Great Langdale Valley, Cumbria: An Analysis of the viability of road-user charging as a Demand Management Tool for motor-vehicle dependent recreation

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This thesis is submitted in partial fulfilment of the requirements for a Master of Arts (by Research) degree awarded by the University of Central Lancashire.

November 2002

ABSTRACT

This research was focused on analysing the potential application of road-user charging to the Transportation Demand Management Strategy for Great Langdale Valley in the Lake District National Park. There were three research objectives: firstly, to investigate the response of motorists to the hypothetical imposition of monetary road-user charges for entry to Great Langdale Valley (Bovaird et al, 1984); secondly, observe the impact of road-user charging on the host community of Great Langdale Valley (Holding, 1998); thirdly, to examine the suitability of the Contingent Valuation Methodology to elicit monetary preferences for road-user charging in a non-laboratory setting.

The research methodology employed to elicit behavioural responses to certain price levels for road use was the Contingent Valuation Method (Mitchell and Carson, 1989). Three stakeholder samples were surveyed: visitor, resident and business operator samples. All three were administered with mail-back questionnaires containing hypothetical Contingent Valuation scenarios. Willingness To Pay (WTP) questions to elicit monetary preferences for road use were posed to the visitor and resident samples, whereas the business operator sample respondents were asked for their Willingness To Accept (WTA) a compensation payment for the potential impact of the road-user charging scheme on their trade.

The research findings determined that a road-user charge would result in a considerable reduction in the visitor sample's intention to use a private motor-vehicle on the Great Langdale valley road network. The residential population expressed limited support for themselves or visitors being subject to a road-user charge. In addition, the business operator sample demonstrated similar opposition to the road-user charging proposal. In conclusion, road-user charging was not deemed a viable Transportation Demand Management strategy for Great Langdale Valley due to the socio-economic equity implications involved exceeding any potential road network efficiency gains.

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ACKNOWLEDGEMENTS

My thanks go to the following people/organisations:

University of Central Lancashire – for awarding me a research studentship.

Christine Williams – my Director of Studies particularly for her help and advice regarding the preparation of this MA by Research dissertation.

Mike Clark – my second supervisor at the University of Central Lancashire for his thoughts and time.

David Holding – my external supervisor for sparing me his time even though for the majority of this MA by Research degree due to my deferred registration he was not in an official capacity.

Phil Whyman – one of my initial supervisors for the first six months for his time.

Ian Williams and Phillip Garside – for their opinions of my questionnaire drafts.

The questionnaire respondents – everyone who completed and returned a questionnaire.

The National Trust – specifically Great Langdale Property Manager David Wilkinson for allowing me to distribute questionnaires on their car parks.

Geographer's A-Z Map Co. Ltd – for allowing the reproduction of their material.

Thomas Telford Ltd – for allowing the reproduction of their material.

John Nash and Abby Tyler – for their correspondence and time regarding the transport policy of the Lake District National Park Authority.

Bill Breakall – for his correspondence regarding traffic management in the North York Moors National Park.

Peter Jones – for his correspondence regarding national attitudes on road pricing.

David Ashworth – for his correspondence regarding public transport timetables.

Andrew Jefferys – for his correspondence regarding road-user charging legislation.

Jamie Singleton – for his correspondence regarding the proposed Upper Derwent Valley road-user charging scheme.

John Ranson and Jane Gibson – for their correspondence regarding the Lake District Transport Strategy.

Camilla Swiderska – for her correspondence regarding the Tourism without Traffic initiatives and the proposed Durham Peninsular road-user charging scheme

Maggan Dahlström –for advising me to be tested for dyslexia

My Family – for their love and support.

ABBREVIATIONS

CFIT – Commission for Integrated Transport

CPRE – Council for the Protection of Rural England

CRE – Centre for Rural Economy

CTB – Cumbria Tourist Board

DCC – Derbyshire County Council

DETR – Department for Environment, Transport and The Regions

FLD – Friends of the Lake District

GPS - Global Positioning Systems

LDNPA – Lake District National Park Authority

LDNPES – Lake District National Park Education Service

MPC – Marginal Private Cost

MSB – Marginal Social Benefit

MSC – Marginal Social Cost

NPS – National Park Service of the United States of America

OCTALS – Oxford Centre for Tourism and Leisure Studies

SKAT – Skye Bridge Anti Toll Protest

TDM – Transport Demand Management

VTPI – Victoria Transport Policy Institute, British Columbia, Canada

WTP – Willingness To Pay

WTA – Willingness To Accept

YARTS – Yosemite Area Regional Transportation System

Chapter 1. Introduction

Aims and Objectives

The aim of this research is to analyse the potential contribution of road-user charging to the management of motor-vehicle volumes within a specific area of the Lake District National Park as well as investigate the potential socio-economic equity implications for all stakeholders involved. The specific objectives are:

1. To investigate the potential response of motorists currently using Great Langdale valley to the introduction of a charge for entry. This will test the hypothesis that increasing the cost of a road-user charge will decrease motorists stated intentions to enter a specific area of the Lake District National Park for recreation (Bovaird et al., 1984; Weinberger, 1997).

2. To investigate the impact of road-user charging on the host community of Great Langdale Valley. The values and attitudes of two subdivisions of the host community will be examined in relation to the road-user charging proposal; the residential population of Great Langdale Valley and the business community, whose revenue is dependent on the current temporal and spatial pattern of tourism. The host community of the Lake District National Park in it's entirety has previously been vociferous in their opposition to traffic management initiatives (Holding, 1998).

3. To facilitate a critical awareness of Contingent Valuation methodologies when applied to a complex environment.

Justification of Research

This research is timely because road-user charging is one of the most contentious issues in a society, which Urry (2000) considers to be characterised above all by mobility (Jones, 1998; Ison, 2000; Thorpe et al., 2000; McDonald, 2002; Rutherford, 2002). Rationing access to a prime site of tourism consumption through the pricing of road use could have profound but differentiated implications for private motorvehicle dependent recreation users in addition to the distinct host community residing in the area (DTZ Pieda Consulting, 1999; SKAT, 2000; Monbiot, 2001). Great Langdale Valley provides a particularly significant case study of how road-user charging could impact on mobility and social relationships within a U.K. National Park environment of these two distinct groupings, unlike the road-user charging scheme proposed for the sparsely populated Derwent Valley in the Peak District National Park (CDP, 2001).

In addition, The Commission for Integrated Transport has recently released proposals for road-user charging on all the United Kingdom's congested road networks (CFIT, 2002). The objective is to increase overall road network efficiency by reducing traffic congestion through the long-term strategy of the redistribution of general road taxation towards charges based on distance travelled on congested routes, with distance measured for each journey using Global Positioning Systems (GPS) technology (CFIT, 2002). Four road-user charging schemes are currently in the advanced planning stage for England using the powers of the Transport Act (2000); the Durham Peninsula specifically incorporating the Durham Cathedral World Heritage Site, Leeds city centre roughly bounded by the Inner City Road, Derbyshire specifically the sparsely populated Derwent Valley in the Peak District National Park and Bristol city centre, also, as many as 34 other local authorities are currently considering the introduction of road-user charging (DETR, 2000; CDP, 2001; McDonald, 2002). The Greater London Authority under the direction of Mayor Ken Livingstone has recently approved a road-user charging scheme for central London consisting of the imposition of a five-pound charge to enter the centre of Greater London (Transport for London, 2001). In addition, the Lake District Transport Strategy (1998) stated their intention to investigate the potential of pricing road use with the then Department for the Environment, Transport and the Regions to achieve sustainable travel. John Nash (1999) of the Lake District National Park Authority also

highlighted the potential for tolling Lake District National Park valley roads as an alternative to closing them in order to protect the areas tranquillity from traffic disruption.

The current pattern of tourism transport to the Lake District National Park produces an inherent contradiction in that the mode of transport that facilitated the tourism experience also diminishes it. In the All Park Visitor Survey of 1994, 21% of respondents singled out traffic congestion close to the boundaries of the park and 12% highlighted traffic congestion inside the park as their main/sole complaint regarding conditions in the Lake District National Park (Countryside Commission, 1996). Furthermore, eighty percent of respondents to the Lake District Transport Strategy survey felt that the impact of traffic should be reduced and over sixty-six percent of the respondents considered there to be traffic congestion in the Lake District (Lake District Transport Strategy, 2000). The definition of what entails traffic congestion can be extremely subjective therefore care should be taken in only identifying congestion with overcapacity events in terms of vehicles per hour. The RAC Report on Motoring (2002) Summary Document, observed five main definitions given by respondents: stop/start conditions (29%), moving very slowly - less than 10 mph (24%), traffic jams with complete stops of at least 5 minutes (22%), having to travel below speed limit because of amount of traffic (19%) and unexpected delay to journey (4%). However, despite the subjective differences, motorvehicle dependent recreation users should be treated as reflexive consumers: their existing transportation use having both created the need to consider the introduction of traffic management solutions such as road-user charging in addition to these consumers shaping how any such schemes are implemented (Shaw and Williams, 2002).

Great Langdale Valley within the Lake District National Park was chosen as the study area for this research project due to the following reasons[1]:

- It's relative popularity with visitors to the Lake District National Park, around 1500 vehicles per day use the area in April rising to 3500 on peak days in August (see Appendix 1);

[1] A more extensive description of the reasoning for the choice of study area is provided in Chapter 4.

- The existence of a significant residential population within Great Langdale totalling 289 at the 1991 census (LDNPA, 1994).
- The GPS Technology required to facilitate a park-wide road-user charging scheme has yet to be implemented in the U.K. (CFIT, 2002).
- It is a valley possessing a relatively simple road network making implementation of a road-user charging scheme technically feasible albeit hypothetically;
- A park and ride scheme to the Langdales from Ambleside has been highlighted as a possibility by the Lake District Transport Strategy (2000) in the medium-term, such a transportation alternative would be required by a road-user charging order;
- And finally, there are four National Trust car parks within the valley, upon which permission had been gained to distribute research questionnaires to individual motorists.

The aims and objectives of this research project investigating road-user charging in a specific U.K. National Park will be achieved by the implementation of the Contingent Valuation Method (Mitchell and Carson, 1989). This will allow the author to explore the responses and attitudes of three stakeholders groups in the Great Langdale Valley area: visitor, resident and business operators, utilising a hypothetical road-user charging scheme scenario.

Chapter 2. Background to the research

The Lake District National Park

The Lake District National Park is located in the North-West of England in the county of Cumbria. Although, Urry (1995) observes that the Lake District is almost an honorary part of south-east England sociologically because of the particular forms of elite leisure practiced within the area, e.g. visiting and appreciating the landscape aesthetics, it is probably best described as a hybrid of north and south culturally. The National Park area totals 2,292km^2 consisting of a highly diverse landscape ranging from the rugged central mountains, incorporating England's highest peak Scafell Pike at nine hundred and seventy-eight metres above sea level, to the lower level scenery of the Furness area, right down to the deepest lake Wastwater, at a depth of seventy-four metres (LDNPA, 1994; LDNPES, 1998).

The Lake District National Park was designated a National Park in 1951 under the 1949 National Parks and Access to the Countryside Act. The purpose of which was to: facilitate the preservation and enhancement of the area's natural beauty and to offer the opportunity for public open-air recreation and enjoyment of the scenery within the designated areas (LDNPA, 1994). The Environment Act 1995 restates the balance between conservation of the natural beauty, wildlife and cultural heritage of the Lake District as well as promoting opportunities for enjoyment of the National Park. These two National Park purposes must also seek to promote the economic and social well being of the local resident community of the National Park. In addition, if conservation policies conflict with promotion of enjoyment, conservation objectives should prevail (LDNPES, 1998).

The area although termed a National Park in United Kingdom legislation, is classified only as a 'protected landscape' in regard to the United Nations and the International Union for the Conservation of Nature and Natural Resources (IUCN) definition of a National Park. This is due to the presence of a resident population for reasons other than to simply provide tourism services (Butler and Boyd, 2000). The resident community of the Lake District National Park was 42239 at the 1991 census and the bulk of this population is concentrated in the towns of Keswick, Ambleside and

Windermere, although significant resident populations exist in the remoter areas of the National Park (LDNPES, 1998).

Tourism in the Lake District National Park

The 'Lake District'[1] was a popular destination before its designation as a National Park, initially due to the work of the romantic poets such as Wordsworth and Coleridge advertising the majesty of the area from the late eighteenth century onwards (Urry, 1995). By the 1990's it was estimated that 12-16 million people per annum were visiting the Lake District National Park albeit with a strong April – October seasonal focus (Countryside Commission, 1996; Lake District Transport Strategy, 2000). This level of tourism activity has led to the development of a business community within the National Park highly dependent upon the current temporal and spatial distribution of tourism, which in the National Park supports thirty-three percent of the local economy's workforce, compared to six percent employed in this sector within the national economy (LDNPES, 1997). The local tourism economy encompasses a wide variety of business operations in terms of overall scale, from individually run small businesses to multinational companies e.g. the Hilton Keswick LoDore. The overall value of tourism to the local economy is estimated at seven hundred and seventy million pounds per year (CTB, 2002).

