

Development of Active Travel Maintenance Hierarchies

Hierarchy Framework

The project for development of maintenance hierarchies for Active Travel Infrastructure (ATI) lays the groundwork for the development of a hierarchy framework which comprises:

1. The representation of the network of ATI, in both map-based and tabular format, segmented into sections for management purposes.
2. The supporting data used for rating and categorising the networks; this is both map-based area, point and linear data together with attributes of the network.
3. The rules, criteria and weightings that will be applied to the supporting data to determine both the strategic importance and the current and potential level of use of a section of network. These will be agreed with key stakeholders and tested and validated with data to ensure that the outputs are distributed across all categories.
4. The hierarchy categories, to which each section will be allocated, based on the application of the criteria and ratings.
5. The principles and objectives applied in reviewing and manually updating these initial data-based categories to reflect CCC's requirements, by CCC staff based on their local knowledge.

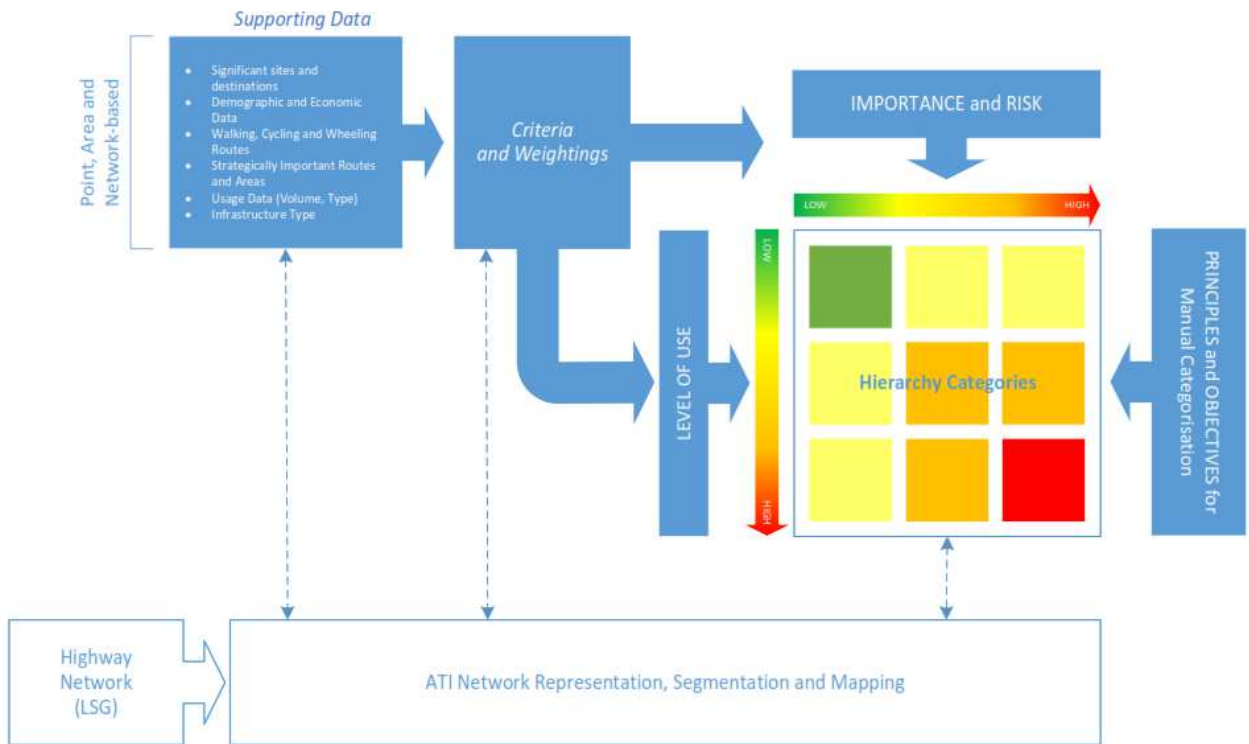


Figure 1 – ATI Hierarchy Framework

Process for Development and Categorisation of ATI Maintenance Hierarchies

Figure 2, below, summarises the approach taken for developing the hierarchies and for categorising the network for Cycling and for Walking and Wheeling in three broad phases, including the third phase, external consultation and finalisation of the hierarchy which has yet to take place.

