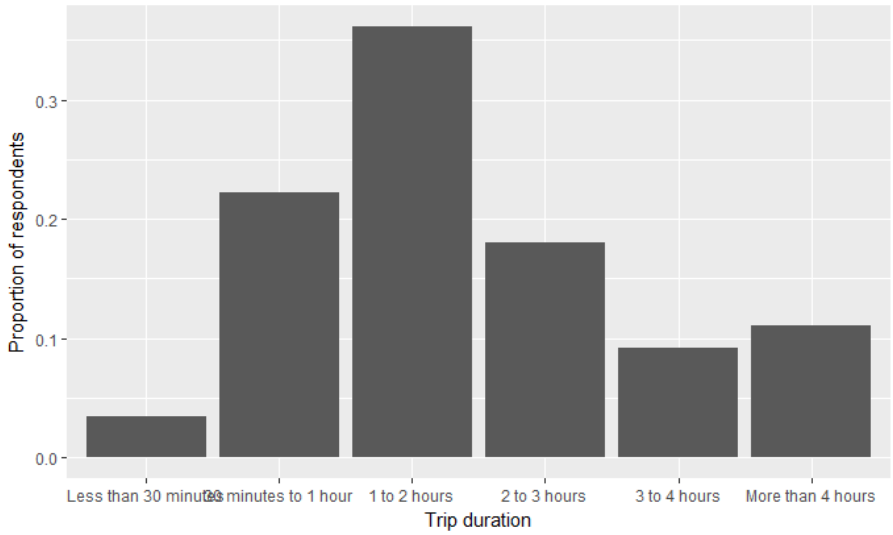
[39] Available at: http://www.ramblers.org.uk/advice/navigation/calculating-walking-pace.aspx

Visitor survey respondents were also asked the following question.

- During each of these visits [to a coastal path anywhere in England, in the last 12 months], how long did you typically spend walking (or undertaking other physical exercise)?
  - Less than 30 minutes
  - 30 minutes to 1 hour
  - 1 to 2 hours
  - 2 to 3 hours
  - 3 to 4 hours
  - More than 4 hours

Figure 8.3 shows the proportion of respondents falling into each category[40]. This supports the finding that trips often last between 1 and 2 hours.

Figure 8.3 Proportion of leisure walking subset respondents giving each trip duration category



The data from the survey question was used as a comparison with the trip distance estimated above.

To convert the responses into an average trip distance, the mid-point of each category was taken (e.g. 15 minutes for the first category, 45 minutes for the second). This value was then multiplied by the same average walking speed of 4kph. This gave an average trip distance of 7.94km.

The difference between this value and the one calculated previously may be, to some degree, a result of social desirability bias. This is a well-recognised phenomenon whereby survey respondents provide answers that align with perceived desirable characteristics such as health and fitness. An evaluation of the Welsh coastal path estimated that self-reported trip distances were on average 46% longer than those measured using origin and destination data.

This is likely to have a greater impact on responses requiring recall than those considering current activity, which indicates that the shorter distance is more appropriate for use in the bottom up model.

[40] This chart presents the weighted respondents. There were insufficient survey respondents to weight the data at two sites. In these cases, the average respondent weight from the other sites is used. See Section 7.4 for further discussion on weighting.

It is also important to note that (as stated in the Ramblers guidance on 'calculating walking pace') the 4kph value does not account for any stops taken over the course of a trip. In the absence of suitable empirical data, the bottom up model assumes that respondents are, on average, walking at 4kph for 50 minutes per hour and resting for the remaining 10 minutes.

This gives a final estimated average trip distance of 5km. This value is used in the bottom up model.

Previous evaluations of the Welsh[41] and the South West[42] coastal paths estimated average trips distances at 2.72 and 3.31[43] miles (4.4km and 5.3km) respectively, which align closely with the value used in the bottom up model.

8.3.4 Estimating usage on English coastal paths

Using the data outlined above, the number of walking trips taking place on English coastal paths was estimated as follows:

- The median AADT for each category was calculated using the AADTs from the manual counts and APCs within the categories.
- This was multiplied by the number of coastal path kilometres that fall into the categories.
- This provided a value for the 'usage kilometres' for each category, a measure of the density of usage.
- The usage kilometres for each category were divided by the average trip distance to give an estimate of the number of trips required in each category to achieve the estimated level of trip density[44].
- The resulting values were then summed to provide an overall estimate of the number of leisure walking trips on English coastal paths each year.

Table 8.4 shows the estimated number of trips in each category.

[41] Natural Resources Wales (2014). Economic assessment of the health benefits of walking on the Wales Coast Path. Available at: http://www.walescoastpath.gov.uk/media/1143/economic-assessment-of-the-health-benefits-of-walking-on-the-wales-coast-path.pdf Accessed 07/02/2018

[42] The South West Research Company Ltd (2013). South West Coast Path –Monitoring & Evaluation Framework Year 1 Key Findings Summary. Available at: https://www.southwestcoastpath.org.uk/media/uploads/swcp_coastal_visits_survey_-__methodology_and_key_findings.pdf

[43] Weighted average of survey responses given on page 39 of The South West Research Company Ltd (2013).

[44] As an example, consider a path that is 2 kilometres long. There are 10 people using the path, and they will walk the full length of the path once. If a count was conducted it would record 10 instances of people passing the count site, regardless of the location on the path. This would give the usage density – 10 people per unit of distance. If kilometres are used as the unit of distance, this gives 10 people per kilometre, or 10 usage kilometres. Scaling this up to the 2km path gives 20 usage kilometres. Note, any unit of distance could be used, as long as the length of the path was reported in the same unit. When density is the same at any point on the route in each category.

However, usage kilometres are not easily communicable measure of usage. To convert usage kilometres into the number of visitors to the ECP, they are divided by the average length of walk on the ECP. In this example, divide the 20 usage kilometres by the walk length – 2km – to give a total of 10 walks, which is the right answer.

Table 8.4 Estimated number of trips by category

Category	Estimated number of trips annually	Rural/ urban	Population gravity quartile	Distance from nearest public road	Access permissions	Route length (km)
1	2,900,385	Urban	Q4	Not applicable	Secure access	766
2	3,388,411	Urban	Q4	Not applicable	Permissive and de facto access	169
3	2,248,076	Rural	Q1	> median	Secure access	356
4	553,085	Rural	Q1	> median	Permissive and de facto access	102
5	1,339,172	Rural	Q3	> median	Secure access	390
6	375,847	Rural	Q3	> median	Permissive and de facto access	61
7	1,387,208	Rural	Q2	> median	Secure access	373
8	15,593	Rural	Q2	> median	Permissive and de facto access	70
9	4,615,921	Rural	Q3	<= median	Secure access	299
10	89,939	Rural	Q3	<= median	Permissive and de facto access	40
11	3,368,297	Rural	Q2	<= median	Secure access	229
12	549,493	Rural	Q2	<= median	Permissive and de facto access	53
13	1,726,498	Rural	Q4	> median	Secure access	218
14	135,724	Rural	Q4	> median	Permissive and de facto access	34
15	717,926	Rural	Q4	<= median	Secure access	152
16	268,697	Rural	Q4	<= median	Permissive and de facto access	36
17	3,441,604	Urban	Q3	Not applicable	Secure access	151
18	243,321	Urban	Q3	Not applicable	Permissive and de facto access	36
19	767,702	Rural	Q1	<= median	Secure access	142
20	52,739	Rural	Q1	<= median	Permissive and de facto access	31
21	932,561	Urban	Q2	Not applicable	Secure access	26
22	97,734	Urban	Q2	Not applicable	Permissive and de facto access	7

8.3.5 Estimating an indication of regional usage

Figure 8.5 provides regional estimates of walking trips on English coastal paths.

The sampling strategy was primarily designed to provide an estimate of the number of walking trips at a national level. As outlined in the sampling strategy, while it may be anticipated that there will be some variation in how the coastal paths are used across the country (e.g. due to weather variability, or desirability as holiday locations), it is not expected that this variability would break cleanly across regional boundaries. Therefore any attempt to account for this variability through the use of a regional variable would likely misrepresent the impact of these factors.

Regional estimates were developed by scaling up the usage estimates for each category in proportion to the length of category within that region. This means that the regional breakdown is indicative and is not based solely on data collected within that region. A more robust breakdown of regional difference would require investment in a greater number of surveys and counts to explore differences within categories from region to region. This was outside of the scope of study.

Table 8.5 Breakdown of estimated usage by region

Category	Estimated number of annual trips
East of England	1,159,185
East Midlands	4,947,181
North East	1,697,099
North West	3,810,009
South East	6,927,984
South West	8,730,571
Yorkshire & Humber	1,835,925

8.3.6 Using the bottom-up model to generate inputs for HEAT

The physical health assessment requires data on the number of unique visitors and the duration and frequency of their walks on English coastal paths (see Section 11). The bottom up VVM outputs were used to create these data inputs utilising the following methodology:

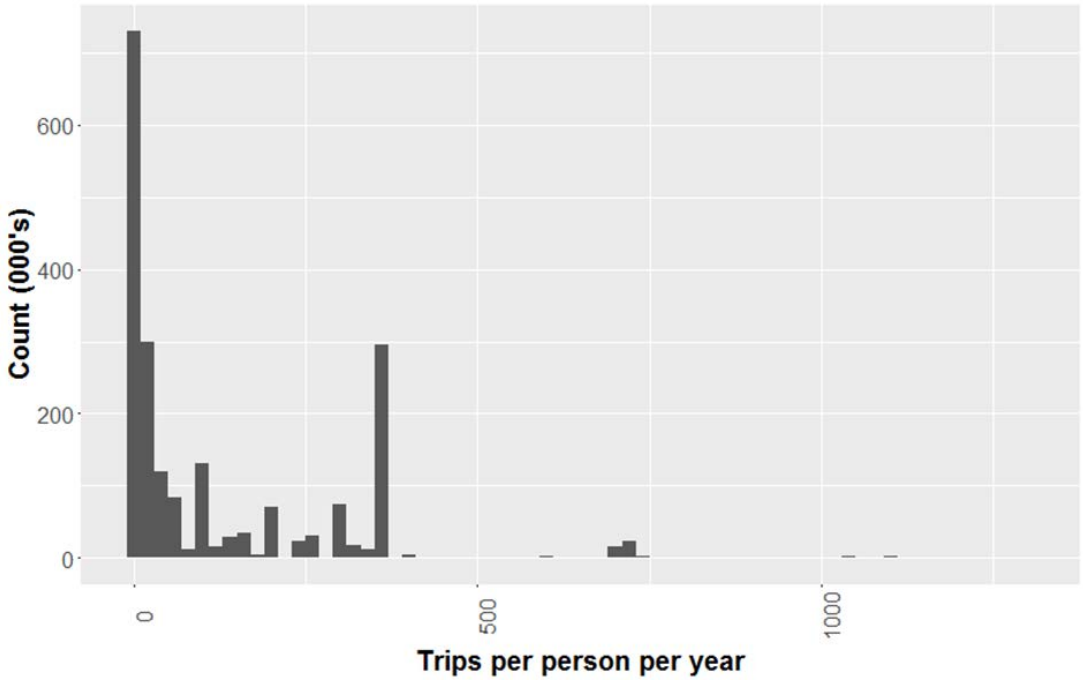
The VVM estimates that 29.1 million trips are made on English coastal paths each year. These trips will be made by an unknown number of unique visitors, as some will be making multiple trips each year, and some just making one or two trips.

In order to estimate the number of unique visitors, the survey responses were analysed to estimate how often each visitor uses a coastal path within a given year. The survey asked respondents:

> *How many times have you used a coastal path in England, here or elsewhere, in the last 12 months, including this trip?*

The weighted distribution of trip frequencies is shown in Figure 8.4.

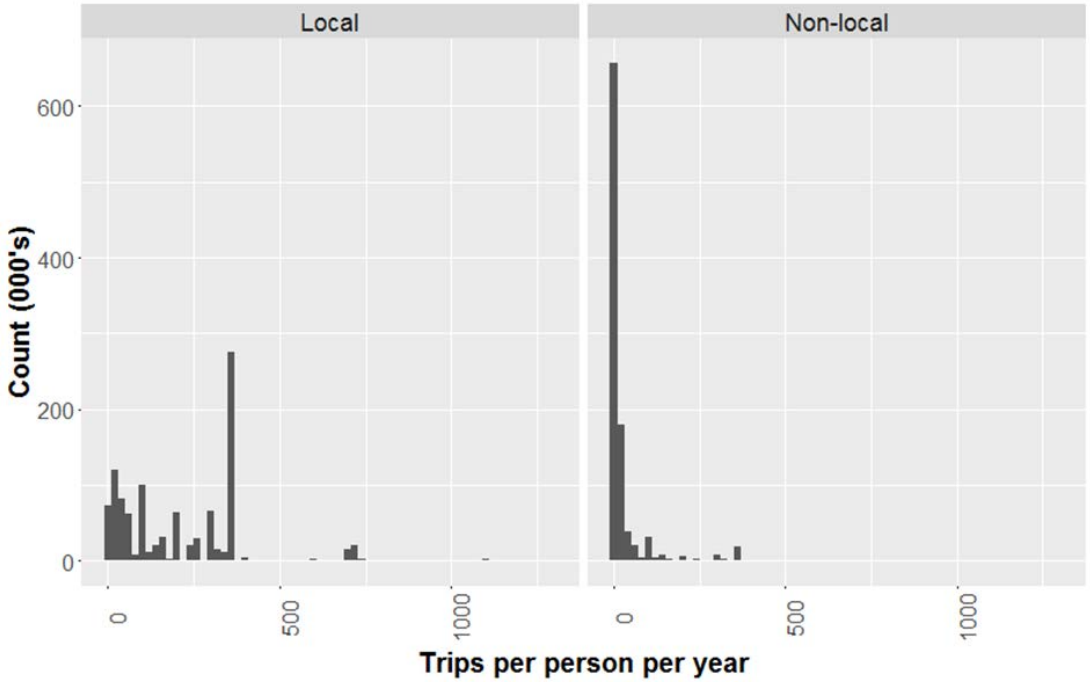
Figure 8.4 Distribution of trips per person per year



There is a clear pattern to the distribution, with the majority of people using English coastal paths just a handful of times each year and another spike in the distribution around the people who make a trip every day. There is then another small spike in the data of people who make the trip twice a day.

If the trip frequency data are split according to whether the respondent lives within 10 miles of the survey location, a clear difference in the distribution can be seen (Figure 8.5). Local visitors (those living within 10 miles of a coastal path) are much more likely to make more frequent trips than non-locals.

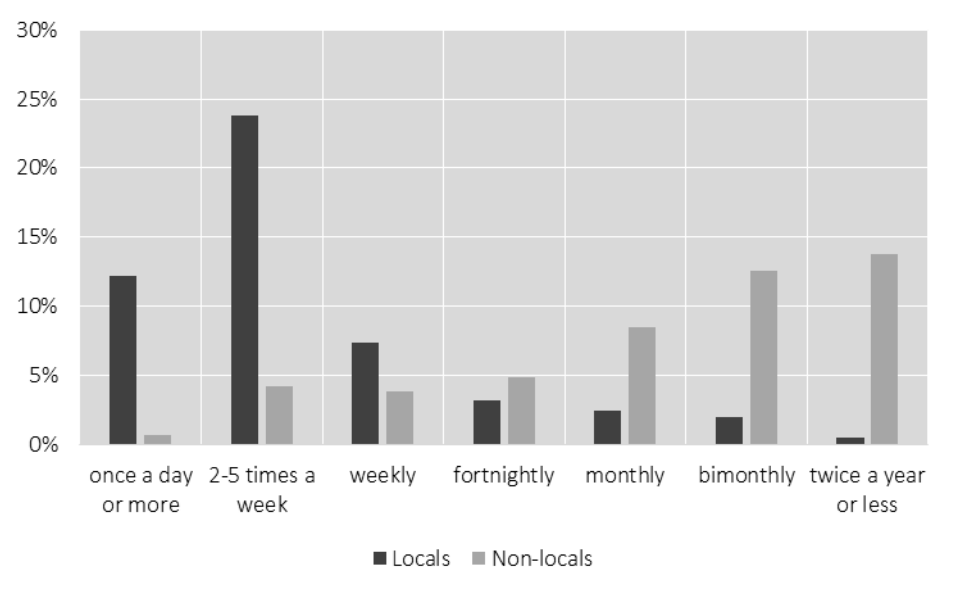
Figure 8.5 Distribution of trips per person per year by home location



The median trip frequency for locals is 200 trips per person per year, compared to 6 trips per person per year for non-locals.

Trip frequencies are converted into a categorical variable, from daily to two or fewer trips per year. The proportion of respondents that fall into each category is then calculated, split by household location. Figure 8.6 clearly shows a difference in the distribution of trip frequencies between local and non-local.

Figure 8.6 Distribution of trip frequency by home location



These proportions are then applied to the total number of trips. This provides an estimate of the proportion of the total number of trips being made by people in each frequency category.

For example:

- 29.1 million trips are made on the coastal paths each year, of which 51% (14.9 million) are made by people living within 10 miles of an English coastal path.
- Of these 14.9 million trips, 24% (3.5 million) are made by people who make the same trip at least once a day.
- This calculation is applied to each of the trip frequency categories.

The trips are then converted into journeys, using the assumption taken from WebTAG (DfT, 2017) that 90% of journeys are ‘there and back’ combinations of two trips, and 10% of trips are part of a journey that doesn’t return on the same route.

This gives the number of journeys made each year by people who fall into the different trip frequency categories (Table 8.6).

Table 8.6 Number of journeys made by individuals in different trip frequency categories

Trip frequency	Locals	Journeys	Unique visitors	Non-locals	Journeys	Unique visitors
once a day or more	12%	1,946,119	5,332	1%	116,910	320
2-5 times a week	24%	3,770,682	20,718	4%	664,625	3,652
weekly	7%	1,168,347	22,468	4%	618,815	11,900
fortnightly	3%	514,229	19,778	5%	769,940	29,613
monthly	2%	392,963	32,747	8%	1,341,494	111,791
bimonthly	2%	312,219	52,036	12%	2,000,339	333,390
twice a year or less	1%	86,405	57,603	14%	2,198,564	1,465,709

The trip frequencies are then converted to the number of journeys those people are making each year. So people falling into the 'once a day or more' category are assumed to be making 365 journeys per year, while those in the 'bimonthly' category are assumed to be making 6 journeys per year.

By dividing the total number of journeys by these values, the number of people making those journeys is calculated. The sum of these is the total number of unique visitors: 2.2 million people, made up of 1.956 million non-local visitors and 0.211 million local visitors.

Trip duration also varies according to whether the individual is local or non-local. Survey respondents were asked:

How long do you think you will spend on the coastal path today?

Local visitors to the English coastal paths tend to make shorter visits (a median value of 60 minutes) compared to non-locals, who spend a median of 120 minutes. These values are used in the calculation of the physical health economic impacts.

8.4 Top-down analysis

8.4.1 Estimating visit numbers from each national dataset

Table 8.7 shows a comparison of the key characteristics of the datasets, along with the specific criteria that the estimates were based on. Differences in the population (by place of residence), location and length of trip were used to combine the datasets into two separate estimates.

Table 8.7 Comparison of key characteristics of the national datasets

Dataset	Sample (per year)	Population (by place of residence)	Location criteria	Activity criteria	Length of trip
MENE	46,000-49,000	England	'Seaside resort' + 'Other coastline'	'Visits involving a path, cycleway or bridleway'	All trips
GBDVS	35,000	Great Britain	'Seaside resort or town' + 'Seaside coastline – a beach' + 'Seaside coastline –other'	'Short walk' + 'Long walk'	Day trips over 3 hours in total only (individual activities may be under 3 hours)
GBTS	100,000	Great Britain	'Seaside'	'Holiday' + 'Visiting friends and relatives (VFR)'	Overnight trips only
IPS	250,000	Overseas (outside of GB)	'England'	'Holiday' + 'VFR'	All trips

The following subsections examine the application of each dataset in the top down model, identifying the assumptions necessary to generate an estimate of coastal path visits for each survey population, and providing the calculated estimates.

8.4.1.2 Monitor of Engagement with the Natural Environment (2016)

The full MENE dataset was not available at the time of conducting the visitor volume analysis. MENE provides an estimation of total visits by location type (not including activity type), allowing us to estimate visits to coastal locations (but not visits in coastal locations by activity type).

MENE indicates that 17% of all visits (across any location) involve a path, cycleway or bridleway. This is the overall proportion of activity across all locations – not just coastal (which may differ). To identify solely walking on a path, cycleway or bridleway (as such visits may also be for cycling and horse-riding) data from GBDVS (2015) can be used – it indicates that 96% of all walking, cycling and horse-riding activities are specifically walking.

This provides a basis for estimating the number of coastal walking visits. But it does not hold that this also equates to coastal path use. All walking activity on a path, cycleway or bridleway on the 'coastline' (one of the two MENE coastal location categories) may be highly likely to be on a coastal path. However walking activity within a 'seaside resort' location (the second MENE coastal location category) may

include a far broader network of paths/routes than just coastal paths. This issue was identified in the South West Coast Path evaluation, with the authors choosing to exclude all walking at a 'seaside resort' location. However such an assumption is likely to be overly restrictive – some walking in seaside resorts is likely to be on a coastal path.

A range of assumptions on costal path use are therefore used, showing how the estimate is affected depending on the percentage of walking activity that might be on a coastal path in each of the two locations. The selected assumptions reflect the greater likelihood of walking on the 'coastline' to be on a coastal path than walking in a 'seaside resort'.

Table 8.8 sets out the assumptions and estimates.

Table 8.8 Monitor of Engagement with the Natural Environment-derived estimate of coastal path visits (millions)

		Coastal location type		Total
		Seaside resort	Other coastline	
All coastal visits		220.0	100.0	320.0
% of visits on a path, cycleway, bridleway		17%	17%	-
% of all walking, cycling and horse-riding activities that are walking (from GBDVS, 2015)		96%	96%	-
Assumptions of proportion of path, cycleway, bridleway visits that are on coastal paths	Low	25%	100%	-
	High	75%	100%	-
Estimate of coastal path visits	Low	9.0	16.3	25.3
	High	26.9	16.3	43.2

8.4.1.3 Great Britain Day Visit Survey (2015)

GBDVS provides statistics on domestic 3hour+ day visits within Great Britain at coastal locations that involved walking. Data on long and short walks has been used[45]. The Visit Britain's Reweighted Data is used, rather than the Historic Data.

Two issues need to be addressed with the GBDVS dataset:

- Estimating the proportion of all walks at the coast that take place on coastal paths
- Estimating the number of visits of <3hours that include walking on coastal paths

Estimating the proportion of all walks at the coast that take place on coastal paths

GBDVS 3hour+ walking visits can be identified for three coastal locations: coastal resort, coastal beach and other coastline. As discussed above (for the MENE dataset), it is expected that a proportion of walks taking place in coastal resorts and at the beach do not use a coastal path (e.g. beach walking may include a walk around the expanse of the beach only). Assumptions of the proportion of all walking at these

[45] Long walk, hike or ramble (minimum of 2 miles / 1 hour); Short walk / stroll - up to 2 miles / 1hour

locations that is on coastal paths are therefore applied. It is assumed that walking on 'other coastline' is the most likely to be taking place on a coastal path.

Estimating the number of visits of <3hours that include walking on coastal paths

GBDVS indicates that 3hour+[46] day visits to all location types account for only 17% of all activity, with the remaining 83% being visits of <3 hours. However detailed survey questions are not asked on <3hour visits, so no information on the activities and locations of these visits is available i.e. the number of coastal walking visits of <3hours cannot be identified.

It can be expected that a high proportion of coastal visits are also likely to be <3hour visits. Assumptions on the likely proportion can be generated in a number of ways:

(i) Assume the characteristics of <3hour visits costal walking visits are similar to all <3hour visit types/locations i.e. the proportion of all coastal visits that are <3hour is the same as for proportion of visits to all locations that are <3hour; and the proportion of <3hour coastal visits that involve walking is the same as for 3hour+ coastal visits.

(ii) Assume that costal walking visits lasting <3hours (total visit time from leaving & returning to their home) is primarily undertaken by people who live within 10 miles of the coast. Data on the proportion of local vs non-local[47] costal path users is available from the coastal path user survey[48]. It indicates that 51% of visits to the coastal path are made by people living within 10 miles of the coastal path.

Of the above, assumptions based on (ii) are preferred. This is because it uses a survey targeted at the user group of interest and hence avoids the need for arbitrary assumptions.

Table 8.9 sets out the assumptions and estimates.

Table 8.9 GBDVS-derived estimate of coastal path visits (millions)

		Seaside resort	Seaside beach	Other coastline	Total
3hour+ costal walking visits		23.8	15.7	2.3	41.8
Uplift factor to include <3hour walking visits		100%	100%	100%	-
Assumptions of proportion of walking on coastal paths	Low	25%	25%	100%	-
	High	75%	75%	100%	-
Estimates of walking on coastal paths	Low	11.9	7.9	4.6	24.4
	High	35.7	23.6	4.6	63.9

8.4.1.4 Great Britain Tourism Survey (2015)

GBTS provides statistics on domestic overnight tourism.

[46] Time of total trip from leaving to returning home i.e. not just the time spend doing a particular activity in a given location.

[47] Where local is defined as somebody living within 10 miles of the coast

[48] See Section 7

In terms of location, the survey does not provide a more specific location than 'seaside'.

The survey asks about 'purpose of journey', but does not ask about detailed types of activity such as walking. For the purposes of this analysis, 'business' trips were excluded and the focus on 'holiday' and 'visiting friends and relatives (VFR)'.

Lack of detail within the dataset on location and activity, means it is not possible to hone in on coastal path activity. In order to refine the estimate it was assumed that the proportion of all seaside activity involving walking is similar to that for domestic day visits (16% as per the GBDVS), and that the proportion of walking taking place on coastal paths equates the assumptions used in the GBDVS derived estimate for coastal resort and beach walking (as these are the location types with the largest number of visits).

Table 8.10 sets out the assumptions and estimates.

Table 8.10 GBTS-derived estimate of coastal path visits (millions)

		Total
All coastal visits (holiday & VFR)		18.1
Proportion of visits involving walking		16%
Assumptions of proportion of walking on coastal paths	Low	25%
	High	75%
Estimates of walking on coastal paths	Low	0.7
	High	2.2

8.4.1.5 International Passenger Survey

IPS provides statistics on the volume of international tourism to the UK, broken down by country (IPS Table 4.03).

The IPS does not provide any data that allows us to estimate visits to coastal areas, or visits by type of activity (i.e. walking). It only provides an estimate of the volume of international tourism.

In order to try to get closer to an estimate of the volume of international tourist trips to England that include walking on a coast path, it was assumed that the proportion of trips to England involving walking at the coast is comparable to that of all domestic day trips that include a walk at the coast (3% as per the GBDVS), and that the proportion of walking taking place on coastal paths equates the assumptions used in the GBDVS derived estimate for coastal resort and beach walking (as these are the location types with the largest number of visits).

Table 8.11 sets out the assumptions and estimates.

Table 8.11 IPS-derived estimate of coastal path visits (millions)

		Total
All visits (holiday & VFR & misc.)		25.3
Proportion of visits involving walking at the coast		3%
Assumptions of proportion of walking on coastal paths	Low	25%
	High	75%
Estimates of walking on coastal paths	Low	0.2
	High	0.6

8.4.2 Combining national datasets to produce alternative estimates of walking activity on the coast

Two alternative estimates of walking activity on the coast were calculated:

- As MENE only surveys residents of England, the MENE estimate is combined with the estimate derived from IPS, which surveys overseas residents
- Similarly, GBDVS and GBTS estimates were combined with IPS, as the first two survey residents of Great Britain, and the IPS surveys overseas residents. GBDVS and GBTS were combined as they cover mutually exclusive types of activity (day visits and overnight tourism respectively).

Table 8.12 Combining national estimates to produce alternative top down estimates of coastal path walking activity

Source	Estimate of annual walking trips (millions) range (mid-point)	Year
Combined estimate from: • Monitor of Engagement with the Natural Environment (MENE) • International Passenger Survey (IPS)	25.5m – 43.8m (34.7m)	2016
Combined estimates from the Tourism Surveys[49]: • Great Britain Day Visits Survey (GBDVS) • Great Britain Tourism Survey (GBTS) • International Passenger Survey (IPS)	25.3m - 66.6m (45.9m)	2015-2016

8.5 Counterfactual analysis

The counterfactual analysis will establish an estimate of the number of visits to English coastal paths in the evaluation year, under a scenario where no Programme had been implemented and the ECP not created.