The Lake District National Park Authority has strict regulatory powers in regard to alterations to the land-use characteristics of the area by any stakeholders including the local tourism business community (LDNPES, 1998; Clark, 2001). Furthermore, the sector of the local economy dependent upon tourism in the Lake District National Park last year suffered the additional problem of an outbreak of foot and mouth disease during it's temporally biased high season. The start of the outbreak in March 2001 led to the imposition of strict regulations and the closure, in terms of off-road access to all parts of the National Park e.g. the Langdale valley, which were only relaxed later in that year (LDNPA, 2001). Pion Economics (2001) estimated that the Cumbrian economy had suffered losses of £255-266 million and that between April-July 2001 there had been a 40% reduction in visitors. In addition, CRE (2002) estimated that in the first half of 2001 the average turnover in the specific Cumbrian

[1] The 'Lake District' is not a definitively defined geographical area, more a place-myth attached to be particular consumption of the landscape of the area (Urry (1995).

tourism sector was down by on average 39% and employment per firm in the tourism sector was down by 1.2 jobs both compared to the previous year. This year 2002 has witnessed many attempts to encourage visitors back to the Lake District National Park following the outbreak including; Chris Collier, chief executive of Cumbria Tourist Board appearing on BBC Breakfast News on the 29th March 2002 to promote the area (Collier, 2002). To this end Cumbria Tourist Board redeveloped its website http://www.gocumbria.co.uk and introducing two new specialist sites http://www.lastminutelakedistrict.co.uk for accommodation and http://www.lakesdistrictoutdoors.co.uk aimed at walkers and cyclists.

Tourist Transportation to the Lake District National Park

The majority of the current 12-16 million visitors to the Lake District National Park do so by means of private transportation; encompassing cars, vans, four-wheel drive vehicles, campervans, motorcycles and bicycles, 89% of respondents to the All Park Survey in 1994 used private transportation to reach the area, the dominant mode being the car which accounts for 85% of this traffic (Countryside Commission, 1996; LDNPES, 1997). The privileged explorer initially visited the Lake District in the early nineteenth century for walking holidays, following in the footsteps of the romantic poets (Urry, 1995; Dale, 1999). The Victorian advancement of the railway system, which reached Windermere in 1847, allowed less intrepid explorers to reach the area. The late nineteenth century improvement in working conditions facilitated a mass of new working classes arrivals by railway; Wordsworth thought this to be a 'rash assault' on the Lake District and that only those with the necessary cultural capital to consume the landscape should visit the area (Urry, 1995).

The motorvehicle as a mode of transport was introduced into British society in the nineteenth century. A key figure in the 'birth' of the car was Henry Ford and the main event occurred in the early twentieth century, 1 October 1908 to be precise when the first Model T Ford went on sale in the United States of America (Wolf, 1996). The explosion in car ownership that occurred over the subsequent two decades in industrialised countries, most spectacularly in the U.S.A. due to the greater distances involved and the poorer spatial coverage of the railways, would impact heavily on the twentieth century consumption of tourism. The practice of driving a motorvehicle and slowly consuming the surrounding landscape became an end form of recreation itself

in addition to the utility the motor-vehicle afforded in transporting the occupants to their destination (Sachs, 1992, Miller, 2001).

By 1945, there were two million private cars in the United Kingdom and the Dower Report, a key document in the creation of British National Parks and the 1949 Access to the Countryside Act, observed no reason to restrict private car usage within areas designated National Parks (Breakall, 1995). The private motor-vehicle allowed those privileged and wealthy enough to purchase one, a more individualised form of transport, free from the rigid structure of public transport, allowing the consumption of previously remote areas. The mass-production practices introduced in the 1960's facilitated production cost reductions for private motor-vehicles bringing the cost of this mode of transport within the reach of a greater part of the population. The private motor-vehicle by the 1970's had become the dominant form of transport facilitating mobility gains and time-space compression, allowing a significant section of the U.K. population to consume tourism in relatively spatially distant parts of this nation state (Whitelegg, 1997; Page, 1999; Langley, 2000). The latter quarter of the twentieth century continued to witness the increasing availability of private transport to the majority of the population; sixty-six percent all of households in Great Britain by 1989 had a car and twenty-two percent had more than one (Barker and Gerhold, 1993).

Access to private transportation is currently still unevenly distributed throughout the U.K. population as a whole; around thirty percent of UK households do not have access to a car even though Great Britain is close in overall terms to saturation point using Wolf's (1996) parameters of more than 500 motor-vehicles for every 1000 inhabitant's of a country (Wolf, 1996; Stradling et al., 2000). The U.K. national average is one car for every two point two people and car ownership in total reached 25.8 million individual vehicles in 1997 (Lex Report on Motoring, 1998). Great Britain has yet to reach a peak in actual motor-vehicles or individuals with access to one, which could trigger further demand for motor-vehicle dependent countryside recreation (Council for the Protection of Rural England, 1996; Langley, 2000). If traffic increases at the current rate suggested by the Council for the Protection of Rural England (CPRE) (1996) by 2025, traffic levels on rural roads will have doubled. There is no reason to believe that traffic rates in National Parks will be

immune to such increases (Page, 1999). However, a large part of the CPRE projected increase can be attributed to an increase in rural commuter traffic and the all-encompassing definition of "rural roads" and therefore care should be taken in applying such general predictions to specific areas.

The Lake District National Park is well served by the national motorway network, increasing the attractiveness of private transport to the area; the M6 motorway skirts the eastern boundary of the National Park which partly explains the general decline in use of public transport for recreational travel to the National Park, only 11% of visitors in 1994 used public transport; encompassing serviced buses, trains, private hire minibuses or coaches (LDNPA, 1994; Countryside Commission, 1996; Eaton and Holding, 1996). However, the road network capacity of the Lake District National Park does not parallel the high capacity of the motorway network, which facilitates such large numbers of private motor-vehicles to arrive at the boundaries of the National Park. The National Park road network capacity has been held predominantly stagnant on the grounds of landscape planning and demand control, only for reasons of public safety are road improvements undertaken. The Lake District National Park contains few major roads e.g. A591 and A66 (T); there are other A standard roads with a road network characterized mainly by a web of B standard and minor roads. Presently only in certain months and times of day is the road network of the Lake District National Park suffering excess traffic volume[2] primarily during the seasonal focus of tourism[3]; April through to October (Lake District Transport Strategy, 2000).

Transport Policy in the Lake District National Park

The Lake District Transport Strategy is a policy partnership of key stakeholders with interests within the National Park. The Strategy partners are the Countryside Agency, Cumbria County Council, Cumbria Tourist Board, Lake District National Park Authority, Eden District Council, South Lakeland District Council, Copeland Borough Council and Allerdale Borough Council (Lake District Transport Strategy, 2000).

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[2] Measurement based on a permanent automatic traffic counter on the A591 between Windermere and Ambleside (Lake District Transport Strategy, 2000).

[3] During traffic peak days e.g. August 50-60% of traffic on the Lake District roads is leisure/holiday traffic whereas as in off-peak days e.g. February leisure/holiday traffic will only comprise 20-25% of the total (Lake District Transport Strategy, 2000).

The Lake District Transport Strategy has as a foundation eight Strategic aims agreed by all the stakeholder partners after consultation. These are as follows:

1. improve the accessibility of the National Park to all people regardless of income or disability;
2. ensure that the National Park remains accessible for quiet enjoyment;
3. enable the local community to go about its normal business;
4. maintain the tourism industry and assist it to become sustainable;
5. offer alternative modes of transport to the car;
6. tailor traffic to the ability of the existing roads to cope;
7. reduce traffic impact on the environment and
8. reduce traffic and parking congestion.

Each of these strategic aims has relevance to this research project and are expressed in more detail in the Lake District Transport Strategy (2000) Implementation Plan Stage One 2000-2005, which highlights initiatives already in place towards each of these strategic aims; e.g. 4. – "maintain the tourism industry and assist it to become sustainable", The Travel Cumbria website which provides information on accommodation, destinations and public transport; and the implementation of additional measures over short, medium and long term horizons within the ten year temporal span of the strategy. The two aims of potentially greatest direct relevance to this research are 6. and 8. The wider descriptions of these strategic aims allude to the potential use of legislative measures to reduce the impact of the car. Strategic aims 6 and 8 specifically mention the Transport Act 2000. This legislation subsequently gave local authorities the potential to apply for road-user charging orders (Lake District Transport Strategy, 2000; Whitehead, 2002).

This chapter has outlined the historical and legislative context surrounding the issue of transportation management in the Lake District National Park. The wider sociological and physical impact of the private motor-vehicle on the United Kingdom and in particular the Lake District National Park. The subsequent chapter will build upon this work by outlining specific management strategies for private motor-vehicle transportation.

Chapter 3. Transportation Demand Management Policies

This chapter will outline the rationale for transportation demand management (TDM), explain the theoretical foundations of the TDM strategy of road-user charging which is the primary focus of this research project before highlighting examples of pricing of road use. The identification and analysis of alternative TDM strategies, which have been proposed or implemented in National Parks and other relevant situations, will follow. The author will then conclude with a justification for the selection of road-user charging as a TDM strategy for Great Langdale Valley, Cumbria.

TDM is a holistic term for strategies, which primarily aims to facilitate more efficient usage of existing transportation networks e.g. car-sharing (VTPI, 2001:1). A resulting outcome might be the reduction of other externalities such as air pollution but this is not an initial objective of TDM (Button, 1998). Whether this is by increasing the transportation options available to consumers, reducing the need to travel or modifying travel behaviour in some way, TDM is an increasingly common response to problems arising from the current temporal and spatial provision of transportation facilities (VTPI, 2001:1). The TDM strategies illustrated in this chapter will be examined in isolation for ease of analysis but with the recognition that such strategies would normally be implemented in association with other TDM strategies.

Road-user Charging

Road-user charging is a descendent of the welfare economics theory of road pricing. The underlying principle of road pricing is that users of road networks should pay for the congestion costs they impose on other users. The theory of road pricing as proposed by Pigou (1920) is the economic notion of internalising the externality of congestion, in order to improve the efficiency of the system by reducing congestion (Button, 1998). The theory is based on the assumption that the intervention of such a linear positivist policy instrument will have a linear, predictable response on the efficiency of a road network system (Gleick, 1987; Button, 1998).

Figure 3.1: The basic economics of Road Pricing (Bamford, 1995 p.78).

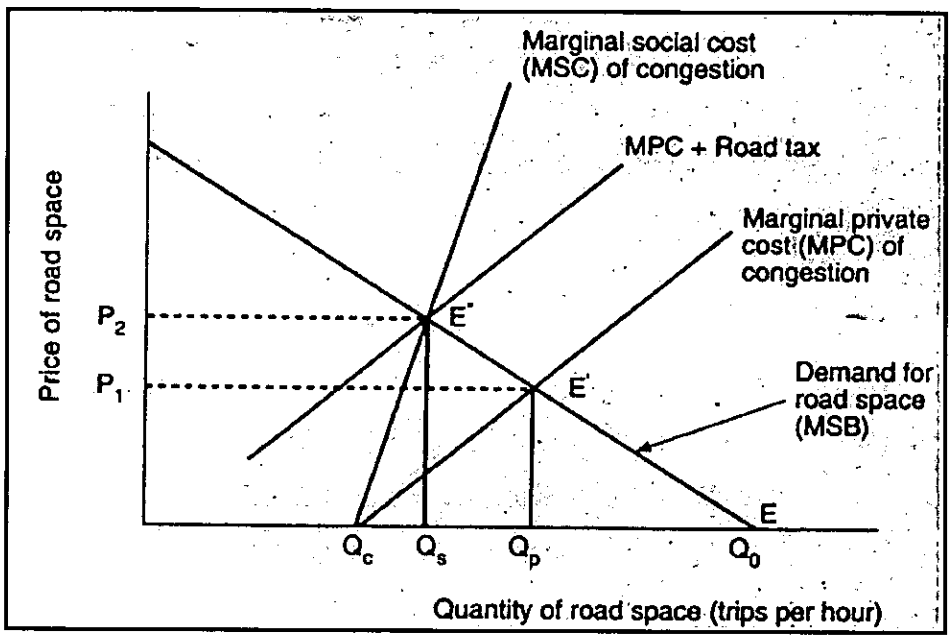


Figure 3.1 shows the basic principles behind road pricing as described by Bamford (1995 p.78):

> *"Assuming that road space is in unlimited supply and that it is provided free to users, consumers will demand Q^o at zero price. This is the basic market equilibrium. The assumption of unlimited supply is unrealistic - any road has a capacity by definition, which can be shown at Qc on the diagram. The marginal private cost curve, which shows the supply of roadspace for users, can be drawn upwards from this point. Equilibrium now is at E', where MPC = MSB: that is, motorists are paying the private costs of using their vehicles. This is not the socially optimum point, as road users impose externalities on all other road users... Hence, the social costs of congestion exceed the private costs - the MSC curve is above that of the MPC. If all of these costs were taken into account, the social optimum would be Qs, where the volume of demand is less and the price paid by road users is higher than the market determined equilibrium".*

If this difference is allowed to go unpaid by the motorist then there is no reason why this or any other traveller should be inclined to reduce the number of trips made in a motorised vehicle and thus congestion will continue or even increase (Lewis, 1993).

