Review of the existing cycling and walking provision for sustainable transportation in North Norfolk

by

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ABSTRACT

This research reviewed the existing cycling and walking provision in North Norfolk district for sustainable transportation in the context of accessibility criteria with regard to Active Travel project, a transportation project, undertaken by North Norfolk Communities Partnership (NNCP). Cycling and walking are seen as modes of sustainable transport that have a small carbon footprint. It helps to create healthier communities and produces environmentally friendly benefits. Through literature review, questionnaire survey, a Geographical Information System (GIS) and map based analysis; it examined the personal views of the local people on the existing routes.

The methodology for this research comprised a detailed review, critique of the relevant literature on accessibility and cycling and walking transportation to produce a criteria checklist. Three workshops in North Norfolk District arranged by NNCP were undertaken in order to survey what people think about the suitability of routes’ condition, and how its reflects accessibility criteria from the framework. A questionnaire survey was undertaken in order to survey route users to identify perceptions of suitability for purpose. Finally, the last step is analysis of the result, discussion and then gives suggestions for improvement the transportation.

The conclusion from this research is that there are opportunities to motivate more people to walk and cycle by the promotion of health, environmental friendly and landscape aspects. Distance, time and safety are the main factors obstruct people to walk and cycle. Even though car ownership was not a crucial issue encouraging walking and cycling, it could be suggested that the availability of public transport and the need for car parking encouraged cycling and walking. Improving the routes, especially in terms of comfort condition, is an option which may motivate more people to walk or cycle.
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CHAPTER 1
INTRODUCTION AND LITERATURE REVIEW

1.1 Background of topic
This research was concerned with the problems currently facing rural communities in the UK. Many policies and projects by government, charity or other sectors have been launched to alleviate the problems. Accessibility to services, such as traveling from houses to schools, shops or parks, is seen as one of the key sources of rural problem, with transport seems to be a significant factor of developing an area. If residents lose their accessibility to services in their areas, then this has been the source of problems which are linked to many issues such as need for higher car ownership, lack of job prospects, and reduction in local services. Trying to improve the transport network in an area then could reduce some rural problems. Therefore, in the context of sustainable transport, this research ‘Review of the existing cycling and walking provision for sustainable transportation in North Norfolk’ examining rural accessibility to services, aimed to address issues that are arising. The case study was carried out in North Norfolk District endorsed by North Norfolk Communities Partnerships (NNCP). It should be noted that this research worked together with Active Travel project, a transport project undertaken by NNCP. Active Travel project’s aims are to improve accessibility to services, without the need for car or public transport, improve the provision of routes for cycling and walking, and ensure they are suitable for all ages and abilities, to promote healthy lifestyle and environmentally friendly and attract tourism (NNCP, 2007).

1.2 Problems in Rural areas
A report by Benjamin (2007) revealed that since 1987 the proportion of young people in rural area has reduced from 21% to 15% while older and ageing people has risen. The average age of people living in the rural areas is 43.6 years which is seen as a high. For instance, in parts of North Norfolk, the average age of residents is between 50 and 63 (EDP News, 2007). As the statistic showed, young people in rural areas have had to leave
their houses because of some crucial problems facing rural areas throughout England, for example, a lack of affordable housing, a lack of job opportunity and poverty (EDP News, 2007).

Loss of young people is a real threat to sustainability of rural communities (Benjamin, 2007). Furthermore, this also affects rural services such as schools, healthcare and youth services. For example, areas of Norfolk, Suffolk and Cambridgeshire are identified as ‘financial services deserts’. This means there are no households are within 2 km of a post office or 4 km of a bank, building society or cash machine (EDP News, 2007). In addition, in many areas of Norfolk rising number of people want to retire here, and then they buy up properties. This increases the average age of the population, and also increases the pressure on some services, like healthcare which need to be provided by younger people (EDP News, 2007). Unfortunately, the younger work force can not afford for a house. The evidences above then demonstrate some problems facing rural areas of England nowadays.

Moreover, Figure 1 show the example of rural problems based on the decreased use of public transport. It demonstrates the source of decline in services forced by rural depopulation, and centralization of service provision. Therefore, the consequences are fewer transport passengers, reduced frequency of services, rise in car ownership, traffic congestion in towns, poor quality of public transport and increased utility of car ownership (Robinson, 1990).
Focusing only on rural deprivation, some major problems confronting rural communities, for example, decline in job prospects, limited opportunities for leisure and cultural activity, and decline in key village services and the treat for further cuts (Pacione, 1984). These examples are seen as issues of rural deprivation. What is ‘rural’?, what is ‘deprivation’ and what is rural deprivation’?

1.2.1 Definition of rural
There is no universally accepted definition of rural. The word ‘rural’ comes from the Latin ‘rus’ which mean countryside (Hill, 2003). Numerous definition of rural has appeared within variety of academic disciplines (Robinson, 1990). According to Pacione
(1984) cited from Cherry (1976) and Dower (1980) that they have employed land-use as a major criterion defining rural areas. In addition, Cloke (1977) launched an index of rurality using 16 variables to measure population, housing, occupation and migration characteristics and distance from urban centres (Pacione, 1984).

It is necessary to understand the difference between rural and urban even though it is difficult (Robinson, 1990). Generally, rural has been regarded as referring to populations in the area of low density to small settlements (Robinson, 1990). With no global criteria to differentiate rural and urban settlement, some main criteria can be used to distinguish them which are population size, administrative status, number and range of services and other functions that settlement has, the percentage of the population engaged in agriculture, the building density and style, and the overall atmosphere or feeling of the settlement (Hill, 2003).

1.2.2 Definition of deprivation

Martin, D. et al. (1999) cited Townsend (1987) that deprivation is defined as “a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group belongs”

According to Robinson (1990) he referred deprivation as:

- “Deprivation is seen as a consequence of inequality within rural society (Robinson, 1990).” This problem is seen provision of, for instance, job opportunity, services and utilities, as part of a planning process which itself help to create and maintain inequalities (Robinson, 1998).
- “Deprivation is seen as a consequence of decisions made beyond the village (Robinson, 1990).” It then suggests that deprivation can be overcome by adequate provision of services which can make by policy makers (Robinson, 1990).

1.2.3 Definition of Rural deprivation

Rural deprivation is “a general term for the lack services and opportunities experienced by rural communities” (Hill, 2003).
1.3 Rural deprivation

From Countryside Agency (2002), there is a report revealed rural poverty in England and Wales related to rural economy. The visual maps were made to show the finding. Then two figures (Figure 2-3) below demonstrate the rural deprivation existing in the remote areas of England. It shows rural poverty divided by income of the population.

Figure 2 showed that 20% of the rural population is considered as the most disadvantaged due to the greater proportion of low incomes in remote rural areas (below £18,000).

**Figure 2:** The most deprived areas in England

![Map showing the most deprived areas in England](image)

Source: Countryside Agency, 2002

Figure 3 showed that 20% is considered as the second poorer. They have the higher income (£18,000 – 21,000) compared to the rural population in Figure 2 because of a large number of high earners living in rural commuter areas.
As seen from the visual maps, rural deprivation is seen as a crucial problem facing throughout the rural England. The highlighted areas of most and second most deprivation (See Figure 2-3) compared throughout England are East of England and South West of England.

Deprivation in Rural Norfolk: final report, 2006 by Oxford Consultants for Social Inclusion (OCSI) drew some important deprivation issues in rural Norfolk areas as following. The population in rural areas is growing rapidly, both nationally and across Norfolk; Non-urban areas have an older population than urban areas; Even though average rural household incomes in Norfolk are greater than those in urban areas, nationally and across Norfolk large number of rural households live in income poverty; The majority of Norfolk’s most deprived Output Areas (OAs) are in urban areas, but a significant number of deprived people live outside the main urban areas; The most-income deprived areas are predominantly located in urban areas; however, there are more than half of all older people experiencing income deprivation live outside the larger settlements in Norfolk; High levels of children and older people live in income
deprivation showed in some smaller settlements; There are high proportions of disabled people in a number of smaller settlements; A large number of children outside the large settlements have Special Educational Needs; Nationally, housing is less affordable in the smallest settlements; House pricing are highest in small and mid-sized settlements; The smallest settlements of Norfolk have the poorest access to services; In Norfolk, nearly 10,000 households in the smallest towns have no access to car or van; In spite of their remoteness, a number of North Norfolk coastal towns have relatively low levels of car ownership (Deprivation in Rural Norfolk: final report, page 7 – 9, 2006). Nonetheless, this research focused only on North Norfolk District which is a part of Norfolk.