[49] There is no double counting when combing the tourism surveys in this way (pers. comm. Visit England, October 2019).

There is no definitive method that will clearly generate the 'best' estimate of visit volumes under the counterfactual. It is proposed that the counterfactual for the purposes of the VVM is constructed using a combination of two approaches: (i) 'background trend' approach, and (ii) post-ECP direct report approach.

8.5.1.1 The background trend approach

This will apply the change witnessed in a suitable comparator visitor characteristic or activity to determine the extent to which the volume of path visits may have changed since the baseline was constructed.

There are a number of different options. Subject to data being available some or all of these approaches should be developed and cross-examined, in light of the outputs of each and their theoretical strengths and weakness, as proxies for growth under the counterfactual. The approaches include:

- Change in population: this approach assumes that leisure walking preferences across society remain unchanged between the baseline and evaluation year. As such, visit volumes are expected to change in line with changes in the national population. ONS population growth data should therefore be applied to establish a visitor volume estimate for the counterfactual.
- Change in general walking preferences: this approach seeks to draw on trends in other datasets which account for changes in walking preferences (which could for example be linked to societal trends or weather). It applies the changes observed in these datasets to the baseline estimate of English coastal paths visit volume. Key datasets include those used in the top down analysis (see Section 8.4), or may include any future repeat survey of walking on non-coastal National Trails. In all cases, these datasets will however be affected by the Programme. Even if coastal walking is excluded from the analysis of these datasets e.g. to observe just changes in non-coastal walking, they may still include a Programme effect if the Programme has resulted in a shift in preferences from non-coastal to coastal walking.
  - Long term trend data in walking on other National Trails: this approach looks at walking on the Wales Coast Path and the non-coastal National Trails. As these are established trails the 'access and continuity' and 'branding' that improvements that the Programme and ECP is providing are not being applied to these comparison trails. They are the closest comparison groups that can be found for the ECP. However they would be expected to be affected by the Programme if it results in a shift in walkers from these comparison group trail to the ECP. Hence they might underestimate the counterfactual.
  - Long term trend data in walking on the South West Coast Path: this approach is based on the assumption that as a national trail with existing branding and marketing and good pre-existing continuity, the relative impact of the Programme in the south west will be less than in other regions i.e. it will offer a visitor volume growth rate that is closer to the likely counterfactual growth rate. It would be expected to provide an overestimate of growth under the counterfactual because, despite the factors stated earlier in this paragraph, the Programme will still be providing improvements to the South West Coast Path.
  - Long term trend data in walking (all walking, coastal and non-coastal) in England and UK: this approach examines the long term trend in walking volumes at the national level. The Programme will effect these volumes (for example an increase in walking on coastal paths may result in a decrease

elsewhere). Potential datasets to be considered include: Sport England Active Lives Survey[50], the GBDVS and GBTS, and MENE.

8.5.1.2 Post-ECP direct report approach

There is potential scope to add a question to the survey[51] that explicitly asks about awareness of the Programme, the ECP and the improvements in access and continuity. The purpose is to determine the extent to which these factors may have influenced the visit decision i.e. are you aware of the access improvements? If yes, would you still have walked on the coastal path today if the access improvements hadn't been made?

This provides a measure on which to establish an estimate of the proportion of visitors whose use of the ECP is influenced by the Programme. By excluding such users from the future VVM calculation, an estimate of the counterfactual can be made.

A key weakness of this approach is that respondents may not have used the path pre-ECP completion and hence be unable to answer any relevant questions, or may have problems with accurately recalling their views from the pre-ECP period – this may particularly be the case if the evaluation survey is not conducted for a number of years. The approach would also require additional survey questions to be added, which may extend the survey duration beyond an acceptable time.

8.5.1.3 Selecting a preferred option or triangulating

There are strengths and weaknesses to each of the approaches proposed. If it is feasible to add additional survey questions for a post-ECP direct report approach then there is merit in undertaking both approaches. A triangulation exercise is then necessary to determine the preferred approach or to determine a preferred estimate based on some combination of the approaches. If only one approach is adopted, the background trend approach provides a lower risk option. There is a significant risk that, due to the weaknesses inherent in the post-ECP direct report approach, an insufficient sample size with low confidence in responses may be obtained. This may prohibit its use for the counterfactual analysis.

[50] Available at: https://www.sportengland.org/research/active-lives-survey/

[51] See Section 7.5, which indicates that a small number of existing questions could be removed from the visitor survey

9 Contribution to the Economy

9.1 Introduction

England's coastal paths attract significant numbers of visitors, who spend money on goods and services (such as food, drink, accommodation, transport, etc.) during visits. These expenditures provide significant benefits for local economies in terms of income and job creation. Economic impacts of the Programme are likely to occur where it results in an increased number of visits and/or expenditures in particular locations.

There is an existing evidence base that demonstrates significant economic impacts of coastal paths: the South West Coast Path[52] and the Wales Coast Path[53].

However, these and other economic impact studies have only tended to focus on the total economic impacts of the coast path, rather than the changes in economic impacts that result from improvements. The evaluation of the Programme seeks to assess not only the economic impacts of the use of coastal paths, but also the extent of any additional economic activity that results from the programme.

9.2 Methodological considerations

9.2.1 Factors that need to be considered in an assessment

Increases in expenditures by visitors create direct benefits for economies through growth in business revenues and employment. It is important that assessments of economic impact consider net as well as gross impacts of these expenditures by taking account of additionality. An assessment of the economic impacts of the Programme will need to consider:

- The extent to which additional visits and expenditures have been generated by the Programme and would not have occurred anyway (deadweight);
- The extent to which additional visits and expenditures associated with the ECP represent an overall increase in economic activity, rather than occurring at the expense of reductions in activity elsewhere in the economy (displacement); and
- The extent to which money spent by visitors is retained within the economy rather than being spent on goods and services sourced from outside it (leakage).

Any net increase in economic activity will also generate indirect economic benefits through multiplier effects (through business expenditure in supply chains and through employee expenditure of income). A proportion of these benefits will be retained within the economy and proportion leaked to outside the economy – the scale of which depends on the scale of the economy under consideration.

The Programme also has the potential to provide additional economic benefits for coastal locations by supporting a reduction of the seasonal effects of tourism. Many coastal locations in England are highly dependent on tourism activity in the peak summer months and the large variation in expenditures, incomes and employment between summer and winter months can be a significant economic and social

[52] The South West Research Company Ltd (2015), South West Coast Path Monitoring & Evaluation Framework: Year 4 (2014) Key Findings Summary

[53] Natural Resources Wales (2013), The Economic Impact of Wales Coast Path Visitor Spending on Wales 2013

problem. While coastal walking attracts more visitors in the summer months (as shown in Figure A3.2 of Annex 3), it typically has a less seasonal profile than many other tourism and recreation activities that take place in coastal areas (such as visiting the beach, boating and watersports, etc.).

It is likely that the economic impacts of improvements to coastal access delivered by the Programme are less significant at the national level than the local level. This is because coastal path visitors (and their associated expenditures) are more likely to have been 'displaced' when one considers the whole area of the national economy compared to only the coastal local economy. National economic impacts are most likely if:

- The improvements to the ECP give rise to an absolute increase in walking activity at the national level – although this would likely still come at the expense of displacement of other activities and associated expenditure. It may be more appropriate to expect that national economic impacts only occur where activity at the ECP is in place of activities that would have taken place outside of England.
- The improvements result in additional inbound tourism from overseas tourists, or reduced outbound tourism.

The evaluation should allow for assessment of both local and national impacts in order to understand more fully the economic impacts of the Programme and any divergence in impact significance between the two.

9.2.2 Impact pathway

There is a clear impact pathway between changes in the numbers of visitors and visits and the scale of expenditures, and the resulting economic impacts. This impact pathway considers the following three steps:

- Initial outcomes of the Programme: changes in the numbers and characteristics of visitors and visits. The scale of these changes will be influenced by the Programme outputs and the resulting decisions made by users of the ECP. They will therefore be influenced by awareness of the ECP and the improvements delivered by the Programme, the activity preferences of users, and other external factors.
- Final outcomes of the Programme: the increase in expenditure resulting from the increase in ECP usage. The scale of increase will be dependent on the types of activities being undertaken (expenditure patterns may vary by activity type), duration of use, the types of users (expenditure patterns are likely to differ depending on whether the user is local, a day visitor or overnight visitor). Other factors including the availability of local tourism goods and services (i.e. opportunities to spend) are also relevant.
- Impacts of the Programme: national and local economic benefits that result from changes in user expenditure, such as changes in GVA and jobs amongst local businesses and the associated multiplier effects. The overall economic impacts will be influenced by additionality effects i.e. the relative influence of deadweight, displacement, leakage and multiplier effects.

Further, seasonal impacts will be affected by changes to the scale and timing of visits and expenditures over the year, which may vary in different coastal areas.

9.2.3 Measures and indicators

The key indicators of relevance to the assessment of economic impacts include:

- Initial outcome: Visit numbers and characteristics (e.g. purpose of visit, type of activity/activities being undertaken during visit, type of trip – day visit or overnight stay, duration of trip, timing of trip, whether the visit represents substitution or displacement);
- Final outcome: Scale and nature of visitor expenditures (e.g. expenditure values by activity and user type, types of goods and services purchased, location of expenditures);
- Impact: National and local economic impact (GVA and employment; including indirect and induced effects).

9.2.4 Defining geographical scale

9.2.4.1 The scale at which assessments are undertaken for the baseline and evaluation

For the evaluation of the Programme, economic impacts will be assessed at the national and local level.

- **National economy**: this will be the England economy, aligning it with the geographic scale of the ECP. It is assumed that all trip expenditure falls within this area. It includes local coastal economies.
- **Local coastal economies**: local economy impacts will be evaluated based on the area within 10 miles of the coast (this may be marginally adjusted where logical to do so, to account for settlement patterns). This aligns with the range suggested by the Homes and Communities Agency's Additionality Guide[54] and *a priori* expectations regarding the location of expenditure associated with coastal path visits. Notably, adoption of administrative boundaries was discounted due to the significant variation in their size and degree of inland extension.

9.3 Overarching methodology for the evaluation

Evaluation of the national and local economic impact of the Programme will establish estimates of the impact on visitor expenditure, Gross Value Added (GVA) and employment in the national economy and local coastal economies.

Definitions:

- Visitor expenditure: the value of goods and services purchased by visitors during day and overnight trips.
- GVA: the value of goods and services produced in an area. GVA measures local output and comprises wages, profits and rents. It excludes that part of their turnover which businesses use to purchase goods and services from other businesses.
- Employment: the number of jobs.
- National economy: the UK economy.

[54] Homes & Communities Agency (2014), Additionality Guide: Fourth Edition 2014

- Local coastal economy: economic activity within 10 miles of the coast.
- Indirect effect: a form of multiplier effect resulting from businesses spending some of their revenues on goods and services supplied by other businesses within the economy.
- Induced effect: a form of multiplier effect resulting from employees spending some of their wages/salaries within the economy.

9.3.1 Overarching methodology

The methodology requires data on the baseline, post-ECP, and attributable change in visitor numbers and the average expenditure of those visitors in order to establish the net change in ECP visitor expenditure within the economy. Appropriate ratios are then used to establish the value of GVA and number of jobs directly supported by visitors' expenditure. This provides an estimate of the direct economic impact. Multiplier analysis is then undertaken to add to this indirect and induced impacts.

The following steps summarise the process for implementing the methodology:

- Step 1: Estimate the baseline economic impact.
  a. Estimate visit numbers by visitor type.
  b. Apply baseline average expenditure (within the national and local coastal economies) by visitor type to estimate total expenditure.
  c. Adjust for baseline influence of the coastal paths - the degree to which the coastal paths were the driver for visits and hence expenditure within the economy.
  d. Convert expenditure to GVA and jobs using baseline year conversion factors.

- Step 2: Establish the counterfactual economic impact.
  e. Estimate visitor numbers by visit type using VVM counterfactual outputs and baseline year typologies.
  f. Uprate baseline average expenditure based on changes in relevant background trends and apply to visitor numbers.
  g. Adjust for baseline influence of the coastal paths (described above) by visitor type using the baseline factor.
  h. Convert expenditure to GVA and jobs using evaluation year conversion factors.

- Step 3: Establish the post-ECP economic impact.
  i. Estimate visit numbers by visitor type.
  j. Apply post-ECP average expenditure (within the national economy and local coastal economies) by visitor type to estimate total expenditure.
  k. Adjust for post-ECP influence of the coast path by visitor type – the degree to which the coast path was the driver for their visit and hence expenditure within the economy.
  l. Convert expenditure to GVA and jobs using evaluation year conversion factors.

- Step 4: Establish the net attributable economic impact of the Programme.
  m. Subtract Step 3 expenditure/GVA/jobs outputs from Step 2 outputs.
  n. Apply multipliers to determine the indirect and induced effects of the additional, attributable expenditures of non-local visitors within local coastal economies.

Table 9.1 sets out the data needs for the economic impact assessment.

Table 9.1 National and local economic impact data needs

Indicator	Key data input	Data source*
Visitor numbers	Baseline, counterfactual and post ECP number of coast path visits by visitor type	Visit volume model and pre & post ECP Visitor survey
Expenditure	Average visitor expenditure by visitor type (i) within 10 miles, (ii) in total	Pre & post ECP Visitor survey
Displacement	Alternative activity/location by visitor type	Post ECP Visitor survey
Trip decision influences	Influence of the coastal paths on trip decision by visitor type	Pre & post ECP Visitor survey
GVA	Expenditure-to-GVA conversion factors	Annual Business Survey
Jobs	Expenditure-to-jobs conversion factor	Annual Business Survey
Indirect & induced effects	Economic multipliers (national and local)	HCA Additionality Guide

The following elaborates the steps required to convert the expenditure estimate into GVA and jobs and calculate multiplier effects:

- Convert expenditure to GVA: Extract[55] data[56] on turnover[57] and GVA for the Standard Industrial Classification (SIC) codes listed in Table 9.2 and calculate the turnover-to-GVA ratios for each. Apply the ratios to total visitor expenditure for each expenditure category (see Table 9.2) to estimate the GVA directly supported by these visitor expenditures.
- Convert expenditure to jobs: Extract[58] data on total turnover and employment (average during the year) for the SIC codes listed in Table 9.2 and calculate the average turnover per job. Divide total expenditure for each category by the average turnover per job to determine the total number of jobs directly supported by the expenditure.
- Review and apply ready reckoner multipliers from the Homes and Communities Agency (HCA) additionality guidance[59] to estimate indirect and induced effects[60]. Apply these multipliers to the above estimates of direct GVA and job impacts for local coastal economies. This analysis is not required for the national economy as additional impacts are likely to be minimal. That is because most coastal path visitors would still spend money in the national economy in the absence of the coastal paths, thereby supporting similar levels of GVA and employment. In

[55] Source: ONS Annual Business Survey Data Explorer. Available at: http://web.ons.gov.uk/ons/data/dataset-finder/-/q/dcDetails/Economic/ABS14?p_auth=i84Gf0Pn&p_p_lifecycle=1&_FOFlow1_WAR_FOFlow1portlet_dataset_navigation=datasetCollectionDetails

[56] For the required year or the latest year available, as appropriate.

[57] It is assumed that expenditure to a given business directly translates into business turnover.

[58] Source: ONS Annual Business Survey Data Explorer.

[59] Homes and Communities Agency (2013), Additionality Guide: Fourth Edition 2014

[60] Input-output analyses can be conducted based on ONS data tables, if appropriate expertise is available. The ONS has in the past produced ready-to-use multipliers by SIC code, which could be applied to the SIC listed in Table A1.2. However, these only set out multipliers for indirect effects and it is not clear when they will next be updated. These are available at: ONS UK input-output analytical tables. Available from: https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/ukinputoutputanalyticaltablesdetailed.

contrast, local coastal economies are able to attract additional expenditures and associated impacts that also generate further benefits through multiplier effects.

Table 9.2 Map of visitor survey expenditure categories to Standard Industrial Classification (SIC) codes

Expenditure category (as per visitor survey)	SIC code
Accommodation	SIC-55 – Accommodation
Travel	SIC-49 – Land transport
Food & drink	SIC-56 – Food & beverage services
Other	SIC-47 – General retail

9.3.2 Baseline study method

The baseline study implemented Step 1 of the economic impact method. The different stages of the baseline analysis are summarised below:

1. **Average visitor expenditures were estimated for each type of visitor**, using evidence from the survey of coastal path users. Estimates were produced for all expenditures, and those spent in local coastal economies (within 10 miles of the coast). The average expenditures were also disaggregated across the different types of expenditure including accommodation, travel, food and drink, and other expenditure (e.g. purchases of equipment, souvenirs and other activities). The averages included trips with no expenditure and focused exclusively on expenditure on the day of the trip (i.e. for overnight visitors, only one night's expenditure was assumed to be attributed to the trip to the coastal paths);
2. **The average expenditures were applied to visit volumes to estimate total annual visitor expenditures**. Visit volumes were also disaggregated between types of visit[61], using evidence from the survey. This enabled total expenditure to be estimated for each type of visitor, type of purchase and disaggregated geographically between local and non-local economies;
3. **Trip motivations were used to estimate the expenditure that could be attributed to the coastal path**. Survey evidence of visitor motivations was used to estimate the expenditure that took place on trips where the coastal path was a main reason for taking the trip, and could therefore be attributed to that coastal path. The use of motivations to help attribute expenditures to the coastal path is described in more detail in Section 9.4.3;
4. **Direct impacts of attributable expenditures were estimated for the national economy and local coastal economies**. The direct impacts of the attributable expenditures were estimated using sector-specific metrics to convert the expenditure on accommodation, travel, food and drink and other purchases into GVA and employment impacts for each of the associated sectors. These direct impacts were estimated for the national economy and for local coastal economies;
5. **Total GVA and employment impacts were also estimated for the additional expenditures of non-local visitors in local coastal economies**. A local economic multiplier was used to add indirect and induced effects to the direct impacts calculated in the previous stage.

[61] The different types of visit comprise: local day visits; non-local day visits; and overnight visits (non-local).

The primary data source for the above analysis was the visitor survey. The survey questions that were used to inform this analysis are listed in Table 9.3, alongside a brief description of how they were used.

Table 9.3 Use of the survey data in analysis of economic impacts

Question number	Use of data
Q2 - Do you live in the UK?	Demographic and trip related data were used to determine the visitor and visit type (e.g. local day visitors, non-local day visitors, overnight visitors). The key questions used to determine visitor type were Q2, Q4 and Q12. The other questions (Q3, Q5, Q6 and Q7) were used to inform the data checking and validation process.
Q3 - Where in the UK do you live?	
Q4 - Are you staying away from home overnight?	
Q5 - Are you staying in the local area?	
Q6 - Did you travel here today from your home?	
Q7 - What is the address of the place you travelled from to get here today?	
Q12 - Do you live in the local area (within 10 miles of here)?	
Q15 - Which of the following best describes the reason for your trip?	Reasons for trips were used to determine the motivation for visits to help attribute visitor expenditures to the coastal path.
Q20i - How much do you and your immediate party expect to spend during your whole trip today?	Expenditure data was used to estimate average expenditures. These were also disaggregated by location (total expenditures and those within the local economy) and by category (i.e. spend on accommodation, travel, food and drink and other expenditure)
Q20ii - And how much of that do you estimate will have been spent in the local area (i.e. within approximately 10 mile of here)?	
Q21 - How many people does this expenditure cover?	Data on party size was used to calculate average expenditures per person

9.3.3 Counterfactual analysis

It is proposed that the counterfactual for the purposes of the contribution to the economy analysis is constructed using a 'background trend' approach. The key variables that determine the contribution to the economy are the total number of visits and expenditure per visit.

The total number of visits under the counterfactual is discussed in Section 8.5.

In the absence of the Programme, average expenditure is expected to change only as a result of inflation, or as a result of broader changes in expenditure preferences for leisure visits similar to English coastal paths. Average expenditure under the counterfactual across visitors groups may therefore be estimated in one of two ways:

- Uprating baseline average expenditure estimates for inflation using the latest HM Treasury GDP deflator (i.e. a common measure to adjust for inflation).
- Examining changes in average expenditure by visitor type for all walking visits (non-coastal or all coastal and non-coastal (using available datasets such as MENE, GBDVS and GBTS) to explore whether there have been broader changes in expenditure since the baseline was constructed. If so, it may be preferable to adjust the baseline average expenditure estimate by the observed change in average expenditure by visitor type from one of these national surveys rather than by inflation.

The estimates of total expenditure under the counterfactual and post-Programme situation can then be compared to establish the impact of the Programme on expenditure. The impact on expenditure can be estimated as the difference in visitor expenditure between the counterfactual and post-Programme situations. This expenditure impact value can then be used to determine estimates of the impact on jobs and GVA using conversion figures from the Annual Business Survey (ABS) for the evaluation year, as described below in Section 9.4.3.

9.4 Further specific methodological components

This section provides some further information on the methodology, definitions and assumptions used to produce the estimates of expenditures and economic impacts. These are described below for three key areas of analysis: the analysis of survey responses; the calculation of average expenditures; and the assessment of economic contributions.

9.4.1 Analysing survey responses

The survey of coastal path users is the key source of data for the analysis of economic impacts. It provides valuable data relating to visitor expenditures, the categories of visitor, and the extent to which trips were motivated by a coastal path.

The checking and validation of responses identified a small number of cases where the survey responses provided conflicting information or insufficient information to enable the information to be categorised appropriately. These cases included where:

- Respondents who said they were local residents but also reported that they were staying away from home overnight in the local area.
- Respondents who said they were day visitors but also reported accommodation costs.
- Respondents who said they were visiting from outside the UK but also reported living in the local area.
- Respondents who terminated the survey at an early stage (i.e. before confirming whether they were a local day visitor, non-local day visitor or overnight visitor).

Following this validation exercise, 52 responses (2% of the total) were removed. The final sample on which the analysis of expenditures and economic impacts was based on the remaining 2,867 responses.

It is also important to note that the analysis of economic impacts was based on weighted survey data. The process for calculating and applying weights to the survey responses is discussed in Section 7.4. Furthermore, the survey responses were also used to differentiate between total expenditures (and the associated economic impacts) in the national economy, and those that took place in local coastal economies (defined as the area within a 10 mile radius).

Finally, the survey received a total of 111 responses from coastal path users visiting from outside the UK (or 109 after removing the 2 responses who also said they lived locally). Overseas visitors therefore accounted for less than 4% of all responses and the small sample size was felt to be insufficient to enable a robust analysis of overseas visitors and their expenditures. The analysis presented in this report has therefore combined overseas visitors with UK overnight visitors to create a single category of overnight visitors. However, while the small sample size is insufficient for a full and robust analysis of expenditures of overseas visitors, it is interesting to note the

following differences in the average expenditures of the 109 overseas visitors and the 973 UK overnight visitors:

- Overseas visitors were estimated to spend an average of £45.30 per night, including £40.01 in the local economy.
- UK overnight visitors were estimated to spend an average of £37.93 per night, including £36.08 in the local economy.

9.4.2 Estimating average expenditures

As stated above, the survey evidence was used to calculate average expenditures for each type of purchase and each type of visitor, as well as differentiating between expenditures within and outside the local coastal economy.

The disaggregation of average expenditures between different expenditure categories is key in estimating economic impacts because the extent to which visitor expenditure supports GVA and employment differs between the different categories (or sectors). For example, £1m of expenditure on accommodation or food and drink is estimated to support more jobs and GVA in their respective sectors of the economy, compared to £1m of expenditure on souvenirs, equipment and other goods purchased from retailers. However, not all survey respondents were able to disaggregate their expenditure in this way (i.e. they were able to provide a total spend for the day but were not able to say how much would be spent within each category). As a result, 15% of the total expenditures could not be allocated to one of the four categories of spend (i.e. accommodation, travel, food and drink and other purchases). The treatment of these expenditures is discussed in more detail below.

The survey asked coastal path users about their expenditure on the day of the visit. There is a risk that this approach could overestimate expenditures for some visitors (e.g. for those paying for a full tank of fuel for their car that will last beyond the day of the visit), and underestimate expenditures for others (e.g. those using fuel in their car that they bought the previous day). However this risk is largely nullified by the offsetting effect of the two types of possible respondents. The alternative was to ask about all expenditures associated with the purpose of undertaking the visit, although there are also issues with this approach. This requires questions requiring more challenging recall of details of all previous purchases associated with the visit and estimation of the proportion that relates to the day of the visit (e.g. how much of their recent food bill or tank of petrol had been used on the visit). This can have significant impacts on the accuracy of responses.

The average visitor expenditures also included visits with no expenditure. This resulted in some low average expenditures, particularly for local day visitors, many of whom reported zero expenditure. Some of the visitors from outside the local area also reported day and overnight visits with no expenditures across some or all of the expenditure categories (for overnight visits, this was likely to be due to some visitors staying with family and friends). However, the only visits that were excluded from the calculation of average expenditures were the eight cases where respondents had either refused or were unable to answer the questions about their expenditure.

The average expenditures were calculated as ‘weighted’ mean averages for each category of expenditure and visitor, using the same process for calculating and applying weights as is discussed in Section 7.4. The use of mean average expenditures is consistent with other comparator studies, including those described in Box 3.1 of the Volume 1 report. The analysis also experimented with the use of median and weighted median values, however, the results were considered less

accurate and robust due to the large number of visits with zero expenditure in some or all of the spend categories. This caused some very low or zero median values across many of the categories.

The average visitor expenditures used in the analysis of economic impacts are presented in the table below, alongside their respective confidence intervals (at the 95% level). These confidence intervals show the range of average expenditures within which there is 95% confidence that the true average value lies for each type of visitor. The confidence intervals suggest that the average expenditures for overnight visitors are likely to be the most accurate as there is 95% confidence that the true average figure is within +/- 22% of the mean value. In contrast, the confidence interval for the average expenditures of non-local day visitors provides the largest range varying by up to +/- 33% from the mean value. This is likely to reflect the larger variance in actual expenditures among the non-local day visitors, due to a large proportion of trips with very low or no expenditure and a similarly large proportion of trips with much larger expenditures.

Table 9.4 Average visitor expenditures and associated confidence intervals

Visitor type	Average (£/person/day)	95% Confidence Interval
National economy		
Day visitor (local)	£1.71	£1.20 – £2.22
Day visitor (non-local)	£11.38	£8.26 – £14.50
Overnight visitor (non-local UK and non-UK)	£39.14	£30.62 – £47.65
All visitors	£18.85	£12.96 – £24.74
Local economy		
Day visitor (local)	£1.67	£1.16 – £2.18
Day visitor (non-local)	£8.65	£5.79 – £11.52
Overnight visitor (non-local UK and non-UK)	£36.73	£28.26 – £45.19
All visitors	£17.36	£11.55 – £23.16

Source: ICF analysis of survey data

9.4.3 Assessing economic contributions

The economic contribution of users of the coastal paths was estimated by assessing the GVA and employment that is supported by the visitor expenditures that arise from trips that can be attributed to the coastal paths. These attributable expenditures were calculated using survey evidence to estimate the trips that were motivated by, and the expenditures that can be attributed to, coastal paths.

The survey asked respondents about the extent to which the coastal paths was a motivation for their trip and the results are presented below. The results show that coastal paths were the primary reason for most trips (64%), and this was slightly higher for local day visitors (71%) compared to non-local visitors (60%). This is likely to reflect the higher incidence of shorter trips for local residents where walking on the coastal paths was the sole or main focus of the trip (e.g. for local dog walkers). A further 32% of respondents suggested that the coastal paths was one of the reasons for their trip.

Table 9.5 Extent to which walking along the coast was a reason for the trip (% of respondents and their immediate parties)

	Day visitor (local)	Day visitor (non-local)	Overnight visitor (non-local UK and non-UK)	All
Main reason for the trip	71%	59%	60%	64%
One of the reasons	26%	35%	35%	32%
Not a specific reason	2%	5%	4%	4%
Total	**100%**	**100%**	**100%**	**100%**

Source: ICF analysis of survey data

The analysis has assumed that attributable expenditure should include 100% of visitor spend where the coastal paths were the main reason for the trip, and 25% of visitor spend where it was one of the reasons, and should exclude all spend where it was not a specific reason for the trip. As a result, attributable expenditures are estimated to represent:

- 78% of the total expenditures of local day visitors;
- 68% of the total expenditures of non-local day visitors; and
- 69% of the total expenditures of overnight visitors.