There are problems with the application of the theoretical form of road pricing proposed by Pigou (1920). For example, the description of road pricing from the previous paragraph would require no price for any motor-vehicle journey to be available in advance, for it could only be calculated as you impose congestion costs on others during your journey (Neale, 1995). This would make it difficult for the individual motorist to make a 'rational' purchase decision if the price is unknown in advance (Lindberg and Johnson, 1997). This scenario is superbly illustrated by the proposed application of 'pure' road pricing in Cambridge, where charges were to be incurred/calculated during a journey. There were two major problems with the Cambridge scheme. Firstly, there was a lack of a 'rational' purchase in advance of travel. Secondly, there was the potential to encourage motorists to perform anti-social behaviours e.g. 'rat-running' to reduce their own individual congestion charges (Ison, 1996). Therefore, as Ison (1996) so effectively sums-up in the title of his paper on the Cambridge scheme it was "A concept in the right place at the wrong time". The policy debate highlighted that a simpler form of road pricing needed to be introduced before any attempt to reach the utopia of Pigou's (1920) original model (Ison, 1996).

Road-user charging is a less precise application of road pricing. Instead of costs calculated during a journey, a specific monetary charge is set in advance of travel to the destination e.g. the five-pound charge to enter Greater London proposed by Transport for London (2001). This is set at such a level that it will still internalise a significant part of the specific road network's congestion externality in order to increase overall network efficiency. Individual drivers are not fully aware of all the external costs they are imposing on other road users but this may be optimal. The idea of internalising costs would, if applied to the letter require each motorist to stop and bargain with every motorist they come into contact with on the road network potentially creating more additional congestion (Grieco and Jones, 1994; Button, 1998).

Small (1992) observes that the pricing of road use has only been applied previously in modern urbanized environments e.g. the Singapore Area Licensing and Electronic Road Pricing schemes and the Norwegian cities toll schemes. The Singapore Area Licensing and Electronic Road Pricing schemes are examples of attempts to internalise a proportion of the costs associated with motor-vehicle congestion (Seik,

2000). The Norwegian cities toll schemes primary objective was revenue raising to finance road network infrastructure improvements not in order to increase network efficiency. The Norwegian schemes did report changes in travel patterns, either to less expensive periods or to public transport, in response to different pricing levels especially when the purpose was to participate in recreation (Lewis, 1993; Ramjerdi, 1994). These findings cannot be transposed into a U.K. National Park environment due to differing motivations of countryside recreationalists to those participating in urban-based recreation (Crabtree et al., 2000). However, Cullinane (1997) while investigating the potential traffic management policies for Britain's National Parks did highlight the potential of road pricing generally as a TDM strategy.

There are no actual examples of charging for public road-use in a recreational context, which conform to the principles of road pricing. The Forestry Commission charges motorists to enter its Dalby Drive estate and the majority of the United States of America's National Parks charge an entry fee for motor-vehicles (Green, 2001; NPS, 2001:1). In both circumstances the underlying premise for the monetary payment is comparable to an entry fee for a tourist attraction i.e. museum, which makes a contribution towards general infrastructure costs.

Alternative Transportation Demand Management Strategies

Parking Controls

The underlying theory of this approach is that by reducing the number of car parking spaces or increasing car-parking charges, a decrease in traffic will occur (FLD, 1995; Sharpley, 1996). The Lake District National Park has two prominent examples of the charges as a TDM strategy e.g. Borrowdale and Elterwater.

Firstly, in the early 1990's a scheme was proposed for the Borrowdale valley in the northwest of the Lake District National Park, to combine a significant increase in car-parking charges with a park and ride scheme from car parks in Keswick. The bus-based park and ride scheme proposed would have had low fares subsidised by the increased car-parking charges. The scheme was not pursued due to the fears of Borrowdale residents who recognised the need for traffic management but thought this particular scheme would dramatically reduce visitation levels to Borrowdale

(Holding, 1995). Secondly, Elterwater village in Great Langdale Valley has introduced a restricted parking zone within the most sensitive parts of the village, without the use of yellow lines and instead directing drivers to off-road car parks, in addition, to the introduction of Police enforcement signs at the side of specific parts of the B5343 at the head of Great Langdale valley to reduce verge parking and the potential ensuing congestion (Nash, 2001). This scheme attracted support from local stakeholders such as the National Trust and the Langdales Society (Countryside Commission, 1997).

There are two other notable examples of parking control projects within British National Parks. Firstly, the Sherpa project introduced in the 1970's in the Snowdonia National Park in Northwest Wales, was another park and ride scheme with high car-parking charges and highway parking restrictions. The scheme had limited success in diverting car users to the bus service owing to car-parking fees being kept to a minimum due to the fears of local residents concerned about a drop in visitor numbers and a lack of resources to enforce the highway parking restrictions (Snowdonia National Park, 1979 cited in Cullinane et al., 1996). The North York Moors National Park planned to introduce a park and ride project differing significantly from the Borrowdale and Snowdon attempts. The scheme proposed comprised of inverse car-parking charges; the slogan being "the longer you stay, the less you pay", one hour's car-parking was priced at two pounds fifty pence plus one free bus ticket for the Moorsbus network to the value of one pound. The car-parking fees were payable upon exit using bar-coded tickets scanned through a Psion handheld computer/printer and decreased by fifty pence each hour; therefore after four hours car parking in Hutton-le-Hole would have been effectively free (Breakall, 2001). The scheme also included the provision of free parking at an associated park and ride site on the southern boundary of the National Park, which would provide bus services into the area. The scheme was initially to have a limited temporal framework, only operating for five Sundays in August and early September, in addition to August Bank Holiday Monday in 1995. Three days before the first day of operation the scheme was postponed indefinitely due to the concerns of a reduction in visitor numbers and the potential impact on local businesses (OCTALS, 1996; Coleman, 1997).

The problem with parking controls is the limited traffic restraint effect they can impose on through traffic and touring in the car is an end form of recreation in itself underlined by the common phrase "a drive in the country" (Sachs, 1992; Countryside Commission, 1994; Calthrop et al., 2000). In addition, it would be advantageous for car-parking facilities in the area to be under the management of one organisation. Within the Great Langdale Valley there are two separate providers, The National Trust with four car parks and the one Lake District National Park Authority car park. Not necessarily a problem in itself; pricing structures could be harmonised (see Appendix 2). However, National Trust membership offers the individual free parking on the organisation's car parks, which could be a difficult policy to incorporate into a scheme without horizontal equity connotations or the obvious free-rider option for those individuals whose high levels of usage of the area would warrant it, e.g. to join the National Trust (Banister, 1994).

Enhanced Public Transport Provision

The provision of enhanced public transport in terms of quality, network coverage and reliability has been supported by National Park Authorities as a TDM policy.

Public Transport Services to the Lake District National Park are under continual improvement of which there are two prominent examples. Firstly, the Windermere to Oxenholme railway service when the insertion of a passing link in the Windermere-Oxenholme branch line will facilitate the increased frequency of services between the two stations. Secondly, the proposed construction of 'gateways' on the main outskirt approaches to the Lake District National Park to provide convenient car parking facilities and modal interchange points for visitors offering public transport connections, with inner gateways in Ambleside, Windermere and Bowness (Lake District Transport Strategy, 2000). However, the minibus service operated by The Youth Hostel Association connecting nine South Lakes Youth Hostels and Windermere Station could potentially be viewed as an indictment of the limited nature of existing public transport in the Lake District National Park (Transport 2000, 2001).

Conceivably the most successful public transport service in British National Parks has been the Moorsbus service operated to and within the North York Moors National Park albeit on a timetable limited to the peak season. The scheme offers frequent

thirty-minute services at the main interchange points, a hail and ride policy, timetables on buses, a network map similar to the London Underground and tickets also offer discounts at local businesses. The fare in 1999 was £2.50 for an all-day Moors zone fare; the long-haul fare from surrounding urban areas such as York and Hartlepool was £5. There were also family tickets priced at double the normal fare, which allowed two adults and four children to take advantage of the service. The increase in clientele with access to a car has risen from twenty-five percent to fifty per cent between 1994-1998. Early research established that the transmission area and listener profile of the local radio station offered an excellent match with the National Park day visitor profile. Thus a weekly local radio slot was used for three years, broadcast on a Saturday morning in order to influence day trip planning for the following day (Breakall, 1999; Transport 2000, 2001).

Another example from British National Parks is found in the Dartmoor National Park where a Sunday Rover ticket allows travel on either the Tamar Valley rail and/or Dartmoor bus network for a set price. In addition, the Dartmoor National Park Authority has produced a guidebook of unidirectional walks using public transport; the Lake District National Park also publishes a similar informative guide (Cullinane et al., 1996). The American National Park System also promotes and provides public transportation services. Yosemite National Park operates a voluntary bus service along the limited road network of the National Park, as part of a two-year demonstration project (YARTS, 2001).

The potential problem with enhancing public transport as a TDM strategy for the Lake District National Park specifically and British National Parks in general is the public's lack of awareness of these transport services (Steer Davis Gleave, 1997). The Moorsbus used some innovative awareness raising strategies but not all visitor profiles will fit the audience of local radio stations nor might this audience listen at one specific time in the week when the information is broadcast. Other approaches to increase awareness have been undertaken for instance the establishment of websites i.e. http://www.travelcumbria.co.uk, which offers public transport information, but similarly not all of the population, has online access (Office of National Statistics, 2001). However, just because visitors are made aware of public transport does not mean they will automatically use them, as they might not meet their perceived or

actual requirements. If they have been dependent on the private motor-vehicle for a long period of time they may no longer have the necessary skills or perceived behavioural control to use public transportation or simply not consider it an appropriate modal choice (Ajzen, 1988; Steer Davies Gleave, 1997; Maxwell, 2001). Public transport especially buses is perceived as less reliable due to the lack of a specifically designated track, as is U.K. rail services even though it does possess it's own network (Eaton and Holding, 1996). The problem is superbly illustrated by Chris Collier, Chief Executive of the Cumbria Tourist Board, who observes that there is no added value for the visitor to shift to public transport, only to rejoin the same traffic congested road network, in addition to the perception of higher marginal costs (May, 1992; Eaton and Holding, 1996; Collier, 1999).

Road Closures

Closing roads to certain forms of private transportation within National Parks has been a successful TDM policy. Within Great Britain the Peak District National Park has been the leading exponent.

Two road closure schemes have been introduced within the Peak District National Park. Since 1970, the Goyt Valley in the west of the National Park has had vehicle access along a central three kilometre section of the central valley road restricted by closing the road on Sundays and Bank Holidays from May through to September. The original park and ride service proposed in conjunction with this scheme failed probably due to a shift in visitor patterns however the road closure continued and operates as a successful park and walk. In 1981, The Upper Derwent Valley had a traffic management plan implemented which led to the closure of ten and a half kilometres of roads in the area. A minibus park and ride service was introduced that operated for one hundred days each year and collected visitors from car parks on the main approach route to the valley (Cullinane et al., 1996; Smith, 1998).

The Burrator Reservoir traffic management scheme proposal within the Dartmoor National Park reported by Cullinane et al. (1996) included road closures, one permanently to eliminate the complete circuit of the reservoir by road and other sections of road were to be closed on Summer Sundays and Bank Holidays. Instead, transport would be provided around the area by a frequent minibus service. The

proposal was abandoned due to fierce local opposition (Cullinane, 1997). Within the Lake District National Park, Cumbria County Council as the Highways Authority proposed in 1995 closing two roads to traffic in Elterwater. The proposal was withdrawn after the local population raised fears of the potential displacement of tourists and businesses losing trade (Eaton and Holding, 1996). Similar fears were raised in the 1970's when a tidal traffic flow scheme for Watendlath Valley, in the Lake District National Park was proposed, with motor-vehicles being able to enter and leave only during certain times of the day (Forster, 1980).