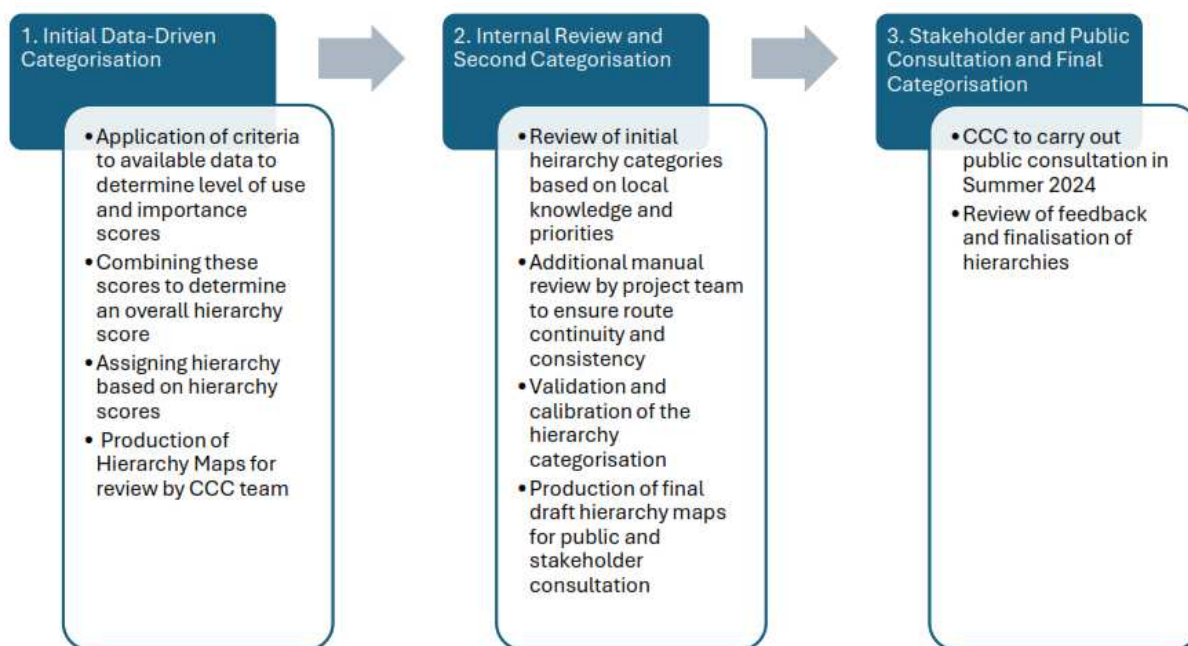


Figure 2 - Overview of Categorisation Process

The initial phase of this process was to assign initial categories to the network, based on available data. This was followed by a second phase where CCC officers from both the Highway Maintenance and Active Travel teams carried out a detailed review of these categories following which a further draft network categorisation was developed, prior to public consultation; this report documents the process up to this stage.

Phase 1 Categorisation: Data-Driven

The initial draft categorisation was based on the assignment of data to the network of cycling and walking and wheeling infrastructure, applying weightings to a range of criteria determine a score for each section of the network.

These criteria haven been grouped and applied for two separate dimensions:

1. The level of **risk** and the strategic **importance** of a section
2. The current and potential **level of use** of that section

The **risk** and **importance** of a section within a route is a distillation of a range of criteria reflecting the local, regional and strategic importance of localities as journey origins/destinations, and demographic and economic considerations, as well as the level of risk presented to users of a section

The **level of use** dimension of the framework reflects:

- Current volume of cycling, walking or wheeling traffic

- Potential future volume of cycling, walking or wheeling traffic
- Type of use
- Expected types of users and local demographics

Separate hierarchies are defined for Cycling and for Walking and Wheeling respectively, with the categories applied to all infrastructure that is used by each mode respectively.

Category	Description
1	Priority 1 (Highest)
2	Priority 2
3	Priority 3
4	Priority 4 (Standard)
99	No Cycling

Table 3 - Cycling Hierarchy Categories

Category	Description
1	Priority 1 (Highest)
2	Priority 2
3	Priority 3
4	Priority 4
5	Priority 5
6	Priority 6 (Standard)

Table 4 - Walking and Wheeling Hierarchy Categories

Data Used for Network Categorisation

The data and criteria used for the data-based allocation to hierarchy categories are summarised in Table 5 and Table 6 below and are detailed in Appendix 1, with the associated weightings and scoring rules.