The direct GVA and employment impacts of the attributable expenditures were estimated by applying sector-specific metrics to the visitor expenditures on accommodation, travel, food and drink and other purchases. The metrics are based on data from the Annual Business Survey (ABS)[62] and are presented in the table below. The metrics estimate the extent to which turnover supports GVA, and the turnover required to support a FTE job, in the sectors that are associated with each of the expenditure categories (defined by SIC codes). These sector-level metrics were applied to the estimates of attributable expenditure in order to estimate the GVA and employment that is directly supported in each relevant sector. The bottom row of the table provides a combined figure for all of these 'tourism-related' sectors[63]. These combined metrics have been applied to the 'unknown' expenditures, where survey respondents did not, or could not, disaggregate between the different expenditure categories.

[62] ONS (2017) Annual Business Survey, UK non-financial business economy

[63] The figure for total tourism is also based on ABS data for turnover, GVA and employment. The data were summed across the four SIC codes relating to tourism (SIC 47, 49, 55, 56) and the totals were used to calculate metrics to estimate the extent to which turnover supports GVA, and the turnover required to support a FTE job, for the combined 'tourism-related' sectors

Table 9.6 Metrics for estimating GVA and employment impacts of expenditures

	Corresponding SIC code	GVA as % of turnover	Turnover per FTE job (£)
Accommodation	SIC 55	63%	52,600
Travel	SIC 49	54%	96,600
Food and drink	SIC 56	49%	36,600
Other*	SIC 47	23%	121,400
Total tourism**	SIC 47, 49, 55, 56	31%	88,300

*Notes: * Other expenditures comprise all other purchases including equipment, souvenirs, other activities, etc.; ** Total tourism is the total of the other four categories and these metrics have been used in cases where the survey respondent did not disaggregate their expenditure by category.*

The analysis used these metrics to estimate the direct GVA and employment impacts of:

- All total expenditures in the national economy (including those within and outside local coastal economies) that can be attributed to the coastal paths; and
- The expenditures of non-local visitors in local coastal economies that have arisen due to, and can be attributed to, a coastal path. These expenditures are a component of the total expenditure in the national economy.

The impacts for local coastal economies focused exclusively on additional, non-local expenditures and did not include expenditures of local residents. This is because expenditures of local residents do not represent additional expenditures for the local economy, as they would be expected to have spent their money on other things in the local area in the absence of the coastal paths; whereas non-local visitors would be unlikely to have spent money in the local area.

At the national level, it is unlikely that many of the GVA and employment impacts arising from attributable expenditures can be considered as additional impacts for the national economy. Most of these visitors are likely to have undertaken alternative activities over the course of a year, which would utilise their disposable income. The associated expenditures would have also supported GVA and jobs in the national economy, so could not be considered additional.

However, the additional attributable expenditures of coastal paths users can have significant impacts for local coastal economies. This not only includes the GVA and jobs directly supported by the additional visitor expenditures in these local economies, but also those supported through the additional supply chain expenditures (indirect effects) and re-spending of additional incomes (induced effects) that also arise as a result of the additional visitor expenditures.

Total GVA and employment impacts (including direct, indirect and induced effects) were also estimated for the additional expenditures of non-local visitors in local coastal economies. These total impacts were estimated by applying a multiplier of 1.25 to the direct GVA and employment impacts in order to estimate the indirect and induced effects. This multiplier is based on the latest Homes and Communities Agency (HCA) Additionality Guide[64] for a medium level composite multiplier at the neighbourhood level (1.1) and the regional level (1.5). The analysis of GVA and

[64] Homes & Communities Agency (2013) Additionality Guide: Fourth Edition 2014

employment focuses on local areas within 10 miles of the coast and is therefore expected to fall between the two composite multipliers presented in the Additionality Guide, hence the selection of the multiplier value of 1.25.

10 Contribution to recreational wellbeing

10.1 Introduction

The ECP will provide access to the coast for open-air recreation. Recreation can provide multiple benefits, such as enabling relaxation and aesthetic appreciation. In economic terms, these benefits provide users of coastal paths with utility, or wellbeing, which can be measured in monetary terms. In this study we adopt the term 'recreational wellbeing' to refer to these benefits.

Outdoor recreational resources, such as coastal paths, are often highly valued by people. However, traditional economic approaches (that utilise market prices to measure wellbeing) generally cannot be applied to recreational resources, since access to these resources tend not to command a price. To address this 'market failure', environmental economists have developed a suite of methods to value such 'non-market' goods[65].

10.2 Methodological considerations

10.2.1 Type of assessment

In this study, the travel cost method (TCM)[66] was used to value the recreational benefits of English coastal paths. As there is no charge for using English coastal paths, the TCM takes the broader costs of use as a proxy for price. Specifically, the TCM uses observations on the time and travel costs incurred when individuals travel to an English coastal path to reflect the value of that resource. The assumption here is that the value the individual derives from the recreation experience is worth at least the costs incurred in travelling to the site.

Whilst the ECP is likely to generate use, option and non-use values, it is expected that use values are the most relevant to the policy objectives. This was a key factor in the preference for the TCM over other non-market valuation methods (which may also estimate non-use values).

There are three basic approaches which can be adopted when implementing the TCM, which are (in increasing order of complexity): a zonal approach, individual approach and random utility models (RUMs). The individual TCM approach is preferred for this study. It:

- Provides a more precise estimate of wellbeing value than the zonal approach by using data on individuals.
- Is not ideal for valuing change in quality of recreation site (except where this results in change in use levels), or other factors that may be important determinants of value, but this is feasible. RUM models are a better approach but have significant survey and other data needs (e.g. on all possible sites that a visitor

[65] Hanley, N. and Barbier, E. (2009). Pricing Nature

[66] Useful references for further reading include: (1) A simple online overview of the travel cost method, available at http://www.ecosystemvaluation.org/travel_costs.htm; (2) a more detailed guide through the steps of setting up and implementing a travel cost study; Parsons, G. R. (2003). The Travel Cost Model. University of Delaware. Available at: https://www.researchgate.net/publication/39729449_The_Travel_Cost_Model; and (3) A detailed guide published as a book; Ward, F. A. and Beal, D. (2000). Valuing Nature with Travel Cost Models: A Manuel. Edward Elgar: Cheltenham, UK. 2000

might select, their quality characteristics and travel costs) and statistical requirements.

- Has moderately detailed survey and statistical analysis requirements.

A bespoke individual TCM assessment was considered to be the most appropriate approach.

Consideration was given to the use of available valuation tools but these were rejected. For example, see Box 10.1 for consideration of the Outdoor Recreation Valuation Tools (ORVal).

Box 10.1 Justification for not using Outdoor Recreation Valuation Tools (ORVal)

ORVal was not used for the assessment; rather a bespoke model was developed. This box sets out the justification for not using ORVal.

The recently developed valuation tool, the 'Outdoor Recreation Valuation Tools' (ORVal)[67] which employs a statistical model that includes travel costs is not well suited to this specific application (though it has other useful applications). ORVal provides estimates of the visits and wellbeing generated by individual green spaces (paths, parks, beaches etc.) across the UK based on a statistical model estimated from MENE data (from a stratified random sample survey of trips to green spaces made by England's adult population). It estimates these visits based on the recreation behaviour expressed in the responses of a large sample of people provided in the MENE data set from 2009 to 2015. In the long term, if people's preferences for the sites they visit in the natural environment were to change (e.g. due to the Programme), then those changes would not be captured by the current ORVal model. Rather a new version of the model would have to be estimated based on new data from MENE. Such an update is reliant on funding and availability of data. Further limitations are that:

- ORVal distinguishes between paths on the basis of the types of landcover through which they pass. It does not allow for the fact that National Trails may be distinguished by other features such as the quality of the walking surface or sign-posting.
- The MENE data set does not collect information specifically on visits to long distance paths and if it did, such visits would be a small proportion of the total. Consequently the ORVal model does not do a great job at distinguishing between people's preferences for walking along a continuous path compared with a short length of path.
- The ORVal model characterises paths by the nature of the habitats through which it passes; that is to say the habitats in its immediate vicinity. Accordingly, the 'coastal' nature of a path is only acknowledged by the model where a path passes close to the sea. The model, does not account for the fact that paths may provide enjoyable vistas of the coast or sea.
- The recreation demand model employed in ORVal is focussed on day visits. The model does not include visits by UK residents who did not set off from home. This is likely to result in an underestimate of the value of visits by UK residents.

10.2.2 Impact pathway

The recreation wellbeing impact pathway considers three key steps:

- Initial outcomes of the Programme: an increase in the use of the ECP and a potential change in the characteristics of those visits. These are influenced by the Programme outputs and the decisions made by users. Hence awareness of the ECP, the activity preferences of individuals as well as the availability of substitutes are key influencing factors.

[67] http://leep.exeter.ac.uk/orval/,

- Final outcomes of the Programme: an increase in recreational benefits derived by users of improved ECP stretches. These may reflect:
  - An increase in the per visit benefit derived from ECP use as a result of the improvements made by the Programme, and/or;
  - An increase in aggregate benefit due to an increase in the volume of visits to the ECP stretches.
- Impacts of the Programme: the resulting impact on the overall value derived from use of the ECP.

10.3 Overarching methodology for the evaluation

10.3.1 Overarching methodology

The methodology requires data on the baseline, post-ECP and attributable change in visitor numbers and visit costs and attributes. The following steps summarise the process for implementing the methodology

- Step 1: Estimate the baseline effect on recreational wellbeing:
  - Construct the demand function for the average visitor.
  - Estimate average wellbeing value per visit.
  - Multiply average wellbeing value by total number of visits to estimate total wellbeing value.
- Step 2: Estimate the counterfactual effect on recreational wellbeing
  - Take the number of people making trips along coastal paths from the VVM counterfactual.
  - Adjust the baseline estimate of wellbeing value for inflation
  - Multiply the inflation-adjusted average wellbeing value per visit figure by total number of visits under the counterfactual.
- Step 3: Estimate the post-ECP effect on recreational wellbeing.
  - As per Step 1, but using the post-ECP visitor survey and post-ECP VVM outputs
- Step 4: Estimate the net impact on recreational wellbeing
  - Subtract the outputs of Step 2 from Step 3

10.3.2 Travel cost method: Theory

The TCM approach utilises data on the time and costs of travel to estimate the value of the wellbeing benefits of a recreational resource. Although there are a number of variants to TCM, the ‘count’ model TCM (Hellerstein and Mendelsohn, 1993) is used. Count models are a development of the individual travel cost model, which recognise the rather particular nature of the data generated in recreation demand surveys. Specifically, the count TCM model uses data on the number of visits an individual makes to the recreational site (i.e. English coastal paths), where the number of visits may be influenced by the travel cost (travel distance and time) to that site, along with the characteristics of the path, the characteristics of other potential recreation sites, and the socio-economic characteristics of the individual. Thus:

$$V_{ij} = \emptyset(TC_{ij}, Q_j, S_i) \quad (1)$$

Where:

- V_{ij} are visits per period to site *j* by individual *i*.
- TC_{ij} are the travel costs to site *j* by individual *i.*
- Q_j are the environmental characteristics of site *j.*
- S_i are the socio-economic characteristics of individual *i*.

When analysing the data for the TCM, the dependent variable (Visits) can only take whole number values (1 trip per year, 7 trips, 20 trips ...). Econometrically, this means that count data techniques such as Poisson or Negative Binomial regressions are more appropriate than standard Ordinary Least Squares (OLS) regression[68]. Poisson regressions are used where there is no over-dispersion in the dependent variable - in other words, if the mean number of trips are roughly equal to the variance. However, recreation data is often over-dispersed (variance > mean), so a Negative Binomial regression is more appropriate[69]. Our analysis utilised both the Poisson and Negative Binomial models to analyse trips to English coastal paths. Based on this analysis, we estimated the recreational wellbeing value of a visit to English coastal paths.

10.3.3 Travel cost method: Data requirements

Key data for TCM are the costs of travel to the path. Specifically, information was required on the return travel distance and travel time between the location where respondents travelled from and the section of English coastal path visited, which are subsequently converted to costs. For day visitors, travel costs are relatively straight forward to estimate based on the distance from the respondent's home to the path. Overnight visitors, however, require more thought as travel costs could be based on travel from either their home address or tourist accommodation: in this application, we assume that the travel is from the tourist accommodation as this provides a more conservative estimate of travel costs.

One-way travel distances and times were estimated using 'Doogal' (an online resource that includes a package to estimate travel distances between two locations (https://www.doogal.co.uk/drivingdistances.php), which distinguishes between different modes of transport (driving, public transport, cycling and walking). To generate this data, Doogal required postcodes for the 'start' and 'end' locations. This was either provided directly by the respondents during the visitor survey or established using https://www.freemaptools.com/uk-postcode-map.htm. Where respondents provided town names, the centre point or first half of the post code was adopted. The one-way travel distances and time were then converted to return travel distances and time by doubling the values.

The return costs of travel were based on Department for Transport guidance, which recommends summing the costs associated with the distance travelled with the costs associated with the time spent travelling:

- **The costs of the distance travelled** was based on the return travel distance (motorised vehicles only) multiplied by the UK Department for Transport's

[68] Hellerstein, D. (1991). Using Count Data Models in Travel Cost Analysis with Aggregate Data. American Journal of Agricultural Economics

[69] Haab, T. and McConnell, K. (2002). Valuing environmental and natural resources. The econometrics of non-market valuation

WebTAG Vehicle operating costs[70] (which comprises fuel operating costs + non-fuel resource costs).

– Fuel operating costs were based on the DfT's (2017)[71] formula for estimating fuel consumption costs for the 'average car' (See Table 1.3.13 from the DfT report): $L = a/v + b + c.v + d.v^2$

  Where:
  - L = costs (pence per km)
  - v = average speed in km per hour. For this, we assume average speed to be 25.3mph (40.48 kph) based on the average speed for local 'A' roads in September 2017[72]
  - The DfT[73] a to d parameters for an 'average car' in 2017 were: a = 76.706, b = 5.302, c = -0.035 and d = 0.004.
  - Based on the above, we assume fuel operation costs = 6.36 pence per km (10.18 pence per mile)

– Non-fuel resource costs were also based on the DfT's WebTAG Vehicle operating costs for the 'average car' (See Table 1.3.15 from the DfT report[74]) and is assumed to be 3.969 pence per km (6.350 pence per mile).

– Based on the above, we assume that the vehicle operating costs were equal to 16.530 pence per mile.

■ **The costs associated with the return time travelling** to a coastal path (all path visitors) was estimated by multiplying the time (hours) travelling with the Department for Transport's[75] Table 1.3.2 'market price values' for 'non-working – other' travel (which for 2017 was £4.94 / hr).

A summary of the approach used to estimate travel costs is provided in Table 10.1 below.

Table 10.1 Assumptions used to estimate travel costs

Mode of transport	Costs associated with travel distance	Costs associated with time travelling.
Motorised travel	16.53 pence per mile	£4.94 / hr
Non-motorised travel	-	£4.94 / hr

Data to feed into the estimate of travel distance and time were collected from the following questions that were asked in the visitor survey:

- ***Q3**: Where in the UK do you live? (postcode, village/town)*
- ***Q6**: Did you travel here today from your home?*

[70] Department of Transport (2017) WebTAG Databook, December 2017 release v1.9.1 Available at: https://www.gov.uk/government/publications/webtag-tag-data-book-december-2017

[71] Department of Transport (2017). WebTAG Databook, December 2017 release v1.9.1

[72] Department for Transport (2017) Travel time measure for the Strategic Road network and local 'A' roads. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/663588/travel-time-measures-on-srn-local-a-roads-oct-2016-to-sep-2017-summary.pdf"

[73] Department of Transport (2017). WebTAG Databook, December 2017 release v1.9.1

[74] Department of Transport (2017). WebTAG Databook, December 2017 release v1.9.1

[75] Department of Transport (2017). WebTAG Databook, December 2017 release v1.9.1

- ***Q7**: What is the address of the place you travelled from to get here today (postcode, village/town)?*
- ***Q8**: At what point on the coast path did you start your walk today?*
- ***Q9**: How long did it take for you to travel to the start of your walk today?*
- ***Q10**: What was your main form of transport to get to the start of your walk today?*

10.3.3.2 Cleaning for potential outliers

In the visitor survey, a total of 2,919 interviews were undertaken across 22 route categories. Of these, 10 interviews were rejected as they were incomplete. The remaining data was 'cleaned' to remove potential outliers. This involved 'trimming' 5% of the data with the highest recorded 'travel times', where separate trims were undertaken for the data grouped by route category and Mode of transport. This resulted in the removal of 173 observations.

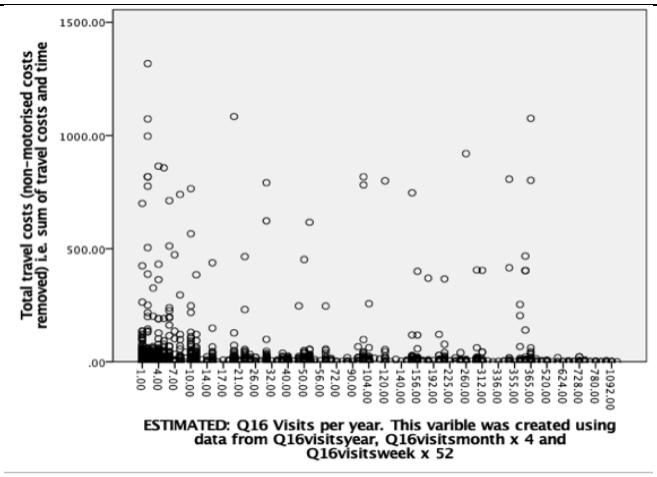
Following the removal of these outliers, we ran a scatterplot analysis to compare travel costs and annual visit volumes of individual responses. This analysis identified a further two respondents that had very high travel costs and visit volumes, who were also removed from our dataset as outliers (see Figure 10.1). Removing two additional outliers after the 5% trim significantly reduced the wellbeing values, but had a minimum impact on the mean return travel cost value. The reason for the difference in the effects is that in the wellbeing analysis the removal of the two outliers had a significant impact on the NB regression analysis, in terms of increasing the slope of the regression line of best fit relating to the travel cost variable. This increased the value of the travel cost coefficient in the regression. Given that the value per trip is estimated as 1/ travel cost co-efficient, a higher valued coefficient results in a lower value per trip. So it is the change in the slope of the coefficient that results in a significant change in the wellbeing value. In contrast, removing two respondents from a sample of around 2,700 respondents has minimal impact on the mean values.

The final dataset used in the analysis comprised 2,734 observations. (In the dataset all removed responses are coded as Outliers = 1. The 10 rejected responses did not have a start or end point.).

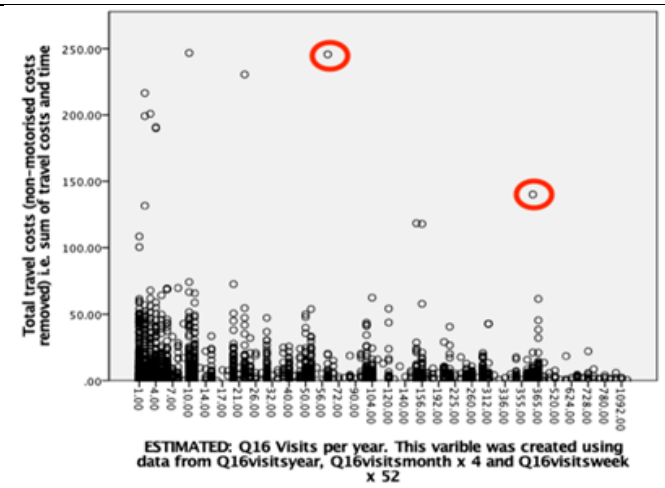
Figure 10.1 Scatterplot analysis of travel costs and number of trips – sequential trims to sample

The 3 scatter graphs, based on the survey data, show an analysis of travel costs against number of annual visits undertaken for: (a) alll respondents; (b) respondents after a 5% trim of outliers; and (c) respondents after a 5% trim of outliers minus two further outliers identified by to "eyeballing (b)". The two respondents removed due to eyeballing are circled in red in (b). The analysis for the report was based on the respondents shown in (c).

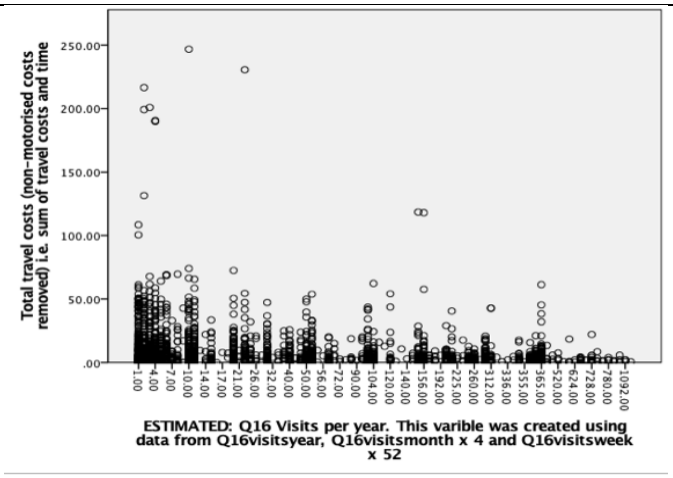
(a) All respondents



(b) Respondents after a 5% trim of outliers



(c) respondents after 5% trim and two further outliers



10.3.4 Counterfactual analysis

It is proposed that the counterfactual for the purposes of the contribution to the recreational wellbeing analysis is constructed using a 'background trend' approach. The key variables that determine the contribution to recreational wellbeing are the total number of visits and the cost of travelling to the coastal path (measured by the cost of travel and time), as well as path and visitor characteristics.

The total number of visits under the counterfactual would come from a counterfactual VVM. This is discussed in Section 8.5.

In the absence of the ECP, travel costs, and some visitor attributes may change under the counterfactual. Travel costs would be expected to change as a result of inflation or due to transport specific factors. Travel costs may also change due to methodological changes in how the cost of travel time is calculated. Visitor attributes, notably income, is likely to increase in line with wage growth. The distribution of income across visitors would not be expected to change significantly (i.e. the type of visitor remains constant) – whilst this may not hold over the longer term it would be particularly difficult to predict the potential changes in income distribution under the counterfactual. .

The average wellbeing value under the counterfactual may therefore be estimated in one of two ways (depending on available resources), with the second option likely to be the more robust:

- Updating baseline average wellbeing value per visit estimates for inflation using an appropriate measure of inflation e.g. the latest HM Treasury GDP deflator.
- Updating the baseline estimates for the costs of travel and time, drawing on the latest Department for Transport's (DfT) guidance at the time of the evaluation (see Section 10.3.3), and the counterfactual VVM estimates of visit volumes, by re-running the TCM.

10.4 Application of the TCM in the baseline

10.4.1 Estimation of respondent's costs of travel

10.4.1.1 Mode of travel

Table 10.2 provides a summary of mode of travel used by respondents to access English coastal paths. Respondents who used motorised transport (cars and public transport) were differentiated from those who used non-motorised transport (e.g. walking, cycling). In the analysis, it is assume that motorised transport incurs both a cost of travel (pence per mile) and a cost associated with the time spent travelling, while non-motorised travel is based on a cost of time spent travelling.

Table 10.2 Mode of transport to an English coastal path by route category[76]

Route category	Car	Train	Public bus	Coach trip	Motor cycle	Bicycle	On foot	Wheelchair	Boat	Taxi	Other	N
1	31%	4%	2%				63%			0%		259
2	59%		3%				38%					95
3	32%	1%	6%			1%	60%					175
4	87%	4%	1%				7%				1%	77
5	46%	2%				2%	49%					85
6	50%	3%				3%	44%					34
7	66%	0%	3%	0%	0%	0%	29%					242
8	67%				33%							3
9	51%	3%	2%			1%	42%	1%				330
10	24%		2%				73%					41
11	46%	2%	1%				51%					155
12	11%						89%					62
13	69%	0%	4%	0%			26%				0%	317
14	38%						21%		40%			47
15	34%	5%	4%		1%		57%					104
16	58%		2%			2%	33%		5%			57
17	55%	7%	7%	1%		1%	30%	1%				215
18	29%		2%				69%					55
19	31%		4%				65%					52
20	41%						59%					27
21	86%	1%					12%	1%				157
22	30%					3%	67%	1%				145
All route categories	51%	2%	3%	0%	0%	1%	43%	0%	1%	0%	0%	2734

Note (a): figures are rounded to the nearest whole number except if <1

Note (b): data presented in this table differ to that presented in Volume 1 Section 2.2 Visitor and Visit Analysis, as a smaller sample of the survey respondents is used in the recreational wellbeing assessment.

[76] See Section 5 for further information on route categories.

The main types of travel to reach the start of walks on the coastal paths walk are by car (50.5% of all trips), and on foot (43.1% of all trips). Bus, train, boat and bicycle respectively represented 2.6%, 2.0 %, 0.8% and 0.5% of trips. There was, however, substantial variation between the modes of transport to reach the different categories of coastal paths. For example, the proportion of trips made by car ranged from 87.0% in route category 4 to 11.3% in route category 12.

There were significant differences (Chi-square = 99.85, p=0.00) in modes of transport between people who travelled to the path from home (day visitors) and those who visited from a holiday address (overnight visitors) (Table 10.3). Of the day visitors, 57.0% used their cars and 37.1% walked, while 39.3% overnight visitors used their cars, with 53.3% walking to the path.

Table 10.3 Mode of transport to an English coastal path by departure address (day visitors and overnight visitors)

	Car	Train	Public bus	Coach trip	Motor cycle	Bicycle	On foot	Wheelchair	Boat	Taxi	Other	N
Day visitors	57%	2%	2%	0%	0%	0%	37%	0%	1%			1,731
Overnight visitors	39%	1%	4%	0%	0%	1%	53%	0%	1%	0%	0%	1,003
All	51%	2%	3%	0%	0%	1%	43%	0%	1%	0%	0%	2,734

Note: data presented in this table differ to that presented in Volume 1 Section 2.2 Visitor and Visit Analysis, as a smaller sample of the survey respondents is used in the recreational wellbeing assessment.

10.4.1.2 Travel distance and time

Table 10.4 provides a summary of the mean return travel distance (miles) and travel time (minutes) of Day visitors and Overnight visitors by study route category. In terms of return travel distance, across all route categories, day visitors travelled significantly further (23 miles) than overnight visitors (15 miles) (t=5.384, p=0.00). However, at the level of individual route categories, significant differences between day and overnight visitors were only found for route categories 2, 3, 7, 12, 15, 17, 19, 21 and 22. There were significant differences in travel distance across route categories (F=10.617, p=0.00). The average return time travelling, across all route categories, was not significantly different for day visitors (67 minutes) compared to overnight visitors (63 minutes) (t=0.815, p=0.415); although they were significantly different for route categories 2, 3, 7, 12, 15 and 22. There were, however, significant differences in travel time across the different route categories (F=4.667, p=0.00).

Travel distances were calculated based on the address that visitors had travelled from that day. For many overnight visitors this would have been their local holiday accommodation address. This is likely to explain why travel distances were sometimes lower for overnight visitors than day visitors. Similarly, differences in travel time may also be due to this factor, as well as due to differences in the modes of travel used (see Table 10.3).