The Bayerishcher Wald National Park in Germany closed roads to private motor-vehicle traffic on the approach to a popular walking area within the National Park during May-October 1996 and provided transportation to the area by way of low-emission buses. Following the first season of operation, survey results showed that users favoured extending the road closure scheme but local residents had a lower level of support and opposed further road closures (Holding and Kreutner, 1998). GAST an association of car-free resorts in Switzerland totally renounced individual passenger transport by internal combustion engines instead transporting visitors by electric and horse-drawn vehicles. Visitors to the area over time adapted and the area has experienced a small rise in visitor numbers (European Forum for Sustainable Mobility in Tourism, 1998; Holding, 2001). The Zion National Park in the United States of America closes the Zion Canyon scenic drive road to private vehicles from early April until the end of October and provides transportation by shuttle buses, which have provision for equipment and bicycles (NPS 2001:2).

The potential problem with road closures to private transportation is that they have usually been successfully pursued in areas with little if any residential population, the Elterwater and Burrator reservoir schemes highlight the difficulties of introducing the policy in areas with residential in addition to tourism dependent business populations (Cullinane et al., 1996; Eaton and Holding, 1996). Additionally, road closures if applied on a wider scale would represent a "revolutionary" policy rather than the "reformist" strategy proposed by transportation demand management (Bookchin and Foreman, 1991; VTPI 2001:1). Western society in general is now predicated around the motor-vehicle, road closures in certain areas might improve the local efficiency of the road network but implemented on a larger scale without the necessary temporal

adaptation phase, such a reduction in network capacity does not improve efficiency in the TDM perspective because motor-vehicles would remain but the road network would have been reduced. The societal dependency on the motor-vehicle is not going to be reversed immediately by the draconian strategy of closing roads especially given the levels of car dependency with western-style capitalist economies. No democratically accountable government would pursue such an unpopular policy on a large scale nor allocate the resources to implement such a rapid temporal shift in transport planning (Whitelegg, 1993; Bamford, 1995; Smith et al., 1998).

Road Network Solutions

A further transportation demand management strategy is the actual restriction of certain forms of motorised transport e.g. private cars, motorbikes, and coaches, from specific parts of the road network by the introduction of a road hierarchy or some other form of signing.

The Lake District Traffic Management Initiative in 1995 proposed the re-classification of the road network, examining each road within the Lake District National Park and consigning it to a certain category for motor-vehicle traffic. Four hierarchical categories were proposed "local access roads", "trunk roads", "county strategic roads" and "local distributor roads", each with a distinct set of advisory or statutory controls on access, speed limit and vehicle size. The Initiative attracted the interest of the national media in particular the Daily Telegraph, which reported inaccurately some of the proposals under the sensational banner headline "Huge Traffic Curbs Planned for Lake District" (Clancy, 1995; OCTALS, 1996; Holding, 1998). The proposal drew vociferous opposition from interest groups in the area, the proposed park-wide hierarchy approach was localised and incorporated within Area Action Plans, which aimed to implement measures to constrain traffic growth, which were consistent with all stakeholders' interests (Holding, 1998). For example, the Under Loughrigg Lane, popular with non-motorised traffic but also a 'rat-run' to bypass Ambleside, has now been signed "Access Only" with an advisory speed limit of twenty miles per hour, monitoring of the scheme have shown a seventy percent reduction in traffic flows and fears of reduction in trade has not occurred (Countryside Commission, 1997). A limitation of road hierarchies and signing as Cullinane and Cullinane (1999) observe is that the policy works on a psychological

level rather than imposing physical limits. Therefore implementation of such a TDM policy on a larger scale might not be successful because motorists would become more aware of the psychological nature of the strategy by its increasing proliferation throughout the road network diluting the strategy's effect.

Other road network strategies have been proposed for the Lake District National Park. Dilley (1993) reported the potential application of O'Brien's (1966) proposals for the road system of Yellowstone National Park, U.S.A. to the Lake District National Park. These included the possible implementation of a one-way system, which in the Lake District National Park would have required long circuits and some new road building. A major operational flaw was the potential for traffic chaos if an individual left a belonging behind and was tempted to turn back against the traffic instead of undertaking a long circuit. This policy defect could be solved by double tracking the roads instead of implementing a total one-way system, expanding the road capacity and making turning back easier (Dilley, 1993). Smoothing, widening and straightening the road network of the Lake District National Park in order to remove congestion was proposed in the 1960's by the Lake District Special Planning Board. The suggestion was to improve the road network to a twenty-four foot dual two-lane carriageway between Kendal and Ambleside as well as Skelwith Bridge to the head of Langdale valley, with a three-lane thirty-three foot carriageway between Ambleside and Skelwith Bridge (Forster, 1980). All these schemes would be in conflict with current local planning guidance to only expand road capacity in the interests of safety and the guiding principle of TDM (Lake District Transport Strategy, 2000). Additionally, the "predict and provide" philosophy of expanding network capacity was academically denounced as an impossible long-term transportation demand management strategy in the early 1990's and its flaws were accepted by even the most intense proponents of the supply side argument e.g. The Automobile Association and Royal Automobile Club (Goodwin et al., 1991; Goodwin, 1999).

Marketing Strategies

Firstly, Dartmoor National Park Authority has attempted de-marketing as a TDM strategy, promoting lesser-known destinations outside the National Park boundaries in a 1991 leaflet entitled "The Secret villages of the Dartmoor Area" (Greenwood, 1994). Dilley (1993) proposes a similar strategy could be pursued for the Lake

District National Park by promoting the Eden Valley and Cumberland Coast. The problem with this policy is that the parts of the Lake District National Park that suffer from road network inefficiency are amongst the best known and most often used therefore de-marketing might struggle to have a significant impact as a TDM strategy due to the high level of awareness of such sites by individuals already (Sharpley, 1996).

In addition to marketing focused on the destination there are strategies aimed at the individual. Socialdata Consultants have developed "individualised marketing", a technique where consultants contact households and offer advice on their journey patterns (Jowit, 2001). Trials in Perth, Western Australia reported a 10 to 14% decrease in car journeys and car miles, which was sustained in twelve and eighteen month follow-up surveys. The trials success was attributed to the non-Stalinist nature of the scheme, households were not told to reduce their use of private motor-vehicles by a certain percentage, instead potential public transport alternatives were highlighted which could be used easily for certain household journeys. The main point stressed by the strategy was the potential for minor changes to make significant differences (Jowit, 2001). The scheme produced positive results in an urban context but whether these results could be replicated in the Lake District National Park environment with greater journey distances, a smaller public transport network and a more spatially dispersed clientele is open to question.

Both types of marketing strategies suffer from a relative lack of funding and exposure in comparison to the images car manufacturers and popular culture in general project for our consumption of motor-vehicles gracefully hugging empty countryside roads. These images of excess road capacity are in direct comparison to the underlying objectives of such marketing strategies to reduce private motor-vehicle use (Bayley, 1986; Miller, 2001).

Fuel Taxation

United Kingdom government policy during the 1990's was to steadily increase the tax duty on motor-vehicle fuel to act in part as a TDM strategy. The other objective for increasing fuel tax was to act as an energy conservation strategy. The United Kingdom Energy Tax or "fuel escalator" as it was dubbed increased the price of fuel

by five percent per annum above the retail price index (Cullinane and Stokes, 1998). The policy was discontinued in November 2000 due to widespread fuel tax protests in September 2000 (VTPI, 2001:2). A problem with the "fuel escalator" was that it was susceptible to global increases in the price of crude oil, which magnified the impact of the policy still further in real terms. Additional problems with this policy is that it is considered burdensome to rural residents who have to travel further due to the increasingly urbanised work and consumption patterns of present-day society as well as potentially regressive on lower-income groups in society. However, many of these households are non-car owning so would avoid the extra tax burden (Banister, 1994; Button, 1998; Cullinane and Stokes, 1998). The gradual rise in fuel price allows the individual's elasticity of demand to adapt slowly with little short-term effect on car usage. Annual escalation of fuel taxation is a long-term and unpopular policy as it is one of the few easily discernible costs of motoring to individuals and therefore a courageous one for any democratically elected government to pursue due to it's unpopularity (Goodwin, 1992; Bamford, 1995; Cullinane and Stokes, 1998). Finally, fuel taxation is at best a holistic policy to be implemented on a national scale; the difficulties and equity aspects of implementing at a regional or local scale would be prohibitive. Certain individuals may have fuel costs paid by work and in addition defining the area where additional fuel taxation would be imposed presents a problem; too narrow an area and the policy might encourage extra-motorised journeys as individuals travel outside the area to purchase cheaper fuel and visitors to the area could simply fill up beforehand.

Carrots and Sticks

The Transportation Demand Management strategies detailed in this chapter can be split into three distinct categories according to Cullinane et al. (1996):

1) "carrots" – this method of traffic demand management is about offering incentives, the provision of different modes of transport and active marketing of alternatives to the car. The marketing and public transport strategies outlined above are part of this category;
2) "sticks" – involve methods to reduce motor-vehicle usage or limit access to an area by motor-vehicles. Fuel taxation and road pricing would be part of this category of measures;

3) the "integrated approach" which is a combination of both "carrot" and "stick" measures, the Borrowdale Park and Ride and the Upper Derwent Valley schemes would be included this category.

This research project for Great Langdale valley proposes a focus on road-user charging as a TDM strategy. This strategy aims to encourage individuals to reduce road network usage in private transportation by means of a financial deterrent. The individual is either prepared to pay this financial charge to use their private motor-vehicle on a certain part of the road network or not. For the latter, a "carrot" transportation alternative as part of an "integrated approach" is provided e.g. a park and ride scheme._ Existing TDM strategies would still be in place under a road-user charging scheme as it is recognised that no single TDM strategy could produce a win-win scenario in regard to overall road network efficiency (Small, 1992). The approach needs to be one of an integrated package of TDM measures consisting of both "sticks" and "carrots".

The incorporation of the financial deterrent of road-user charging into this integrated approach has dual potential, firstly to increase the efficiency of a specific road network and secondly fund the provision of alternative TDM strategies for the area. Whilst not imposing a "revolutionary" change in transportation, by still permitting the use of private motor-vehicles on the road network at a price to the individual motorist, the introduction of road-user charging alongside existing parking controls not only reinforces the "stick" aspect of the latter but also extends it to motorists who simply drive through without incurring the parking costs (Bookchin and Foreman, 1991; Calthrop et al., 2000). Additionally, road-user charging is a significant policy instrument liable to receive both negative and positive publicity, which could generate the necessary exposure to overcome the utopian consumption images of motor-vehicles presented by various forms of mass culture as being free from any forms of restriction (Bayley, 1986; Breakall, 1999). Road-user charging is also a policy, which can be applied on a variety of road network scales from the national level envisaged by the Commission for Integrated Transport (2002) Paying for Road Use Report to the spatially limited application of the technique visualised by the Durham Cathedral scheme (Durham County Council, 2000). Also road-user charging as part of a TDM

strategy has the potential for expansion of coverage in future years if the scheme is successful.

"Carrot" incentives alone in the United Kingdom have in general failed to achieve a significant modal shift from private to public transportation (Holding and Kreutner, 1998), owing to the private motor-vehicle's status as the superior form of transport in terms of affording and encouraging individual mobility at relatively low personal cost. The car especially affords individual mobility and even encourages the undertaking of additional journeys, which previously would not have been made by public transport (Stradling et al., 2000). Such "car dependence" is more than the utility of mobility; there are various cultural factors involved such as status, image, symbolism and sex (Marsh and Collett, 1986; Goodwin, 1998). Consequently, merely offering incentives to use public transportation will not accomplish considerable modal shifts as well as any transfers produced being ultimately diminished by latent demand for road space. The theory of latent demand proposes that motor-vehicles presently using the road network at peak times does not represent the full demand for road use; some journeys have been deferred due to current network usage levels. Any expansion of road network capacity by "carrots" without deterrents encourages the replacement of those individual motor-vehicle journeys reduced by the enticement of individuals from their private motor-vehicle by other individuals (Arnott and Small, 1994; Goodwin, 1998; Maxwell, 2001).

Conclusion

Therefore, in the context of this research the "Stick" measure that is the proposed road-user charging scheme for Great Langdale Valley could be a significant instrument along with other TDM measures to encourage and maintain any modal shift in transportation within Great Langdale Valley. While "carrot" measures are supplied to provide a plausible transportation alternative and reduce the unpopularity of an approach solely predicated on deterrents (Goodwin, 1995). For the reasons outlined in this and the preceding two chapters e.g. the financial direct deterrent of the policy and the car dependent nature of present day society, the hitherto sparingly used TDM "stick" strategy of road-user charging is proposed for examination of the presence of any potential road network efficiency enhancing properties, which might

generate a plausible addition to the overall TDM strategy currently operational in Great Langdale Valley.