Level of use

Category	Data Source(s)	Cycling	Walking/Wheeling
Current Level of Use	Existing hierarchy categories as proxy for level of use	Yes	Yes
	Population density at LSOA level	Yes	Yes
Potential Level of Use	Growth areas (LCWIP)	Yes	Yes
	Population growth at LSOA level		Yes

Table 5 - Level of Use Criteria

Importance and Risk

Category	Data Source(s)	Notes	Cycling	Walking/ Wheeling
Risk Factors: Walking and Wheeling	Census age data: banded mean age at LSOA level	Using Living Streets Pedestrian Trips, Slips and Falls report to determine weighting		Yes
Risk factors: Cycling	Infrastructure Type: protected/shared/on- carriageway		Yes	
Strategic Route Priority	Mapping data of strategic routes LCWIP, NCN, etc from CCC, Sustrans		Yes	Yes
Significant site proximity	OS Open Map data for Functional Sites, Important Buildings and Transport Interchanges	Includes Transport interchanges/hubs, Medical Care, Education, Emergency services, Place of Worship, Retail, Sports Facility, Cultural and Leisure Facillities	Yes	Yes
LCWIP Zones	LCWIP	Central Walking, Employment, Retail	Yes	Yes
Area Demographics	Social deprivation: LSOA Index of Multiple Deprivation Decile		Yes	Yes

Table 6 - Importance and Risk Criteria

Phase 2 Categorisation – Manual Validation and Updating

Following the initial, data-based categorisation of the Cycling and Walking and Wheeling hierarchies, the entire network was subject to a detailed sense-check and review by members of the Council's Highway Maintenance and Active Travel teams, applying their detailed local knowledge of the network, which resulted in updates to the hierarchies allocated. In carrying out this review the following principles and objectives were followed:

Principles and Objectives for Manual Review and Validation

1. Cycling Infrastructure and Walking and Wheeling Infrastructure are considered separately, reflecting their different purposes
2. Connectivity and continuity of routes and consistency of categorisation will be maintained, avoiding frequent changes in hierarchy.
3. Proportionality - higher priorities should have successively smaller proportion of the total network length
4. The categorisation only includes sections of infrastructure that are included in the LSG, so that there will be some routes that are not included, either because they are not the responsibility of CCC or because they have not yet been added to the gazetteer, in which case they will need hierarchy categories allocated when they have been added.
5. Where local knowledge suggests that a route is important, for example as a route to school or to link communities, the hierarchy can be manually raised to reflect this.
6. Where local knowledge indicates that a route that has been allocated a relatively high priority hierarchy in the data-driven categorisation is of low importance or little used, these may have their priority lowered.
7. All cul-de-sac that do not have through cycling or walking and wheeling access will be allocated to the lowest category unless local circumstances indicate otherwise (e.g. where this falls within a busy town centre location).
8. Within estates (housing or industrial) the manual review aims for consistency of categorisation, unless local circumstances indicate otherwise.
9. The aim is to apply the same category to the whole of a street (USRN) but in exceptional circumstances this can be overridden by varying the category within a USRN and categorising at the more detailed ESU level. (e.g. where single USRN starts in an urban area and extends out of that area to a little-used rural area).
10. Ensuring that routes identified as priorities for walking and wheeling or cycling in the Local Cycling and Walking Infrastructure Plan (LCWIP) are assigned a high priority category, particularly in urban areas.
11. Ensuring that routes that link to significant locations or infrastructure, such as hospitals or railway stations have been assigned a high priority category.
12. Locations where cycling is not permitted should be categorised as "99" (No Cycling) in the Cycling Hierarchy.

Phase 3 Categorisation – Public Consultation and Finalisation

The final phase of the process to develop the ATI Hierarchies, is for the draft network categorisation, in map form, to be subject to consultation with network users and stakeholders. This exercise will be undertaken in Summer 2024 and will be supplemented with a series of questions that will inform the subsequent development of maintenance standards associated with the hierarchies.

The detailed feedback will be assessed to determine whether hierarchy categories require further updating, following which a final version of the network categorisation will be produced for council approval.

Distribution of Network within Hierarchy Categories

Figures 3 to 8 below show the distribution, as a percentage of network length, between the hierarchy categories at three stages:

1. For the existing Footway and Cycling hierarchies in Cambridgeshire
2. For the initial, data-based categorisation for the Walking and Wheeling and Cycling Hierarchies
3. For the second categorisation incorporating feedback and updates from the manual review by CCC Highway Maintenance and Active Travel teams.