Table 10.5 provides a breakdown of the mean, return travel distance and time by mode of transport. People who travelled by train, on average, travel the furthest (129 miles (return) for day visitors and 72 miles (return) for overnight visitors: this distance was significantly different (t=2.44, p-0.018)). Visitors using other forms of motorised transport generally travelled around 30 miles. Day visitors and overnight visitors walked 4 miles to and from the path (not significantly different (t= 0.714, p=0.475). It is likely that this high average return distance of 4 miles walked to / from the coastal path is driven by (i) people who were doing circular walks (and hence not walking directly to the path) and (ii) the method used to establish travel distances which was based on root postcodes / town names which may not be 100% accurate. People who travelled by train, on average, spent the longest time travelling to and from the path (day visitors = 240 minutes; overnight visitors = 142 minutes: t=3.12, p=0.003). Those who used their cars, on average, had a return travel time of just under 1 hour, while day visitors walked for 70 minutes and overnight visitors 68 minutes (not significantly different)

Table 10.4 Return travel distance and time by route category[77] and type of visitor

Route category	Day visitors		Overnight visitors	
	Distance (miles)	Time (minutes)	Distance (miles)	Time (minutes)
1	21.0	64	10.2	72
2	7.2	30	0.6	2
3	33.4	80	10.0	46
4	18.2	32	20.4	40
5	25.6	112	15.2	54
6	27.8	112	10.0	92
7	60.4	112	21.0	60
8	4.0	14	-	-
9	17.6	80	15.8	86
10	17.4	46	-	-
11	27.0	104	18.8	102
12	14.8	40	1.6	16
13	10.2	30	9.2	24
14	14.0	130	20.4	84
15	6.2	36	41.4	88
16	11.6	38	5.4	42
17	54.2	120	31.6	92
18	5.6	36	7.8	36
19	38.4	70	9.4	42
20	4.4	16	21.0	190
21	36.2	64	15.2	48
22	31.0	68	4.6	36
All route categories	**23.2**	**67.0**	**15.2**	**63.0**
(95% CI)	**(21.1 – 25.2)**	**(59.6 – 74.2)**	**(13.3 – 17.0)**	**(53.0 – 72.4)**

Note: figures are rounded to the nearest whole number except if <1

[77] See Section 5 for further information on route categories.

Table 10.5 Travel distance and time by Mode of Transport and Type of visitor

			Car	Train	Public bus	Coach trip	Motor -cycle	Bicycle	On foot	Wheel -chair	Boat	Taxi	Other
Distance (miles)	Day visitor	Mean	32	129	36	33	7	2	4	1	9	-	-
		Lower	29	108	24	-	1	1	3	0	2	-	-
		Upper	34	151	48	-	13	3	4	2	17	-	-
		n	986	42	31	1	2	7	643	4	15	0	0
	Overnight visitors	Mean	28	72	25	14	5	12	3	1	7	18	106
		Lower	24	29	15	12	-	6	3	-	6	-	-92
		Upper	31	115	35	15	-	18	4	-	9	-	303
		n	394	12	41	2	1	7	535	1	7	1	2
Time (Minutes)	Day visitor	Mean	56	240	78	168	20	24	70	26	180	-	-
		Lower	52	212	56	-	9	14	52	4	18	-	-
		Upper	52	212	56	-	9	14	52	4	18	-	-
		n	986	42	31	1	2	7	643	4	15	0	0
	Overnight visitors	Mean	52	142	58	92	10	62	68	26	134	44	134
		Lower	47	84	39	56	-	29	50	-	97	-	-96
		Upper	57	200	77	128	-	95	86	-	171	-	364
		n	394	12	41	2	1	7	535	1	7	1	2

Notes:
- *'Lower' and 'Upper' refer to the 95% confidence interval*
- *Note: figures are rounded to the nearest whole number except if <1*
- *Notes: figures shown in bold are significantly different between Day visitors and Overnight visitors (p=0.05)*

10.4.1.3 Travel Costs

The costs of return travel to the coast were estimated based on the fuel and non-fuel vehicle operating costs, plus the costs for the time travelling to the sites (see Section 10.3.3). Table 10.6 provides a summary of the average travel costs of day visitors and overnight visitors by study route category. Across all route categories, day visitors, on average, incurred significantly higher travel costs (£9.12) than overnight visitors (£7.30) (t=2.89, p=0.004). There was also significant differences between travel costs across route categories (F=7.549, p=0.00). For example, costs incurred by day visitors ranged from £1.72 in route category 8 to £19.04 in route category 7, while the costs for overnight visitors ranged from £0 in route categories 8 and 10 to £17.74 in route category 20.

Table 10.6 Return travel costs by route category[78]

Route category	Day visitors				Overnight visitors			
	Fuel cost (£)	Non-fuel cost (£)	Time cost (£)	Travel cost (£)	Fuel cost (£)	Non-fuel cost (£)	Time cost (£)	Travel cost (£)
1	1.95	1.22	5.30	8.44	0.75	0.47	5.90	7.15
2	0.68	0.42	2.40	3.49	0.05	0.03	0.10	0.22
3	3.28	2.05	6.60	11.97	0.87	0.54	3.70	5.11
4	1.84	1.15	2.70	5.67	2.03	1.27	3.30	6.59
5	2.21	1.38	9.30	12.86	1.41	0.88	4.50	6.78
6	2.39	1.49	9.20	13.30	0.41	0.26	7.60	8.26
7	5.94	3.71	9.20	19.04	2.02	1.26	4.90	8.21
8	0.27	0.17	1.10	1.72	.	.	.	.
9	1.52	0.95	6.60	9.08	1.29	0.81	7.10	9.24
10	1.69	1.06	3.80	6.51	.	.	.	.
11	2.41	1.50	8.60	12.47	1.55	0.97	8.30	10.85
12	1.44	0.90	3.30	5.64	0.11	0.07	0.90	1.11
13	0.98	0.61	2.50	4.14	0.90	0.56	2.00	3.45
14	1.40	0.87	10.80	13.04	2.01	1.26	6.90	10.20
15	0.49	0.31	3.00	3.83	4.20	2.62	7.30	14.09
16	1.17	0.73	3.10	5.00	0.45	0.28	3.50	4.23
17	5.35	3.34	9.80	18.59	2.99	1.87	7.60	12.52
18	0.43	0.27	2.90	3.65	0.68	0.42	3.00	4.08
19	3.88	2.42	5.70	12.02	0.83	0.52	3.50	4.82
20	0.44	0.28	1.30	2.03	1.27	0.79	15.70	17.74
21	3.68	2.29	5.30	11.31	1.46	0.91	3.90	6.28
22	3.06	1.91	5.60	10.58	0.27	0.17	3.00	3.45
All route categories								
(95% confidence interval)	**2.21** (2.01-2.41)	**1.38** (1.25–1.51)	**5.50** (4.90-6.10)	**9.12** (8.35-9.89)	**1.32** (1.14-1.50)	**0.83** (0.72-0.94)	**5.10** (4.30-5.90)	**7.30** (6.40-8.20)

Table 10.7 provides a summary of the mean costs incurred by mode of transport. Trips involving motorised forms of transport incurred costs associated with fuel and non-fuel vehicle costs and the cost of time travelling, while non-motorised modes only incurred the costs of time. Highest costs were incurred when visitors travelled by train (£41 for day visitors and £24 for overnight visitors: significantly different (t=12.328, p=0.00)), reflecting the greater distances travelled when visitors used the train. Trips

[78] See Section 5 for further information on route categories.

made by car were significantly different (t=4.619, p=0.00) for day visitors (£9.81) and overnight visitors (£8.87), while those on foot were not significantly different: day visitors = £5.82 and overnight visitors = £5.57 (t=0.856, p=0.392). Day visitors often had higher travel costs than overnight visitors as overnight visitor's travel was measured from their holiday address rather than home address.

Table 10.7 Return travel costs by mode of transport

Mode of transport		Day visitors				Overnight visitors			
		Fuel cost (£)	Non-fuel cost (£)	Time cost (£)	Travel cost (£)	Fuel cost (£)	Non-fuel cost (£)	Time cost (£)	Travel cos (£)
Car	**Mean**	3.21	2.00	4.60	9.81	2.80	1.75	4.30	8.87
	Lower	2.92	1.82	4.29	9.03	2.45	1.53	3.91	7.93
	Upper	2.92	1.82	4.29	9.03	2.45	1.53	3.91	7.93
	n	986	986	986	986	394	394	394	394
Train	**Mean**	12.85	8.02	19.8	41.17	7.34	4.58	11.70	23.56
	Lower	10.62	6.63	17.47	35.55	2.94	1.84	6.95	11.88
	Upper	15.08	9.41	22.13	46.79	11.74	7.32	16.45	35.24
	n	42	42	42	42	12	12	12	12
Public bus	**Mean**	3.68	2.29	6.30	12.32	2.55	1.59	4.70	8.85
	Lower	2.45	1.53	4.47	8.61	1.54	0.96	3.11	5.78
	Upper	4.91	3.05	8.13	16.03	3.56	2.22	6.29	11.92
	n	31	31	31	31	41	41	41	41
Coach trip	**Mean**	3.39	2.11	13.8	19.33	1.38	0.86	7.60	9.82
	Lower	-	-	-	-	-	-	-	-
	Upper	-	-	-	-	-	-	-	-
	n	1	1	1	1	2	2	2	2
Motor-cycle	**Mean**	0.75	0.47	1.60	2.79	0.54	0.34	0.80	1.70
	Lower	0.13	0.08	0.77	0.96	-	-	-	-
	Upper	1.37	0.86	2.43	4.62	-	-	-	-
	n	2	2	2	2	1	1	1	1
Bicycle	**Mean**	0	0	2.00	1.95	0	0	5.10	5.10
	Lower	0.00	0.00	1.11	1.09	0.00	0.00	2.36	2.40
	Upper	0.00	0.00	2.89	2.81	0.00	0.00	7.84	7.80
	n	7	7	7	7	7	7	7	7
On foot	**Mean**	0	0	5.80	5.82	0	0	5.60	5.57
	Lower	0.00	0.00	4.33	4.35	0.00	0.00	4.14	4.12
	Upper	0.00	0.00	7.27	7.29	0.00	0.00	7.06	7.02
	n	643	643	643	643	535	535	535	535
Wheel-chair	**Mean**	0	0	2.10	2.10	0	0	2.10	2.14
	Lower	0.00	0.00	0.43	0.39	-	-	-	-
	Upper	0.00	0.00	3.77	3.82	-	-	-	-
	n	4	4	4	4	1	1	1	1
Boat	**Mean**	0.96	0.60	14.8	16.31	0.75	0.47	11.00	12.23
	Lower	0.17	0.10	1.49	1.70	0.57	0.36	7.96	8.93
	Upper	1.75	1.10	28.11	30.92	0.93	0.58	14.04	15.53
	n	15	15	15	15	7	7	7	7
Taxi	**Mean**	-	.	.	.	1.80	1.12	3.6	6.55
	Lower	-	-	-	-	-	-	-	-
	Upper	-	-	-	-	-	-	-	-
	n	0	0	0	0	1	1	1	1
Other	Mean	.	.	.	.	10.75	6.70	11.00	28.48
	Lower	-	-	-	-	-9.36	-5.84	-7.99	-23.23
	Upper	-	-	-	-	30.86	19.24	29.99	80.19
	n	0	0	0	0	2	2	2	2

All respondents	**Mean**	**2.21**	**1.38**	**5.50**	**9.12**	**1.32**	**0.83**	**5.10**	**7.30**
	Lower	**2.01**	**1.25**	**4.90**	**8.35**	**1.14**	**0.72**	**4.30**	**6.40**
	Upper	**2.41**	**1.51**	**6.10**	**9.89**	**1.50**	**0.94**	**5.90**	**8.20**
	n	**1731**	**1731**	**1731**	**1731**	**1003**	**1003**	**1003**	**1003**

Note: 'Lower' and 'Upper' refer to the 95% confidence interval

10.4.2 Travel cost 'count' model

The objective of the travel cost 'count' model was to estimate the wellbeing value of a visit to an English coastal path. In the analysis, models that pool data across all survey route categories (Section 10.4.2.1), and models based on individual route categories (see Annex 7 for list of route categories) were explored.

10.4.2.1 Travel cost 'count' model: Pooled data

Table 10.9 reports the Poisson and Negative binomial (NB) regression analysis of the count model using pooled data from across all 22 study route categories. In both models, the dependent variable is the number of trips made by the respondent to English coastal paths, while the independent variables include travel costs as well as socio-economic characteristics of the respondent (including 'predicted income' – see below) and dummy variables for each of the various study route categories, which may influence wellbeing values. Sufficient data was not collected through the survey question on substitute sites, which if collected and included in the Count models could have improved the fit of the model, as well as provided more detail on factors (such as the environmental attributes of a site) that affect respondent's choice on visiting the coast.

As mentioned above, 'predicted income' was used rather than stated income in the models. This was because only 57% of respondents reported their income in the survey. 'Predicted income' was estimated by first regressing income against a number of socio-economic characteristics of those respondents who stated their incomes in the survey (Table 10.8). In this analysis, dummy variables for full-time employment, part-time employment, university education and A-level education and age as a continuous variable were all show to significantly increase income. The B coefficients from this regression were then used to predict income across the entire sample. To test the accuracy of predicted income, a paired sample T-test was undertake to compare income and predicted income for those respondents who had provided income data. Here, mean income = 4.636, while predicted income was 4.637. The T-test demonstrated no significant difference between these two values (t=0.29, p=0.977). Given this finding, 'predicted income' was included to represent income in the count models.

Table 10.8 Regression analysis of income against respondent's socio-economic attributes.

	B	Std. Error	t	Sig
Intercept	1.499	.277	5.407	.000
Employment -Full Time	2.213	.140	15.816	.000
Employment – Part Time	.845	.185	4.572	.000
Education - University	1.758	.135	13.01	.000
Education – A level	.686	.153	4.473	.000
Age	.194	.045	4.343	.000

For the count models it is first important to check that the dependent variable (number of trips) meets the model's assumptions. Specifically, the Poisson model assumes that the dependent variable has an equi-distribution, while the Negative Binomial (NB) regression includes a dispersal coefficient ('Negative binomial') which accounts for potential over-dispersal. Dispersal may be measured in terms of the ratio of variance and mean, where a ratio of ~1 indicates equi-distribution. In our models, the mean and standard deviation (SD) are 117 and 165 respectively, giving a ratio of $(165)^2$ / 117 = 232. This indicates over-dispersal of the dependent variable. This is confirmed by the Pearson Chi-square value per degree of freedom (df) of 217 in the Poisson model; a value of 1 indicates equi-dispersion. The Pearson Chi-square value per df for the NB model is 1.307 suggesting that the NB model successfully accounted for the over-dispersal. This can further be demonstrated by reference to the 'Negative binomial' dispersal coefficient in the NB model, which has a value of 1.832.[79] The above tests provide evidence that the Negative binomial (NB) model is more suited to the analysis of trips (and therefore likely to perform better) than the Poisson model.

The goodness of fit of the models was assessed by comparing the Log likelihood, Akaike information criterion (AIC) and Bayesian information criterion (BIC) values: in all cases the values are smaller in the NB model than in the Poisson model indicating a better fit. The Log likelihood ratio test provides another assessment as to whether all the independent variables collectively improve the model over an intercept-only model (i.e. with no independent variables added). For both models, these tests produced a p-value = 0.000 indicating that the inclusion of the independent variables in the model result in a statistically significant improved model.

For the coefficients of the independent variables in the models, it was found that all of the travel and socio-economic coefficients are significant in both models. Importantly, the travel costs variables are (as expected) significant and negative – respondents made fewer trips as travel cost increased. The coefficient for the motorised transport was significant and negative indicating that respondents were less likely to travel to the path if they used motorised transport compared to non-motorised transport. More highly educated people, people with lower incomes, females and older people tended to make more trips. In the Poisson model, 16 of the 21 dummy variables for study route categories were significant, while none were significant in the NB model. The models thus provide conflicting evidence as to whether, relative to the excluded dummy variable path (route category 8, which we selected as it had the lowest average travel cost[80]), visitors made significantly more or less trips to the other route categories. However, it should be noted that this observation does not mean that there were significantly different numbers of trips across the different study route categories.

The final step in the analysis was to estimate the wellbeing value per trip. This is estimated as the negative of the multiplicative inverse of the 'total travel costs' coefficient, i.e:

$$\text{Value per trip} = -1/B_{(\text{travel cost})}$$

[79] Poisson models constrain the value of this dispersal coefficient to zero. In our NB model, this coefficient is 1.832: an estimate greater than zero suggests over-dispersion (variance greater than mean). Further, the 'Negative binomial' parameter's 95% confidence interval (1.750 to 1.917) does not overlap zero, thus again suggesting that the NB model is more appropriate than the Poisson.

[80] If you have categorical data (such as the different route categories), you need to exclude one category to avoid the dummy variable trap (see http://www.algosome.com/articles/dummy-variable-trap-regression.html for explanation). This is standard practice in regression analysis.

Across all study route categories, the average trip to the English coastal paths generated wellbeing values of £25.64 per trip (Poisson model) and £62.50 per trip (NB model). As explained above, the NB model is considered to provide the best estimate.

Table 10.9 Poisson and Negative Binomial count models: 'Pooled' data

Parameter	Poisson			Negative binomial		
	B	Chi-sq	P	B	Chi-sq	P
Intercept	5.241	8361.9	0.000	5.881	35.7	0.000
Total travel costs	-0.039	14998.7	0.000	-0.016	105.0	0.000
Q28education	0.119	5516.7	0.000	0.058	3.0	0.083
Q10Motorised=1.00	-0.429	11245.0	0.000	-0.502	73.0	0.000
Predicted income*	-0.012	847.5	0.000	-0.149	25.7	0.000
Male=1.00	-0.196	2952.8	0.000	-0.236	18.8	0.000
Q26Age	0.043	1110.2	0.000	0.046	5.5	0.019
Route category 1	0.057	1.0	0.313	-0.044	0.0	0.964
Route category 2	0.144	6.3	0.012	0.150	0.0	0.877
Route category 3	-0.860	223.5	0.000	-0.944	1.0	0.329
Route category 4	-0.192	11.1	0.001	-0.130	0.0	0.894
Route category 5	-0.493	72.5	0.000	-0.496	0.3	0.610
Route category 6	-0.528	76.5	0.000	-0.829	0.7	0.403
Route category 7	-1.630	783.6	0.000	-1.704	3.1	0.077
Route category 9	-0.031	0.3	0.583	0.000	0.0	1.000
Route category 10	0.008	0.0	0.893	-0.061	0.0	0.951
Route category 11	-0.108	3.6	0.059	-0.227	0.1	0.815
Route category 12	-1.298	482.4	0.000	-1.287	1.7	0.188
Route category 13	-0.227	15.9	0.000	-0.111	0.0	0.908
Route category 14	-0.940	245.7	0.000	-0.901	0.8	0.359
Route category 15	-0.068	1.4	0.236	-0.111	0.0	0.909
Route category 16	-1.644	716.6	0.000	-1.571	2.6	0.108
Route category 17	-0.326	32.5	0.000	-0.614	0.4	0.525
Route category 18	-0.579	98.9	0.000	-0.583	0.4	0.551
Route category 19	-2.091	1056.8	0.000	-1.906	3.8	0.052
Route category 20	-1.014	251.6	0.000	-0.668	0.4	0.504
Route category 21	0.119	4.3	0.038	-0.011	0.0	0.991
Route category 22	-0.301	27.6	0.000	-0.482	0.2	0.618
Scale				1		
Negative binomial				1.832		
Model performance						
Dependant variable Mean (variance)	117.62 (27,394)			117.62 (27,394)		
Pearson Chi-Square	583156			3518.345		
DF	2692			2691		
Chi-square / df	217			1.307		
Log Likelihood	-203217			-14624.618		
Log Likelihood (intercept only)	-233223			-14746.776		
Likelihood ratio	49776			224		
P.	P=0.00			P=0.00		
Akaike's Information Criterion (AIC)	406490			29307.237		
Bayesian Information Criterion (BIC)	406655			29478.58		
Wellbeing values						
Wellbeing value per trip ($-1/B_{(travel\ cost)}$)	£25.64			£62.50		

** Predicted income (estimated by regressing income against a range of socio-economic attributes of respondents) was used here as just under half the respondents stated their income.*

10.4.2.2 Travel cost 'count' model: Individual route category data

To further explore potential variation in the number of trips and values across the different study route categories, separate NB models based on data collected for each study route category (Table 10.10) were run. Independent variables included in these models were: Travel costs, a dummy for motorised transport, income, gender and

age. Table 10.10 reports the B coefficient and p-value for the travel cost variable, the wellbeing value per trip and various goodness of fit indicators.

The B coefficient for the travel cost variable was significant in 16 of the 22 models: it is likely that smaller numbers of observations and high-dispersal of the dependent variable in some of these models results in a lack of significance. Based on the significant models, wellbeing values ranged from £0.38 per trip (route category 8) to £83 per trip (route categories 9 and 11). Given the poor performance of some of the category-specific models, it was concluded that aggregation based on category-level data would not be appropriate. Thus, for the remainder of the analysis, we base the valuation of recreational benefits on the 'pooled' NB model (i.e. the one based on data collected from all 22 study route categories).

Table 10.10 Negative Binomial models by study route category[81]

Route category	$B_{(Travel\ cost)}$	P	Value per trip (-1/B)	N	(Chi-square / Degrees of Freedom)	Akaike Information Criteria (AIC)
1	**-0.035**	**0.000**	**£28.57**	259	0.828	305§
2	-0.017	0.784	£58.82	95	0.594	1195
3	-0.016	0.272	£62.50	175	1.393	1694
4	**-0.071**	**0.000**	**£14.08**	77	0.925	868
5	**-0.023**	**0.001**	**£43.48**	85	1.112	890
6	-0.018	0.646	£55.55	34	0.856	335
7	**0.014**	**0.035**	**-£71.43**	242	2.527	1838
8	**-2.595**	**0.000**	**£0.38**	3	0.697	15
9	**-0.015**	**0.000**	**£66.67**	330	0.687	3849
10	**-0.089**	**0.000**	**£11.24**	41	1.242	486
11	**-0.030**	**0.000**	**£33.33**	155	1.142	1697
12	**0.221**	**0.009**	**-£4.52**	62	1.840	600
13	**-0.094**	**0.000**	**£10.64**	317	1.004	3610
14	0.006	0.513	-£116.67	47	1.267	461
15	**-0.097**	**0.000**	**£10.31**	104	0.928	1233
16	-0.022	0.327	£45.45	57	0.966	509
17	**-0.016**	**0.011**	**£62.50**	215	2.234	2031
18	**-0.192**	**0.002**	**£5.21**	55	1.082	601
19	**-0.014**	0.538	£71.43	52	1.375	423
20	**0.031**	**0.014**	**-£32.35**	27	1.788	207
21	**-0.049**	**0.000**	**£20.41**	157	1.264	1784
22	**-0.078**	**0.000**	**£12.82**	145	1.21	1569

10.4.3 Aggregate annual value of English coastal paths

Two approaches were considered to estimate the aggregate annual value of recreation trips to English coastal paths.

The first and simplest approach was to multiply the per visit wellbeing values estimated across all route categories (Table 10.9) with the volume data on the total number of visits to English coastal paths (estimated to be 29.1m visits per year – see the VVM in Section 8). We utilised data from the NB models (£62.50 per visit) to estimate this aggregate value as this model was shown to outperform the Poisson model. Based on this assessment, the aggregate annual value of visits to all paths on the English coast was estimated to be £1,819m per year, with a range of £1,532m to £2,239m (Table 10.11).

A second and more refined approach would have been to aggregate the per visit values for each route category (Table 10.10) with the volume data estimated for each route category (See Table 8.4). However, this was not feasible as half of the category

[81] See Section 5 for further information on route categories.

models did not display significant coefficients for the travel cost variable (Table 10.10). Hence the previously stated results are more robust.

Table 10.11 Total recreational wellbeing values of English coastal paths

	Negative Binomial model
Value per visit (£ / visit)	£62.50 (£52.63 to £76.92)*
Volume of visits (n)	29,107,954
Total value of visits to coastal paths (£m / year)	£1,819m (£1,532m to £2,239m)

*Note: the range for the value per visit was based on the 95% Wald confidence for the coefficient on the Travel Cost variable in the count model.

11 Contribution to physical health

11.1 Introduction

Walking is a form of physical activity, which is associated with multiple health benefits. There is strong evidence from multiple studies[82] that higher volumes of physical activity are associated with:

- Decreased all-cause mortality. This means that in any one year, active people will be less likely to die of any cause, compared to inactive people. This in turn leads to longer life-expectancy among active people.
- Improvements in over twenty health conditions. These include: Type 2 diabetes and cardiovascular disease[83]; cancer of the breast and colon[84]; overweight and obesity[85].

There is an emerging literature outlining the potential unique contribution that exercising outdoors in the natural environment may make to health. It is hypothesised that exercising in a natural environment has additional unique contributions to health, through the mechanism of 'biophilia' or love of nature[86]. There is evidence from medical studies of people with views of green space recovering more quickly than controls, but it is not clear how this can be transferred to quantifiable health benefits among people exercising outdoors.

11.2 Methodological considerations

11.2.1 Types of assessment

There are three main approaches to quantifying the health benefits of walking that are currently in use:

- Quality Adjusted Life Years. This method calculates the value of the additional years lived, as a result of improvements in health and reduced incidence of disease. It then adjusts this value for the quality of life (so that a year in full health is worth more than a year lived in poor health). This method is primarily used by the National Institute for Health and Care Excellence (NICE).
- Savings in health care costs. This method calculates the reduced incidence of disease among walkers compared to non-walkers, and converts this into savings to the NHS as a result of reduced treatment costs. This method is used by Sport England in its Model for Estimating the Outcomes and Values in the Economics of sport (MOVEs) tool.

[82] Department of Health (2004). At Least Five a Week. Evidence on the impact of physical activity and its relationship to health.

[83] Wahid et al. (2016). Quantifying the Association between Physical Activity and Cardiovascular Disease and Diabetes: A Systematic Review and Meta-Analysis. J Am Heart Assoc.

[84] Moore et al. (2016).Association of Leisure-Time Physical Activity with Risk of 26 Types of Cancer in 1.44 Million Adults. JAMA Intern Med.

[85] Stoner et al. (2016). Efficacy of Exercise Intervention for Weight Loss in Overweight and Obese Adolescents: Meta-Analysis and Implications. Sports Med.

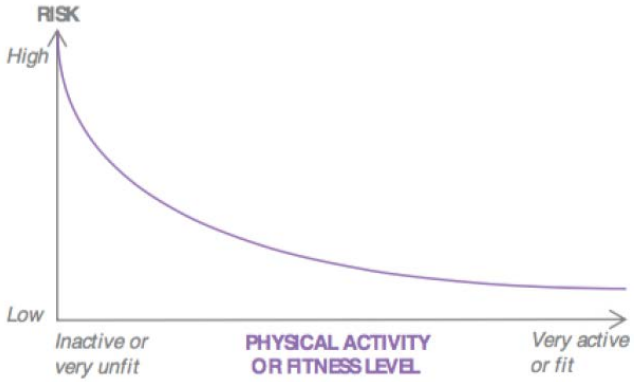
[86] Gladwell VF, Brown DK, Wood C, Sandercock GR, Barton JL. (2013). The great outdoors: how a green exercise environment can benefit all. Extreme Physiology & Medicine. 2013;2:3. doi:10.1186/2046-7648-2-3.

- Statistical value of a life. This method calculates the reduced death rate among walkers compared to non-walkers, and calculates the deaths averted (or lives saved) due to increased walking. This is then converted into a financial value using standard values of a life. This method is used by the World Health Organisation in its Health Economic Assessment Tool (HEAT) for walking and cycling.

11.2.2 Factors to be considered in an assessment

In general, there is a 'dose-response relationship' between physical activity and health, meaning that increased activity (the 'dose') is associated with increased benefits (the 'response'). The typical relationship is shown in Figure 11.1. This shows that greater improvements in health are achieved by people who begin from low levels of activity.

Figure 11.1 Schematic representation of the dose-response relationship between physical activity level and risk of disease



Source: Department of Health (2004)[87]

There is not good evidence for a clear dose-response relationship for children; meaning that evidence-based assessments of the value of physical activity are not possible for children (or would be based on assumptions rather than strong evidence). This is because children do not suffer from the diseases associated with physical inactivity (e.g. heart disease) in sufficient numbers to make such an assessment possible. As such, children are excluded from the analysis of health impacts.

The precise nature of the relationship between physical activity and health outcomes for adults is likely to be different for every individual, and also for every health condition both in terms of the volume of the activity and the specific nature of the activity. This is due to the influence of the key components of physical activity, contained in the acronym FITT:

- Frequency: how often someone is active.
- Intensity: how hard the activity is, and therefore the strain that the activity puts on the individual's cardiovascular and muscular system.
- Time: the duration of the activity session.
- Type: the nature of the specific activity.

[87] Department of Health (2004). At Least Five a Week. Evidence on the impact of physical activity and its relationship to health.

11.2.3 Adoption of HEAT and a statistical value of a life

The World Health Organization's (WHO) Health Economic Assessment Tool (HEAT) for walking and cycling[88] is to be used for the evaluation and was used in the baseline assessment to provide quantitative estimates of the economic value of the health benefits of any increase in volumes of walking as a result of the Programme.