In this research, there are two main issues are considered leading to rural deprivation. These issues are decline in rural service provision and accompanying transport problems.

1.3.1 Decline in rural service provision
Stated by Pacione (1984: 263), “the number and of services and facilities available to rural people has exhibited marked and steady decline in the postwar era. In deep ‘rural areas’ depopulation has undermined the economic threshold for many services while in less remote areas the spreading competitive influence of towns combined with increased personal mobility has had a similar effect on service viability. These difficulties have been compounded by a general trend towards centralization by public and private service providers in an effort to achieve economies of scale.”

From the statement by Pacione above, it is seen as there are some key problems of rural services’ provisions. Two key problems are inadequate access to services, especially for those who are reliant upon public transport, and the lack of development of policies to prevent further rapid decline in rural services (Robinson, 1990).

Not only depopulation made rural areas lose their services, raising of population thresholds by both public and private services in order to achieve economies of scale and raising of car ownership were also seen as the factors affected the rural service decline (Robinson, 1990).
Furthermore, changing economic and social situations in rural areas have led to the decline of service provision in British villages (Hill, 2003). The Countryside Agency reported that many of the UK’s rural centres are destined to become ghost towns. As evidence at one Hertfordshire village, the village’s last bank closed three years ago and many vacant buildings waiting for someone to take over. Many local people have seen business come and go, and some are afraid that many other villages will become more and more like ghost villages. It is generally accepted that one of the source of the rural service provision problems is a lack of village shops’ support. There are a small number of populations who support village shops and services. The less numbers of people work locally compared to the number of commuters and non-resident second-home-owners (Hill, 2003).

1.3.2 Transport problems
Another issue of rural deprivation is transport facilities. Transport is the main agent enabling people to satisfy their needs in order to access to employment and to basic services and amenities (Pacione, 1984). A research by The Countryside Agency (2000) found that transport is the single most important concern of people living in rural areas. Also, there are a number of other studies which have identified transport as a major barrier to social inclusion in rural areas (Commission for Integrated Transport, 2007). Nonetheless, generally, the supply and demand for goods and services in rural areas has diminished over the last few years, resulting in the reduction in the range services of items to be supplied in lower-order settlements (Robinson, 1990). In contrast, the number of car ownership households in rural areas is above the national average. Moreover, car ownership levels have continued to increase which may reflect the declining level of public transport and nonexistence of public transport in many rural areas. This is the significant factor which forces them to become car owners (See Figure 1) (Robinson, 1998). They have more opportunities for consumer goods and services at some distance from their residence. At the same time, this increase in car owner has exacerbated a reduction in the provision of local shops, services and amenities because of not enough support for local business and services (Gray et al, 2006). Despite the higher the average levels of car ownership, a large number of rural residents still lived without private means
of transport (Pacione, 1984). The group of rural people called ‘mobility deprived’
including the elderly, young children, teenagers, the poor and the infirm, and housewives
without the use of the family car. Even worse, these groups of people consist of a large
proportion of the rural population (Pacione, 1984). It can be seen that social inclusion has
been significantly affected by rural transport problems.

1.3.2.1 The needs of transportation
Why is transportation so important? Transportation is “a means of getting from one place
to another” (Cullingworth and Nadin, 2006). In this century, transport has been one of a
principal factors economic and social development (OECD, 2000). Broadly speaking,
difficulties in transportation appear as a barrier for the development of cities, countries
and/or the world.

If the focus is on a small area like a city, in the early year of 20th century it is easier for
people to move around a city, especially many big cities like London, New York or
Tokyo. Much more convenient means of transport are available to the residents in those
cities such as bus, car, train or tube, as compared to less developed cities and rural areas
(Small, 1992).

Cities need to develop their transportation infrastructures in order to meet people needs
and aspirations (Cullingworth and Nadin, 2006). People have to have access to
businesses, jobs, or service centres such as schools, health centres, post offices (Small,
1992). In addition, commercial areas require access to high volumes of people in order to
create demand for goods and services. Therefore, improving access will make further
development possible. More and more facilities have to become available in order to
improve people’s access, so more thought is being given to changing location of facilities
to improve access. This is another option for developing cities (DfT, 2005).

However, traveling by vehicles like buses, cars or trains is reducing earth’s resources as
well as emitting carbon dioxide (CO₂). In addition, traffic congestion causes CO₂, toxic
and dust emissions which create problems that have to be considered seriously (Friends of the Earth, 2007).

1.3.2.2 Accessibility and the need of transport

“The greater is the accessibility, the lesser the need for transport” stated by Cullingworth and Nadin (2006). It means if people can access facilities like shops, parks or hospitals more easily, they do not really need to use their vehicles like cars, buses or trains. It should be noted here that accessibility means the degree to which services and activities can be reached (Gray, D. et al, 2006). It appears that it is important to provide the accessibility for people to get from one place to another. The following context shows some evidences from history and an academic work.

According to Pacione (1984), in England and Wales in 1979 many of 4 million people lived in parishes with lack of access to health care because of long and expensive journeys, and inadequate public transport. Furthermore, about 750,000 people had no sub-post office in their parishes and also lack of food shop (Pacione, 1984). Pacione stated that many important information facilities, such as the Citizen Advice Bureau, Area Social Services offices and offices of the Department of Health and Social Security, was usually only in the urban areas. This means many local areas had low level of service provision, and at the same time they had low level of transport accessibility.

Accessibility and health service utilisation for asthma in Norfolk, England article by Jones, A.P. et al. (1998) is a suitable literature which examines the relationship between utilisation and the geographical accessibility of health services amongst self-reported asthmatics in a rural county of England. The study found barriers of people in a rural area accessing to health services that are distance effect and smoking status of respondents. Focusing on only the first barrier, the researchers controlled socio-economic factors and found that mortality rose with increasing distance to hospital. Furthermore, the result also showed that if households lack access to a car in the ward, they consulted less with doctors especially who lived outside a settlement containing a surgery. Nonetheless, other aspects of the rural environment should be considered. For example, people in rural areas
may rely more on lay treatment and use health services less than urban populations, or they maybe reluctant to take a long trip.

The two examples above show that lack of access to services and amenities leading to the need of transport.

1.4 Rural deprivation: some solution
Concerning the relationship between accessibility and transport, discussed previously, this could lead to the assumption that rural deprivation can be overcome by improving the level of accessibility to services and amenities. Some solutions for this kind of problems have been put forward by government, local authority or community organizations are such as increased registered bus routes, minibus services (Gray et al, 2006). These solutions seem unsustainable. They may reduce the need of a car for individuals in rural areas, but no one single solution can overcome rural deprivation issues related to the inaccessibility problem. Arguably, policy planning and co-ordination has to be involved in alleviating the issues, access the public and private sectors (Norfolk County Council, 2007). The notion of the rural problems with accompanying the access to services will be considered as a problem needed to be improved. To suggest solutions then it might be a suitable way to give an idea of rural proofing, a rural policy solution, and accessibility planning, an access to services policy solution. It could show more sustain solutions for the rural development.

1.4.1 Some solution from government
This study illustrates two possible solutions from government for alleviating rural deprivation which are rural proofing and accessibility planning. They are both policy solutions. Rural proofing has been used for taking rural needs and circumstances into account in the UK policy development and programme delivery (Commission for rural communities, 2006). Its process is undertaken by both the national level and the regional level. Accessibility planning is a process which aims to promote social inclusion by helping people to get to places of work, healthcare facilities, education, food shop and other destinations that are important to local residents (Defra, 2005).
1.4.1.1 Rural Proofing

According to the UK Department of Environment, Food and Rural Affairs (Defra), Defra’s work on rural affairs aims to reduce the gap in productivity between the least well performing quartile of rural areas and the English median by 2008, demonstrating progress by 2006, and improve the accessibility of services for people in rural areas (Defra, 2003). Therefore Defra have to engage in ‘Rural proofing’ (Cullingworth and Nadin, 2006). Rural proofing is a commitment by the Government to ensure that all its domestic policies take account of rural circumstances and needs. It is a mandatory part of the policy making process (The Countryside Agency, 2002).