Chapter 4. Methodology

This chapter after a reiteration of the research's aims and objectives, will provide an extended rationale for the choice of study area, followed by a detailed description of the methodological research design and actual research fieldwork undertaken, concluding with the ethical considerations and limitations of this research project.

Aims and Objectives

The aim of this research is to analyse the potential contribution of road-user charging to the management of motor-vehicle volumes within a specific area of the Lake District National Park as well as investigate the potential socio-economic equity implications for all stakeholders involved. The specific objectives are:

1. To investigate the potential response of motorists currently using Great Langdale valley to the introduction of a charge for entry. This will test the hypothesis that increasing the cost of a road-user charge will decrease motorists stated intentions to enter a specific area of the Lake District National Park for recreation (Bovaird et al., 1984; Weinberger, 1997).

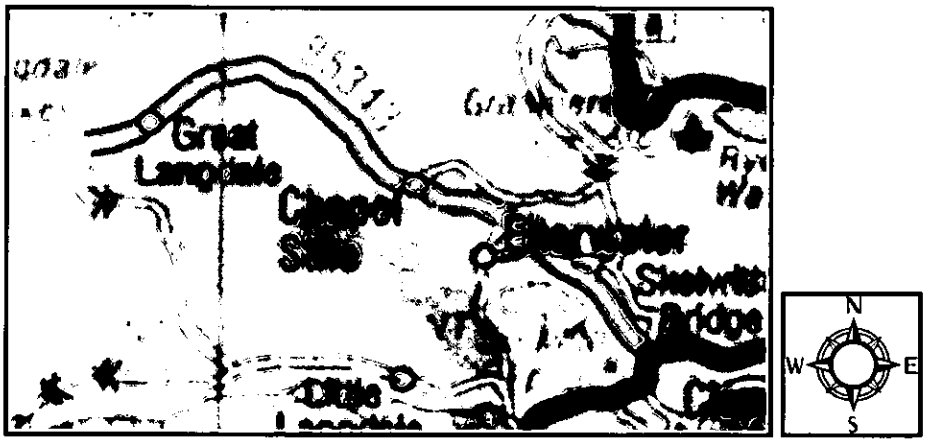
2. To investigate the impact of road-user charging on the host community of Great Langdale Valley. The values and attitudes of two subdivisions of the host community will be examined in relation to the road-user charging proposal; the residential population of Great Langdale Valley and the business community, whose revenue is dependent on the current temporal and spatial pattern of tourism. The host community of the Lake District National Park in it's entirety has previously been vociferous in their opposition to traffic management initiatives (Holding, 1998).

3. To facilitate a critical awareness of Contingent Valuation methodologies when applied to a complex environment.

Choice of Study Area

The GPS technology required for implementing a park-wide road-user charging scheme is not yet operational across the U.K. (CFIT, 2002). Therefore this research proposes a static cordon road-user charging scheme but as observed by Toothill (1991) there are 120 entry points to the Lake District National Park which would severely limit the practical implementation of a park-wide road-user charging scheme due to cost of 120 tollbooths. Therefore, it was decided to concentrate on a smaller spatial area namely Great Langdale Valley, the area between Skelwith Bridge (NY 342 037) and Dungeon Ghyll (NY 285 062) along the B5343, five miles west of Ambleside in the central area of the Lake District National Park (see Figure 4.1). The following justification is why this was deemed the most suitable area for this research project.

Figure 4.1 – Map of Great Langdale Valley [Scale: 1 inch to 1 mile]



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Firstly, Great Langdale valley is a popular destination with Lake District National Park visitors, probably due to the variety of walking routes offered in the area. The Langdale Pikes are locally known as the 'tourist escalator', the highest peak in England, Scafell Pike is accessible from the valley as well as low-level walks along the valley floor and from Elterwater village to Elterwater. The provision of public transport within the area is limited compared with other areas of the Lake District National Park e.g. not directly served by the 555-bus route or national rail network (see Appendix 3). The majority of visitors arrive by private means of transport; the average number of vehicles passing through Great Langdale was measured at 1500

per day in April 1991 and peaking for the year at 3500 per day in August 1991 (LDNPA, 1994) (see Appendix 1). Also, the road network in the valley does not possess the capacity of the main distributor routes in the National Park e.g. A591 between Ambleside and Windermere, which has a capacity estimated to be about 1050 vehicles per hour, neither could the valley road network obtain additional capacity due to planning guidance restrictions (Lake District Transport Strategy, 1998, Lake District Transport Strategy, 2000).

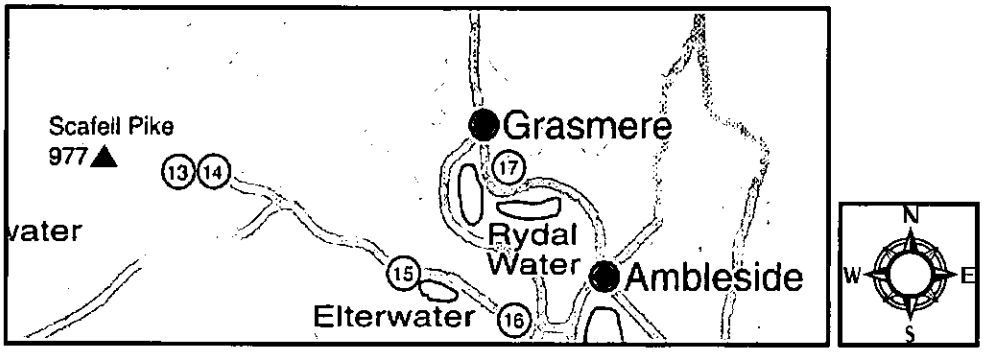
Great Langdale Valley also has distinct residential and business populations. The valley contains two residential villages; Elterwater and Chapel Stile, along with other more spatially distributed individual settlements (see Figure 4.1 and Appendix 14). The valley also includes 24 businesses (Appendix 13), which are dependent on the current spatial and temporal distribution of tourism.

In addition, as mentioned in the introductory chapter, John Nash (1999) of the Lake District National Park Authority highlighted the potential for tolling Lake District National Park valley roads as an alternative to closing them in order to protect the areas tranquillity from traffic disruption. Great Langdale Valley is one such valley road, which has the additional quality, that it has relatively few entry roads. This fact made the design of the hypothetical scheme easier and more plausible in terms of operation, the scheme proposed for this research project would only require five tollbooth points to cover the Great Langdale valley road network: Skelwith Bridge, Loughrigg Fold, Walthwaite Bottom, Elterwater Hall and Blea Tarn (see Appendix 4).

The road-user charging scheme proposed would also require an alternative mode of transport. Bus-based park and ride was chosen for this research project due to the potential highlighted by the Lake District Transport Strategy (2000), for a bus shuttle service between Ambleside and the Langdales, with a 300-space park and ride terminal being located at Miller Field in Ambleside (Lake District Transport Strategy, 1999). Miller Field is currently not a permanent car park it presently has temporary planning permission allowing it's use for 56 days a year (Ranson, 2001; Lake District Transport Strategy, 1999).

Great Langdale valley also had the advantage of containing four National Trust car parks: Old Dungeon Ghyll, Stickle Ghyll, Elterwater and Silverthwaite (see Figure 4.2). David Wilkinson, the National Trust Property Manager for the Langdales, granted permission for the distribution of research questionnaires upon these car parks, in order to survey the attitudes of motor-vehicle users (see Appendix 5). For the purposes of this study only motorists on Stickle Ghyll and Old Dungeon Ghyll were surveyed (see Figure 4.3 and 4.4)

Figure 4.2 – National Trust Car Parks, Great Langdale Valley
(The National Trust, 2001) Map Not to Scale



Key: 13 – Old Dungeon Ghyll Car Park (estimated 40 spaces); 14 – Stickle Ghyll Car Park (estimated 160 spaces); 15 – Elterwater Car Park (estimated 30 spaces); 16 – Silverthwaite Car Park (estimated 30 spaces); 17 – White Moss Common (not in study area)

Figure 4.3 – National Trust Car Park, Stickle Ghyll

Photographed by George Eckton 27/3/2002

Figure 4.4 – National Trust Car Park, Old Dungeon Ghyll

Photographed by George Eckton 28/3/2002

Survey Design

Choice of Research Methodology

When attempting to gather value preferences from individuals in regard to a good, evidence of actual market behaviour, revealed directly or indirectly is preferred (Portney, 1994). Therein lies the problem central to the choice of an appropriate methodology for this research. There are no direct or indirect displays of preferences towards paying for the good that is public road use, in primarily a recreational context because the situation has not previously occurred. Peter Green of the Forestry Commission has subjectively observed that private road use or 'scenic drives', which charge fees for entry, e.g. Dalby Drive operated by the Forestry Commission, have after increases in entry fees triggered an immediate dip in visitor numbers followed by a gradual increase back to former levels of use (Green, 2001). No objective detailed information was available to reinforce this assertion. The examination of the actual application of road-user charging in an urban context e.g. Singapore's Area Licensing System and subsequent Electronic Road Pricing schemes, has yielded objective displays of actual market behaviour but it would be unwise to apply these preferences outwith their original context in order to assess recreational road-user charging due to differing motivations and spatialities involved (Crabtree et al., 2000; Seik, 2000).

Actual market behaviour could be measured to an extent by a pilot project to test the application of road-user charging in a recreational context, similar to the one employed in Stuttgart, Germany to test urban road pricing (Small and Gomez-Ibanez,

1998). The first problem of a similar methodological approach in this research would be the prohibitive costs involved. The Stuttgart experiment fitted the motor-vehicles of those people involved with electronic smart-card counters and also refunded any money paid in road-user charges during the course of the experiment. The latter point is also grounds for excluding this methodology because money paid in road-user charges was refunded after four weeks, as a result actual market behaviour was not observed. Actual market behaviour would require refunds only if the good were unfit for the purpose sold. Therefore it was only an approximation closely resembling actual market behaviour but ultimately flawed by the return of charges incurred. In addition, this inherently reductionist and positivist approach, which at its foundation is the idea that behaviour displayed on the overall road network surveyed by a minority, who were the only individuals subject to monetary constraints would be repeated over the whole network, is open to question.

Other methodologies exist for revealing the preferences of individuals, which will be briefly analysed and reasons given for their dismissal. Firstly, the Travel Cost Method, which is founded on the basic premise of the further an individual, travels to the site, the greater their demand for that destination (Clawson and Knetsch, 1966). Therefore, when an individual states that they would be prepared to travel a specified distance further to visit a destination, "willingness to travel", reveals their monetary preference indirectly (Heyes and Heyes, 1999). At its foundation is the idea that travel costs for motorist's increase with distance e.g. time and fuel costs, whereas in reality the substantial costs of motoring tend to be fixed costs for example; vehicle purchase. Therefore, it was thought unwise to pursue a methodological approach to measure the potential of a policy (road-user charging) which is aimed at internalising external congestion costs of motoring, which would maintain the status quo in terms of failing to make motorists take account of the real cost of driving that extra distance (Douglas and Taylor, 1999). Choice behaviour experiments were analysed for methodological potential. This technique with its origins in conjoint analysis is part of the larger group of stated preference techniques (Boxall et al. 1996). This approach relies on a less specific description of the good being valued, stating instead more general descriptions of the attributes of a certain situation surrounding a good and potentially increases altruistic bias.

The Contingent Valuation Method was selected because although it does not construct monetary preferences from actual behaviour, it is derived directly from hypothetical attitudinal statements (Ajzen and Fishbein, 1977). Therefore although there is potential for biases to be introduced into the preferences gathered using this method, crucially it allows for the good in question, paying for road use, to be valued in a direct way, investigating individual preferences in a manner familiar to most respondents, more like an everyday purchase decision e.g. would you pay X for Y based on this scenario (Lindberg and Johnson, 1997). Preferences are hypothetically inferred but this is superior to inferences based on indirectly observed actual behaviour collected by a method with a rationale contrary to the aims of the policy being evaluated e.g. Travel Cost Method. It allows for specific information to be articulated to individuals about good(s) some of which may have no actual, tangible parallels presently (Vossler et al., 2002). This methodology does have the disadvantage that as the name suggests, the preferences derived are contingent on the description of the good given to the respondent and therefore cannot be transposed into other scenarios. However, when attempting to gain values of WTP/WTA for something so specific as an economic policy instrument such as road-user charging, where no two scenarios would be identical these limitations can be tolerated. Consequently, in this instance where the problem investigated is very specific and the need for behavioural responses to be displayed directly albeit hypothetically, the Contingent Valuation Method was deemed to be the most appropriate for this research project (Mitchell and Carson, 1989).