HEAT focuses on the most important and most evidence-based relationship with physical activity: the impact on all-cause mortality. By using relative risks for all-cause mortality that control for leisure time physical activity it removes the need to collect data on total physical activity. The approach also uses linear dose-response curves, meaning that any increase in activity has a linear increase in health benefit. This approach has been found to have minimal impact on resultant estimates of benefit (compared to a curvillinear relationship where additional benefits are applied to people at lower levels of activity).

It was investigated whether HEAT is suitable for the evaluation of the Programme, in conjunction with one of the members of the WHO's core group that manages the HEAT's development. It was concluded that it is suitable for the following reasons:

- HEAT is principally used for assessing regular activity, with the HEAT website stating it should not be used for "the evaluation of one-day events or competitions […], since they are unlikely to reflect long-term average activity behaviour." Whilst the Programme may induce some one-off activity, it is a programme that can support long term behaviour change and hence is amenable to evaluation with HEAT. Further, HEAT can be viably used to assess even very small changes in activity levels (i.e. infrequent use).
- The WHO warning quoted above is designed to dissuade people from using HEAT for interventions or projects that have only a small, one-off impact on behaviour. The examples given (regarding walking days (events)) are typically associated with participation that is not translated into long-term habits e.g. participation in one-off events. In our view the Programme does not fall into that category, as it is an intervention that modifies the environment to support long-term behaviour change. Evidence supports this type of intervention for long term behaviour change.
- Irrespective of this 'health warning', HEAT is technically capable of measuring very small increases in walking. HEAT uses a linear relative risk function that relates any increase in walking to a corresponding decrease in relative risk of mortality. Therefore an occasional user of the ECP (e.g. who reports only one or two visits in a year) would benefit from a very small reduction in their risk within the HEAT model. The benefits are capped (i.e. there is an upper limit to the benefits accrued from high levels of walking) but there is no lower limit. It is therefore essential to collect data from users of the ECP on the frequency of their walking on the ECP, rather than make assumptions about this. This increases the precision of this application of the tool enormously, compared to commuting studies where many users of HEAT assume that commuters make the journey into work every day.
- The relative risks used in HEAT are for walking controlled for other leisure time physical activity. This means that it is only the walking that reduces the risk, irrespective of other forms of activity. For this reason, it is not relevant or necessary to measure other activity away from the ECP.

[88] Available at: www.heatwalkingcycling.org

- HEAT is established, evidence-based, and supported by WHO. It has been used in a similar setting and produced robust evidence-based estimates. For example, HEAT was used in a successful evaluation of the Welsh coastal path, thereby demonstrating the robustness of the HEAT in a non-commuting setting and providing a potential benchmark to help contextualise the evaluation findings.
- Using alternative approaches to HEAT would require significantly more data collection and analysis, with the resultant model being likely to be too complex to be understood by most users.

11.2.4 Impact pathway

There is a clear impact pathway between changes in the numbers of visitors and visits and the scale of expenditures, and the resulting economic impacts. This impact pathway considers the following three steps:

- Initial outcomes: increase in coastal path walking, both in terms of the number of walking visits and the duration of walks (which may become longer due to greater coastal path continuity). The scale of these changes will be influenced by the Programme outputs and the resulting decisions made by users of the ECP. They will therefore be influenced by awareness of the ECP and the improvements delivered by the Programme, the activity preferences of users, and other external factors.
- Final outcomes: increase in physical activity rates by ECP users. Changes in physical activity rates only occur if by using the coastal path visitors are switching from doing a non-physical activity to a physical activity. Hence final outcomes relate to the net change in the physical activity of coastal path users once substitution from other activities is taken into account.
- Impacts: Increased health benefits via reduced mortality and morbidity, as valued in economic terms using the value of a statistical life.

11.2.5 Measures and indicators

The key indicators of relevance to the assessment of physical health impacts include:

- Initial outcome: Visit numbers, time spent walking (frequency of visits and duration of each walk).
- Final outcome: Net change in physical activity.
- Impact: Economic value of physical health benefits.

11.3 Methodology

11.3.1 Overarching evaluation methodology

The following steps summarise the process for implementing the methodology

- Step 1: Estimate the baseline effect on physical health:
  - Take the number of people making trips along the coastal paths from the VVM.
  - Estimate the average trip duration and trip frequency per year from the visitor survey.
  - Apply data to the HEAT model to establish gross effects.

  - Adjust for activity substitution using data from the visitor survey.
- Step 2: Estimate the counterfactual effect
  - Take the number of people making trips along the coastal paths from the VVM counterfactual.
  - Take the average trip duration and trip frequency per year from the baseline visitor survey (as per Step 1).
  - Apply data to HEAT model to establish gross effects.
  - Adjust for substitution using visitor survey data (as per Step1).
- Step 3: Estimate the post-ECP effect on physical health.
  - As per Step 1, but using the post-ECP visitor survey and post-ECP VVM outputs
- Step 4: Estimate the net impact on physical health
  - Subtract the outputs of Step 2 from Step 3.

This approach provides an estimate of the change in number of deaths and a valuation of this change (based on statistical value of life) attributable to the Programme.

11.3.2 Key data needs

Table 11.1 identifies the data needs for the assessment.

Table 11.1 Data needs for physical health impacts

Indicator	Key data input	Data source*
Number of coastal path walkers	Baseline, counterfactual and post-ECP number of coastal path visitors	Visit volume model
Walking duration	Baseline and post-ECP length of walk / time spent walking	Visitor Survey / Visit volume model
Walking frequency	Baseline and post-ECP number of walking visits per annum	Visitor Survey / Visit volume model
Adult	Adult (yes/no) (as HEAT only applies to adults)	Visit volume model
Substitution	Baseline and post-ECP alternative activity if not using a coastal path	Visitor survey (Q18)
Value of health benefits	Baseline and post-ECP value of a statistical life	Department for Transport

11.3.3 Counterfactual analysis

It is proposed that the counterfactual for the purposes of the contribution to the physical health analysis is constructed using a ‘background trend’ approach. The key variables that determine the contribution to physical health are the number of coastal walkers and the intensity of their use, as well as the underlying relationship between

exercise and health and the value placed on economic health benefits. In the absence of the Programme, the way in which the costal paths are used (i.e. walking duration and frequency) is not expected to change (although over the long term societal changes may effect this).

The total number of visits under the counterfactual is discussed in Section 8.5. The visit inputs for the HEAT model are then calculated using the total number of visits under the counterfactual and the original baseline survey data applying the same methodology as used for the baseline assessment (see Section 8.3.6).

Any changes in the relationship between walking activity and health (e.g. because of changes in the underlying evidence) will be expected to be reflected in any future updates to HEAT. Changes in the economic value of health benefits (i.e. of the value of a statistical life) will be reflected in any future updates to UK Government guidance.

For the counterfactual analysis, the latest version of HEAT should be re-run using the counterfactual scenario outputs of the VVM and the latest guidance on the value of a statistical life. The value of a statistical life should be applied in current prices for the year in which the benefits are being determined at the point of the impact evaluation

11.4 Further specific methodological components

The specific steps for estimating the key HEAT data inputs and applying these to the online tool are set out in this section.

11.4.1.1 Establishing the HEAT input data

This draws directly on the outputs of the VVM (see Section 8.3.6). The analysis differentiates between locals and non-locals due to the differences in the frequency of use by each group.

- T = total trips per year
- N (b)= number of people making trips along the costal paths
- Dur (b) = median trip duration (minutes per trip)
- Dur (c) = total minutes walked per year
- Dur (d) = minutes walked per person per day
- Using HEAT online

Table 11.2 VVM outputs for HEAT

	Locals (live within 10 miles)	Non-locals
Number of trips per year	14.9m	14.2m
Number of people making those trips	0.2m	2.0m
Average (median weighted[89]) trip duration	60 minutes	120 minutes

[89] The median is taken because the data is skewed.

- T = 29.1m (14.9m + 14.2m)
- N (b)= number of people making trips along the coastal paths

  2.2m (0.2m + 2.0m)
- Dur (b) = weighted median[90] trip duration (minutes per trip)

  = 90
- Dur (c) = total minutes walked per year

  = 2,619m (29.1m * 90)
- Dur (d) = minutes walked per person per day

  = 3.3 (2,619m/2.2m/365)

Minutes walked per person per day is the critical figure to be calculated as it is the main input variable for the HEAT analysis. This figure provides an estimate of the total volume of physical activity averaged across the population (i.e duration and frequency of walking). The data is taken directly from the visitor survey. This differs from the treatment given to this data in the VVM. The VVM assumes that each walkers rests for 10 minutes of every hour (see Section 8.3.3.3). The difference in approach is taken because the VVM is seeking to determine typical length of walk to support volume calculations – it is focussed on determining the distance people actually manage to cover, for which typical walking speed is another input to the calculation. HEAT is focussed on the overall time spent undertaking a physical activity. HEAT is based on dose-response curves that come from similar self-assessed data and in its standard form does not make any adjustments for short periods that a walker may spend at rest during their walk. For the physical health analysis it is considered preferable to retain consistency with how HEAT is normally applied so that retains consistency with other similar assessment of physical benefits, rather than consistency with the treatment of the data in the VVM.

11.4.1.2 Using HEAT online

Once the necessary input data has been processed:

1. Open HEAT model at http://www.heatwalkingcycling.org
2. ‘Active Travel Modes’ select walking
3. ‘Geographic scale’ choose country level
4. Choose UK from dropdown menu
5. Comparison choose single case; leave other box blank
6. ‘Impacts’ choose physical activity
7. ‘Volume data active modes’ select ‘minutes’ from the drop down and enter per person per day (3.29 in this example). Leave ‘general population (per person)
8. ‘Population data’ leave ‘adult population 20-74’. Enter population (2,167,000 in this example)
9. Skip data adjustments
10. Skip ‘introduction to parameter review’

[90] The median is taken because the data is skewed.

11. 'Calculation parameters'. Review and adjust where necessary
    a. The discount rate is adjusted from the HEAT standard to that provided in the latest Green Book guidance[91]. A figure of 1.5% was used in the baseline analysis.
    b. The value of statistical life is updated from the HEAT standard to that provided in the latest version of the Green Book guidance. It should be inflated to the year for which the analysis is being conducted. A value of £1.735 million (2017 prices) was used in the baseline analysis.[92]
12. Results = number of deaths prevented (in this case 133 per year) and value £231m per year
13. Review results of gross change in physical health benefits between baseline and post-ECP period; for example in a hypothetical post-Programme scenario:
    – Baseline: 2.167m people walking for an average of 3.3 mins per day
    – Post-Programme (hypothetical): 3m people walking for an average of 4 mins per day
        ○ This leads to both a reduction in risk (due to increased duration of walking) and an increase in population
        ○ This leads to the following results from the HEAT: 222 deaths prevented and value of £385m per year
        ○ So net change is 89 deaths at a value of £154m per year
14. Adjustments for substitution:

    Adjust percentage in 9 to provide any appropriate sensitivity analysis[93] regarding substitution (taken from the visitor survey) and re-run model. Calculate the % of respondents who would not be walking somewhere else, and use this figure to adjust the proportion of new walking figure at 9.

[91] See paragraph A2.54 in HM Treasury (2018). The Green Book. Central Government Guidance on Appraisal and Evaluation. Available at: https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

[92] The Green Book guidance points to the following DfT guidance: Value of a life of £1.548m (in 2010 prices) from Department for Transport (2017). WebTAG: TAG data book, December 2017. Available at: https://www.gov.uk/government/publications/webtag-tag-data-book-december-2017. Inflated to 2017 prices using HM Treasury GDP deflator. Available at: https://www.gov.uk/government/collections/gdp-deflators-at-market-prices-and-money-gdp

[93] E.g. if a range of plausible values are available.

12 Community and Social Effects

12.1 Introduction

Social impacts reflect changes to attitudes, values, beliefs and behaviour, and contribute to wellbeing – of individuals, communities and society[94]. There is no single typology of social impacts. The International Association for Impact Assessment (IAIA) provides a generic typology of social impacts[95]. In the topic-relevant literature other typologies are provided e.g. in relation to the benefits of woodlands and forests[96], and a relatively narrow typology considered in a recent evaluation of community path programmes[97]. The UK National Ecosystem Assessment Follow-on (UK NEAFO)[98] provides another broad typology of social benefits.

Social benefits contribute the wellbeing of communities and society collectively. They also contribute to individuals – these effects on individuals are principally examined through the prior impact pathways on recreational wellbeing (reflecting the satisfaction obtained from ECP use) and physical health, but are also captured specifically regarding 'enjoyment' in this section. Wellbeing can be considered on an objective or subjective basis i.e. based on facts about the resulting situation for those involved or on the opinion of the resulting situation for those involved.

It is proposed that the evaluation will assess the effects on a range of social benefits, including:

- Contribution of ECP recreation activities to personal relationships.
- Contribution of ECP community-based recreation activities to community cohesion.
- Cultural identity or sense of place from improved community-level coastal access and connection.
- Improved equity of access through improved accessibility for mobility impaired groups.
- Enhanced personal wellbeing e.g. enjoyment, mental health attributes and knowledge and appreciation of nature[99].

12.2 Methodological considerations

There are measurement challenges associated with social impacts due to the lack of suitable objective impact indicators. For each social impact type at least two indicators

[94] Harper and Price (2011). A framework for understanding the social impacts of policy and their effects on wellbeing. A paper for the Social Impacts Taskforce.

[95] Vanclay, F., Esteves, A.M., Aucamp, I. and Franks, D. (2015) Social Impact Assessment: Guidance for assessing and managing the social impacts of projects. Fargo ND: International Association for Impact Assessment

[96] O'Brien, L and Morris, J. 2013. Well-being for all? The social distribution of benefits gained from woodlands and forests in Britain. Local Environment, 19,4: 356-383

[97] URS (2015). Assessment of the Socio-Economic Benefits of the Paths for Communities Programme. Full Study Evaluation Report Final Draft. March 2015. Defra

[98] Church, A., Fish, R., Haines-Young, R., Mourato, S., Tratalos, J., Stapleton, L., Willis, C., Coates, P., Gibbons, S., Leyshon, C., Potschin, M., Ravenscroft, N., Sanchis-Guarner, R., Winter, M., & Kenter, J. (2014) UK National Ecosystem Assessment Follow-on. Work Package Report 5: Cultural ecosystem services and indicators. UNEP-WCMC, LWEC, UK

[99] Noting that the Programme does not directly provide for enhanced knowledge as no education-based infrastructure e.g. interpretation boards, are included.

have been identified to support exploration of the impacts. For community-based impacts these include simple indicators based on visitor survey data as well as qualitative information to be drawn from community-based social research. For all other impact types the indicators are drawn from the visitor survey data.

12.2.1.1 Indicator based assessment of self-reported outcomes

The analysis will establish values for indicators based on the visitor survey.

- Step 1: Collect data from baseline visitor survey on questions related to the self-reported effect of the walk/visit.
- Step 2: Calculate average rank and the proportion who answer 'agree' or 'strongly agree' for each indicator (excluding 'don't knows' from the denominator)
- Step 3: Repeat based on data from the post-ECP visitor survey
- Step 4: Compare pre and post-ECP indicator levels. Benchmark against the same reported indicators from other surveys where available (ideally changes over the same period).

Any increase in the indicators cannot be directly attributed to the programme, as there no way of knowing whether other confounding factors may have been involved in any observed changes. Benchmarking will provide some degree of control for these factors to support interpretation of the findings for those indicators. To support this, survey questions have, where feasible, been designed to mirror those used in the England National Trails survey, MENE and by the ONS.

12.2.1.2 Qualitative exploration of local community impacts

The analysis will draw on qualitative research and analysis, to be conducted under Phase 3 of the evaluation programme (which is not being delivered as part of this study). The details of this aspect of the approach are therefore not set out in this report, but will be determined nearer the point of evaluation and be subject to the needs and available resources at the time. In simple terms it is expected to require:

- Step 1: Analysis of local community visit numbers, characteristics and attitudes based on the visitor survey
- Step 2: Delivering and analysis of local community qualitative research
- Step 3: Synthesis analysis of community impacts

12.2.2 Impact pathways

Wellbeing flows from goods and services when they are experienced or consumed. Hence in articulating the impact pathway it is necessary to consider (i) whether and how ECP goods and services are consumed and (ii) what the experience of that consumption is. Drawing on the UK NEA conceptual framework, social benefits may vary depending on the values held by the individual, the specific setting they are accessing (e.g. urban, rural, etc. coastline) and the practice, or activity, that they are undertaking (e.g. dog walking, group walking, picnicking, etc.).

The impact pathway considers three steps:

- Initial outcomes: how the goods and services are consumed – in terms of what, where, how much and who. These are influenced by the Programme outputs and the decisions made by users. Hence awareness of the ECP, the activity

preferences of individuals as well as the availability of substitutes are key influencing factors.

- Final outcomes: social impacts are affected by this consumption. These reflect the immediate social benefit of the experience of using the ECP. They are considered to be influenced by the three factors identified by the UK NEAFO[100]: the activity being undertaken, societal values and the attributes of the setting. In addition, external factors such as weather and presence of other users may influence secondary outcomes.
- Impacts: the resulting impact on the overall wellbeing of communities and society. A broad number of external factors also influence overall wellbeing and hence the effect of the Programme becomes harder to discern at this level.

12.2.3 Measures and indicators

Table 12.1 sets out the data needs for the social impact assessment. Those identified as 'local community research' will be delivered solely developed at the point of the evaluation and did not form part of the baseline data collection and assessment.

Table 12.1 Social impact data needs

Indicator	Data inputs	Data source*	Analyses
Building of personal relationships through ECP-based recreation activities			
Prevalence of group activities	Number of users undertaking ECP activities in groups	Visitor survey (Q22)	Pre and post-ECP rank comparison
Effect on personal relationships	Self-reported effect of 'enjoyment from spending time with my friends / family / other group members'	Visitor survey (Q1, 22)	Pre and post-ECP rank comparison
Building of community cohesion through ECP-based community recreation activities			
Prevalence of community group activities	Number of users undertaking local community group ECP activities	Visitor volume model + visitor survey (Q22)	Pre and post-ECP comparison of local member of group visitors
		Local community research	Post-ECP
Effect on community relationships	Perception of the importance of the ECP activity in building community relationships	Local community research	Post-ECP
Strength of community cohesion	Perception of sense of community cohesion	Local community research	Post-ECP
Cultural identity or sense of place from improved community-level coastal access and connection			
Community access	Change in use by local communities	Visitor volume model + visitor survey (Q3, 8, 9)	Pre and post-ECP comparison

[100] Church, A., Fish, R., Haines-Young, R., Mourato, S., Tratalos, J., Stapleton, L., Willis, C., Coates, P., Gibbons, S., Leyshon, C., Potschin, M., Ravenscroft, N., Sanchis-Guarner, R., Winter, M., & Kenter, J. (2014) UK National Ecosystem Assessment Follow-on. Work Package Report 5: Cultural ecosystem services and indicators. UNEP-WCMC, LWEC, UK

	Change in ease and quality of access to the coast for local communities	Local community research	Post-ECP
Effect on cultural identity	Perceptions of contribution to cultural identity and sense of place among local communities	Local community research	Post-ECP
Improved equity of access through improved accessibility and awareness[101]			
Mobility access	Number of mobility impaired users	Visitor survey (Q24)	Pre and post-ECP comparison
	Number of visitors over 65 years old[102]	Visitor survey (Q26)	Pre and post-ECP comparison
Social group access	Number of visitors across all group types	Visitor survey (Q24, 27)	Pre and post-ECP comparison
Enhanced knowledge and appreciation of nature			
Prevalence of education-based activity	Number of education-based activities / all activities being undertaken	Visitor survey (Q24)	Pre and post-ECP comparison
Effect on knowledge and appreciation of nature	Knowledge/ appreciation gained through ECP use	Visitor survey (Q1)	Pre and post-ECP comparison

12.3 Community qualitative research

Qualitative community research provides an opportunity to explore in broader terms potential community impacts which are less amenable to measurement through numerical indicators. The proposed research is targeted at two of the social impact categories: social cohesion and identity/sense of place for which other approaches are not anticipated to provide meaningful insights.

The impact on social cohesion and identity/sense of place are likely to be greatest for local users (and potentially non-visitor local residents) compared to other visitor types. As such, the research is focussed on communities local to the future ECP.

Participatory approaches provide more scope to focus on the impacts of the Programme. This will combine narrative and group consensus of community-based effects as well as stakeholder mapping of locations and features of social value and interpretation of how these have changed as a result of the Programme. There is significant scope for how such approaches can be implemented. There are also

[101] Additional analyses can be conducted on other equity issues e.g. ethnicity, gender; however these are not identified as being areas of focus for the Programme.

[102] Identified as the approximate age at which decline in mobility e.g. walking speed, starts to increase. See: Ferrucci, L., Cooper, R., Shardell, M., Simonsick, E. M., Schrack, J. A., and Kuh, D. (2016). Age-Related Change in Mobility: Perspectives From Life Course Epidemiology and Geroscience. J Gerontol A Biol Sci Med Sci, 2016, Vol. 00, No. 00, 1–11

challenges in enabling meaningful discussion and such approaches would benefit from the inclusion of trained facilitators

The visitor survey data will provide useful contextual information on local community use and self-reported attitudinal data, which can help to support the qualitative exploration of community impacts.

A fully considered methodology is not provided in this report, but is to be determined at the time of the evaluation. Below is an indicative overview of a possible approach

12.3.1 Indicative research approach

This section provides an overview of a potential research approach that could be employed. This should not be taken as being necessarily the best or only approach, or relied upon as a complete methodology for delivering such research. It is anticipated that this research option will be further explored and developed when the post-ECP evaluation is being prepared and the available resources are better known.

12.3.1.1 Key elements

Purpose: to understand how changes in coastal access have affected community relationships and cohesion and sense of place and identity.

Participants: local community path users (frequent & infrequent) and non-path users; 15 participants at each workshop

Location: six of the local communities adjacent to survey locations, based on a mix of socioeconomic criteria (e.g. indices of deprivation) and landscape form (mostly rural/ mostly urban), and an expectation that meaningful changes in access (and hence impacts) have occurred.

Format: Community focus group workshops exploring the social impact themes and the effect of the Programme on them.

Analysis: Case study qualitative analysis of individual groups. Comparative analysis across cases.

12.3.1.2 Focus group programme

Duration: approximately 4 hours, or less, per focus group

- Sense of place and identity: How does the community use the coastal path and the coastal access that it provides and what meaning does the community derive from this?
  - Group narrative recording of what and why elements are important
    - Elements may include tangible features, practices, experiences and feelings
    - Importance may be recorded as statements, indicators and/or degree of consensus
  - Mind mapping of key elements identified (this may include specific features, areas or linkages)
- Change in sense of place and identity: How have changes in coastal access affected community use and meaning?
  - Brief introductory presentation using maps and photographs of changes in access arrangements

- Group narrative on influence of changes in access on previously identified aspects of sense of place and identity; annotation of mind map copies.

- What benefits does coastal access provide to community relationships and its structure and cohesion?
  - Group narrative and consensus
- How have changes in coastal access affected the role of the coast in supporting community relationships and cohesion
  - Group narrative on influence of changes in access on community relationships and cohesion

Part A: ANNEXES

Annex 1 Sampling Strategy Survey Location Methodology

This section sets out the detailed methodology used to identify the locations of the 32 Visitor Surveys. The section:

- Explores the datasets made available by Natural England and how they combine with other available data sources.
- Assigns segments of English coastal paths to categories, according to a number of variables (such as the rural/urban status) considered to have an impact on the number of visits and the type of visitors. This categorisation was then used to ensure that surveys were conducted across a representative sample of locations.

A1.1 Exploring available datasets

This section summarises the available dataset that were used to develop the sampling strategy.

A1.1.1 Coastal Access Audit 2008-09

The primary data source for developing the sampling strategy was the audit of England's coastal paths conducted by Natural England in 2008/09. This comprises a written report (referred to below as the audit) and a dataset that lies behind the report. The dataset comes in the form of a GIS (Geographic Information System) map layer (referred to below as the GIS dataset), in which the existing access provision on the coast was recorded as a line broken down into small segments[103], with each segment assigned a value for a range of variables employed by Natural England for the purposes of the audit.

When used for the English coastal paths baseline analysis, the dataset has two major weaknesses:

- It is nearly 10 years old.
- The data gathering process for the audit was not done 'on the ground'; rather it relied upon the information provided by meetings between representatives of Natural England and officials from each access authority. No fieldwork was conducted.

Firstly, the alignment of the GIS dataset with the published audit report was validated. The audit contains summaries of the findings for each English region (except the land locked West Midlands) as well as an overall national summary. These summaries were compared to values calculated directly from the GIS dataset. In the majority of cases, the results from the analysis of the GIS dataset are either exact matches or very close to the results in the audit report.

[103] A 'segment' is the term used to denote the individual elements that make up the GIS dataset. A segment consists of a continuous stretch of route, of varying length. Although the process behind the segmentation is not apparent, each segment makes up a single row in the dataset. This means that a segment is the most granular unit at which audit data are available. For instance, if a segment is 3 kilometres long, it is still only assigned to a single category for each variable.

Table A1.1 Comparison of GIS dataset and published audit report

Measure	Audit	GIS	Comment
Length and accessibility			
Total length of route (km)	4,422	4,450	
Legally secure path (%)	66%	66%	
Breakdown of non-secure segments (% of non-secure ECP route)			
Blank		1%	When the 'Blank' value is distributed between the 'De facto' and 'Permissive' categories, the GIS dataset and the Audit report match.
De facto	26%	25%	
New Alignment	48%	48%	
Permissive	26%	25%	
Breakdown of secure segments (% of satisfactory ECP route)**			
BOAT	1%	1%	When the 'Blank' and 'N/A' categories are distributed between the other categories according to the existing proportion, the GIS dataset and the Audit report match.
Bridleway	3%	3%	
Footpath	70%	69%	
Multi Use/Cycleway	2%	2%	
Other highway	14%	14%	
Other road	2%	2%	
Promenade	8%	8%	
Restricted Byway	<1%	<1%	
Blank		<1%	
N/A		<1%	

Table A1.2 Comparison of GIS dataset and published audit report (regional breakdown)

English region	Route length (km)		Proportion of national route	
	Audit	GIS	Audit	GIS
EAST MIDLANDS	156	156	4%	4%
EAST OF ENGLAND	859	868	19%	20%
NORTH EAST	294	299	7%	7%
NORTH WEST	677	677	15%	15%
SOUTH EAST	917	922	21%	21%
SOUTH WEST	1236	1249	28%	28%
YORKSHIRE AND HUMBERSIDE	281	278	6%	6%

One large discrepancy between the audit report and the GIS dataset was identified. The audit report states that:

> "Based on the audit data we estimate that the average length of coast along which a secure and satisfactory path is available is 3.0 kilometres (1.9 miles)."

However, analysis of the GIS data showed that the average length of a satisfactory 'chunk' of path – consecutive segments of legally secure and satisfactory path – is 5.53km. It was not possible to replicate any calculation to give a result of 3.0 km. The source of this discrepancy was not identified, but is considered to be more likely a result of an inability to exactly replicate the calculation used in the audit rather than a problem with the dataset.

For the purposes of the development of the sampling strategy, the GIS dataset was considered to be accurate. This dataset provides the data on which the segments of the path were categorised according to the sampling strategy.

The summary statistics of the route segments, for both the secure and non-secure sections of the ECP (Table A1.3), were then considered.[104]

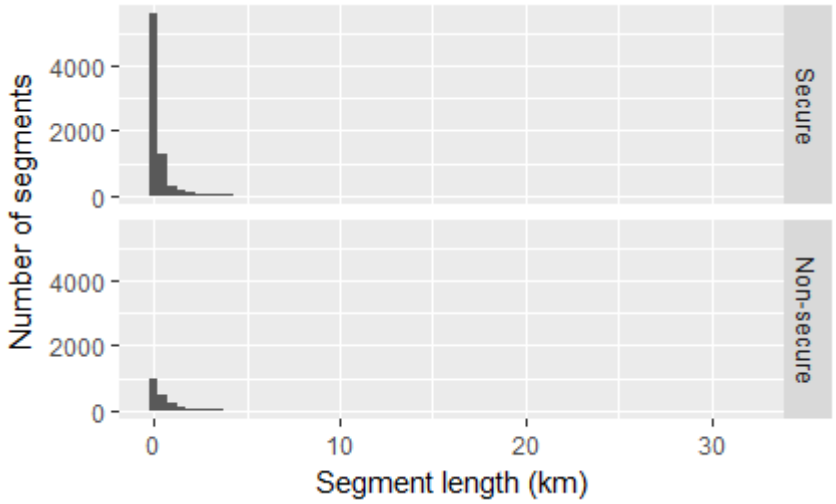
[104] The term 'secure' refers to the paths which have a legal right of way established. 'Non-secure' refers to the paths which have either de facto access permission or are permissive right of ways.