The Rural proofing checklist, a screening tool designed to help policy makers consider whether their policy is likely to have a different impact on ‘rurality, rural economics, rural communities and rural environment’ in the rural areas, is then involved. It should be noticed that the checklist focuses on set of criteria related to accessibility and level of services. As a statement in ‘Rural proofing monitoring 2006’ stated that “rural proofing most commonly occurred when policy makers are pre-judged that a specific measure had particular rural relevance, often related to levels of services and service delivery. Examples included the level of services in rural areas (e.g. post office policies), the quality of services in rural areas (e.g. Youth Matters Green Paper) and access to services (e.g. Local Transport Plans) (Commission for rural communities, 2006).” An example of Rural proofing checklist is “Will the policy affect the availability of public and private services? Might it encourage closure or centralization and will it affect the Rural Services Standards for key services published in the Rural White Paper (and updated in August 2002)? Rural solutions: improve transport/accessibility to compensate for the centralization of services; encourage alternative funding steams for threatened rural services; provide additional funding to rural outlets to maintain service standards (The Countryside Agency, 2002)”. The abbreviated checklist is shown in Box 1.

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1 Checklist is useful for identifying key impacts and ensuring that they are not overlooked. It also can include information such as data requirements, study options, questions to be answered, and statutory thresholds, but it is not generally suitable for detailed analysis (Morris and Therivel, 2006).
### Box 1: Rural Proofing Checklist

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<tr>
<td>• Few service outlets – access to proposal rural beneficiaries</td>
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<td>• Higher service delivery needs – costs for service providers in reaching rural clients; lost economies of scale.</td>
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<tr>
<td>• Greater travel needs – further distances to travel.</td>
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<td>• Few information points – fewer libraries, rural businesses, etc.</td>
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<tr>
<td>• Small (economic) markets – markets small and/or scattered.</td>
</tr>
<tr>
<td>• Weak infrastructure – transport and telecommunications less attractive; less competition among providers.</td>
</tr>
<tr>
<td>• Small firm economy – more businesses are micro-business.</td>
</tr>
<tr>
<td>• Land-based industries – will a policy tackle both rural and urban concern?</td>
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</tbody>
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<th>Rural communities</th>
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<td>• Needs not concentrated – will policies be targeted at the deprived?</td>
</tr>
<tr>
<td>• Different types of need – poor access to services; low wages; limited jobs; lack of affordable housing.</td>
</tr>
<tr>
<td>• Low institutional capacity – private, public and voluntary bodies are smaller and struggling.</td>
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<th>Rural environment</th>
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<tr>
<td>• Few sites for development – few brownfield sites in acceptable locations.</td>
</tr>
<tr>
<td>• Landscape quality and character – highly valued: likely policy impact.</td>
</tr>
<tr>
<td>• Countryside amenity and access – impact of people wishing access.</td>
</tr>
</tbody>
</table>

Source: Cullingworth and Nadin, 2006

### 1.4.1.2 Accessibility Planning

With concern about accessibility to services, the UK Department for Transport (DfT) has established ‘Accessibility Planning’ which aims to promote social inclusion by helping
people from disadvantaged groups or areas access jobs and essential services (DfT, 2005). This planning encourages all local authorities and other agencies to assess more systematically whether people can get to places of work, healthcare facilities, and other destinations that are important to local residents. It will also provide the framework, which includes an accessibility audit, a resource audit, an action plan of agreed initiatives and monitoring, for transport authorities and other relevant agencies to co-operate to develop and deliver solutions of accessibility problems depending on the particular needs and priorities of local areas (DfT, 2005).

According to Department of Transport (2005), it should be noted that an accessibility audit is the way to identify barriers that exist to accessibility which could be assessed through, for instance, GIS-based mapping of socio-demographic information, data on deprivation, car availability in relation to public transport routes and the location of services, as well as consultation with local communities and liaison. A resource audit is the way to identify the resources which are available for the accessibility planning, such as funds, extra vehicles, employee/volunteer time, and also to assess whether they could be used more effectively. Moreover, the resource audit could consider whether better use could be made of existing services and facilities through co-location of services or changes in opening times. Importantly, it also could consider the potential for more effective use of existing resources through partnership arrangements. An action plan of agreed initiatives is, for instance, initiatives to improve physical accessibility and availability, travel advice and information, safer streets and stations, reducing the need to travel and making travel more affordable. Monitoring is the way to set local accessibility indicators to monitor progress (DfT, 2005).

In 2003, there were eight Accessibility Planning piloting programmes in different areas which each subject of study e.g. access to food covering both urban and rural areas. The overall aim of programmes is to develop and to pilot approaches to accessibility planning which are transferable or adoptable to different geographical areas (DfT, 2006). The programme focused on four different types of activity which are access to food (being piloted in Merseyside and Wiltshire), access to health care (being piloted in Merseyside
and Lincolnshire), access to employment (being piloted in Tyne and Wear, and Nottinghamshire) and access to education (being piloted in Greater Manchester and Devon) (DfT, 2006). Devon is an example to show what the accessibility planning involved in the local authority strategy.

**Box 2: Accessibility planning: Devon**

**Case study: Devon**

In Education Accessibility Strategy: 2003-2006 stated that there are three strands of the planning duties which are access to the curriculum, access to information and physical access (Devon County Council, 2003). The plan focused on children and young pupils with disabilities to improve accessibility to teaching, learning and related activities in individual schools. The plan involved increasing participation in the curriculum, improving the delivery of information and improving the physical environment of schools of disabled pupils. Full Access audits of existing school premises will be undertaken to improve the physical environment of schools. It will identify the barriers to accessing the schools in five principal areas which are approach to the school, enter to the school, moving around the school, getting out of the school and building management. Moreover, it is also proposed that every school where possible should have an appropriate signed entrance; accessible car parking; an accessible main entrance and reception area; accessible toilet facilities; accessible to the curriculum, other school activities and facilities where the activities take place on different levels; provision of auxiliary aids, where appropriate; safe egress from the building, including in an emergency evacuation (Devon County Council, 2003).

Accessibility planning has been used for Norfolk as it is a tool for solving accessibility problems. According to Local Transport Plan for Norfolk 2006 - 2011, it stated that because the geographical isolation of the rural nature of Norfolk, it then can cause a particular problem especially for those who do not own a car who may dramatically be reliant on public transport. Many public transports are unavailable where they live. Moreover, the provision of a quality service that enable people to get to where they need
to go and at times is another key problem. Norfolk County Council then has carried out the accessibility planning work. This may be seen as a solution for alleviating rural deprivation in Norfolk. Some evidence showed the advantage of the planning. Accessibility planning has helped to guide the location of the future children’s centres since accessibility information was useful in demonstrating the reach of potential sites. It has also been considered at the corporate planning sub-group for tackling poverty in Norfolk (Norfolk County Council, 2006).

1.4.2 Some solution from other sources (public and private sectors)
This section discusses two solutions not only to improve transport problems, but it may be seen as solutions to reduce the levels of rural deprivation. The two solutions are National Cycle Network by Sustrans and Active Travel project by North Norfolk Community partnership (NNCP).

Sustrans, the UK sustainable transport charity, tries to find solutions to the transport, environmentally and health challenges affecting people throughout the UK. They have launched National Cycle Network, a major project, as to improving the cycle network. Sustrans have their own criteria for route planning as it will be discussed later on. Active travel project, launched by NNCP, is a project which aims to provide improved multi-purpose routes to local services and amenities within North Norfolk District area. They were considered the network problems as cross-cutting issues linked to health and the environment. It would be useful to get the idea of the concept and definition of sustainable transport.

1.4.2.1 The key concepts and definition of sustainable transport
There is no universally accepted definition of sustainable transport. Some practical suggestions as to its implementation are discussed below.