History of the Contingent Valuation Method

The Contingent Valuation Method is a technique initially developed to elicit individual monetary preferences for public goods[1] since markets for such goods do not exist. Consequently ascribing them instrumental value has been problematic for neoclassical economists (Mitchell and Carson, 1989). Contingent Valuation methodology has largely been applied to environmental and natural resource issues. The main aspects of the Contingent Valuation Method in use today are attributed to Davis (1963) an economist who first used questionnaires to estimate the benefits of

[1] Pure public goods are non-excludable and non-rival in terms of consumption by individuals; in the real world few goods purpose these strict criteria. Air to breathe is the most often quoted example, as individuals cannot be stopped from consuming air in most ethical situations (Mitchell and Carson, 1989).

outdoor recreation in the woodlands of Maine, U.S.A. and Ciriacy-Wantrup (1947) a resource economist who had suggested a precursor in 1947, which he termed a 'direct interview method' to measure the value of natural resources. Up until the late 1980's the focus of Contingent Valuation Method research was exploratory, focusing mainly on methodological refinement (Mitchell and Carson, 1989). Then in 1989 the Exxon Valdez disaster off the coast of Alaska provided a major test for this developing methodology. The deployment of the methodology in such a real world and highly contentious issue, asking for the general population to ascribe a monetary value to the environmental damage caused by the disaster provoked academic debate. Exxon were keen to discredit this methodology due to the potentially large damage claims the Contingent Valuation Method might produce, igniting an fierce debate over the methodology, which lead to the production of a Federal Register list of guidelines and a significant leap forward in terms of application of the methodology (Arrow et al., 1994; Hanley et al., 1997). This academic debate led to the publication of a handbook explanation of the Contingent Valuation Method by Mitchell and Carson (1989). There have also been subsequent publications of detailed issue specific accounts of the methodology, a notable example being Bateman and Willis (1995). The last two decades have seen the wider application of the Contingent Valuation Method to a range of valuation issues e.g. Zillich et al. (2002); Choi (2001). Along with the discussion of whether the aggregation of individual preferences are an adequate valuation measure to gauge total value, leading to the advancement of community valuation preferences by Kenyon and Hanley (2000) and Kenyon and Nevin (2001) for certain natural and environmental resource proposals (Sagoff, 1998).

The Contingent Valuation Method

The Contingent Valuation Method is the process of eliciting monetary preferences towards public goods primarily, although any type of good can be valued using the methodology. Preferences towards quasi-public, quasi-private or private goods should be able to be elicited correctly using Contingent Valuation if the process is methodologically accurate (Diamond and Hausman, 1994; Willis and Powe, 1998; Vossler et al. 2002). The good(s) being valued are without a market in which expression of monetary preferences can be easily undertaken. Therefore, the Contingent Valuation Method initially requires the construction of a hypothetical market within which the good can be valued. The construction of such a market

requires the provision of a plausible detailed description of the good(s) being valued and the hypothetical market circumstances under which the good will be provided to the individual respondent. The reason for the payment, the method of payment 'bid vehicle' and substitute goods available are vital components of this hypothetical market, all of these elements are outlined in the survey instrument e.g. questionnaire presented to the respondent. The survey instrument then proceeds on to asking the respondent, in an unbiased manner, their WTP or WTA, depending on the property rights associated with the good being valued[2]. There are several different methods of obtaining bids from the respondent, which will be discussed later in this Chapter. The survey instrument will then progress to ask questions relating to the characteristics of individual respondents, such as age, income, their use of the good being valued and their attitudes to related issues so that such variables can be used as predictive indicators of certain persons WTP or WTA for the good being valued (Mitchell and Carson, 1989).

Pilot Surveys

In order to test specific question formats before the questionnaires were distributed to the participants in this research, the questionnaire went through several pilot stages. Firstly, at different phases during their overall formulation, Phillip Garside, Dr. Ian Williams and Christine Williams at the University of Central Lancashire subjected the questionnaires to 'expert' examination. Secondly, an advertisement was placed on AU Lookout, the university electronic mail bi-weekly staff newsletter, asking for volunteers to complete a research questionnaire and to aid in its development. Twelve replies were received inviting the researcher to meet with various members of staff in late January and early February 2001 and observe them as they completed the questionnaire. This initial pilot observation facilitated the opportunity to observe directly specific problems or misinterpretations of the questionnaire by respondents and generally improve specific questions within all questionnaire formats.

Following this initial pilot survey of the questionnaire, another advertisement was placed on AU Lookout - the electronic mail staff newsletter at the University of Central Lancashire, in late February 2001 asking for people to complete version no. 2

[2] Property rights individuals perceive they have, rather than ones they are actually legally entitled to, may be of more importance in a Contingent Valuation exercise (Mitchell and Carson, 1989)

of the questionnaire. The seven people that replied were then posted the questionnaire using the internal mail system and requested to return the completed questionnaire by internal post. Allowing the piloting of the questionnaire via a distribution format similar to that used in the actual fieldwork undertaken. The questionnaire was piloted once more before distribution in early March 2002 by circulation to members of departmental staff, postgraduate students, family and friends, in order to be thorough following the suspension of this research project for eight months due to the impact of foot and mouth disease on the fieldwork area.

Great Langdale Contingent Valuation Method Survey Design

All stakeholder participants (visitors, residents and business operators) of this research project had their opinions collected by a mail-survey questionnaire-based examination; four questionnaire versions (appendix 6-9), were distributed each with format differences depending on what category of stakeholder the participant was deemed to belong to[3]. The questionnaires all shared a similar outline; an introduction and instruction sheet, a written/visual description of the road-user charging scheme, a series of questions on WTP/WTA for road use, the stakeholders own form of transport and perception of traffic volume, attitude statements relating to transport and tourism in the Lake District National Park and finally, questions regarding socio-economic criteria.

Questionnaire Distribution Methods

The mail survey hybrid technique used, facilitated greater privacy for the respondent, reducing the potential for socially desirable replies in regard to the contentious subject matter of the questionnaire (Oppenheim, 1992; Fisher and Katz, 2000). The individual respondent by this distribution method was also allocated time to study this hypothetical scenario, which was considered an important factor because the majority of recreational trips are normally a planned excursion and not an off-the-cuff response to a face-to-face or telephone survey (Mitchell and Carson, 1996). Additionally, it was envisaged unrealistic that on a recreational excursion, as it would be for many

[3] The only difference between the Easter visitor and visitor questionnaires was that the former contained two specific references to Easter weekend as a temporal frame in the questionnaire wording. The visitor questionnaire was printed at short notice due to the change of survey time due to the favourable weather forecasts for Wednesday 27th and Thursday 28th March 2002.

motor-vehicle users surveyed, that an individual would be willing to spare the necessary time to allow satisfactory completion of a face-to-face questionnaire.
Mail surveys are considered a poor third in terms of survey methods behind in-person and telephone surveys (Mitchell and Carson, 1996). However, the large costs involved in both these alternative survey methods are recognised as prohibitive for projects with smaller budgets, which was especially relevant for this project. For this reason in-person distribution and completion of questionnaires was not used as a survey method due to the requirement for training to be undertaken by the author in order to reduce the potential introduction of interviewer bias due to the inexperience of this distribution method. Furthermore, since the objective was to survey current users of Great Langdale valley, it would have been difficult and potentially expensive to generate a contact list for a telephone survey (Salant and Dillman, 1994).

The limitations of this distribution method were recognised, to begin with the increased potential for non-response bias because there is no feasible method of obtaining the characteristics of non-respondents. This is a problem since those who don't respond have generally the least interest or desire to participate in the research but it is a problem for all types of distribution method (Mitchell and Carson, 1989). The mail survey is most prone to item non-response bias with people skipping questions or failing to obey the routing, which an interviewer in a face-to-face or telephone survey could intervene to correct (Salant and Dillman, 1994). Finally, the mail survey and its hybrids can suffer from the lack of information the surveyor can impart after delivering the questionnaire. Although all stakeholder questionnaire formats in this research project contained; postal, telephone and electronic mail contact details for any questions individual respondents might have had regarding the questionnaire.

The resident's questionnaire varied slightly in terms of distribution in that it was posted through their letterboxes. Having to achieve face-to-face contact before delivering the resident's questionnaire might have required several visits to certain residences to drop-off a questionnaire, prohibitively increasing the costs of the project with no guarantee of a return (Salant and Dillman, 1994). Face-to-face interviews would have been similarly time consuming and also it was deemed appropriate to present the Contingent Valuation Method scenario of this research project to all

individual respondents by similar distribution methods, that meant keeping interviewer involvement to the minimum necessary. Obviously contact was made with certain residential respondents while delivering the mail questionnaire but this was practically unavoidable.

The business operator's questionnaires were distributed according to a mailing list compiled by this researcher during the three days fieldwork undertaken in Great Langdale valley 27th-29th March 2002 (see Appendix 13). It was decided not to attempt to distribute questionnaires in the days proceeding and during the Easter holiday weekend, because of the potential for the questionnaire to become mislaid or business operators being too busy to accept one. Therefore, business names and addresses were noted and the questionnaires along with a covering letter (Appendix 10) were mailed out to the businesses identified the following week.

Description of Hypothetical Market

The Contingent Valuation Method as previously stated in this chapter requires the definition of a hypothetical market before eliciting monetary preferences towards certain good(s). Firstly, a plausible description of the good under valuation, which in this instance, is the use of road space between certain times of the day and year for private motor-vehicles (cars, vans, motorbikes, minibuses). The description contained the reasoning for payment, to control the volumes of private motor-vehicles in a certain part of the road network, the B5343 Skelwith Bridge to Old Dungeon Ghyll. This description was given instead of one explaining the Transportation Demand Management strategy objective, to increase road network efficiency, for reasons of simplicity and greater respondent understanding. A map was provided on each of the questionnaires front pages to allow a visual demonstration of the area to the individual respondent (see Figure 1, Appendix 6-9)[4]. There was no description of the level of road network use or congestion in the description of the good(s) as this might have affected the neutrality of the description.

[4] The Map was kindly provided by the Geographer's A-Z Map Company Ltd, 2000. Mitchell and Carson (1989) suggest the use of visual as well as written descriptions of the good(s) in the valuation scenario.

The market description clearly stated that any surpluses from the daily entry fee would be used to improve local public transport, as the Transport Act (2000) states is a requirement of the legislation (DETR, 2000). The statement of such a requirement also served to attempt to reduce the potential for altruistic, charitable or non-use bids based on the misconception of surplus monies being used for conservation purposes (Hanley et al., 1997). The "bid vehicle" was described as a daily entry fee collected by a human attendant at a tollbooth, analogous to other payment collection facilities located at the tolled sections of the United Kingdom road network e.g. the Forth Bridge between Lothian and Fife, Scotland. A picture of a tollbooth was provided as part of the description in each questionnaire (see Figure 2, Appendix 6-9)[5]. The tollbooths were depicted as being on every entry route into Great Langdale valley, although descriptions of actual locations were not given for simplicity reasons. The main premise of this descriptive sentence was to emphasize that there would be no opportunity to 'free-ride' into Great Langdale valley by another route during the hours of scheme operation (Hanley et al., 1997). For similar enforcement reasons, the tollbooth attendants were described as issuing a windscreen sticker, which would be checked for by wardens patrolling the valley (see Figure 3, Appendix 6-9).

The hours of operation when the daily entry fee would be collected were clearly stated as 9am to 4pm, which had been decided upon after consultation of traffic records from a counter on the B5343 at Silverthwaite, (see Appendix 1). The months of operation were stated as 1st March – 1st October, in order to cover the entire major holiday traffic generating periods without complication (Lake District Transport Strategy, 2000). This all encompassing six-month period of operation was to act as a reminder to the individual respondent that the road-user charge would have to be paid each day they visited during this period. In addition, the word daily in the hypothetical market description was underlined (see Appendix 6-9). This was in order to reduce the potential for mental account bias i.e. failing to cognitively acknowledge that thirteen times at five pound per time would equal a total cost of sixty-five pounds over the period of the year (Hanley et al., 1997). Additionally, for the visitor stakeholder questionnaires (see Appendix 6-7) the first two questions were in regard

[5] The picture was kindly provided by Author: Nigel C. Lewis; Publication Title: Road Pricing Theory and Practice; Publisher details: Thomas Telford Ltd., London, 1993.

to intention to revisit the area to further reinforce the idea that the charge would have to be paid on more than one occasion.