Table A1.3 Summary statistics of ECP route segment length

Statistic	Secure segments Length (km)	Non-secure segments Length (km)
Min	<0.01	<0.01
Q1	0.06	0.10
Median	0.12	0.27
Mean	0.38	0.75
Q3	0.28	0.83
Max	31.87	15.04
Number of segments	7,724	2,055
Total length	2,918	1,532

Table A1.3 and a histogram of the same data (Figure A1.1) indicate that the segments are typically quite short (<1km), but that there are a number of longer segments, including one secure segment that is over 30km long.

Figure A1.1 ECP route segment length



The non-secure segments are typically longer than the secure segments. The mean length of the non-secure segments is nearly double that of the secure segments. Only 8% of secure sections are over 1km in length, compared to 21% of non-secure sections. This means that the non-secure sections provide a less granular view of the Programme – they will not be able to be categorised at such a detailed level.

To reduce the disparity between the levels of detail available on the different types of route, the segments of route over 1km were split into smaller segments, each smaller than or equal to 1km. Although this does not affect the granularity of the audit data – the audit variable categories remain the same for the smaller segments – it does mean that it is possible to identify other geographic variables for these smaller segments in more detail.

Table A1.3 was replicated using the amended dataset (Table A1.4). This showed that the mean segment lengths were now closer together. This supported categorising the route in finer detail.

The development of the sampling strategy subsequently used this more granular dataset.

Table A1.4 Summary statistics of ECP route segment length (all segments now <= 1km)

Statistic	Secure segments Length (km)	Non-secure segments Length (km)
Minimum	<0.01	<0.01
Quartile 1	0.07	0.13
Median	0.15	0.42
Mean	0.32	0.51
Quartile 3	0.45	1.00
Maximum	1.00	1.00

A1.1.2 England Coast Path route

In addition to the audit GIS data, a Natural England GIS map layer of the stretches of route that had been approved and opened since the audit took place was used[105]. These stretches in the audit dataset were replaced so that the most up-to-date information was compiled. The function was then re-applied to limit the maximum size of any one segment to a maximum of 1km, to retain the ability to calculate geographic variables in detail.

Taken in combination with the audit dataset, this dataset showed that there was secure access on 70% of the future ECP, a total of 3,102 kilometres. The non-secure sections are broken down as shown in Table A1.5.

- De facto: walked footpaths where there is no legal right of way.
- Permissive access: footpaths where there is no secured legal right of way but where access is permitted by the landowner.
- New alignment: sections of the future ECP that will require the development of new rights of way
- Blank: no data available

Table A1.5 Breakdown of non-secure segments (% of non-secure ECP route)

Access permissions	Length (km)	Proportion of non-secure length
Blank	23	2%
De facto	324	25%
New Alignment	655	50%
Permissive	316	24%

[105] As of June 2017. Since the first stretch of ECP opened on 29 June 2012 coastal access rights have come into force on a total of 314 miles (506 km) under an accelerated programme which aims to complete the whole of the England coast path by 2020.

Because these new stretches of path (those that had been approved and opened since the audit took place) do not contain the information from the audit, the relevant information from the overwritten stretch of path in the audit dataset were used as a proxy.

A1.1.3 Other data sources

Three other datasets were used as part of the sampling strategy and methodology development. These were used to help categorise the ECP.

A1.1.3.1 Population

The most recent (2015 at the time of writing) Office of National Statistics (ONS) mid-year population estimates were used to estimate the number of people living near the future ECP route[106].

These population estimates were available at lower layer Super Output Area (LSOA). An LSOA is a geographical unit based on the size of the population. A single LSOA covers an area containing between 1,000 and 3,000 head of population and between 400 and 1,200 households.

A1.1.3.2 Rural Urban Categorisation

The Office of National Statistics 2011 Rural Urban Classification (RUC)[107] was used to identify the type of environment that the segments of the ECP pass through. This was the most recent classification available.

This classification was used at Output Area (OA) level (a geographical unit covering between 40 and 140 households). The ONS defines the RUC for OAs as follows:

> "OAs are treated as 'urban' if they were allocated to a 2011 built-up area with a population of 10,000 people or more, while all remaining OAs are classed as 'rural'. The urban and rural domains are then subdivided into six broad settlement types. The classification also categorises OAs based on context, which is whether the wider surrounding area of a given OA is sparsely populated or less sparsely populated."

Because the ECP segments are not sensitive to the OA boundaries it is possible for a single route segment to pass through a number of OAs, some of which may be assigned a different RUC. In these cases, the ECP route segment was assigned to the average RUC[108] through which it passes.

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106 https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/lowersuperoutputareamidyearpopulationestimates

Accessed 10/05/2017

107 http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html

Accessed 09/05/2017

108 Average RUC is calculated from values assigned to the RUCs running in descending order from a major urban conurbation to a hamlet and isolated dwelling in a sparse setting. For instance if a segment ran through an OA classed as an Urban major conurbation (assigned a value of 1) and two OAs classified as Urban city and town (assigned a value of 3), the average value would be 2.33. The segment would therefore be assigned to the classification that is assigned a value of 2 - Urban minor conurbation. The average RUC does not account for the length of the segment that lies within each OA.

A1.1.3.3 Road network

The road network was used to identify the 'accessibility' of the future ECP route. It was recognised that the ECP can and will be accessed by many other modes of transport, but this dataset is considered to be a suitable proxy for the 'ease' by which each segment of route can be accessed.

The road network dataset used is the Ordinance Survey's 'Open Roads' dataset[109].

A1.2 Assigning segments of the England Coast Path to categories

This approach is based on the overarching assumption that the indicative route of the ECP can be broken down into segments and classified in such a way that similar segments of the route will attract the same type and volume of users.

The following sections explore the ways in which different segments of the path could be categorised before concluding with a final categorisation in Section A1.2.10.

A1.2.1 Category variables

The following variables were identified as potentially suitable for classifying the route. These variables were selected through a combination of Sustrans' expert knowledge in the area of factors affecting route usage and through the availability of relevant data. This section explores these variables as part of the development of the final classification.

The focus of this classification is route segments. These segments are simply the most granular unit of route length available for the different variables. The overall intention was to classify the length of the future ECP, so segments should be seen to be a function of route length.

- **The rural urban classification of the route segment**. This relates to both the demand and accessibility of the route. Rural areas have smaller populations than urban areas so the level of demand from those living there is lower, while the distance required to travel from more populated areas affects the accessibility of rural routes for the travelling population.
- **The size of the population near to the route**. This is a direct measure of the level of demand in the area of the route.
- **The distance to the nearest public road**. This is used as a proxy measure of accessibility. Some form of motorised transport will almost always be required for users to travel to isolated segments of route which cannot be accessed by foot or bicycle. The proximity of public roads (on which most people's houses are closely located) is indicative of the distance that the local population have to travel to access the route, even if they are travelling by bicycle or by foot.
- T**he segment's current access permissions**. This relates to the theory of change for the ECP programme, which indicates that changing the access permissions (that is, the legal status of public access to the route) on a stretch of route will change the way in which it is used. It is important to recognise that the future ECP will be aligned on some segments of

[109] Available at: https://www.ordnancesurvey.co.uk/business-and-government/products/os-open-roads.html Accessed June 2017, version 9/2017 https://www.ordnancesurvey.co.uk/business-and-government/products/os-open-roads.html

the coast where there is currently no secure, permissive or de facto access. It is assumed that there is currently no usage on these segments.

- **The route segment's Public Right of Way status**. This variable is used in this context as a measure of accessibility by different modes of transport. Is the route on a footpath, a multi user route or a road?
- **The landscape traversed by the route segment**. This variable is used to represent the desirability of different types of environment in attracting users. For instance it identifies whether the route is on a beach, or whether it passes through an industrial area.
- **Whether the segment of the future ECP is on a named long distance route**. This variable also reflects the demand for the route as it is likely that the higher profile of named long distance routes will attract a higher volume of users, especially those who do not live nearby.

The latter four variables rely on data taken from the audit dataset, so contain the weaknesses inherent in that source.

A1.2.2 Additional issues

It was not possible to identify a variable that could be used to categorise the number of tourist visitors to the area around each segment. Given that English coastal paths (and the coast in general) attract large numbers of visitors from outside of the immediate area, this variable could play an important role in determining the level and type of demand for a segment of route. However, there was no location-specific measure that could be used to quantify this variable, so it could not be included in the analysis. To mitigate the impact of this, the survey locations were checked as part of the ground truthing to ensure that they include areas of both high and low levels of tourist visitors.

It was recognised that the variables selected do not account for every possible variation in usage type and volume. There will be a number of site specific variables that affect the usage on each stretch of the route. However, it was not possible to quantify these variables, and it was not practical to include them in the sampling strategy.

It was recognised that there would be variations within the route segments that are not captured by the relevant variable categories (e.g. not all rural villages are exactly the same, yet they may be all be assigned the same RUC).

There are limits placed on the number of different classifications by the number of surveys being delivered. It was preferable to make sure that all of the differences between route segments were identified – which increased the number of ways in which the route could be classified — while also trying to maximise the number of surveys that could be conducted within each category. These two preferences were incompatible given that there was a limit to the number of surveys that could be conducted. As a result a degree of balance was required between the sensitivity and number of variables included in the categorisation, and the practicalities of commissioning a limited number of surveys.

Surveys were required by Natural England to be conducted in all of the English regions through which the ECP will pass. However, the regional variable was not used to categorise route segments so this requirement was implemented subsequent to the route categorisation. This is because, although there is expected to be some variation in the way the ECP will be used across the country (as a result of weather or desirability as holiday destinations) it was not expected that this variation would break cleanly across regional boundaries. Therefore any attempt to account for this variation through the use of a regional variable would be expected to misrepresent the impact of these factors.

Each of the variables identified above (Section A1.2.1) were considered, including whether any of the variable categories could be combined (for instance if there were relatively few segments of the future ECP that fall into that category). The variables were combined to produce the final categorisation of the future ECP and the number of surveys to be conducted on segments of route in each category. These steps are covered in the following sections.

A1.2.3 Rural Urban Classification (RUC)

The RUC of a route segment is often found to play an important role in the volume of visits seen on that route. It can be seen as a measure of a number of relevant factors, such as the size of the nearby population, the accessibility of the route, the level of nearby services, and the likely level of route maintenance and infrastructure, among others. Table A1.6 shows the breakdown of the route segments by RUC[110].

Table A1.6 Rural urban classification of the ECP

Classification	Route length (km)	% of route length	Number of seg.	% of seg.
Urban major conurbation	116	3%	213	2%
Urban minor conurbation	5	0%	7	0%
Urban city and town	1,101	25%	2,669	20%
Urban city and town in a sparse setting	69	2%	164	1%
Rural town and fringe	471	11%	1,408	11%
Rural town and fringe in a sparse setting	175	4%	355	3%
Rural village	887	20%	2,991	23%
Rural village in a sparse setting	340	8%	1,195	9%
Rural hamlets and isolated dwellings	948	21%	2,804	21%
Rural hamlets and isolated dwellings in a sparse setting	308	7%	1,357	10%

Some of these categories contain only a small number of route segments. To prevent these categories affecting the sampling strategy the relevant categories were combined (Table A1.7).

Table A1.7 Combined rural urban classifications

Classification	Combined classification
Urban major conurbation	Urban
Urban minor conurbation	
Urban city and town	
Urban city and town in a sparse setting	

[110] Rural/urban classification data source: https://ons.maps.arcgis.com/home/item.html?id=3ce248e9651f4dc094f84a4c5de18655

Rural town and fringe	Rural (built up)
Rural town and fringe in a sparse setting	
Rural village	
Rural village in a sparse setting	
Rural hamlets and isolated dwellings	Rural
Rural hamlets and isolated dwellings in a sparse setting	

Table A1.8 shows the resulting breakdown of the future ECP according to these classifications. It shows that the majority of the future ECP (70%) will pass through rural areas.

Table A1.8 New rural urban classification of the ECP

Classification	Route length (km)	% of route length	Number of segments	% of segments
Urban	1,290	29%	3,053	23%
Rural (built up)	1,874	42%	5,949	45%
Rural	1,255	28%	4,161	32%

A1.2.4 Nearby population

Sustrans' work on developing a method for estimating usage on the National Cycle Network (NCN) showed that the population living in the vicinity of the route was one of the most important variables affecting levels of cycle usage on a segment of the NCN. It was assumed that local population plays a similar role for usage on the ECP.

The method for estimating usage on the NCN was based on a measure of the nearby population termed 'population gravity'. This is a function of the population near to a location (such as a count site, or route segment) that accounts for the proximity of that population to the location in question. This reflects the impact on demand of the size of the nearby population, but also reflects the perception that this impact on demand diminishes as the distance from the location in question increases.

There are a number of variations in the way population gravity can be calculated. In this instance the sum of the population within 10 kilometres of the route was used, but with a larger weight on the population closer to the route, calculated as population/distance^2. This is measured in 2km bands (at 2, 4, 6, 8 and 10km), with the total values summed to give a single value for each route segment.

For instance, consider a hypothetical location. Table A1.9 shows how the population gravity would be calculated for this location using the method employed by the sampling strategy. It can be seen that it puts more weight on the population closest to the location in question because the divisor gets larger further away from the location

Table A1.9 Example population gravity calculation

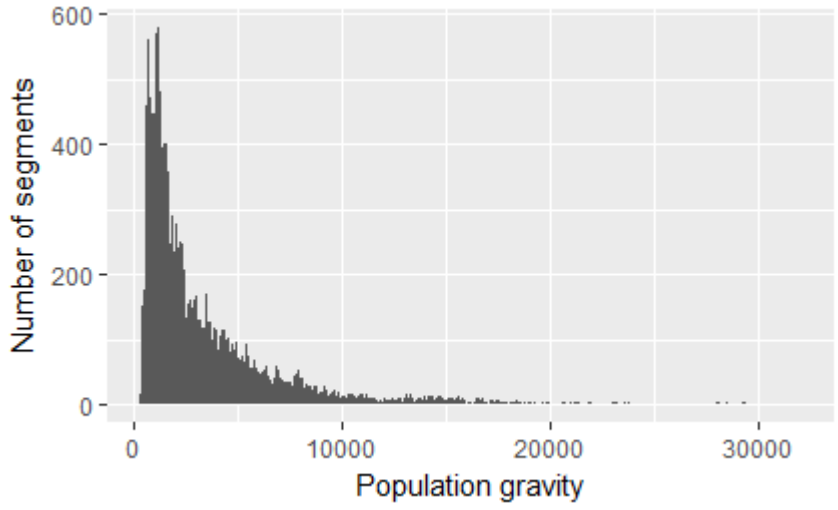
Distance from location (km)	Population within this distance band*	Distance squared	Population/distance squared
0-2	2,000	4	500
2-4	5,000	16	313
4-6	10,000	36	278
6-8	20,000	64	313
8-10	50,000	100	500
Population gravity			1,903

** Note that this column is not cumulative. The total population within each band is exclusive of the population of smaller bands that lie within it.*

To avoid the results being biased in favour of the longer routes, the level of population from the centre point of the route segment – the centroid – was calculated.

Figure A1.2 shows the distribution of the population gravity values[111]. This shows that the distribution of the data is strongly positively skewed, with the majority of sites having a relatively low level of population gravity. This indicates that there are not typically large numbers of people living within 10km of the future ECP.

Figure A1.2 Population gravity of ECP segments



Using the centroid of the route segments does mean that the population gravity value for the longer segments may not be fully representative of all of the different areas through which that segment passes. However, as all the route segments are 1km or smaller, few segments will be affected by this issue.

Because the population gravity variable is made up of continuous data, it needed to be grouped so the route segments could be categorised. There are not any obvious natural breaks in the

[111] The population estimates are the 2015 mid-year estimates from ONS: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/lowersuperoutputareamidyearpopulationestimates

data so quintile breaks in the population gravity variable were calculated, and the ECP segments were categorised accordingly (Table A1.10).

Table A1.10 Population gravity categories

Population gravity quintiles		Route length (km)	% of route length	Number of segments	% of segments
Qn1	**0.0 to < 1115.0**	612	14%	2,634	20%
Qn2	**1115.0 to < 1684.9**	684	15%	2,631	20%
Qn3	**1684.9 to < 2848.6**	806	18%	2,633	20%
Qn4	**2848.6 to < 5138.8**	1,025	23%	2,632	20%
Qn5	**5138.8 to < 31993.0**	1,293	29%	2,633	20%

The route length of the segments in the fourth and fifth quintiles – those with the highest population gravity – are greater than that of the other quintiles. This suggests a greater average length of segments on sections of the route with higher population gravity. It is not possible to speculate further without additional analysis of the data.

A1.2.5 Distance to the nearest public road

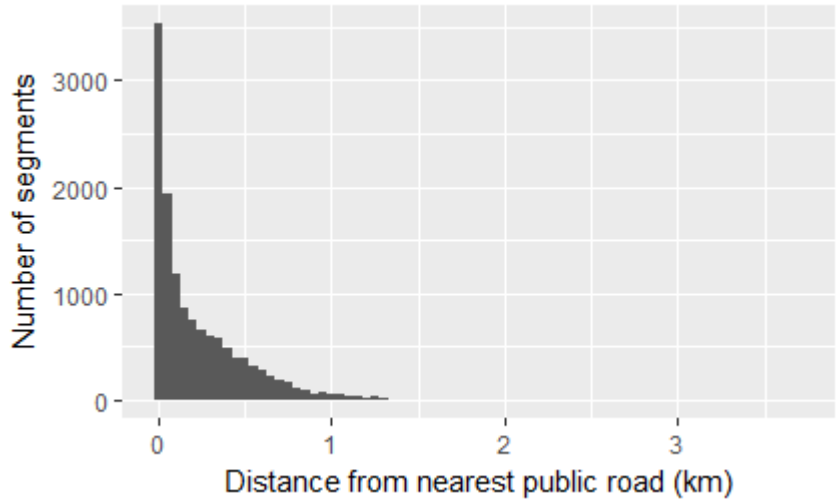
It was anticipated in the Programme theory of change that the accessibility of a segment of the ECP will play a large role in the level of use. If travelling to the ECP takes up a large proportion of time devoted to a typical leisure visit, then the segment in question may be less likely to be popular among visitors.

To measure accessibility, the distance between the centroid of each segment of route and the nearest public road was calculated[112].

Figure A1.3 shows the results of this analysis. The distribution is strongly positively skewed, with the majority of route segments being very close to a public road. Just 2.2% of segments are further than 1km from a road.

[112] The map of roads is taken from the Ordnance Survey open roads dataset, available here: https://www.ordnancesurvey.co.uk/business-and-government/products/os-open-roads.html

Figure A1.3 Distance from nearest public road of ECP segment centroid



As with population gravity, this is a continuous variable so needs to be split into categories. However, rather than splitting into quintiles, the variable was split into just two categories. This is because the differences in distances are relatively small – a difference of 10 metres is not going to have any impact on usage.

The median distance (rounded to 125m) was adopted as the point to split the data (because of the skewed distribution of the data), so approximately 50% of the route falls into each category (Table A1.11).

Table A1.11 Distance to nearest public road category

Distance	Route length (km)	% of route length	Number of segments	% of segments
<= 125m	2,092	47%	6,633	50%
> **125m**	2,328	53%	6,530	50%

A1.2.6 Access permissions

The Programme theory of change indicates that changing the access permission on stretches of the future ECP will have an impact on the way that those stretches are used. Table A1.12 shows the breakdown of access permissions in the baseline[113].

Table A1.12 Access permissions on English coastal paths

Access permission	Route length (km)	% of route length	Number of segments	% of segments
Secure	3,102	70%	10,522	80%

[113] Taken from Natural England's future ECP route datasets

Permissive	316	7%	696	5%
De facto access	324	7%	741	6%
New alignment required	655	15%	1,177	9%
Non-secure (no details)	23	1%	27	0%

A large majority of coastal paths are currently accessible, with 77% of them having secure or permissive access. Another 7% of paths are currently accessed on a de facto basis.

These categories were grouped according to the theory of change (Table A1.13). Surveys can only be conducted on the secure and permissive segments. This meant that although segments with permissive and de facto access are grouped together, surveys could only be conducted on the permissive segments. Because of this, it was assumed that the usage on these segments of route are comparable. In addition, although there is a category containing the segments where a new alignment of the existing coastal path is proposed (the 'No access' category), no surveys could be conducted on these segments as it was assumed that the sections to which the path will be re-routed are inaccessible and receive no usage at present.

Table A1.13 Future ECP access permission categories

Access permission	Route length (km)	% of route length	Number of segments	% of segments
Secure access	3,102	70%	10,522	80%
Permissive and de facto access	640	14%	1,437	11%
No access*	678	15%	1,204	9%

** Note, segments where no information was given have been included in this category*

A1.2.7 Public Right of Way and route type

The type of access permitted on a route segment is also likely to have an impact on levels of usage.

Various combinations of route segment were grouped into just two categories – footpaths and multi-use paths (including cycleways and roads). There was no data relating to this aspect of the route for nearly 20% of segments (making up 31% of the total route length, or 1,364 km). These segments were identified, but they cannot be considered as potential survey sites. It was assumed that these undocumented segments of coastal paths follow the proportions for the route type as the documented segments for the purposes of the sampling strategy.

Table A1.14 shows the breakdown of the different categories into which the segments fall. The undocumented segments of path are proportionally incorporated into the other categories.

Table A1.14 Route type categorisation

New route type	Route length (km)	% of route length	Number of segments	% of segments
Footpath	3,324	75%	10,584	80%
Multi Use/Cycleway	1,096	25%	2,579	20%

A1.2.8 Land usage

There are several variables within the audit data that provide information on the type of environment through which the route segment passes[114]. It is important to include some measure of this variable in the categorisation as a measure of the desirability of a route segment. After analysis, the 'Route_Land' variable was considered to be the most useable as it has the fewest null responses (c.1,000 segments, compared to over 7,000 for each of the other variables).

Table A1.15 shows the different categories for this variable. There were too many variable categories included for it to be used in classifying the route segments. An attempt was made to group some of these categories to reduce the number of categories. Table A1.15 shows the original 'Route_Land' categories, and the combined 'New categories'.

Table A1.15 Land usage categories

Route_Land	Length (km)	Number of segments	New category
Beach – Rocky	9	6	Beach
Beach – Sand	405	106	
Beach - Shingle	220	122	
Dunes	367	146	
Arable (Crops)	223	83	Natural/vegetated
Cliffs	644	295	
Coastal Valley	23	5	
Estuary	122	70	
Flats or Saltmarsh	209	112	
Golf Course	74	28	
Grassland	2798	510	
Headland	41	23	
Heath	774	111	
Low-Lying Coast	191	85	
Nature Conservation	35	27	
Pastoral (Livestock)	529	118	
Scrub	749	95	
Shooting	1	0	
Woodland	419	103	
Woodland (commercial)	12	3	
Caravan Site	87	26	Urban/developed
Coastal defence - bank	1357	928	
Industrial	291	142	
Park or Garden	15	8	
Promenade	547	279	
Sub-urban	1382	240	
Urban	633	213	
No data	1006	535	Other

[114] Labelled as Route_Land, Land_Form, Land_Cover, Land_Use in the dataset

Table A1.16 shows how the route segments fall into these new categories.

Table A1.16 New land use categories

New land use category	Route length (km)	% of route length	Number of segments	% of segments
Beach	380	9%	1,001	8%
Natural/vegetated	1,669	38%	6,844	52%
Urban/developed	1,836	42%	4,312	33%
Other	535	12%	1,006	8%

A1.2.9 Long distance route

Over half of the length of the future ECP route is identified in the audit dataset as being on a named long distance route. There are 42 named long distance routes in the dataset. To consolidate this variable, only existing National Trails in England are considered for inclusion in this variable. This is because these trails are likely to have a higher profile than the other routes identified by the variable, which in turn may be likely to lead to higher volume of visits. Rather than categorise the route segments by the individual National Trails, a simple binary category was used (Table A1.17).

Table A1.17 National Trail categorisation

On a National Trail?	Route length (km)	% of route length	Number of segments	% of segments
Yes	1,095	25%	7,311	56%
No	3,325	75%	5,852	44%

A1.2.10 Developing the final classification

To develop the final classification of the route segments, each route segment was assigned to one category for each of the following variables.

- Rural Urban Classification (1 of 3 categories)
- Population gravity quintile (1 of 5 categories)
- Distance to the nearest road (1 of 2 categories)
- Access permissions (1 of 3 categories)[115]
- Public Right of Way category (1 of 2 categories)

[115] Although only two categories will be considered for the sampling strategy

- Land use (1 of 4 categories)
- National Trail category (1 of 2 categories)

This gave a total of 960 possible categories. However, only 32 surveys were being commissioned. For the purposes of the sampling strategy at least one survey needed to be conducted on a segment of route from each category, meaning that there must be a maximum of 32 categories.

However, there was likely to be a great deal of correlation between these variables, so it was unlikely that every possible category would be filled. For instance, it is unlikely that a segment of route that falls in a large urban conurbation will also fall into the smallest population gravity category.

When all of the different combinations of variables assigned to route segments were calculated, a total of 554 categories were identified. This was an improvement on the maximum number of possible categories, but was still much too high for the purposes of the sampling strategy.

To reduce the number of categories still further, some of the possible variable values were combined and/or some of the variables included in the categorisation were eliminated.

A1.2.10.1 Correlation of variables

The first approach explored to reduce the number of variables in the categorisation, was to examine the relationships between the variables to understand if any of them were not adding additional information to the classification.

To test the variables a Chi-Square Test of Independence was performed, as they are all categorical variables. The results of the tests indicated that almost none of the variables are independent of each other (there was a significant relationship at the 95% level of confidence for all combinations of variables, with the exception of the access permission variable when tested against the distance from the nearest road variable and against the route type variable). This was not a surprising finding, as conceptually it is very likely that some of the combinations of variables are strongly correlated (e.g. RUC and population).

However the results of the test did not help to exclude any of the variables – they cannot all be removed – nor did it help identify any of the variable categories that could be combined.

It did however suggest that the approach taken to categorising the route segments should be considered in light of the result. If most of the variables are so strongly correlated, then does it make sense to differentiate the segments accordingly?

Two responses to this were considered. Firstly, the number of route segments is quite large which increases the likelihood of a significant result in the Chi-Square Test. This is supported by the conceptually unlikely significant results seen between the access permission variable and the other variables. Secondly, correlations between most of the variables were expected. The route segments that do not fall into the expected category are of primary interest as it is these where a difference in usage is expected. These therefore need to be categorised differently.

A1.2.10.2 Combining variable categories

In previous subsection of this annex, consideration as given to whether any of the variable categories could be combined – for instance where there was little difference between the categories or where very few segments of the route fell into a category. This was examined further, aiming to reduce the total number of categories.

Land usage

Table A1.16 above showed that the 'Beach' and 'Other' categories of the land use variable were very small, relative to the 'Natural' and 'Urban/developed' categories. 'Beach' was incorporated into 'Natural' and 'Other' into 'Urban/developed'.

However, once this was done the whole category appears unnecessary. The RUC replicates the natural and urban categorisation and comes from a much more robust source. By eliminating the land usage variable entirely, the number of categories was reduced to 206.

Distance from nearest public road

A combination of the 'Urban' RUC and the 'nearest road' variable was considered to be superfluous. If a site is urban then it must be, almost by definition, easily accessible. The 'nearest road' variable is therefore discarded when a site is identified as 'Urban'. This reduced the number of categories to 183.

RUC and population gravity

There is considerable conceptual overlap between these variables. They both consider the population in the vicinity of the route segment, although they approach it from different perspectives. The RUC is concerned with the population in the immediate vicinity of the route and therefore can be seen to represent the level of local demand as well as a proxy for the likely type of infrastructure around the segment. On the other hand, population gravity is concerned with the level of demand from a wider area around the segment, taking into account larger population centres that may be able to access the route.

It was therefore preferable to retain both variables. However, some degree of consolidation was imposed.