Existing Hierarchies

Note that for the existing footway hierarchies, there are two sources of information, the figures published in the Highways Operational Standards and the network data for existing hierarchies supplied to the project team; Figure 3 shows both figures, whereas the map shows that hierarchies as derived from the network data provided by CCC.

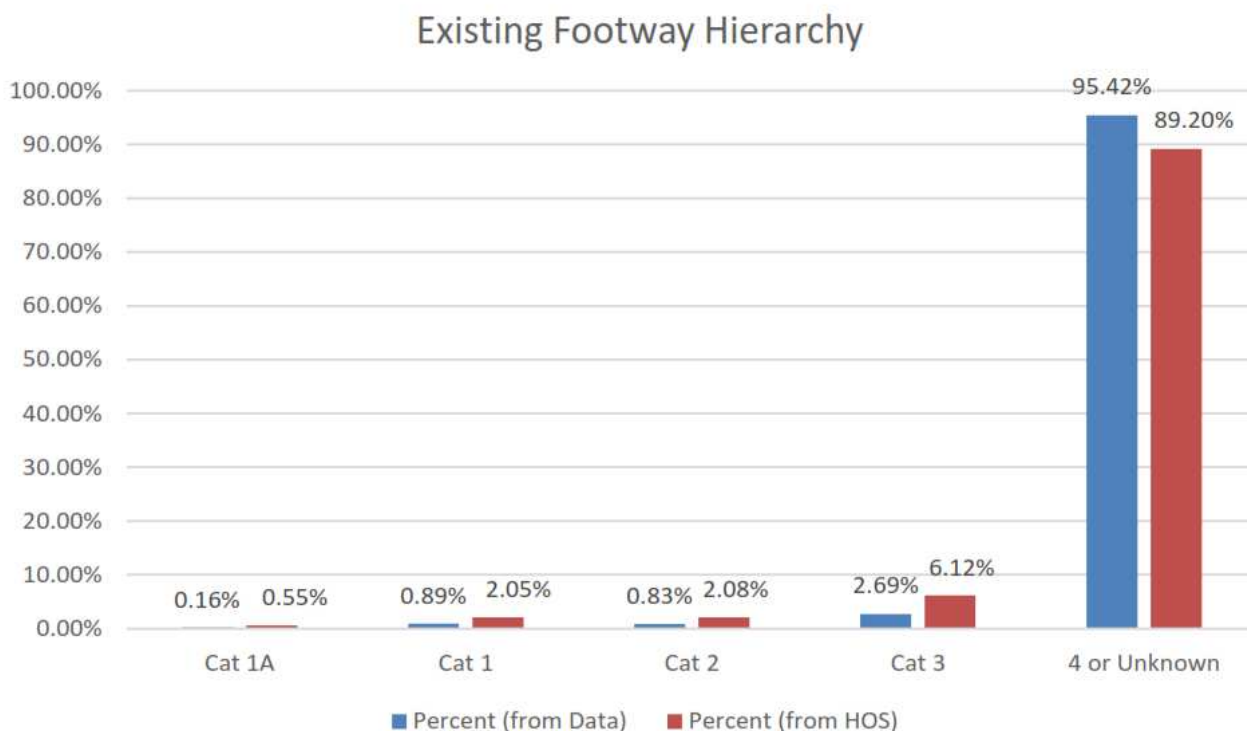


Figure 3 - Existing Footway Hierarchies

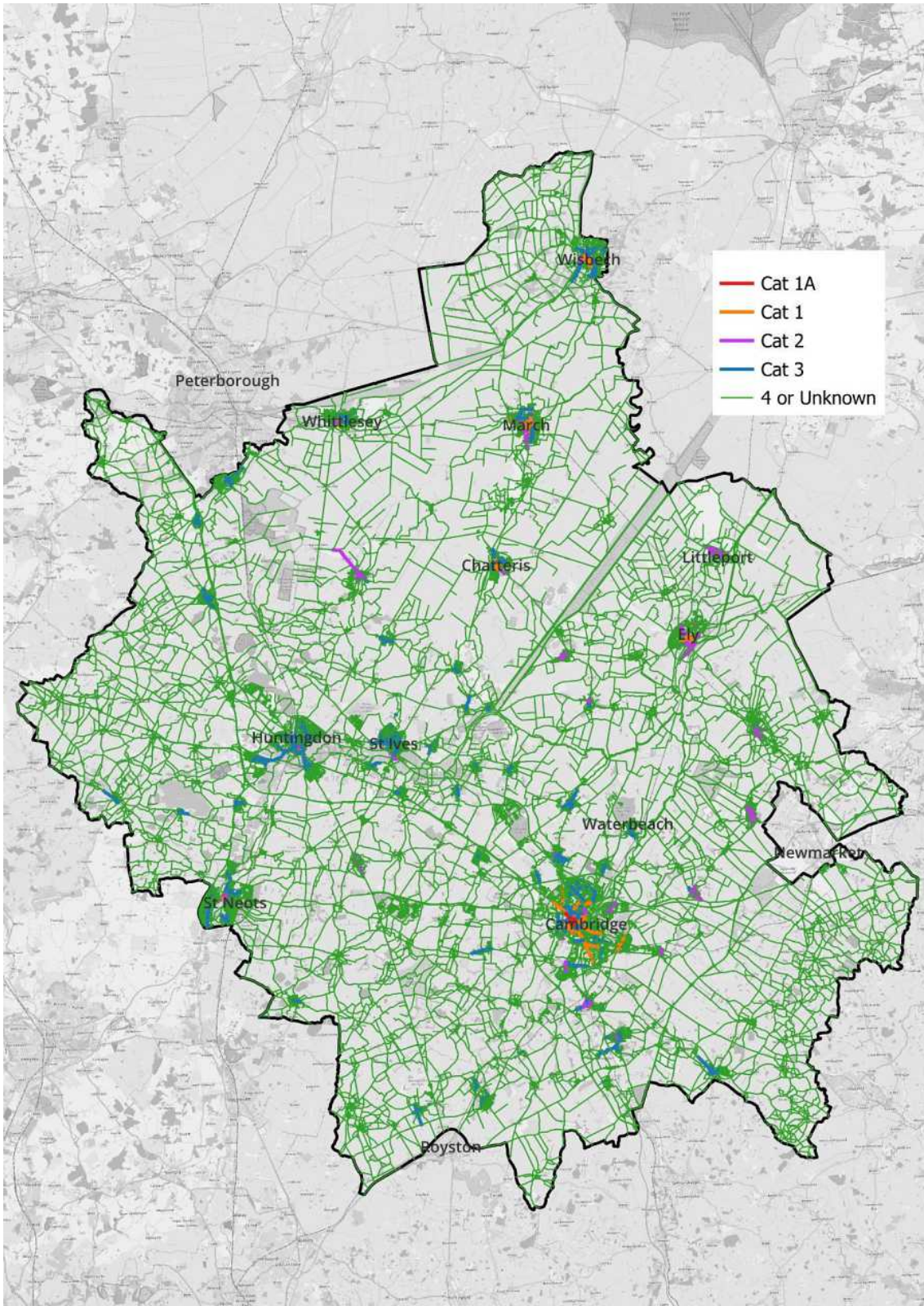