According to European Union Council of Ministers of Transport, a sustainable transport is one that allows the basic access and development needs, is affordable and limited emission and waste (Victoria Transport Policy Institution, 2007). A sustainable transport
system, then, should provide access to people, places, goods and services in an environmentally responsible, socially acceptable, and economically viable manner (OECD Conference, Oct 2000).

“Sustainable transport doesn’t mean less transport than we have today, but it certainly means different transport. If transport is to become sustainable—so that it doesn’t harm the environment or use resources that cannot be replaced—there will have to be more public transport (including integrated mobility services), more walking and bicycling, and more rail freight” stated at OECD conference on Environmentally Sustainable Transport, 4-6 October 2000, Vienna, Austria.

From the Conference on Towards Sustainable Transport at Vancouver, Canada March 1996, there are nine principles for sustainable transport. These are access, equity, individual and community responsibility, health and safety, education and public participant, integrated planning, land and resource use, pollution prevention and economic well-being (OECD, 2000). Moreover, sustainable transport generally concerns aspects of the process from policy, planning and design through to construction and maintenance (New Civil Engineer, 2007).

“Essentially for transport to be sustainable it must exist within the means of the planet to both create the resources needed to create and fuel all modes of transport, and absorb the waste from their creation and use” (Sustrans, 2007). Nonetheless “Transport is the largest end-use energy section (Root, 2007)”, so it seems as most of transport trends are unsustainable.

1.4.2.2 Sustrans

Sustrans implements a lot of projects focusing on walking and cycling, for example, National Cycle Network, Active Travel and Bike It. The charity wants people to travel in ways that benefit their health and the environment.

2 Sustrans, the UK's leading sustainable transport charity, set up in July 1977 in response to an energy crisis that was encouraging the whole world to look at different ways of traveling (Sustrans, 2007).
The National Cycle Network is the biggest project of Sustrans in which they would ultimately like the network to be accessible to as many people as possible and to run through every city which aims to bring communities together all over the UK (Sustrans, 2006). Its process provides identification of potential new cycling and walking routes, and then follows a consultation process to decide the new routes. Moreover, assessment of the impact of the routes would be carried out as part of the process surveys.

1.4.2.2.1 National Cycle Network Criteria
In the National Cycle Network, the criteria used to design a cycle route can be summarised by five qualitative evaluations: safety (a route that minimises dangers for cyclists, pedestrians and other users), coherence (a continuous routes with a distinct and identifiable National Cycle Network character and integrated with local roads and cycle paths), directness (a route that is as direct and quick as possible), activeness (a route that complements and enhances its environment) and comfort (a route that enables a comfortable flow of cycle traffic and is easy to use) (Sustrans, 2006).

1.4.2.3 Case study: North Norfolk
It was decided to carry out the case study in North Norfolk District because of its vast rural population. The demography from Norfolk County Council, 2007 showed that total number of population in North Norfolk is 99,827 in 2004. About 61.23 percent (61,128 people) lived in rural areas whereas only 38.77 percent (38,699 people) lived in urban areas.

Moreover, according to Norfolk County Council (2007), 91.20 percent of wards are classified as Town and fringe, and Village, hamlet and isolated dwellings, whereas only 8.8 percent of North Norfolk wards are classified as Urban. Or it can be seen (See Map 1) that 26.5 percent as town and fringe and 64.7 percent as village, hamlet and isolated dwellings.
Map 1: Rural and Urban Classification of North Norfolk defined by wards

Source: Norfolk County Council, 2007

Furthermore, after consultations with Active Travel project lead, it was decided that the project would be carried out on a pilot basis as it is a first phase of the project which up to March 2008. The first phase process includes consulting Local Area Partnerships to identify priority schemes/routes. As time constraints and inconvenient means of transport, the researcher then selected four areas of study which are the main market towns of four Local Area Partnerships. Even though the Active Travel project would like to identify the pilot routes for cycling and walking, understanding the main issues facing local residents is also an important work as it may seem as a back up information. This research, then, will focus on the district of North Norfolk with regard to a transportation project undertaken by North Norfolk Communities Partnership (NNCP) reviewing the existing cycling and walking provision for sustainable transportation in that area. The next two sections give some background information of North Norfolk and Active Travel project as it is seen as it will be useful.
1.4.2.3.1 North Norfolk background

North Norfolk is a local government district in Norfolk, the East of England Region. North Norfolk is a rural and coastal area.

**Map 2**: North Norfolk area

The total area of the district is 96,383 hectares and the population density is 1.04 persons per hectare (Norfolk County Council, 2007). The population has a relatively elderly age profile compared with England and Wales: it has higher proportion of people aged 50-54 and over, especially 55-79 year olds, and lower populations in the younger age groups, particularly 20-39 year olds (Norfolk County Council, 2007).

There are 6 main market towns which are Cromer, Fakenham, Holt, North Walsham, Sheringham and Stalham. Around 44 percent of the population lived in these market towns (Norfolk County Council, 2007). Furthermore, levels of unemployment are slightly higher than the regional average (Department of Health, 2006). To highlight the advantageous explanation of North Norfolk, the district has low levels of the violent crime (Department of Health, 2006).
North Norfolk has around 45 miles of coastline, much of which is designed as an Area of Outstanding Natural Beauty (AONB) and is internationally known for its wildlife, and stretches from Horsey in the south to Holkham beach in the north.

North Norfolk’s countryside is an area rich in architectural heritage of 81 conservation areas over 2,200 3listed building and 100 4Scheduled Ancient Monuments. According to the local authority, the area is ideal for cycling, walking, bird watching or just relaxing (North Norfolk District Council, 2007).

1.4.2.3.2 Active Travel project
Walking and cycling may appear as the most sustainable way of traveling short distances like getting around a city, in addition there are considerable known benefits to both human health and the environment (Sustrans, 2007). To add with the reportage of Sustrans (2007), it also stated that cycling and walking require little use of planet’s resources, since both activities are fuelled by food, which is a renewable source of energy. Furthermore, improving these modes of access to the services will make further more sustainable development possible. Unfortunately, according to Rural Transport: An Overview of Key Issues report (Gray, 2001), the use of transport by walking and cycling have been decreasing both nationally and in rural areas, while in these areas the number of the use of car has risen dramatically in recent years across the UK. Moreover, a finding by Sustrans (2007) showed that significantly more children do not want to cycle to school (31%) while only 1% would prefer to.

Active Travel project is launched by North Norfolk Community Partnership (NNCP) in order to provide an improved network of safe, multi-purpose routes to local services and amenities within North Norfolk district for both pedestrians and cyclists (NNCP, 2006). Not only does the project aim to improve accessibility to services and quality of life, but

3 “Listed Buildings are officially defined as building of special architectural or historical interest”.
4 Most of the Scheduled Ancient Monuments are earthworks or unoccupied structures, often in a ruinous or semi-ruinous condition. The structures are scheduled to get legal protection with advice from English Heritage (North Norfolk District Council, 2007)
also in focused on reducing pollution from transportation such as air, noise, dust pollution etc.

1.5 Overall aim
The overall aim of this proposed research topic is to critically review the existing cycling and walking provision in North Norfolk in line with agreed criteria.

1.6 Specific objectives
To achieve the aim:

• To establish key criteria for suitability of current routes;
• To establish perception and needs of the target population as to accessibility of services
CHAPTER 2
METHODOLOGY

2.0 Introduction
To achieve the aim and objectives of this research, there are four main steps employed (See Figure 1).

- Setting a framework by literature review
- Producing maps showing existing services and routes
- Fieldwork by questionnaire survey for defining, sampling and surveying the population
- Review, evaluation and discussion

Figure 4: Research methodology
2.1 Setting the framework
An initial research was undertaken to understand the existing cycling and walking provision issue in North Norfolk related to rural deprivation issues in the UK. The relevant literatures were reviewed on accessibility, deprivation and cycling and walking transportation. A set of suitable criteria for measuring suitability of routes was developed. The criteria were established from those developed in Sustrans: National Cycle Network Criteria and Rural Proofing Checklist. The route’s analysis making process is then shown below.

Based on the five qualitative criteria of Sustrans; safety, coherence, directness and convenience, attractiveness and comfort, which were set for route planning of National Cycle Network, the questionnaire was then produced to identify the problems of existing cycling and walking routes (See Table 1).