The ONS make the distinction between the 'Rural' and 'Urban' categories at the highest level of their analysis. The sub-division into more specific categories is subsequent to the main binary division. The RUC was grouped into binary categories of rural and urban.

In addition, the way the population gravity variable is categorised was adjusted. Quintiles were initially chosen as a balance between sensitivity to the data and the resulting number of categories. By using quartiles to split the data this balance was adjusted in favour of reducing the number of categories while still retaining some granularity in our analysis (Table A1.18)[116].

Table A1.18 Population gravity categories

Population gravity quartiles	Route length (km)	% of route length	Number of segments	% of segments
Q1 0.0 to < 1201.7	634	17%	2,990	25%
Q2 1201.7 to < 2155.9	755	20%	2,990	25%
Q3 2155.9 to < 4345.7	977	26%	2,990	25%
Q4 4345.7 to < 31993.0	1,376	37%	2,989	25%

Applying these two adjustments resulted in 89 categories.

National Trails

Although the categorisation of National Trails is relevant to the ECP (as a future National Trail itself) this variable removed it from the categorisation. This was primarily for practical purposes.

[116] The segments where no access is permitted are excluded from the calculation of the quartiles so that it is applicable to the segments where surveying will take place.

However the weakness of the data (in terms of the audit process), the likely impact of this variable relative to the other variables in the categorisation, and the number of very small categories that exist solely because of this variable (in terms of the kilometres of ECP that fall into the category), make it the primary choice of variable to eliminate.

Removing this variable resulted in 45 categories.

Route type

The route is currently split between footpaths and multi-use/cycleways. However, the definition of an ECP user is focused on individuals on leisure walks. It was therefore assumed that although there may be additional users on the multi-use segments (i.e. those using different modes of transport) the volume and type of ECP users will be consistent according to the other variables in the categorisation. Eliminating this variable resulted in 23 categories.

In addition, and importantly, by eliminating this category the categorisation moves away from the audit data almost entirely. Given the weaknesses inherent in the audit data, and the fact that there is no audit data for segments of route that have been upgraded, this step can be seen to ground the sampling strategy more firmly in the more robust data provided by the ONS and Ordnance Survey.

Small categories

Finally, there is one very small category, covering less than 3km of the ECP. The segments of path in this category are in urban areas, have secure access and fall into the first population gravity quartile. However, because the population gravity for segments in this category are all very close to the boundary with the second quartile, this category was combined with the category that matches it for the other variables.

The final set of 22 categories is shown in Table A1.19. The table is sorted by the total route length that falls into each category, while keeping the categories together that are only separated by their access permissions.

The secure stretches of the path make up more of the ECP than the permissive and de facto stretches. This was reflected in the distribution of surveys across the categories.

Table A1.19 Finalised route categories

Rural Urban Category	Population gravity quartile	Distance from public road	Access permissions	Route length (km)	% of surveyable route length	Number of segments	% of surveyable segments
Urban	Q4	Not applicable	Secure access	766	20%	1,794	15%
Urban	Q4	Not applicable	Permissive and de facto access	169	5%	284	2%
Rural	Q1	> median	Secure access	356	10%	1,809	15%
Rural	Q1	> median	Permissive and de facto access	102	3%	265	2%
Rural	Q3	> median	Secure access	390	10%	997	8%
Rural	Q3	> median	Permissive and de facto access	61	2%	105	1%
Rural	Q2	> median	Secure access	373	10%	1,522	13%
Rural	Q2	> median	Permissive and de facto access	70	2%	146	1%
Rural	Q3	<= median	Secure access	299	8%	1,181	10%
Rural	Q3	<= median	Permissive and de facto access	40	1%	126	1%
Rural	Q2	<= median	Secure access	229	6%	1,067	9%
Rural	Q2	<= median	Permissive and de facto access	53	1%	152	1%
Rural	Q4	> median	Secure access	218	6%	385	3%
Rural	Q4	> median	Permissive and de facto access	34	1%	66	1%
Rural	Q4	<= median	Secure access	152	4%	386	3%
Rural	Q4	<= median	Permissive and de facto access	36	1%	74	1%
Urban	Q3	Not applicable	Secure access	151	4%	498	4%
Urban	Q3	Not applicable	Permissive and de facto access	36	1%	83	1%
Rural	Q1	<= median	Secure access	142	4%	784	7%
Rural	Q1	<= median	Permissive and de facto access	31	1%	122	1%
Urban	Q1 and Q2	Not applicable	Secure access	26	1%	99	1%
Urban	Q2	Not applicable	Permissive and de facto access	7	0%	14	0%

A1.2.10.3 Survey locations

The 32 surveys were assigned across the finalised route categories. Every category requires a minimum of 1 survey. This leaves 10 remaining surveys which were proportionally distributed among the categories according to the length of route in each category. As there is such a disparity between the number of English coastal path kilometres in each 'secure' category as compared to the 'permissive and de facto' equivalent (according to the other variables), the remaining surveys were only distributed among the 'secure' categories. The final distribution of surveys is shown in Table A1.20.

Table A1.20 Finalised route categories

Rural Urban Category	Population gravity quartile	Distance from public road	Access permissions	Number of surveys
Urban	Q4	Not applicable	Secure access	3
			Permissive and de facto access	1
Rural	Q1	> median	Secure access	2
			Permissive and de facto access	1
Rural	Q3	> median	Secure access	2
			Permissive and de facto access	1
Rural	Q2	> median	Secure access	2
			Permissive and de facto access	1
Rural	Q3	<= median	Secure access	2
			Permissive and de facto access	1
Rural	Q2	<= median	Secure access	2
			Permissive and de facto access	1
Rural	Q4	> median	Secure access	2
			Permissive and de facto access	1
Rural	Q4	<= median	Secure access	2
			Permissive and de facto access	1
Urban	Q3	Not applicable	Secure access	2
			Permissive and de facto access	1
Rural	Q1	<= median	Secure access	1
			Permissive and de facto access	1
Urban	Q2	Not applicable	Secure access	1
			Permissive and de facto access	1

Table A1.21 shows the number of surveys broken down according to the different variables. This is relevant to the analysis of the survey data as it demonstrates that it will be possible to interrogate the data according to these variables without a risk of having insufficient responses in any of the categories.

Table A1.21 Number of surveys assigned by variable

Variable	Category	Number of surveys
Rural urban category	**Rural**	23
	Urban	9
Population gravity quartile	**Q1**	5
	Q2	8
	Q3	9
	Q4	10
Distance from public road (only applies to 'Rural' segments)	**<= median**	11
	> median	12
Access permissions	**Secure access**	21
	Permissive and de facto access	11

The precise survey locations were identified through a random selection of segments that fall into each category. The regional split of surveys is therefore dependent on the regions with the correct category of route.

The selected locations adhere to the requirements of the sampling strategy as laid out in the introduction to Annex 1, with the primary intention of collecting responses from English coastal path users. Although the initial selection of the route segments was randomised, the following strategy was subsequently implemented:

- Where the random selection of route segments included a segment of path where users of coastal paths were likely to be outnumbered by non-users who are simply in the vicinity of the paths – such as a busy urban seafront - surveys locations were not selected.
- Instead, sections of route that fall within the same category but that are unlikely to attract the same ratio of non-users to users were identified and used to replace the original segment. Such segments are still likely to have a high ratio of non-users compared to other types of segment, but not to the extent that appropriate siting of the interviewer cannot enable better targeting of route users.
- This assumed that the coastal path users on these replacement segments represent the true ECP users on the segments with a high ratio of non-users.
- The identification of suitable sites in each category was supported by advice from Natural England staff with knowledge of each location.

The outcome of this sampling strategy was a sound framework for the collection of data on users of English coastal paths, which in turn supports robust analysis of the views and behaviours of these users at both baseline and after the completion of the ECP.

Annex 2 Survey Questionnaire

A2.1 Interview details

Interviewer name	
Interview location	
Interview number	
Interview date	
Interview time	

Early termination record	Please tick if appropriate	
Interview terminated early	Yes (tick if terminated early)	
Reason for early termination	Already been interviewed	
	Other	

A2.2 Preamble

Good morning/afternoon. We are carrying out a survey about the coast path for Natural England. It will take 5 minutes or so, and any information you give us will be both anonymous and confidential. Would you be willing to take part?

A2.3 Attitudinal information

1. Thinking about your use of the coastal path today, how much do you agree or disagree with the following statements?
(if the respondent has only just arrived and feels unable to answer the questions then please tick 'don't know')

		Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
1	I enjoyed it						
2	It made me feel calm and relaxed						
3	It made me feel refreshed and revitalised						
4	I took time to appreciate my surroundings						
5	I learned something new about nature						
6	I felt close to nature						

A2.4 Visit characteristics

A2.4.1 Travel distance and time

2. Do you live in the UK? *[If no go to Q5]*

Yes		No	

3. Where in the UK do you live? *(postcode; if unknown: village/town and county)*

Postcode	
Village/town, county	

4. Are you staying away from home overnight?

Yes		No	

5. Are you staying in the local area (within 10 miles of here)?

Yes		No	

6. Did you travel here today from your home? *[If yes go to Q8]*

Yes		No	

7. What is the address of the place you travelled from to get here today *(postcode; if unknown: village/town and county)*

Postcode	
Village/town, county	

8. At what point on the coast did you start your walk today? And what was the name of the nearest village or town?

Specific point	
Nearest village/town	

9. How long did it take for you to travel to the start of your walk today? (hours /minutes)

Hours & minutes	

10. What was your main form of transport to get to the start of your walk today?

Car or van	
Train (includes tube/underground)	
Public bus or coach (scheduled service)	
Coach trip / private coach	
Motorcycle / scooter	
Bicycle / mountain bike	
On foot / walking	
Wheelchair / mobility scooter	
On horseback	
Boat (sail or motor)	

Taxi	
Other	

A2.4.2 Trip characteristics and motivation

11. *[Interviewer to observe, not ask, unless it is unclear]* How are you travelling along the coastal path today?

Walking, not with a dog	
Walking, with a dog	
Other (please specify)	

12. Do you live in the local area (within 10 miles of here)? (if yes, to to Q14)

Yes		No	

13. If no, how long do you think that you will spend in the local area today? (hours / minutes)

Hours & minutes	

14. How long do you think you will spend on the coastal path today? (hours & minutes)

Hours & minutes	

15. Which of the following best describes the reason for your trip?

Mainly to walk along the coast	
Walking along the coast was one of the reasons	
I hadn't specifically planned to walk along the coast	

16. How many times have you used a coastal path in England, here or elsewhere, in the last 12 months, including this trip?

(Note: if interviewee cannot calculate a total, suggest alternative ways of expressing number of visits – see list below - Record in the format provided by the respondent)

Total number of visits over the year	
Average number of visits per week	
Average number of visits per month	
Don't know	

17. During each of these visits, how long did you typically spend walking (or undertaking other physical exercise)?

	Less than 30 minutes	
	30 minutes to 1 hour	
	1 to 2 hours	

	2 to 3 hours	
	3 to 4 hours	
	More than 4 hours	

A2.5 Alternative sites and displacement

18. If this section of the coastal path didn't exist or was inaccessible (e.g. due to a landslide or coastal erosion), which of the following do you think you would have done instead?

	Done a physical activity (such as walking or cycling) in the local area (within 10 miles)	
	Done a physical activity somewhere else (not in the local area) near the coast	
	Done a physical activity somewhere else (not in the local area) away from the coast	
	Done a non-physical activity in the local area	
	Done a non-physical activity somewhere else (not in the local area) near the coast	
	Done a non-physical activity somewhere else (not in the local area) away the coast	
	Stayed at home	
	Don't know	

19. [If answer to Q18 is (to do an activity 'somewhere else'] Where specifically would you have gone?

Site name (or landmark/feature)	
Location (nearest village/town and county)	
Don't know	

A2.6 Expenditure

20. (i) How much do you and your immediate party (e.g. family/spouse) expect to spend during your whole trip TODAY?

    - Please provide only what you have actually/will actually spend TODAY.
    - However, if your accommodation was paid in advance or in a lump sum for multiple nights, please provide an estimate for a single night.

    (ii) And how much of that do you estimate will have been spent in the local area i.e. within approximately 10 mile of here

	In total (£)	In local area (£)
Accommodation (per night)		
Travel		
Food & drink		
Other (e.g. equipment, souvenirs, other activities, etc.)		
Total		

21. How many people does this expenditure cover?

Number of people	

A2.7 Group and respondent information

This section requests information about you and the group that you are on the coastal path with today. Responses will help us to analyse the extent to which visitor characteristics influence coastal path use. Information provided will be treated as confidential. No information on individuals will be published; it will only be used to enable comparisons between groups.

A2.7.1 Information on the group that you are using the coastal path with today

22. Who are you using the coastal path with today? *(please tick)*

Alone		Members of club / association / community group	
Adult couple		Work colleagues	
Family		Educational group	
Friend / group of friends		Other	
Family and friends		Did not wish to say	

23. How many people are in your group today? Please state by age category.

Age	Number of people in group
0-15	
16 – 64	
65+	
Total	

24. What is the mobility status of members of your group?

	You (please tick)	Other members of your group (number of people)
Wheelchair / mobility scooter user		
Other walking aid user e.g. walking stick		
Some mobility restriction, but with no walking aid		
No mobility restriction		
Did not wish to say		

A2.7.2 Information on you

25. Gender

Male		Female		Other		Do not wish to say	

26. Age

16-24		55-64	
25-34		65-74	
35-44		75+	
45-54		Did not wish to say	

27. How would you describe your ethnic group?

		Please tick
White	English / Welsh / Scottish / Northern Irish / British	
	Irish	
	Gypsy or Irish Traveller	
	Any other white background	
Mixed / Multiple ethnic groups	White and Black Caribbean	
	White and Black African	
	White and Asian	
	Any other background	
Asian / Asian British	Indian	
	Pakistani	
	Bangladeshi	
	Chinese	
	Any other background	
Black / African / Caribbean / Black British	African	
	Caribbean	
	Any other background	
Other ethnic group	Arab	
	Any other	
Did not wish to say		

28. Highest level of education (*please tick*)

Degree or degree equivalent or above	
A levels or equivalent	
Other qualification below A level	

No qualification	
Did not wish to say	

29. What is your employment status? (*please tick*)

Full time paid work (30+ hours per week)	
Part-time paid work (8-29 hours per week)	
Part-time paid work (under 8 hours per week)	
Retired	
Still at school	
In full-time higher education	
Unemployed (seeking work)	
Not in paid employment (not seeking work)	
Did not wish to say	

30. Your household's approximate income before tax (*please tick*)

Less than £10,000		£60,000-69,999	
£10,000-19,999		£70,000-79,999	
£20,000-29,999		£80,000-89,999	
£30,000-39,999		£90,000-99,999	
£40,000-49,999		£100,000 & over	
£50,000-59,999		Did not wish to say	

Annex 3 Analysis to explore the APC data and its categorisation for the VVM

There are 21 automatic people counters (APC) located on the potential route of the ECP, collecting continuous hourly count data of people passing the counter. This annex explores the data from these APC. The locations of these APC are as shown in Table A3.1, along with the Annual Average Daily Total (AADT) of counts at each site[117].

Table A3.1 Automatic People Counters on the potential route of the ECP

Location name	Year	AADT
Blue Anchor Bay	2017	18
Clevedon	2017	147
Doniford Bridge	2016	202
Galley Hall	2017	13
Holland Haven	2017	313
Holme Dunes NNR	2017	69
Itchenor	2017	133
Northey Island Causeway	2017	107
Pegwell Bay	2017	155
Pylewell	2017	58
Rocket Post Field	2017	103
Ryehope Dean	2017	25
Saltburn	2017	58
Sandwich Peninsula	2017	25
Sea Pasture Reserve Silecroft	2017	11
Strete Gate	2017	74
Teesdale Way	2017	2
Trimingham	2016	24
Undercliffs Natural Nature Reserve	2017	51
Waxham	2017	22
Winterton Ness	2016	37

In addition, five of the counters were in place long enough to have collected three or four years of data (Table A3.2)

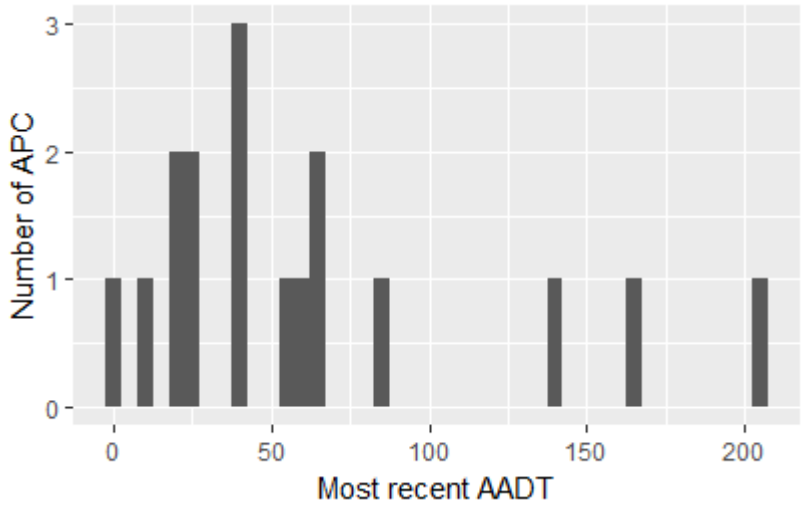
[117] Count data has been through a cleaning process, eliminating extremely high counts and long strings of zero counts. The APC that are identified as

Table A3.2 Automatic People Counters on the potential route of the ECP with long time series

Location name	AADT			
	2014	2015	2016	2017
Blue Anchor Bay	14	14	18	No data
Holme Dunes NNR	69	66	68	57
Rocket Post Field	160	84	47	42
Ryehope Dean	31	28	24	26
Trimingham	27	26	25	No data

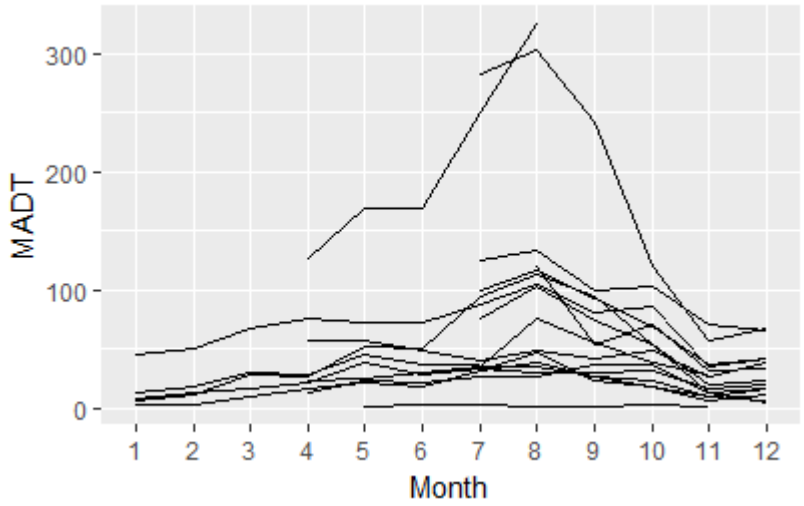
Figure A3.1shows the most recent AADT available for each counter. There is a potential split in the sites between those where the AADT is <100 and those where the AADT is >100.

Figure A3.1 Most recent AADT at APC locations



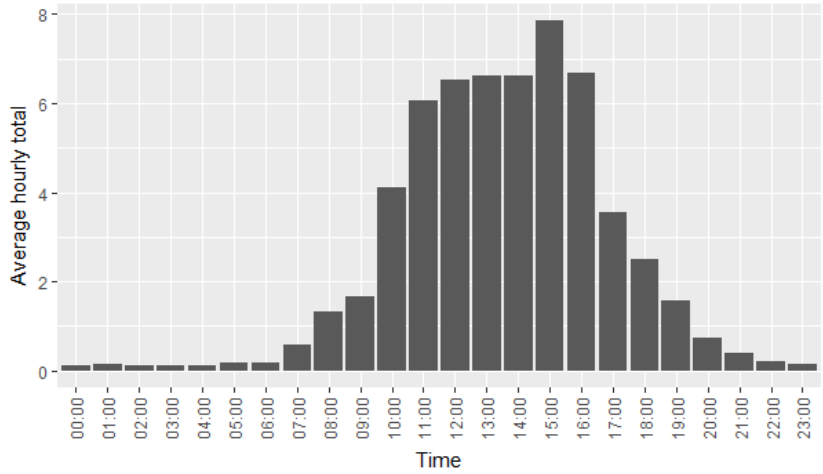
Consideration was also given to when people are visiting the route to see if there are any patterns or trends. Figure A3.2 shows the Monthly Average Daily Totals (MADT) for 2016 for each counter where there were sufficient data. It shows that although there are slight variations in the seasonal trend from counter to counter, visitor numbers are at their peak in the summer months. It is not possible to differentiate between the locations based on this variable.

Figure A3.2 Monthly Average Daily Totals, 2016



Finally, the way that the route is used on an hourly basis was considered: are there any differences in the times of day that a route is used? Looking at the average number of visits each hour, almost all of the APC sites see a similar distribution of visitors, with the peak usage over midday/early afternoon. An example from the Pylewell APC is shown in Figure A3.3.

Figure A3.3 Average hourly total, Pylewell



However, two sites see a slightly different distribution. The APC at Northey Island Causeway in Maldon shows some indication of morning and afternoon usage at times that align with what is likely to be school traffic (Figure A3.4) while the APC at Sea Pasture Reserve, Silecroft shows the most usage during mid-morning (Figure A3.5). The hourly counts at this latter site are very low so minor variations in usage can have a disproportionate effect on any presentation of the data.

Figure A3.4 Average hourly total, Northey Island Causeway

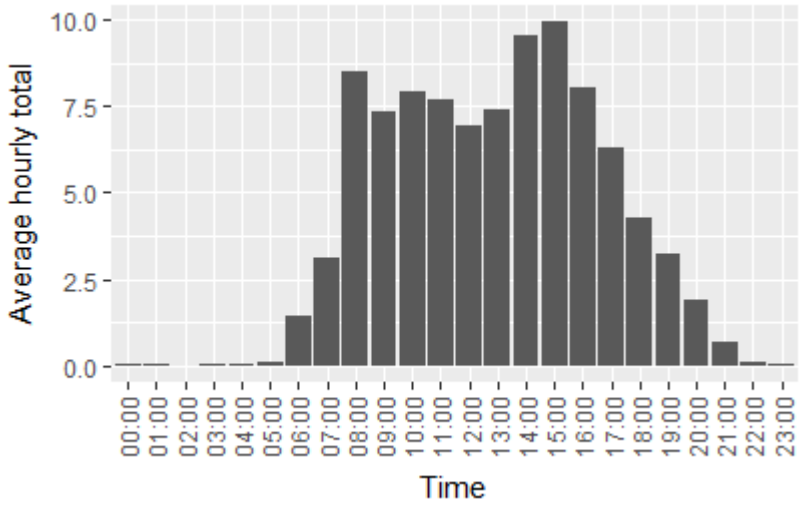
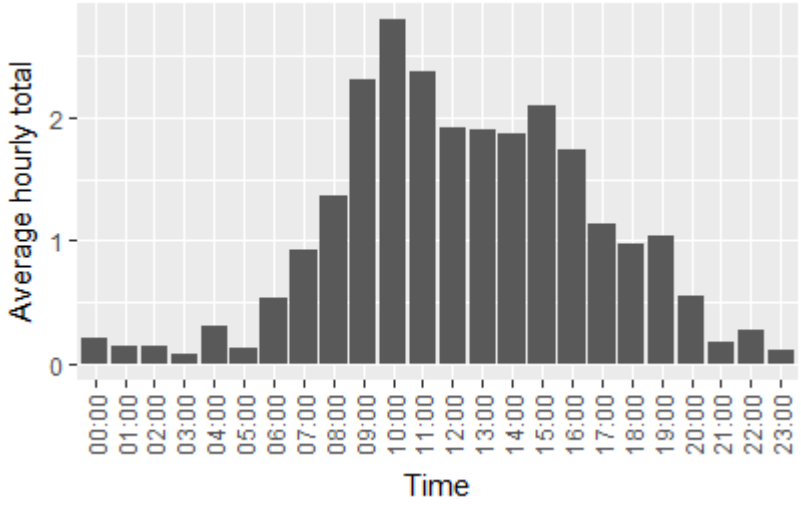


Figure A3.5 Average hourly total, Sea Pasture Reserve



Despite these variations, it was not apparent that there was any justification for using them to classify the number of visits to the EPC. The majority of sites follow a similar pattern, while these exceptional sites show only slight variations on the common theme, likely as a result of location specific factors.

It was concluded that the APCs provide little evidence that could support an approach to categorisation based on the data from the counters themselves. There does seem to be a slight split in the number of visits recorded at the different sites – potentially they could have been separated into 'high' and 'low' volume sites – but the division is not clear and is based on a limited number of sites.

As a result, the categorisation used in the sampling strategy was replicated in the VVM methodology.

Annex 4 Example calculation of deriving AUE from manual count data

A manual count is conducted at location X. Table A4.1 shows the data collected.

Table A4.1 Example manual count data

Day type	Month	Pedestrian count (7am-7pm)
Weekday	September	24
Weekday	September	38
Weekend day	September	54
Weekend day	September	45

Because there are multiples of the same day type and month, the mean value of each can be taken (Table A4.2).

Table A4.2 Example manual count data (aggregated)

Day type	Month	Means pedestrian count (7am-7pm)
Weekday	September	31
Weekend day	September	49.5

The aim is to estimate the 24hr Annual Average Daily Total (AADT) for the whole year from these data.

There a number of reference counters where the AADT is known (Counter 1, 2…to Counter n) (Table A4.3).

Table A4.3 Example reference counter data

Day type	24hr AADT			
	Ref counter 1	Ref counter 2	…	Ref counter n
Weekday	24	115	…	67
Weekend day	34	176	…	78

For each of these reference counters, the 7am-7pm daily counts from the September of the year from which the AADT was calculated is available (Table A4.4).

Table A4.4 Example reference counter data (September)

Day type	Month	Mean 7am-7pm daily count for this month and day type (diurnal MADT)			
		Ref counter 1	Ref counter 2	…	Ref counter n
Weekday	September	13	132	…	76
Weekend day	September	23	201	…	83

This means that the proportional relationship between the known AADT and the diurnal MADT values can be calculated (Table A4.5).

Table A4.5 Proportional relationship between September diurnal MADT (7am-7pm mean count) and 24hr AADT

Day type	Month	Proportional relationship between diurnal MADT and AADT			
		Ref counter 1	Ref counter 2	…	Ref counter n
Weekday	September	54%	115%	…	113%
Weekend day	September	68%	114%	…	106%

If it is assumed that the seasonal distribution at Location X is the same as each of the reference counters in turn, a series of 24hr AADT can be estimated for the manual count site (Table A4.6).

Table A4.6 Estimated 24hr AADT for manual count site

Day type	Month	Mean pedestrian count (7am-7pm) from manual count site	Estimated 24hr AADT using ref counter 1	Ref counter 2	…	Ref counter n
Weekday	September	31	17	36	…	35
Weekend day	September	49.5	33	57	…	53

These can then be used to estimate the total number of trips over a whole year, using the number of days of each type in the year (Table A4.7).

Table A4.7 Estimated 24hr AUE for manual count site

Day type (days)	Estimated 24hr AUE using ref counter 1	Estimated 24hr AUE using ref counter 2	…	Estimated 24hr AUE using ref counter n
Weekday (261.23)	4441	9404	…	9143
Weekend day (104.35)	3444	5948	…	5531

In Table A4.7, the sum of the values in each column is the estimated total AUE for the whole year using data for each reference counter. The mean of these values is then used as the final estimated AUE for Location X. This can be divided by 365 to give the final AADT for Location X.

Annex 5 Survey Pilot

A5.1 Overview of the pilot

A5.1.1 Purpose

The questionnaire was piloted in order to ensure that the questions are appropriately worded, intelligible to respondents, and deliver the information anticipated.

During the pilot the surveyors ran through the questionnaire and recorded the answers of respondents, then, on completion of the survey sought feedback on the questionnaire and the experience of the respondent in participating in the survey.

In total 37 interviews were completed. The responses were analysed in MS Excel in order to ensure the suitability of format and content.