Figure 4 - Existing Footway Hierarchies Map

Existing Cycle Hierarchy

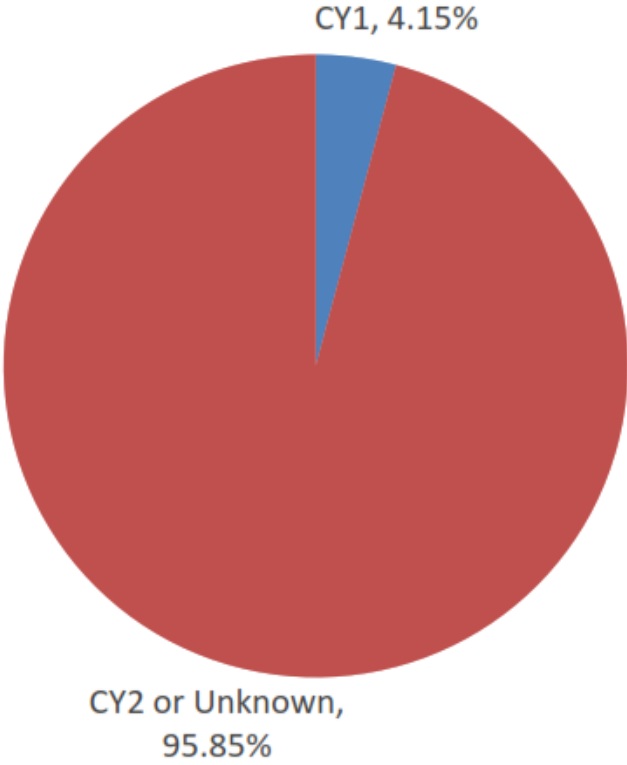


Figure 5 - Existing Cycling Hierarchy

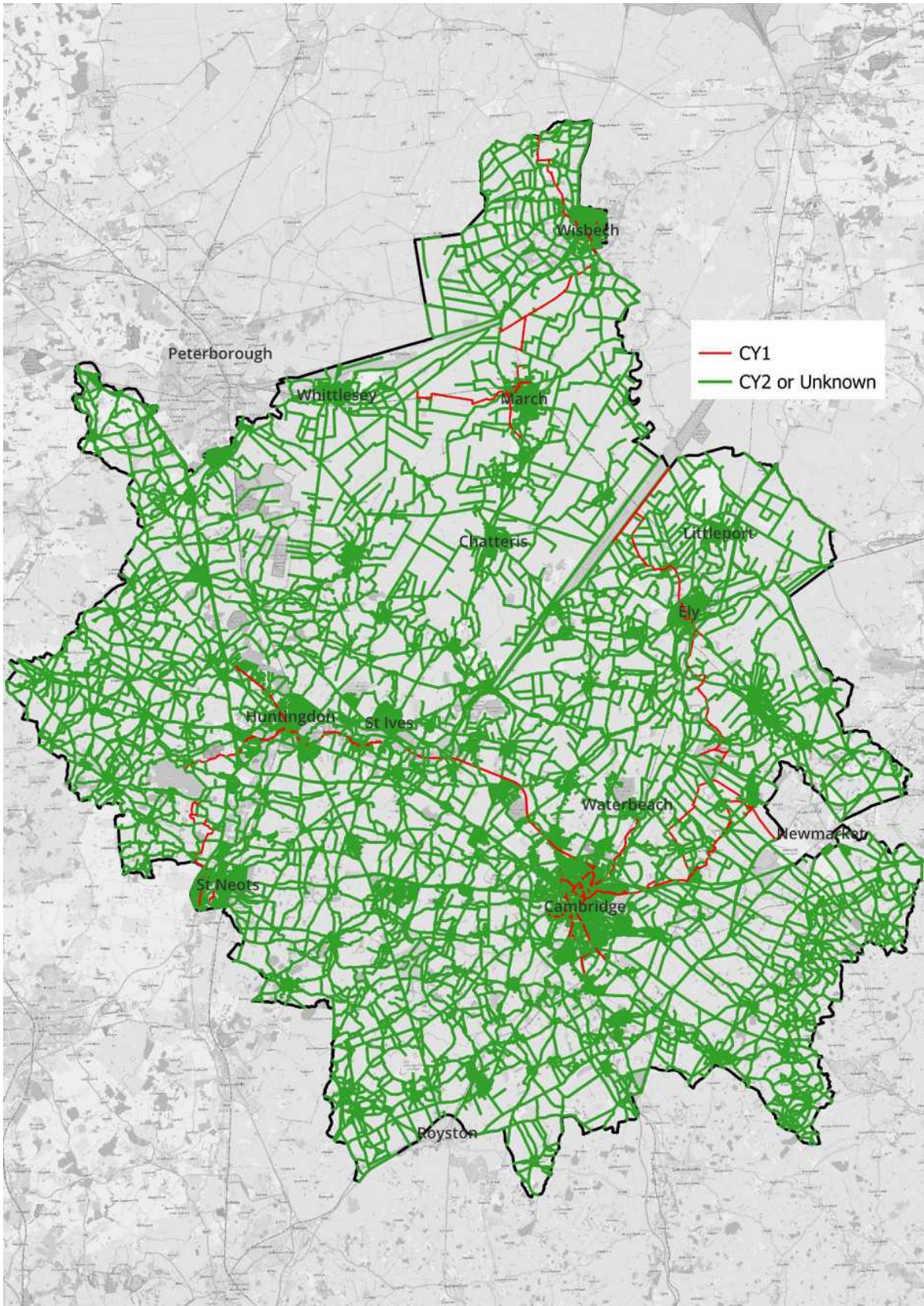


Figure 6 - Existing Cycling Hierarchy Map