**Table 1:** Route’s analysis from Sustrans criteria compared to questionnaire’s questions

<table>
<thead>
<tr>
<th>Sustrans criteria</th>
<th>Questionnaire’s questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Safety</td>
</tr>
<tr>
<td></td>
<td>Width</td>
</tr>
<tr>
<td></td>
<td>Free from road traffic</td>
</tr>
<tr>
<td>Coherence</td>
<td>Signposting</td>
</tr>
<tr>
<td></td>
<td>Parking facilities</td>
</tr>
<tr>
<td>Directness and convenience</td>
<td>Link to services</td>
</tr>
<tr>
<td>Attractiveness</td>
<td>Quiet routes</td>
</tr>
<tr>
<td></td>
<td>Visual impact</td>
</tr>
<tr>
<td></td>
<td>Noise</td>
</tr>
<tr>
<td></td>
<td>Odour</td>
</tr>
<tr>
<td>Comfort</td>
<td>Surface condition</td>
</tr>
</tbody>
</table>
From Table 1, safety, free from the road traffic and width aspects were set for measuring safety criteria of Sustrans. Signposting and parking facilities were set for measuring coherence criteria. Link to services was set for measuring directness and convenience criteria. Quiet route, visual impact, noise and odour were set for measuring attractiveness. Surface condition was set for measuring comfort criteria. Moreover, the rural issues concerning rural problems in Rural Proofing Checklist (See 1.4.1.1) was also considered. Some relevant checklists was then supported some Sustrans criteria. Rural Proofing Checklist number 1, 4 and 7 were seen as it is relevant to directness and convenience criteria. The checklist number 5 was seen as it is relevant to attractiveness criteria. In addition, the checklist number 11 set a new criterion which is targeted to mobility deprived.

2.2 Map production
To make it is clearer to review the existing routes; a map detailed existing cycling and walking routes and existing services and amenities in North Norfolk District was produced. The map was produced in GIS format. Many cycle ways and pathways were shown on the map produced, for instance, National cycle network route 1, Norfolk coast cycleway NCN 30 and Paston Way. Services were also shown, for example, schools, railway stations and super markets.

The map was produced at Norfolk County Council (NCC), Norwich. The computer station for map producing situated at Department of Planning and Transportation. The map produced used database from GIS Services of the Department, and also some existing cycling routes from maps such as Norfolk Coast Cycleway Loops & Links, Norfolk Coast Bike and Norfolk: Cycling Country Lanes & Byways.

Initially, North Norfolk District area was highlighted from the Norfolk OS map. Within the boundary of North Norfolk District, seven Local Area Partnership of North Norfolk District were also divided. Main services and amenities, including railway station, leisure centre, post office, village shop, supermarket, important employment area, hospital, doctor’s surgery, school and library, were located on the map. Main cycling routes and
pathways, including National Cycle Network Route 1, Norfolk Coast Cycleway NCN 30 and footpaths were added to the map. Holt Explorer Loop, Cromer Explorer Loop, Walsingham and Wells Explorer Loop were drawn on the map as the County Council has no database for them. It should be noted here that some cycling ways and pathways, for instance Paston Way and Weaver’s Way, had already existed on the OS map; therefore, it was no need to draw those routes (See Map 3).

**Map 3:** North Norfolk District: Existing walking and cycling routes, and services

![Map 3](image)

**Key to map**

- Railway Station
- Leisure Centre
- Post Office
- Village Shop
- Supermarket
- Employment Area
- Hospital
- Doctor’s Surgery
- School
- Library
- Footpath
- Paston Way
- Sheringham Explorer Loop
- Cromer Explorer Loop
- Holt Explorer Loop
- Walsingham and Wells Explorer Loop
- National Cycle Network Route 1
- National Coast Cycleway NCN 30
- Cromer Area
- Fakenham Area
- Holt Area
- North Walsingham Area
- Stalham Area
- Sheringham Area
- Wells-Next-the-Sea Area
In addition, information about facts and figures about North Norfolk, demography and some maps, for instance, Census wards in North Norfolk, were accessed from Norfolk County Council website (http://www.norfolk.gov.uk).

2.3 Questionnaire survey

Questionnaires is a kind of a survey in which the respondents fills out a form, or interview schedule, where the researcher asks the question directly (Kane and O’Reilley-De Brun, 2001). Questionnaires can give large number of people to get a broad set of representative responses to questions about attitudes, perceptions and behavior. In addition, its computerized processing and analysis can bring speed and rigor. These are considered as the advantages of questionnaires. Furthermore, as stated by Bryman (2004) that an interview reduces error owing to variation in the asking of questions and greater accuracy in and ease of processing respondents’ answers. Therefore, to ensure respondents were aware of which questions they were answering and also to record of answers’ comments, face-to-face questionnaire interview was used. It means that face to face interviewing was carrying out one by one.

Nonetheless, the analysis process of the result of the questionnaire seems straight forward. It relies more on an objective instrument than fallible people which the same instrument can be use on many people (Kane and O’Reilley-De Brun, 2001). However, it seems to be a quick and easy way to get information. Then the questionnaire was designed effectively as much as possible.

Using face-to-face questionnaire survey method examines people’s perception on the key issues. Due to the large population of North Norfolk, time constraint and limited budget, a random sample from four of the market towns and rural areas groups were interviewed. The target populations were people all ages and abilities including pupils, students, young and old people and people with disabilities, using the routes in North Norfolk district. The survey tried to balance the sample size of each town. It was decided to carry out survey about 25 interviewees per each town. In addition, the survey also tried to keep balance of sample by age (3 age groups) and sex.
Further information was gained from questionnaire on Active Travel workshop days by asking some coordinators of some seven area partnerships, such as Bacton, Holt and Cromer, and also attendees who were assumed that they are really interested in cycling network in the areas of study.

2.3.1 Designing the questionnaire

The questionnaire designed to cover the issues based on the objectives of the study. It was used to:

- Identify respondents’ walking or cycling routes used in North Norfolk;
- Identify route users’ frequency of use and destination;
- Identify opinion of route users on the route in relation to the services;
- Identify opinion of route users on the condition of the routes: width, surface condition, quiet routes, safety, signposting, parking facilities, free from the road traffic, visual impact, noise and odour;
- Identify factors which encourage or deter route users from walking or cycling; and
- Identify respondents’ background: age range, resident/visitor, disability and gender.

It should be noted here that the sampling was divided by age ranges which are under 24 (young age), over 24 (middle age) and over 60 (退休).

Simple words, which convey the exact meaning, were used. Closed questions (the possible answers are provided) were also used so that respondents and interviewer can save their time, and responses were comparable and easily analysed. The survey was carried out in the town centres, and in shops and restaurants.

2.3.2 Questionnaire distribution

In the preliminary stage, questionnaires were used in the Active Travel project’s workshops organized by North Norfolk Community Partnership. The workshops were arranged at Cromer, Bacton and Holt on 19th, 25th and 27th June 2007 respectively.
Unfortunately, the number of attendees and respondents was low (See Table 2). Therefore, site visits to carry out questionnaire interview were conducted. Four towns were chosen; Cromer, Sheringham, North Walsham and Holt. These questionnaire surveys were conducted in two market towns on each day. North Walsham and Cromer were conducted on 9 July 2007; Sheringham and Holt were conducted on 11 July 2007.

The reasons for choosing these four towns were because:

- The relatively high number of population;
- The high number of cycling routes;
- The high number of tourists;
- Market towns;
- Easier to access to by train from Norwich.

A copy of the questionnaire is attached in Appendix 1.

2.4 Review and evaluate

This step was analysis of the questionnaire results. Analysis of the questions was to produce figures and tables, comments, and then to allow the answers of the questionnaires by visualization and interpretation. It followed the procedure; counted the number of each question to each answered question from the questionnaire received manually; created tables such as destinations of pedestrians and cyclists in Microsoft Excel; and then entered responses of each questionnaire in appropriate rows and columns created. Some question, like condition of route; width, safety and noise, was calculated manually as it was too complicated to add in Microsoft Excel. Finally, the results showed as figures and percentages were used for analysis.
CHAPTER 3
RESULT AND DISCUSSION

3.0 Introduction
As explained in the methodology, the basis of the analysis is the five criteria developed by Sustrans with additional factors from the Rural Proofing Checklist. The results of the questionnaires were used as evidence of route users’ comments relative to the availability, convenience and condition of existing routes.