A5.1.2 Pilot fieldwork

The pilot was undertaken on 26th and 30th May, from 07:00 – 19:00, with each day in a different location on each day. The two sites had different characteristics - one rural and the other more urban, in order to involve users of different types. A summary of the site characteristics is presented in Table A5.1. Maps of the two locations are given in Figure A5.1 and Figure A5.2.

Table A5.1 Locations for Pilot Survey

final_ selection	route_cat	survey_ region	Route_ Land_ new_ combined	pg_binary	distance_c at	nat_trail	PRoW_ Status_ new	Destination	Distance_ Result (km)
827	17	EAST OF ENGLAND	Urban/ developed	Under	not applicable	TRUE	Multi Use/Cyclew ay	Wells-next-the-Sea, North Norfolk	0.495609
209	3	NORTH EAST	Natural	Under	Over	TRUE	Footpath	Street Houses, Redcar and Cleveland	0.783328

Figure A5.1 Location of Proposed Pilot Site, Wells-next-the-Sea, Norfolk

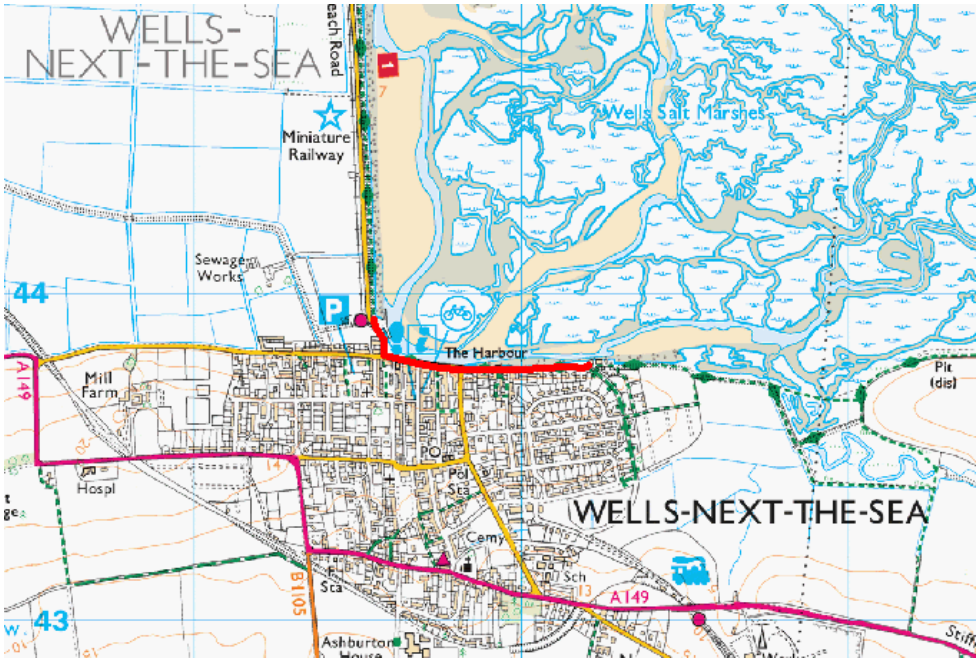
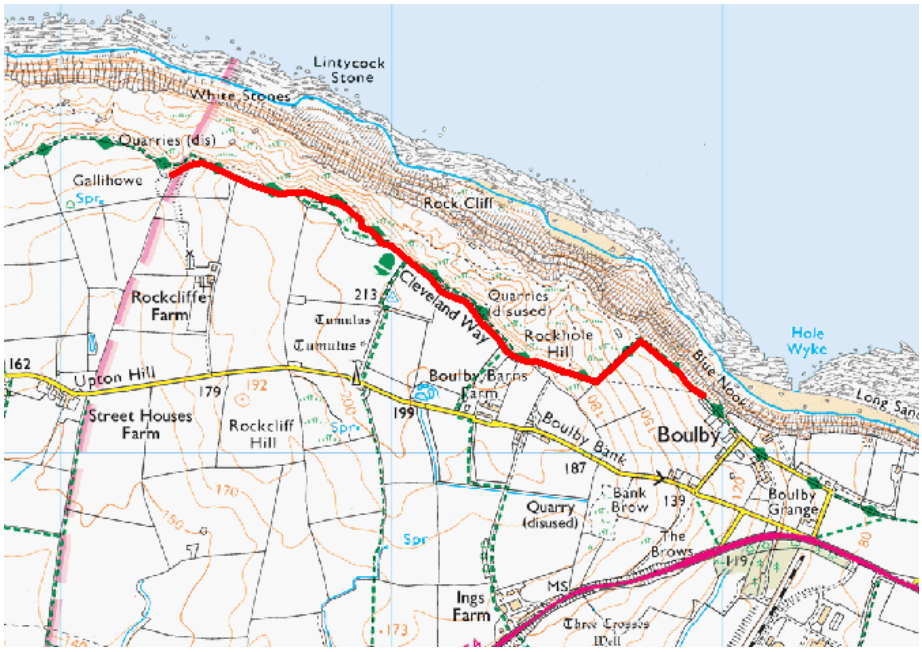


Figure A5.2 Location of Proposed Pilot Site, Redcar and Cleveland



After completing the survey, respondents were asked the following questions:

- Were there any questions that you had difficulty answering? If so, why?
- What was your overall impression of the questionnaire?
- Do you have any further questions on the questionnaire or the study more generally? Do you understand why the survey is being done? Would you like more information?

The surveyor also completed a cover sheet highlighting any issues or concerns around the following aspects:

- Logistics of delivery – access, site location, etc;
- Ability to stop users of the path/willingness to complete the survey;
- Respondents' understanding of the questions – highlighting any recurring issues; and
- Respondents' willingness to complete the questions.

A5.2 Pilot output – completion rates

For the main survey, there is a target of 2,000 survey responses across the proposed 32 sites. This equates to an average of 60 survey respondents per survey site, and hence 15 per day over the four-day surveying period for each site.

The nature of the sampling strategy different usage levels on different sections of path are expected, and different response rates. Therefore an average survey response per site needs to be read with caution, however it is still useful as a sense-check on whether the proposed number of survey sites and days will delivered the planned 2,000 completed responses.

The number of completed responses for the two pilot sites is shown in Table A5.2. The responses indicate that the target of 2,000 should be met through the proposed surveying strategy.

Table A5.2 Number of completed surveys in each pilot site

Survey site	No. of surveys completed over 1 day pilot
Redcar	14
Wells Quay	23

A5.3 Pilot output – surveyor feedback reports

This section provides the reports from the site supervisors at each of the pilot locations. The reports as written are unedited. ICF/Sustran's responses to key points on the questionnaire have been included as appropriate.

A5.3.1 Site Supervisor's Report for The Quay, Wells-next-the-Sea (Tuesday 30 May 2017)

A5.3.1.1 Location

Having taken up a position on the north side of the road (which was the only place possible where we wouldn't be obstructing the flow of pedestrians), it immediately became apparent that the site would be a difficult location to carry out a survey of users of the coastal paths. This was because:

(a) pedestrians using the southern footpath couldn't be invited to participate in the survey due to the constant flow of vehicular traffic between them and us;

(b) cyclists using the road to travel towards the west couldn't be approached for the same reason;

(c) cyclists travelling towards the east on the road couldn't easily be invited to stop, due to traffic noise and the risk of distracting them while cycling in heavy traffic;

(d) the interviewer had to look for potential respondents both in front of him (on the road and on the northern footpath) as well as behind him (on the quayside), meaning that it was easy to miss people;

(e) the quayside is a working area, with fisherman constantly walking up and down the quay, meaning that the interviewer kept noticing movements out of the corner of his eye, only to find that it was someone whom he'd seen walking past dozens of times before;

(f) the enumerator had to take care not to count such workers repeatedly (which would have distorted the statistics);

(g) the enumerator had to try to count people passing both in front of and behind him (including people on the southern side of the road who were often masked from his view by vehicular traffic flows);

(h) the survey location was immediately adjacent to piles of lobster pots from which, being a warm day, a nauseating odour was constantly being emitted. This made it harder for the survey team to fully concentrate on their duties and also far less likely that potential respondents would be prepared to stop; and

(I) most importantly, the vast majority of people passing the survey point were not using the Coastal Path in any meaningful way. They were typically families accessing the quay area to go crabbing or fishermen going about their work.

A5.3.1.2 Interview Length

With around a decade of experience of carrying out interviews (both for CTS and others), I have reached the conclusion that the ideal length of a survey is no more than 3 minutes, with 4 minutes being the absolute maximum (beyond which respondents tend to give extremely hurried answers, just so that they can get away quickly).

I timed each interview (excluding the final three evaluation questions about the questionnaire itself) with a stopwatch. **The median duration was 7 minutes 30 seconds (with a range from 4 minutes 45 seconds up to 9 minutes 0 seconds)**.

While only one respondent actually commented that the interview was too long, the body language of many respondents (and, particularly, of those who were accompanying them and waiting for them to complete the interview) clearly showed that they thought it was dragging on for far too long.

SITE SUPERVISOR COMMENTS	ICF/SUSTRANS RESPONSE
1.1.2 Preamble	
The 'blurb' could be briefer. (e.g. “We're carrying out a survey about the Coast Path for Natural England. Any information you give us will be both anonymous and confidential”)	Updated as suggested
Q1: Asking people if they've already taken part in the survey*, before they know what the questions will be*, could be confusing. For example, a respondent might have previously taken part in one or more Sustrans Route-user Intercept surveys and he/she will have no idea whether he/she is about to asked the same set of questions as before or completely different ones. (Unless the purpose of the	The likelihood of interviewing the same person twice are minimal. Simple option added to record ‘early termination’ interviews, in all cases including if due to

question is to *exclude* people who've already taken part, it would seem better to leave the question until the end of the survey. If it doesn't matter that they've already completed the survey then the question appears to irrelevant anyway)	respondent already having been interviewed
1.1.3 Attitudinal Information	
Q2: The poor choice of site location here meant that the wording of the questions wasn't ideal. (e.g. offering the statement "I enjoyed it" to someone who has only just arrived on the quayside from the town centre is asking them to assess their experience *before* they've undergone it).	Question wording is fixed to align to other sources. Note included in questionnaire to say if people cannot respond (as indicated in the comment), then 'don't' know' should be ticked.
It would be useful if the order of responses in this survey could be the same way round as with all other Sustrans route-user intercept surveys. (After a decade of working with 'Strongly agree' on the left of the grid, and 'Strongly disagree' on the right, I had to keep stopping myself from ticking the wrong boxes).	Updated as suggested (as presume some other interviewers may have this issue)
It would also help if all parts of the question could appear on the same page.	The format of the survey form will be amended to ensure questions do not run over pages for ease of delivery
The validity of responses to statement 2(7) is questionable. It would take a brave person to give a negative response to a question about whether they've enjoyed the company of their friends/family/partner when those others are listening!	True. Not much can be done though
1.1.4.1 Travel distance and time	
Q3: The instruction 'If no, go to Q4' doesn't make sense, as that requires someone who doesn't live in the UK to say where in the UK they live!	Corrected
Q4 to Q9: No problems	-
1.1.4.2 Trip Characteristics and Motivation	
Q10 to Q14: No problems	-
Q15: It's unclear as to what information is being sought here. For example, a cyclist might give '3 hours' as his response to Q14 (about how long he'll spend on the Coast Path). If Q15 is specifically about *walking* (and not about cycling) then, unless he plans to leave his bike somewhere, his answer to Q15 should be 'Nil'.	The question has since been identified as redundant. It was originally proposed for use in the HEAT physical health question, but the impact model is drawing on

However if Q15 is really seeking to find out how long he'll spend walking/cycling in total (both on and off the Coast Path), and he plans to do a couple of hours cycling inland, then his answer should be '5 hours'	similar data from a different question. Q15 deleted.
Q16: No problems	-
Q17: Some respondents seemed to dislike having to separate coastal walks in England from those in the rest of the UK. (e.g. They'd say "This is the only coastal walk I've taken in England in the past 12 months but I've done dozens in Wales", and appear annoyed that their answer was only recorded as '1')	NE are only interested in England. So the distinction is required
Q18: Replacing 'on average' by 'typically' might be a minor improvement here.	Updated as suggested
1.1.5 Alternative sites and displacement	
Q19 to Q22: This section caused by far the most problems. My experience with other Sustrans route-user intercept surveys has shown that respondents don't like hypothetical questions and find them difficult to respond to. In answer to "If you couldn't use this path today . . . ", I nearly always hear "But *why* wouldn't I be able to?" I've learnt to counter that response by suggesting, for example, that the police might have cordoned off the area as a crime scene but with this survey I struggled to think of any natural or man-made disaster which could have closed many dozens of miles of the Coast Path. I eventually found that the best way to help respondents grasp the idea of being totally unable to use the Coast Path was to re-word the question to "If the Coast Path didn't exist . . . " The multiple options (of the form "If the answer to question X is A or B then go to question Y") which follow Q19 would confuse an inexperienced interviewer (possibly leading to invalid responses). It would be better if the whole of this section was reduced to a *single* question, roughly as follows: "If the Coast Path simply didn't exist, where do you think that you might be today instead?	Updated in line with suggestion (a to h) – this is broadly in line with how the question was phrased in an earlier iteration
(a) in the same area (within 10 miles), still doing a physical activity (such as walking or cycling);	
(b) in the same area but doing a non-physical activity;	
(c) elsewhere, near to the coast, doing a physical activity;	

(d) elsewhere, near to the coast, doing a non-physical activity;	
(e) elsewhere, away from the coast, doing a physical activity;	
(f) elsewhere, away from the coast, doing a non-physical activity;	
(g) at home;	
(h) don't know."	
[The part which asks for a specific location can probably be omitted as no respondents seemed able to think of a particular place they'd be when faced with such a hypothetical question]	This is for TCM. Only 3 responses said they'd do something outside of the local area; 2 of those said that they didn't know where; I did provide an alternative location. This is a limited number to base a decision to remove the question on. Similar questions have been asked successfully in the past. If response rate is too low to be useful then an alternative 'dummy variable' approach can be used for substitute sites in the TCM.
1.1.6 Expenditure	
Q23: There was some uncertainty about whether all, or part, of a respondent's travel expenses should be included if they weren't just taking a day trip. For example, someone who lives 50 miles from the Coast Path might give his travel expenditure as £15 in fuel (return) if he's on a day trip. If he's arrived on the day of the survey but is then staying overnight, should his expenditure be given as £7.50 (because that's all he's spent on fuel on the day of travel) or £15 (because that will be his total expenditure on fuel for the trip as a whole). Similarly, if someone is mid-way through a week's stay when interviewed, is their travel expenditure 'Nil' (because they've not spent any money on fuel during the day) or £15 (for the trip)?	Expenditure today only. Extra note added to question.

Q23 & Q24: The definition of 'immediate party' was challenged a few times by respondents. Some people would say, for example, "I'm walking on my own at the moment but I'm staying in Wells with my wife and kids". Since they'd rented a house for the whole group (and they'd all be eating together, etc) it seemed to make most sense to take 'immediate party' to include the whole family in terms of expenditure, even though only one member of that family was present at the survey point. Perhaps a clearer form of wording could be found?	Correct. We want their expenditure divided by number of people it covers to get average per person expenditure. Extra note added to the question
1.1.7.1 Information on your group today	
Q25 to Q27: No real problems although respondents found it a little odd to be asked about their age twice (Q26 & Q29).	ok
The first age category for Q26 needs to be amended to '0-15'. (Otherwise 16-year-olds fall into two categories).	Updated as suggested
This section seemed clearer than the previous one about whom was to be included. (e.g. from my previous example, it was clear that the respondent's wife and children were to be included, even though they weren't present at the survey point). Perhaps the 'group' definition should be used across both sections (so that the definition of 'immediate party' doesn't cause problems)?	It appears that this wasn't actually understood. It's supposed to only be the people on the path, not all people on the general trip. Text amended to be more explicit 'people using the coast path with you today'
1.1.7.2 Information on you	
Q28: One respondent stated that, while he had no problems with the 'Male' and 'Female' options, he knew that there were other members of the group he was travelling with who would be offended not to be offered 'Other'. (A 'Prefer not to say' option also needs to be included).	Updated as suggested
Q29: The options should all be included on the same page.	Sustrans / CTS The format of the survey form will be amended to ensure questions do not run over pages for ease of delivery
Q30 & Q31: No problems	-
Q32: The options should all be included on the same page.	Sustrans / CTS The format of the survey form will be amended to ensure questions do not run

	over pages for ease of delivery
Q33: No problems	-
Evaluation Questions: No problems but, by the time this stage was reached, the body language of most respondents showed that they simply wanted to get away, so their answers tended to be very brief.	-

A5.3.2 Site Supervisor's Report for Cleveland Way Trail, Skinningrove, Redcar and Cleveland (Friday 26 May 2017)

The survey at the Cleveland Way Trail near Skinningrove went very well on Friday, 26th May though overall numbers using the path was generally low at the survey point. A significant number (circa 50%) of path users were willing to complete a questionnaire

Most of the path users were 'serious' walkers etc. with very few casual users/ 'dog walkers' or children etc.

It was relatively easy to stop and interview users on the path/at the survey point and there was plenty of space to conduct the interviews themselves without impinging on the usage of the path itself/other users.

Comments received via the Evaluation Questions at the end of the questionnaire included:-

- Very good/comprehensive questionnaire
- Good questionnaire (x 4)
- Fairly quick and easy
- Fair questionnaire
- Should have included a specific section on foreign visitors to the United Kingdom/England etc
- Too long/in-depth/complex/time consuming (x 4)
- Very wordy and lengthy
- Questionnaire ok but would have preferred a single sheet of paper/tick boxes to be completed by the path user
- Certain questions (27/31/33) are too intrusive/invasive – this is 'private' information

Supervisor's specific comments on the draft questionnaire are as follows:-

A5.3.2.1 General Comments

I believe the questionnaire (with a few tweaks – see below) is comprehensive and 'fit for purpose'.

SITE SUPERVISOR COMMENTS	ICF/SUSTRANS RESPONSE
Travel distance and time	
4 - Box/space should be provided for the postcode/location etc	Boxes added throughout
6 - Box/space should be provided for the postcode/location etc	
7 - Box/space should be provided for the location	

8 - Box/space should be provided for the time	
1.1.4.2 – Trip characteristic and motivation	
14 - Box/space should be provided for the time	Boxes added throughout
15 - Box/space should be provided for the time	
17 – Consideration should be given to the introduction of a more 'user friendly' and more easily understood question for Question 17	Amended in order to simplify wording
Foreign Visitors	
Consideration should be given to the Introduction of a new and specific section on the questionnaire related to foreign visitors to the United Kingdom/England etc. This section should explore their individual rationale for visiting a coastal path (s), what other locations/attractions they are visiting, the type, cost and location (s) of the accommodation they are staying at and the economic benefit of their whole visit to the local/ national economy etc	No space for additional questions Econ impact of international visitors can be calculated based on average per day visit & number of coastal path visits by international users

A5.3.2.2 Logistics of delivery – access, site location, etc;

The Cleveland Way Trail site was a relatively quiet survey point and most of the users were 'serious' walkers etc (very few casual user/'dog walkers' or children etc). You had to climb circa 180 feet via a set of rough steps to reach the path/survey point from Skinningrove Harbour or walk from Staithes (circa 6 miles away to the South East) hence the general lack of 'passing'/'casual' users.

A5.3.2.3 Ability to stop users of the path/willingness to complete the survey;

It was relatively easy to stop users on the path/at the survey point and there was plenty of space to conduct the interview themselves without impinging on the usage of the path itself/other users etc. Many users were very willing to participate in the survey.

A5.3.2.4 Respondents' understanding of the questions – highlighting any recurring issues;

The majority of respondents understood the questions when asked but a small number required certain questions to be repeated due to the length and complexity of some of the questioned asked (Question 17 for example).

A5.3.2.5 Respondents' willingness to complete the questions.

All respondents were very willing to complete the survey/questionnaire as they valued and appreciated the coastal path surveyed (and coastal paths generally) and the role of Natural England etc in preserving/enhancing /managing coastal paths in England. Some respondents felt that certain questions (such as 27/31/33) were too intrusive/invasive (this is 'private' information they believed). A number of comments were received regarding the length and complexity of the questionnaire/question asked.

Annex 6 Research strategy options

This annex presents a range of potential evaluation and research strategies that were considered during the development of the evaluation framework. It presents the options separately for three research instruments identified through a data needs assessment under each impact pathway: visitor survey, business survey, local community qualitative research.

In each case, the options are framed around the frequency with which the research is conducted and the implications for the evaluation. The actual content of the instrument (e.g. the questionnaire for the visitor survey) is assumed to remain constant throughout.

The options taken forward, as presented in the main body of this report were: pre- and post-ECP visitor survey, and post-ECP local community qualitative research. These were deemed to provide the best value for money (i.e. balance between effectiveness, robustness and resources).

Both a pre- and post-ECP visitor survey was deemed relevant as both the improvements delivered by the Programme as well as the potentially long period (i.e. more than five years) between the baseline and evaluation point may result in meaningful changes in the characteristic of visits relevant to the assessments of impact. The qualitative nature of the community research and the ability to reliably pose question about changes resulting from the Programme directly to the research participants meant that a pre-ECP data collection phase was not deemed proportionate. A business survey was not undertaken as it was deemed to provide insufficient added value.

Table A6.1 Visitor survey research options

Option	Research approach	Range of effects	Robustness	Research resources
1	■ Pre and post-ECP visit volume estimation (secondary sources) ■ All data from secondary sources	**Low** ■ National economic impact (monetary) ■ Local (unspecified) economic impact (monetary) ■ Physical health impact (monetary)	■ **Low** ■ Simple assessment driven by change in visit numbers ■ Assumes all key variables except volume mirror those of other coastal trips ■ Reliant on potentially low sample national data or atypical coastal surveys ■ No accounting for displacement ■ Background trend counterfactual applied to visit volume only	**Low** ■ No additional primary research requirements
2	■ Pre and post-ECP visit volume estimation (secondary sources) ■ Post-ECP visitor survey	**Moderate** ■ National economic impact (monetary) ■ Local economic impact (monetary) ■ Physical health impact (monetary) ■ Social impact (some qualitative indicators)	■ **Low/Moderate** ■ Simple assessment driven by change in visit numbers & actual ECP visit characteristics ■ Assumes no change in visit characteristics pre-and-post ECP ■ Displacement included ■ Background trend counterfactual applied to visit volume only	**Low/moderate** ■ Single survey
3)	■ Pre and post-ECP visit volume estimation (secondary sources) ■ Pre and post-ECP visitor survey	**Moderate/High** ■ National economic impact (monetary) ■ Local economic impact (monetary) ■ Physical health impact (monetary) ■ Mental health impact (qualitative indicators) ■ Social impact (qualitative indicators)	■ **Moderate** ■ Allows for change in user characteristics ■ Displacement included ■ Improved estimation of pre and post ECP indicators ■ Background trend counterfactual applied to visit volume & key characteristics	**Moderate** ■ Full visitor survey required on two occasions
4	■ Pre, interim and post-ECP visit volume estimation (secondary sources) ■ Pre, interim and post-ECP visitor survey		■ **Moderate** ■ Allows for change in user characteristics ■ Displacement included ■ Attribution based on evidenced change against change in background trends.	**High** ■ Full visitor survey required on three occasions; ■ Likely increased sample size to

			■ Interim data collection allow later Programme implementation stretches to be used as a comparison group; although time lags and significance of differences between coastal areas limits the benefit of adopting this approach (see Annex 2 for further discussion on this).	support analysis of late/early implementation areas

Table A6.2 Business research options

Option	Research approach	Range of effects	Robustness	Research resources
1	■ Post-ECP business case study survey	**Moderate** ■ Local economic impact, including qualitative (and some quantitative) understanding of business effects and capitalisation on ECP ■ Detailed picture for case study areas; can be paired with visit expenditure assessment case studies (e.g. linked to the people counter locations); limited scope to scale-up to whole ECP	■ **Low/moderate** ■ Attribution based on evidenced respondent's reconstruction of counterfactual; evidenced change against background trends (for a small number of business quant. variables) ■ Dependent on the respondents' awareness of the Programme and of its influence on business and social parameters	■ **Low**
2	■ Post-ECP business whole ECP survey	**Moderate** ■ Local economic impact, including qualitative (and some quantitative) understanding of business effects and capitalisation on ECP ■ General data for ECP as a whole. ■ Quantitative data that can enhance the visitor-survey based assessment		■ **Low/Moderate**
3	■ Pre- and post-ECP business survey	**Moderate** ■ As above, depending on whether case level or ECP level approach	■ **Low/moderate** ■ Attribution based on evidenced change pre and post ECP. Triangulated against ex-post reconstruction counterfactual.	■ **Moderate/high**

Table A6.3 Local community research options

Option	Research approach	Range of effects	Robustness	Research resources
1	■ Post-ECP community qualitative research	**Moderate** ■ Detailed qualitative picture of social impacts	■ **Low/moderate** ■ Attribution based on respondent's reconstruction of counterfactual ■ Dependent on the respondents' awareness of the Programme and of its influence on social parameters	■ **Low/moderate**
2	■ Pre- and post-ECP community qualitative research	**Moderate** ■ Detailed qualitative picture of social impacts	■ **Low/Moderate** ■ Attribution based on evidenced change elicited from pre and post research outputs; the qualitative nature of evidence will limit effectiveness of this approach. ■ More robust if a common cohort can be kept for the pre and post research	■ **Moderate**

Annex 7 Route categories as presented in the TCM

Survey site	Category	Rural/ Urban	Population gravity quartile	Distance to nearest road	Access permissions
CAPEL-LE-FERNE3182	1	Urban	Q4	Not applicable	Secure access
WESTFIELD, ALLERDALE3179	1	Urban	Q4	Not applicable	Secure access
WHEATCROFT, SCARBOROUGH3195	1	Urban	Q4	Not applicable	Secure access
LEASOWE, WIRRAL3180	2	Urban	Q4	Not applicable	Permissive and de facto access
WELLS-NEXT-THE-SEA3171	3	Rural	Q1	> median	Secure access
CHESWICK, BERWICK UPON TWEED3176	4	Rural	Q1	> median	Permissive and de facto access
FLAMBOROUGH, EAST RIDING OF YORKSHIRE3196	5	Rural	Q3	> median	Secure access
WALLASEA ISLAND3172	5	Rural	Q3	> median	Secure access
ACRE STREET, CHICHESTER3183	6	Rural	Q3	> median	Permissive and de facto access
HORSERY, NORTH NORFOLK3173	7	Rural	Q2	> median	Secure access
LEE, NORTH DEVON3188	7	Rural	Q2	> median	Secure access
NORTH COATES, EAST LINDSEY3170	8	Rural	Q2	> median	Permissive and de facto access
PERRANUTHNOE3189	9	Rural	Q3	<= median	Secure access
WALMER, DOVER3184	9	Rural	Q3	<= median	Secure access
SHOTLEY, BABERGH3174	10	Rural	Q3	<= median	Permissive and de facto access
CAMBER, ROTHER3185	11	Rural	Q2	<= median	Secure access
FLAMBOROUGH CLIFFS3197	11	Rural	Q2	<= median	Secure access
BARBICAN, CARADON3190	12	Rural	Q2	<= median	Permissive and de facto access
OLD HARTLEY3164	13	Rural	Q4	> median	Secure access
DAWDON COLLIERY3177	13	Rural	Q4	> median	Secure access
BRIDGE,CARADON, TORPOINT3191	14	Rural	Q4	> median	Permissive and de facto access
MARSKE-BY-THE-SEA3178	15	Rural	Q4	<= median	Secure access
CAPEL STREET, DOVER3186	15	Rural	Q4	<= median	Secure access
BOVISANDS SOUTH HAMS3165	16	Rural	Q4	<= median	Permissive and de facto access
GINNS COPELAND3161	17	Urban	Q3	Not applicable	Secure access
BIRLING GAP3187	17	Urban	Q3	Not applicable	Secure access

Survey site	Category	Rural/ Urban	Population gravity quartile	Distance to nearest road	Access permissions
TORRS PARK3192	18	Urban	Q3	Not applicable	Permissive and de facto access
PORT GAVERNE3193	19	Rural	Q1	<= median	Secure access
PENARE, RESTORMEL3194	20	Rural	Q1	<= median	Permissive and de facto access
WALTON-ON-THE-NAZE3175	21	Urban	Q2	Not applicable	Secure access
CHAPEL POINT, EAST LINDSEY3166	22	Urban	Q2	Not applicable	Permissive and de facto access