The substitute goods available were outlined in the market description; cyclists entering the Great Langdale road network would be exempt from the road-user charge and that there would be a bus-based park and ride scheme operating a circular route from the head of Great Langdale valley to Ambleside. The headway time was estimated at 30 minutes for a multiple bus operation, after correspondence with Mr. David Ashworth, Cumbrian Operations Manager for Stagecoach (see Appendix 11). The bus timetable was given start and finish points; 8am and 6pm, based on the peaks in the traffic flow records recorded at Silverthwaite (see Appendix 1). No specific timetable was given for reasons of simplicity. The bus-based park and ride service was described as a 'free' substitute good, with the necessary funding hypotheticated from the road-user charge revenues. This was justified since a purpose of road-user charging is to achieve a modal shift from the private motor-vehicle onto public transportation to improve network efficiency. The Ambleside car park location was not described for reasons of simplifying the scheme outline, however, it was based as described previously in this chapter, on the potential provision of a 300 space park and ride service to Great Langdale from Miller Field (Lake District Transport Strategy, 1999; Lake District Transport Strategy; 2000).

Elicitation Methods

There are several distinct methods of obtaining monetary preferences for non-public goods described in a Contingent Valuation Method scenario[6]. For the purposes of this study these will be condensed into four main categories: 'open-ended', 'oral auction', 'take-it-or-leave-it offer' and 'take-it-or-leave it offer (with follow-up)' (Mitchell and Carson, 1989; Bateman et al., 1995; Hanley et al., 1997). The monetary preference elicitation methods used in this research project differed depending on the property rights conferred on the stakeholder groupings. The reasons for these choices will be outlined in the following paragraphs.

[6] For a wider ranging explanation of the different rationale for elicitation methods dependent on whether public and private good(s) and an extended discussion of elicitation methods see Mitchell and Carson (1989) Chapter 4.

Visitor's and Resident's Elicitation Methods

It was deemed by the author that visitor and resident stakeholders had limited property rights in terms of the quasi-private goods market[7] that is road use within Great Langdale Valley. Road use is deemed a quasi-private good due to the regular payments made by individuals through taxes or other charges to finance the supply of road use (Bateman and Turner, 1993). Consequently, payment to avoid a decrease in the quantity of road use available to these stakeholders, rather than compensation for a potential loss of utility was deemed by the author the appropriate measure of their monetary preference towards the good.

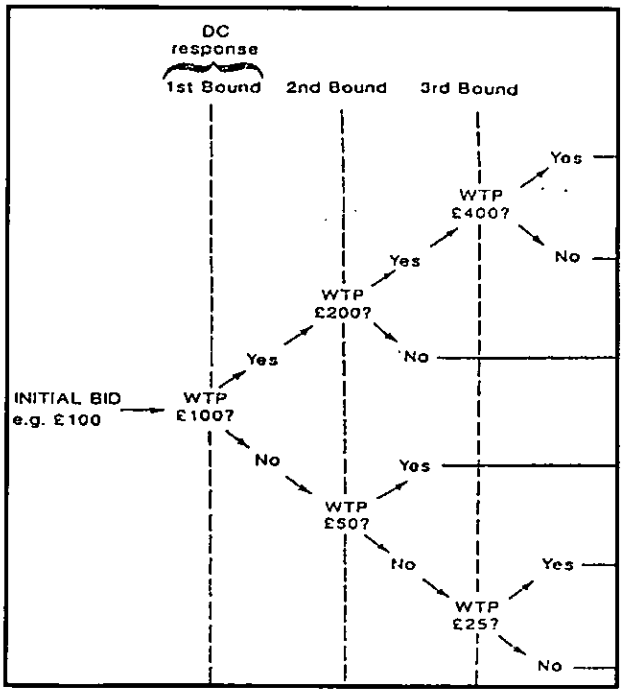
The 'take-it-or-leave it offer (with follow-up)' elicitation approach was used for gathering WTP monetary preferences for individual visitor and resident stakeholders. The elimination of the "take-it-or-leave it offer" approach was because it only asks one question in order to elicit monetary preferences e.g. would you be willing to pay X for the good after consulting Y Contingent Valuation scenario, leading to the production of too simplistic a demand profile for Great Langdale valley road use. The 'oral auction' was also dismissed as an elicitation method due to the potential difficulty expressing this method within a mail-back questionnaire clearly and simply enough for the individual respondent to understand and complete with a realistic WTP value (see Figure 4.5). The 'open-ended' approach was dismissed for this research project as not representing a realistic purchase option in terms of normative consumer behaviour (Lindberg and Johnson, 1997). Individual respondents are used to the majority of their purchase decisions being based on a value already attached to a good, not having to construct a value themselves.

The 'take-it-or-leave it offer (with follow-up)' bidding game approach was used as it was deemed appropriate to base the scenario on monetary values quoted for other U.K. schemes using similar road-user charging legislation, specifically the City of London (Transport for London, 2001). Therefore, the five-pound road-user charge

[7] See Mitchell and Carson (1989) Chapter 2 for an expansive discussion of the economic theoretical basis of the Contingent Valuation Method.

proposed for the City of London was used as the benchmark for the first question and then supplemented with a further follow-up question to determine if a monetary preference existed between four pounds ninety-nine pence and one pence. A further question was asked pertaining solely to those individual respondents who had registered no monetary preference, in order that their bids could be categorized into actual zero monetary preference or protest bids against the valuation of the good. Heyes and Heyes (1999) observe that zero bids such circumstances, are only 'legitimate' if that would cause the respondent to leave the market e.g. public road use in a private motor-vehicle. The author deemed this to have occurred when the respondent stated their intention to use the free bus service, cycle or arrive before 9am otherwise these zero bids are protests against valuation of the good (s). Although protest bids were segmented they were included in the analysis of WTP in order to facilitate cross-tabulations within the limited sample and produce overall analytical continuity. The rationale for only asking a follow-up question to elicit a preference below the starting value was simplicity, due to the CFIT (2001) survey of national attitudes on road-user charging reporting very little WTP above five pounds. This approach enabled the construction of a more detailed demand profile for road use by revealing the discrete WTP between the starting point value of five-pound and any zero/protest bids (Mitchell and Carson, 1989).

Figure 4.5 Example of Oral Auction Format (Bateman and Bryan, 1994)



Business Operator's Elicitation Methods

The business operators were deemed by the author to have property rights in this quasi-private goods market in regard to the current temporal and spatial consumption of tourism in the Great Langdale valley. Accordingly, they where asked for the level of compensation they would be willing to accept for a potential loss of welfare which charging their clientele to enter the valley could produce.

The 'open-ended' elicitation approach was employed to elicit WTA monetary preferences from business operator's within Great Langdale valley. This elicitation approach was employed primarily due to the lack of similar monetary preference data regarding road-user charging potential impact on tourism within British National Parks. Hence, there were no monetary values that had been previously calculated, available to formulate an appropriate starting point for elicitation of monetary preferences from the business operators. All the other three elicitation formats would have experienced extensive bias from this lack of an appropriately calculated starting point value (Hanley et al., 1997). In addition to it being outside the realms of this research project, to calculate an appropriate starting point value based on potential impact on business operators within Great Langdale valley. The 'oral auction' would have also presented equivalent construction difficulties concerning the presentation of an adequate description of the process within the confines of a mail-back questionnaire (see Figure 4.5). The limitations to this approach are readily accepted; 'open-ended' formats can generate large monetary preferences. Additionally, WTA 'open-ended' formats can produce significant levels of protest bids owing to the rejection of property rights allocated to the respondent (Mitchell and Carson, 1989).

Accompanying Questions

In addition, to the questions solely pertaining to the constructed Contingent Valuation Method market scenario, additional information was gathered from the individual respondent depending on the stakeholder group they were deemed to occupy. All the stakeholder questionnaire formats contained the following questions:

- A question to ascertain the individual respondent's opinion on the potential for offering exemptions or discounts to certain stakeholder groups.

The questionnaire distributed to visitor's contained several questions asked only of this stakeholder group in order to facilitate cross-tabulation of these variables against WTP in the whole sample or facilitate a benchmark comparison to national attitudinal surveys. The questions were focused on the following topics: assessing the number of times the respondent intended to revisit the Lake District National Park and Great Langdale valley this year; a question taken from The Commission for Integrated Transport's, Public Attitudes to Transport survey (CFIT 2001, p.26) regarding their attitude towards urban road-user charging; their opinion on the road-user charging scheme; Individuals were asked whether they were National Trust members as a benefit of membership is free use of the organisation's car parks; and the location of their permanent residence. In addition, individual respondents were asked a series of socio-economic questions; sex, age, employment status, income, household population. WTP is heavily dependent on ability to pay, which maybe influenced by a variety of such characteristics (Button, 1994; Baeten, 2000).

The questionnaire's distributed to both the resident's and business operators in Great Langdale also contained additional supplementary questions to investigate for predictive capacity. The questions were focused on the following topics: whether tourists should be subjected to a daily entry fee and if so how much, preferences towards five generic transportation demand management policies and length of residence. Resident stakeholder questionnaires contained a question specific to this format: residents were asked a question taken from The Commission for Integrated Transport's, Public Attitudes to Transport survey (CFIT 2001, p.26) regarding their attitude towards urban road-user charging due to their perceived property rights.

The Survey

Visitor's Questionnaires

The values and attitudes of the two hundred and eighty motor-vehicle dependent recreationalists who participated in the survey were examined using a mail-back questionnaire (Appendix 6 & 7). Participants were randomly sampled using the "next to pass" technique after they had parked their car at either of The National Trust's Stickle Ghyll (see Figure 4.3) or Old Dungeon Ghyll (see Figure 4.4) car parks, between 27th - 29th March 2002 at the times listed in Table 4.1 (Oppenheim, 1992; Cullinane et al., 1996). The individual participant was asked a two-question insert

interview (see Appendix 12) to determine if they satisfied the criteria of this part of the project i.e. a non-resident of the Lake District National Park[8]. If they satisfied the conditions a questionnaire was administered along with a business reply envelope.

Table 4.1:Location, Time and Date of the Visitor Questionnaires Distribution

Car Park Location	Date	Times	Number of Questionnaires Distributed
Stickle Ghyll	27/03/2002	09:00 – 14:00	80
Old Dungeon Ghyll	28/03/2002	07:45 – 09:10	30
Stickle Ghyll	28/03/2002	09:15 – 13:30	95
Stickle Ghyll	29/03/2002	09:00 – 11:00	75

Resident's Questionnaires

The attitudes and values of the Great Langdale valley residential households were surveyed using mail-back questionnaires (see Appendix 8), posted between the 27th and 29th March 2002 through the letterboxes of all the residences involved in the sample (see Appendix 14). As with the visitor questionnaires, a prepaid business reply envelope was supplied for the return of the completed questionnaires. The administration of the questionnaires was slightly different to that employed for the visitor stakeholder sample. The 165 residences in Great Langdale valley were administered with a copy of the resident's questionnaire through their letterbox somewhat irrespective of choice, therefore the first aspect of self-selection embedded in the distribution of questionnaires to visitor stakeholders was removed.

Business Operator Questionnaires

There was a significant deviation from the distribution format used for the two stakeholder questionnaires described previously. The twenty-four business operator questionnaires were distributed by first class mail along with a covering letter (see Appendix 9 & 10) on 2nd April 2002 from a distribution list (see Appendix 13) compiled by this researcher during three days fieldwork between 27th-29th March 2002 but returned by mail-back pre-paid envelope similar to the other questionnaires in this research project.

[8] It was decided to exclude Lake District National Park residents from this sample, as potentially they might perceive they had different property rights, which might affect the results from this sample. Instead, resident opinion would be surveyed in a sample unique to this stakeholder group.

Ethical Considerations

Specific ethical consideration was given in regard to informing all participants in this research project that the study was hypothetical and that there were no plans to introduce such a road-user charging scheme. However, retrospectively the wording of the covering letter to business operator (see Appendix 10) was lacking in terms of stressing the hypothetical nature of the research although the questionnaire did state the hypothetical nature. This statement was deemed important because of the large and stressful impact the Foot and Mouth disease crisis of 2001 had on the economic livelihood of a large percentage of the host community. The clear statement of the hypothetical premise of the questionnaire could have increased hypothetical bias but it was hoped that this would be balanced by the reduction in strategic behaviour (Mitchell and Carson, 1989). In addition, no information, which could possibly identify specific respondents, was collected as part of the research project.

The specific distribution method employed for the resident stakeholders questionnaires also required ethical deliberation concerning only administering questionnaires to residences where there was clearly a mailbox or other similar recipient entity. In order, not to litter private property and secondly not to create an obvious sign that the property was not currently occupied therefore potentially encouraging criminal damage or theft towards the property.