3.1 Characteristic of the respondents
The survey respondents numbered 13-14 in each town except Holt (two respondents only). In total, the number of the respondents was 49 (including seven people from the workshops arranged by NNCP). The number of the respondents in Table 2 includes the respondents from the workshops.

Table 2: Distribution of the respondents by town

<table>
<thead>
<tr>
<th>Name of town</th>
<th>Number of respondents</th>
<th>Percentage of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Walsham</td>
<td>14</td>
<td>28.57</td>
</tr>
<tr>
<td>Cromer</td>
<td>13 (4)</td>
<td>34.69</td>
</tr>
<tr>
<td>Sheringham</td>
<td>13</td>
<td>26.53</td>
</tr>
<tr>
<td>Holt</td>
<td>2 (1)</td>
<td>6.12</td>
</tr>
<tr>
<td>Bacton</td>
<td>0(2)</td>
<td>4.08</td>
</tr>
</tbody>
</table>

( ) denoted from workshops

The number of the respondents as shown in Table 2 is not representative of all the residents’ perceptions, but it could give indications about how people view the current route network. The highest number of the respondents in this study were from North Walsham, Cromer and Sheringham. Therefore, the research then focuses more on these three areas.
The survey numbers of female and male were similar in North Walsham, Sheringham and Holt (Table 3). In contrast, in Cromer 11 women were interviewed while only six were men.

Table 3: Distribution of respondents by gender (number of respondents)

<table>
<thead>
<tr>
<th>Gender</th>
<th>North Walsham</th>
<th>Cromer</th>
<th>Sheringham</th>
<th>Holt</th>
<th>Bacton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>11</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4: Distribution of gender and age group (number of respondents)

<table>
<thead>
<tr>
<th>Age group</th>
<th>North Walsham</th>
<th>Cromer</th>
<th>Sheringham</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (6)</td>
<td>Female (8)</td>
<td>Male (6)</td>
</tr>
<tr>
<td>Under 24</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Older than 24</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>60 and above (retired)</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age group</th>
<th>Holt</th>
<th>Bacton</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (2)</td>
<td>Female (1)</td>
</tr>
<tr>
<td>Under 24</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>older than 24</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>60 and above (retired)</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4 showed that the respondents were divided in three age groups, namely under 24 years old, older than 24 years old, and 60 years old and above. There were more middle aged people and older people who responded to the questionnaire survey. This could be
linked to the respondents’ destinations of their walking and cycling (See Table 6) which will be discussed in the next section.

Table 5: Distribution of the respondents by resident and visitor (number of respondents)

<table>
<thead>
<tr>
<th>Town</th>
<th>Number of residents</th>
<th>Number of visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.Walsham and Bacton</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Cromer</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Sheringham</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Holt</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The number of residents and visitors were different (See Table 5). Considering town by town, in North Walsham and Bacton there were much more residents (94%) answered the questionnaire survey than visitors (6%). The responses in Cromer were that the number of residents (76%) is higher than the number of visitors (24%). Most of them live in Cromer. Some lived in the villages nearby like Northrepps, Ridlington and Felbrigg. The questionnaire survey at Sheringham was different from the rest due to the fact, in this summer season, a large number of tourists or visitors come for their holidays. This survey found that it was hard to find local residents. Therefore, most of the respondents were tourist (69%), only 31% were residents. It should be noticed that there were only three respondents at Holt. The researcher could not find many interviewees because most of them were not willing to answer the questionnaire.

3.2 Analysis of the questionnaire

The questionnaire surveys on the existing local routes provided information about who cycles or walks, why they cycle or walk, what problems they encounter and may suggested improvements they would like to see.

It should be noted here that the questionnaires’ responses of North Walsham and Bacton were calculated together because Bacton is a village near North Walsham; they are in the
same Area Partnership (Griffon Area Partnership) and the respondents used two same routes (NCN 30 and Paston way).

Examining the percentage of routes used town by town, unsurprisingly each town focused on different routes. In North Walsham and Bacton, analysing the number who used each route, the results are shown in Figure 5 below. The top three routes, (namely footpath within North Walsham town centre, Paston Way and Weaver Way), were considered. Paston Way is a long distance (eight miles) cycling and walking route which starts in North Walsham and finishes in Cromer, and also passes through Knapton (to the North of North Walsham). Weaver’s Way, a 56 miles trail, links Cromer with Great Yarmouth using minor roads, footpaths and old railway lines. A short section of Weaver’s Way leads the users of the route to go through the market town of North Walsham.

From Figure 6, in Cromer, the main routes used by the respondents were a footpath within Cromer, Norfolk coast cycleway NCN 30, Cromer explorer loop, Weaver’s Way and Paston Way respectively.

**Figure 5:** North Walsham and Bacton: Percentage of respondents using each route

![Pie chart showing the percentage of respondents using each route in North Walsham and Bacton](image-url)
In Sheringham, as mentioned previously most of the respondents were visitors. The route they used most often was town centre footpath. Nonetheless National cycle network NCN 30, Holt explorer loop, Cromer explorer loop and Marriott’s way are also used by pedestrians and cyclists (39%) (Figure 7).

**Figure 7:** Sheringham: Percentage of respondents using each route
**Table 6:** Destination of pedestrians and cyclists (number of respondents)

<table>
<thead>
<tr>
<th>Town</th>
<th>Shop</th>
<th>Healthcare</th>
<th>School/Education</th>
<th>Work/Employment</th>
<th>Pub/Restaurant</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.Walsham and Bacton</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Cromer</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Sheringham</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Holt</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Town</th>
<th>Leisure centre</th>
<th>Social Visits</th>
<th>Holiday</th>
<th>To link with rail/bus services</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.Walsham and Bacton</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
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<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Sheringham</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Holt</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Considering the respondents town by town, in North Walsham and Bacton, based on the high number of the residents in the responses, the top three routes were used by local residents to travel from their house to shopping, work places and for exercise (See Table 6). Most of them used the Weaver’s Way route approximately once a week while Paston Way was used about two days a week. On the other hand, the respondents walked within North Walsham town centre almost everyday (five people said everyday, only two people said twice a week or very infrequently).
In Cromer, most of the respondents used these because they want to enjoy and exercise (21%), to go to pub/restaurant (21%), and to work (18%). Shop and leisure centre (11%) are also popular destinations (See Table 6). In terms of frequency, the respondents said they rarely used Weaver way and Paston way. Cromer explorer loop and Norfolk coast cycleway NCN 30 were more used by the respondents (three out of six said they used everyday and once a week). The responses for the frequency of footpath within Cromer used are various; three people answered everyday and very infrequently. Two respondents said they used the footpath twice a week. It should be noted here that some of them were working in Cromer. They have a car, so they presumably do not walk in the town regularly or very often. They just come to work and go back home using motorised transport.

In Sheringham, as the most of the respondents were tourists, their main purposes of walking to/through town centre are to enjoy in the holiday, shopping and pub/restaurant. Moreover, in terms of frequency the walkers or cyclists use pathway in town centre nearly everyday. However, the town centre is regarded as the main area to work through by the respondents.

According to the very few respondents at Holt (three respondents only), one of the respondent said their destinations were shopping and eating. Some highlighted issue that would to discuss rather than overall point of view. One resident said she used footpaths between Holt, Letheringsett, Baconstrope and Stody, and she also cycled between Holt, Cley-next-the-Sea, Kelling, Sheringham, Thronage and Glandford. Her destinations for cycling were to shop, healthcare and recreation. However, her purpose for walking was only for recreation. It can be seen that she will walk a shorter distance than cycling, and walking only for recreation for instance for exercising or pleasure.

Overall, the main purposes of the most of the respondents in every town were going to the essential services like shops, work places and pub/restaurants. In North Walsham and Bacton, 56% of the respondents said their destinations were to shopping and working, very similar to the 50% and 52% of the respondents at Cromer and at Sheringham who
said they went to shopping, working and eating respectively. At Holt, 40% said their
destination were shopping and eating. It can be seen that similar number of the
respondents in every town tended to go to these essential services. As the similar
evidence showed by Sustrans (1994), a survey reported that the main purpose of short
journeys (by all modes) in Britain were shopping (23.90%), social (22.30%), work
(19.50%), education (12.80%) and others (21.40%). It should be noted that decline in
access to services is crucial. As stated by Robinson (1990) previously, inadequacy of
access to services is a key problem of rural services’ provisions.

As discussed in Section 2.1: Setting the framework, five criteria: safety, coherence,
directness and convenience, attractiveness, and comfort assessed by aggregating other
sub-factors. Table 7 shows the overall rating of the criteria of the routes each town, it was
evaluated by five options. Nonetheless, the issues inside the five criteria were then
discussed later on as considered from the sub-sections of each criterion (See Table 8).

**Table 7: Rating score of the condition of the routes**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Safety</th>
<th>Coherence</th>
<th>Directness and Convenience</th>
<th>Attractiveness</th>
<th>Comfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Walsham and Bacton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Weaver’s Way</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Average</td>
</tr>
<tr>
<td>• Paston Way</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Average</td>
</tr>
<tr>
<td>• Footpath within North</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Average</td>
</tr>
<tr>
<td>Walsham town centre</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Route Description</td>
<td>Safety</td>
<td>Coherence</td>
<td>Directness</td>
<td>Convenience</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------</td>
<td>--------</td>
<td>-----------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Cromer</strong></td>
<td>Norfolk Coast Cycleway NCN 30</td>
<td>Average</td>
<td>Average</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Cromer Explorer Loop</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Weaver’s Way</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Footpath within Cromer town centre</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Sheringham</strong></td>
<td>Footpath within Sheringham town centre</td>
<td>Average</td>
<td>Average</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Holt</strong></td>
<td>Footpath within Holt town centre</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Average</td>
</tr>
</tbody>
</table>

Summarising the results from Table 7, it is evident that the footpath within Sheringham town centre and Norfolk Coast Cycleway NCN 30 were the routes they considered least satisfactory. The Sheringham town centre pathway was measured as average for safety and coherence, but it was rated good for directness and convenience, and attractiveness. It should be noted here that most of the route users in Sheringham in this study were visitors, and then their perception were different from the other studied towns. For
Norfolk Coast Cycleway NCN 30, the first two criteria: safety and coherence were rated average, while last three criteria: directness and convenience, attractiveness, and comfort were rated good. The rest of the routes, namely Weaver’s Way, Paston Way, Cromer Explorer Loop, footpath within North Walsham town centre, within Cromer town centre, within Holt town centre, all of them were rated ‘good’ in almost every aspect. One thing should be noticed is that except for the comfort criteria, the first four criteria rated good (six from eight routes). It can be seen that apart from the footpath in Holt which respondents said attractiveness was average, the rest were good.

Table 8 showed the checklist of the average – poor/very poor score of sub-section of each criterion. The checklist were ticked (✓) if more than 50% of the respondents said average, poor, or very poor. This was then used to highlight the major issues inside the five main criteria. The reason for looking at average, poor or very poor was because the numbers of the respondents who cycled and walked were insufficient, and could not be considered a representative sample. It was, therefore, assumed that really serious problems on existing cycling routes would not be discovered, and the average rating on the condition of the routes was included to highlight a wider range of problem issues.

As can be seen from Table 8, the least satisfactory route was the Sheringham pathway. The respondents thought the route was not up to standard in the following seven categories; safety, width, absence of road traffic, signposting, parking facilities, quietness and surface condition of the footpath. North Walsham town centre footpath was second route in need of improvement. More than 50% of the respondents said signposting, quietness, visual impact and odour aspects of the path were average or below. The best route assessed was National Cycle Network Route 1, but only one person had used this route. Stated by Sustrans (1998), “it is sometimes forgotten that a very large proportion of those who like to walk – and almost all wheelchair users – are discouraged because of bad surfaces, steps and styles.” This evidence from Sustrans showed that the unsuitable conditions of the routes discouraged people from walking or cycling.
Table 8: Checklist of average - poor or very poor score of sub-section of each criterion

<table>
<thead>
<tr>
<th>Criteria/Sub-section</th>
<th>Safety</th>
<th>Coherence</th>
<th>Directness and convenience</th>
<th>Attractiveness</th>
<th>Comfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCN 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCN 30</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Cromer Loop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Weaver’s Way</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Paston Way</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Cromer: Footpath</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N.Walsham: Footpath</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sheringham: Footpath</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Holt: Footpath</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

In terms of the encouragements and deterrents to cycling or walking, Table 9 shows that most of the respondents thought that health, environmental friendly and landscape were major factors encouraging them to cycling. However, factors for walking for them were the same as for cycling but supplemented by a short distance factor. The short distance was the most important factor encouraged walking (Table 10). Surprisingly, no
respondent chose lack of car ownership and lack of accessibility to a car to be a factor for encourage cycling and walking. Time saving was not a factor that they generally considered; only one respondent from North Walsham chose this factor. Economic reasons seem to be a main factor for encouraging the respondents to cycle and walk; only four persons chose this factor. In term of public transport availability, it might encourage the respondents to walk, but not to cycle (See Table 9 and 10).

Distance, travel time, safety and no link between town or village factors were the main obstacles deterring the respondents from cycling and walking (Table 11 and 12). However, distance as expected was seen as the more important obstacle to walking as compared with cycling. The effectiveness of pathways and cycle ways was another main issue of concern. Fourteen of the respondents said pathways were not designed effectively, compared with five of the respondents who mentioned cycle ways. The last main obstacle deterring the respondents to walking was car ownership (seven of the respondents answered). However, car ownership was not a crucial issue deterring them from cycling.

Highlighting the lack of car ownership and the lack of accessibility to a car factors, the respondents thought both factors did not encourage them to cycling and walking. This was because most of them might have their own cars or access to a car (See Table 11 and 12: 10 respondents said these two factors were their barriers for cycling and walking). In contrast, fourteen of the respondents thought that the lack of availability of public transport, and the need for car parking encouraged them to cycle and walk (See Table 9 and 10). It could be suggested that, even though they had cars (but car parking was inconvenient), the availability of public transport may make them tend to take a bus/rail, or even walking and cycling. As it was illustrated earlier by Figure 1: The spiral of deterioration centred on decreased use of public transport services (Robinson, 1990), the figure showed that the rise of car ownership was one of the consequences of the decreased use of public transport. And this was seen as a source of decline in services. It then maybe assumed that, if public transport services are available and have high
standard, people will more walk or cycle for taking public transport and even for other purposes.

Distance and accessibility (link between town and village) were always the main issue that deterred people from cycling and walking (this is confirmed by Cullingworth and Nadin, and Small). In this study, the same was found for walking and cycling. A large number of the respondents (19 people) said that the cycle ways and path ways were not designed effectively (See Table 11 and 12). This was why the research evaluated the personal perceptions of the respondents about the condition of the existing routes as discussed above. The result on personal perception on the condition of the existing routes showed that comfort condition is a crucial one. In Sustrans criteria, comfort means paths that are built of materials which remain hard and serviceable throughout the year. Their junctions are convenient and easy to understand, free from motor traffic and low amount of fumes and noise (Sustrans, 2006). Nonetheless, this research did not cover all these aspects of the comfort criteria. It measured only surface condition’s perception (See Table 1). Moreover, this comfort criterion seemed to be hard to evaluate as it is a qualitative aspect.

In conclusion, health, environmental friendly nature of the activity and landscape were the major factors encouraging cycling and walking. Distance, travel time, safety and no link between town or village factors were the main obstacles deterring cycling and walking. Even though car ownership was not a crucial issue encouraged walking and cycling, it could be suggested that the availability of public transport and the need for car parking encouraging cycling and walking. In terms of the effectiveness of pathways and cycle ways, this research suggested that it was important to maintain and improve the quality of the existing routes, especially the comfort condition. This condition was the poorest aspect rated.
**Table 9: Factors encouraging cycling**

<table>
<thead>
<tr>
<th>Town</th>
<th>Economic</th>
<th>Health</th>
<th>Environmental friendly</th>
<th>Landscape</th>
<th>Time Saving</th>
<th>No public transport available for that destination</th>
<th>Do not need a car park</th>
<th>I do not have a car</th>
<th>I do not have access to a car</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Walsham and Bacton</td>
<td>1</td>
<td>7</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cromer</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sheringham</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Holt</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 10: Factors encouraging walking**

<table>
<thead>
<tr>
<th>Town</th>
<th>Short distance</th>
<th>Economic</th>
<th>Health</th>
<th>Environmental friendly</th>
<th>Landscape</th>
<th>No public transport available for that destination</th>
<th>Do not need a car park</th>
<th>I do not have a car</th>
<th>I do not have access to a car</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Walsham and Bacton</td>
<td>8</td>
<td>0</td>
<td>11</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cromer</td>
<td>10</td>
<td>1</td>
<td>13</td>
<td>12</td>
<td>11</td>
<td>3</td>
<td>0</td>
<td>0</td>
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<tr>
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<td>0</td>
<td>8</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Holt</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 11: Obstacles deterring cycling

<table>
<thead>
<tr>
<th>Town</th>
<th>Distance</th>
<th>Travel time</th>
<th>Unsafe</th>
<th>No link between towns and village</th>
<th>Cycle ways does not designed effectively</th>
<th>I have a car</th>
<th>I have access to a car</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Walsham and Bacton</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cromer</td>
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<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
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<td>1</td>
<td>0</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</table>

Table 12: Obstacles deterring walking

<table>
<thead>
<tr>
<th>Town</th>
<th>Distance</th>
<th>Travel time</th>
<th>Unsafe</th>
<th>No link between towns and village</th>
<th>Pathways does not designed effectively</th>
<th>I have a car</th>
<th>I have access to a car</th>
</tr>
</thead>
<tbody>
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<td>N. Walsham and Bacton</td>
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<td>5</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Cromer</td>
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<td>2</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>2</td>
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<td>Sheringham</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Holt</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
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</table>
CHAPTER 4
CONCLUSIONS
AND RECOMMENDATIONS

4.1 Conclusion
Considering problems in rural areas facing some part of the UK, this research examined the transport problems, specially the issues surrounding cycling and walking in the context of accessibility to services. The case study was undertaken in North Norfolk as it is an area that has faced the rural problems or rural deprivation. Therefore, this study considered improving accessibility to services without the need for car or public transport (according to the Active Travel project’s aims) accompanied with the assumption that rural deprivation can be partially overcome by improving the level of accessibility to services. The existing cycling and walking routes in North Norfolk were then evaluated.

To fulfill the objectives of the research, the key criteria for measuring the suitability of current routes were established. The developed criteria were then used to examine the perceptions and needs of the target populations by using the questionnaire survey. Nonetheless, the research was limited in the scope of time, finance and information. It then restricted of the size and scope of the study. Questionnaire survey did not perform effectively because of such limitations. The number of people who came to the workshop arranged by NNCP was disappointing. The sample number of the questionnaire survey did not meet the target. And this sample may also not have been representative of the wider picture of the rural areas.

Results showed that, except for distance, time and safety factors, the key issues affecting rural areas in terms of improving the cycling and walking network, are car ownership and public transport. Also, this was a suggestion that, even though they had cars (and car parking is inconvenience), the availability of public transport may make them tend to take a bus/rail, or even walking and cycling. Moreover, cycling and walking route conditions is also an important factor in encouraging or deterring local people to decide to walk or
cycle. The ineffectiveness of the routes may be seen as a barrier especially due to the lack of the route’s comfort condition.

**4.2 Recommendations**

Further research is recommended, because of the problems in terms of delivery and responses to the questionnaires, to explore more evidence and more fully the factors which appear to deter rural transport improvement in term of cycling and walking provision. It would also be a key element of the research to determine whether there are any specific issues of rural deprivation which need to be addressed.
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Appendix 1: Questionnaire

ACTIVE TRAVEL: Personal views on existing cycling and walking routes in North Norfolk
For each question please answer with a tick (✓) in the relevant response box (☐) and also fill the empty space with the choices provided

Section 1. General information on routes used

<table>
<thead>
<tr>
<th>Which walking or cycling route(s) do you use? (Please tick all that apply)</th>
<th>How often do you use that route?</th>
<th>To which destination(s)? Please choose all that apply</th>
<th>How would you describe the route in relation to the service? Please choose one of the following only</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ National Cycle Network Route 1 (Hull to Harwich)</td>
<td></td>
<td></td>
<td>a) Excellent</td>
</tr>
<tr>
<td>☑ Norfolk Coast Cycleway NCN 30 (Cromer to King’s Lynn and to Gt. Yarmouth)</td>
<td></td>
<td></td>
<td>b) Good</td>
</tr>
<tr>
<td>☑ Walsingham &amp; Wells Explorer Loop</td>
<td></td>
<td></td>
<td>c) Average</td>
</tr>
<tr>
<td>☑ Holt Explorer Loop</td>
<td></td>
<td></td>
<td>d) Poor</td>
</tr>
<tr>
<td>☑ Cromer Explorer Loop</td>
<td></td>
<td></td>
<td>e) Very Poor</td>
</tr>
<tr>
<td>☑ Weaver’s Way (Cromer to Gt. Yarmouth)</td>
<td></td>
<td></td>
<td>f) N/A</td>
</tr>
<tr>
<td>☑ Paston Way (North Walsham to Knapton)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Other cycle ways (e.g. from Holt to Salthouse) or within your village/town (Please specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑ Other footpaths within your village/town or between villages/towns (Please specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section 2. Condition of the routes

<table>
<thead>
<tr>
<th>Which walking or cycling route(s) do you use? (Please tick all that apply)</th>
<th>Please choose one of the following descriptions (e.g. a, b, or c etc) for each column for the routes you use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>Surface condition</td>
</tr>
<tr>
<td>a) Excellent</td>
<td>b) Good</td>
</tr>
</tbody>
</table>

- National Cycle Network Route 1 (Hull to Harwich)
- Norfolk Coast Cycleway NCN 30 (Cromer to King’s Lynn and to Gt. Yarmouth)
- Walsingham & Wells Explorer Loop
- Holt Explorer Loop
- Weavers Way (Cromer to Gt. Yarmouth)
- Paston Way (North Walsham to Knapton)
- Other cycle ways (e.g. from Holt to Salthouse) or within your village/town (Please specify) …………
- ……………………………………………………………………………………………………………………………
- Other footpaths within your village/town or between villages/towns (Please specify) ………
- …………………………………………………………………………………………………………………
Section 3. Drivers and obstacles to cycling and walking

1. Which factors encourage you to cycling? (Please tick all that apply)
   - Economic
   - Health
   - Environmental friendly
   - Landscape
   - Time saving
   - No public transport available for that destination
   - Do not need a car park
   - I do not have a car
   - I do not have access to a car
   - Other (Please specify) ………………………………………………………………………………………………………………….

2. Which factor(s) encourage(s) you to travel by walk? (Please tick all that apply)
   - Short distance
   - Economic
   - Health
   - Environmental friendly
   - Landscape
   - No public transport available for that destination
   - Do not need a car park
   - I do not have a car
   - I do not have access to a car
   - Other (Please specify) ………………………………………………………………………………………………………………….

3. What are the obstacles that deter you from cycling? (Please tick all that apply)
   - Distance
   - Travel time
   - Unsafe
   - No link between towns and village
   - Cycle ways not designed effectively
   - I have a car
   - I have access to a car
   - Other (Please specify) ………………………………………………………………………………………………………………….

4. What are the obstacles that deter you from walking? (Please tick all that apply)
   - Distance
   - Travel time
   - Unsafe
   - No link between towns and village
   - Pathways not designed effectively
   - I have a car
   - I have access to a car
   - Other (Please specify) ………………………………………………………………………………………………………………….

Section 4. Background information

5. About you?
   - I am visiting the area
   - I am a resident of the village/town (Please specify your village/town) ………………………………………………………………………………….
   - I have a disability/mobility issue
   - I am under 24
   - I am retired