Limitations

The following limitations to this research project were identified:

Foot and Mouth Disease

During the preparatory period for this research project there was an outbreak of foot and mouth disease within the Lake District National Park. The outbreak resulted in the intercalation of this MA by Research project from 1st May 2001 until 1st January 2002, having originally been started on the 1st November 2000. During the outbreak strict regulations were imposed on access to some parts of the Lake District National Park, including the Langdales, which were slowly relaxed through the year this meant that individuals could not indulge in their recreational activities to the levels of previous years within the area for a large part of 2001 (LDNPA, 2001). Therefore, the investigation into road-user charging at this temporal stage might have appeared

unrealistic in the light of the other initiatives to promote the return of tourists to the Lake District National Park. The author highlights these factors as potentially increasing hypothetical bias in regard to this research project, which might not have existed to the same extent if the foot and mouth disease outbreak of 2001 had not occurred.

The intervention of foot and mouth disease also impacted on the self-reporting of previous visits to the Lake District National Park and Great Langdale Valley. Questions one and two on the visitor questionnaire asked for a behavioural intention in terms of revisiting the Lake District National Park and Great Langdale Valley this year, which suffers from the same intention-behaviour flaws as previously outlined (Ajzen, 1988). However, this was deemed a superior measure of levels of visitation to the area per year, than asking for self-reports of past behaviour, requiring significant cognitive effort to recall accurately (Oppenheim, 1992). Given that the last "normal" year of tourist activity in the area was 2000, 2001 being heavily affected by the outbreak of foot and mouth disease.

Contingent Valuation Methodology

The Contingent Valuation Method is based on the neoclassical economic assumption that instrumental values can be assigned to all types of goods therefore monetary preferences can be obtained from an individual towards all such goods (Jacobs, 1994; Sugden, 1995). This requirement for goods to be measurable in monetary form is characteristic of the academic discipline of economics and it's positivist methodological foundations (Miller, 2001). Therefore when Contingent Valuation Method practitioners speak of bias or accuracy it is only within these assumed confines, bias and accuracy of values can only exist if there was a value in the first instance for the good in question i.e. pricing of road use. There are values for the individual component good(s) which comprise the good "pricing of road use" e.g. the motor-vehicles, road infrastructure costs, however the good as a whole is without an actual neoclassical market and requires one to be hypothesised, therefore bias of values must be examined within this context (Sagoff, 1988; Bishop, 1990). The neoclassical school also makes many other assumptions so basic to economics they are rarely mentioned, the most fundamental being, all individuals have preferences towards all types of goods and the possibility of an individual displaying a non-

preference is not considered (Sugden, 1995). Additionally all individual choices are made in order to maximise utility ignoring the potential for conspicuous consumption of goods for their positional status e.g. the cultural capital of recreation in the Lake District National Park (Mitchell and Carson, 1989; Corneo and Jeanne, 1997; Ayres 1998). It is on these assumptions that the creation of a hypothetical market, crucial for the Contingent Valuation Method is predicated.

Sampling

The limited random sample of the visitor's within Great Langdale valley cannot be used to amplify any reported trends to a larger population, as it was a random opportunity sample (Oppenheim, 1992). The temporal frame of the sample was also limited insofar that is was only collected at/or near one peak in terms of individual visitors, i.e. Easter Bank Holiday Weekend 2002, within the period of proposed operation of the road-user charging scheme. An improvement to this study would have been to undertake a more temporally dispersed random opportunity sample, representing not only the peaks but also the troughs in terms of individual tourist activity between 1st March and 1st October.

Additionally, the sample taken is limited in its ability to report the full potential impact of the scheme; attributable in parts to the administration of the questionnaires solely to individual visitor's to Great Langdale valley on two of the National Trust's car parks; the distribution format neglecting individuals who parked on other car parks, in lay-bys, those visiting friends and relatives who had parked on their property or people who had parked their motor-vehicle in the hotel car park where they were residing; also those individuals simply driving through Great Langdale valley had no practical method of being administered a questionnaire; in addition to those individuals who had journeyed to for example Ambleside and might have considered visiting Great Langdale did not have their attitudes sampled, neither did those individuals who were currently outwit the National Park e.g. at their permanent home address, considering a visit to the Lake District National Park and potentially Great Langdale valley.

Furthermore, the question for benchmarking the Lake District National Park sample against a national opinion sample in regard to road-user charging was not a perfect

situation. The question used relates to a general attitude towards road-user charging in urban areas and is not based on a specific scheme. In the context of the questionnaire, participants might struggle to easily cognitively shift between the rural context of the questionnaire and urban context of a specific question. However, no other questions relating to rural road-user charging were available as benchmarks. The Derwent Valley road-user charging scheme, proposed by Derbyshire County Council, which could have created a benchmark from its preliminary surveys planned for 2001 was postponed due to foot and mouth disease crisis (DCC, 2001). Therefore, it was decided to accept the imperfections in terms of the context of the question because it facilitated the benchmarking of this research's sample against national attitudes.

The distribution method for the resident's questionnaire was deficient in certain aspects. Resident's may have had homes with receptacles for postal deliveries not immediately noticeable when delivering the questionnaire; in addition, due to the lack of an objective accurate mailing list certain residences may have been excluded accidentally from the sample. Furthermore, the large amount of second homes in the area, highlighted to me by local sources, may have increased the bias within residents sample. As they may have only been resided in for certain periods of the year outwith the temporal limit placed on the questionnaire. The sampling frame also excluded those temporary residents who were only occupying property for certain weeks of the year but represented another important category of stakeholder. The LDNPA (1994) stated that in the South Lakeland Parish of Lakes, which includes Great Langdale Valley there were a total of 3044 total household spaces of which 270 were second homes and 378 holiday properties. Permission was sought in March 2002 to survey the Langdale Hotel and Country Club timeshare properties using a temporary resident stakeholder format but permission was not forthcoming (see Appendix 15). An improvement would have been to undertake a door-to-door distribution method with several different formats of questionnaires for each particular category of stakeholders e.g. permanent residents, second home owners, temporary residents.

Hypothetical Market Scenario

There was in hindsight a distinct limitation with the Contingent Valuation Method hypothetical market scenario contained within the survey instruments, which stated that wardens would patrol the area checking for windscreen stickers, which would

demonstrate motorists had paid the road-user charge. The temporal frame of this activity should have been more detailed, stating that patrols would start before and finish after the charging period i.e. 9am – 4pm. Thus, reducing respondent confusion about arriving before 9am or after 4pm but perhaps still being fined by a warden for not having a correct ticket.

Conclusion to Methodology

This chapter has outlined the multi-stage methodological framework based on the application of the Contingent Valuation Method to elicit monetary preferences towards a road-user charging scheme proposed for Great Langdale valley from samples of three prominent stakeholder groups within the area; a random opportunity sample of motorists visiting two National Trust car parks in the valley, a survey of all the appropriate permanent residential properties and a sample of all the business operations within the valley deemed to be dependent on the current temporal and spatial consumption of tourism. The differences in construction and implementation of the Contingent Valuation Method for each stakeholder group were outlined and justified. In addition to a critical analysis of the methodology outlining its limitations in regard to its employment generally as well as specific deficiencies identified through its use in this study.

Chapter 5. Discussion

This chapter will detail frequency, descriptive and cross-tabulation statistical analysis for each of the three stakeholder samples: visitor, resident and business operator. The resident's sample, which was gathered from a spatially precise area, did not tolerate a large amount of cross-tabulation analysis and the business operator sample is analysed solely using frequency and descriptive statistics. The visitor and resident samples only tolerated non-parametric cross-tabulation analysis due to the random sampling framework undertaken and the categorical nature of the answers; even so cross-tabulations could only be performed following the collapsing of categories (Pallant, 2001). The full frequency results generated from each of the three stakeholder samples are provided in Appendices 16, 17 and 18, only selected statistical results will be presented and then discussed sequentially in this chapter, set in the context of academic theory.

Visitor Sample Contingent Valuation Results

The initial random sample was two hundred and eighty individuals in total, gathered by distributing mail-back questionnaires to individual motorists at two National Park car parks: Old Dungeon Ghyll and Stickle Ghyll between 27-29th Match 2002. One hundred and forty-eight questionnaires were returned from this initial sample, a response rate of 52.9%. All of the returned questionnaires were deemed useable for analytical purposes, although some did suffer from item non-response error but not dramatically enough for exclusion from this study e.g. Question 6 suffered six item non-responses.

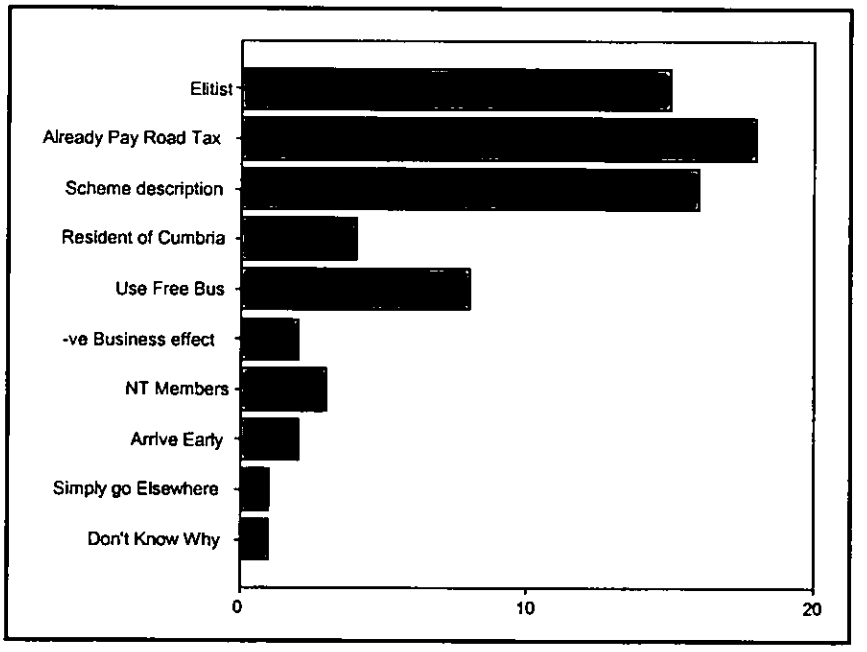
Table 5.1 - Overall WTP road-user charge stated by Visitor sample

Category	Frequency	Percent
Willing to Pay £5	35	23.6
Willing to Pay £4.99-0.01	43	29.1
Zero Bid	30	20.3
Protest - Zero Bid	40	27.0
Total	148	100.0

52.7% of the sample reported they would be prepared to pay some form of monetary road-user charge and the remaining 47.3% of responses reported a zero monetary

preference (see Table 5.1). The large number of zero monetary preferences is not unexpected as individuals do not like to pay for a good that previously was provided free of charge (Huszar and Seckler, 1975; Giuliano, 1992). There are two distinct forms of zero monetary preferences or "bids" in regard to Contingent Valuation Methodology as observed by Heyes and Heyes (1999). This research categorized thirty zero bids as an "actual" zero monetary preference when the person bidding did exit the hypothetical market for public road use in a private motor-vehicle totally instead stating their intention to visit Great Langdale valley using the free bus, cycle or arrive before 9am. The other type of zero bids included forty responses, which were categorized as "protest" zero bids, by a statement of intention to no longer visit Great Langdale valley if a positive monetary road-user charge was levied for access in a private motor-vehicle. Such a protest response is not revealing an individual's monetary preference for the good the Contingent Valuation Method is seeking to value, it is objecting to the context of valuation. In this research project the classification of actual zero and protest bids was undertaken using the written statements of the reasoning underlying such a bid and behavioural intention individuals provided in response to Questions 5 & 6 (see Figure 5.1 & Table 5.2). If responses to both questions were not concurrent the individuals stated intended behavioural response was decisive in categorizing the bid.

Figure 5.1 Reasoning behind stated zero monetary preferences



The three reasons most often stated by the visitor sample for a zero bid formed three distinct categories; firstly those fifteen individuals who perceived the road-user charge to be elitist as well as eighteen respondents who stated that they already paid enough tax and sixteen respondents who had identified parts of the scheme description they were unhappy with e.g. limited bus timetable (see Figure 5.1). The former categories state strong negative attitudes on the subject whereas the latter category highlights a potential avenue to increase the overall acceptability of the scheme by changing certain components and testing it on another sample of the population.

Other reasons were stated for the zero monetary preferences expressed; four individual respondents as residents of Cumbria and three respondents who were members of the National Trust highlighted these factors in conjunction with their statement of zero monetary preference. Behavioural substitutions were highlighted by ten respondents as reasons for their expression of zero monetary preference e.g. arriving early to avoid the fees or taking the free bus. Finally, four respondents felt either the scheme would have a negative effect on the tourism-dependent businesses in the area, did not give a reason or would simply go elsewhere (see Figure 5.1).

Table 5.2 – Behavioural Responses of those respondents expressing a zero monetary preference for road-user charging in Great Langdale Valley.

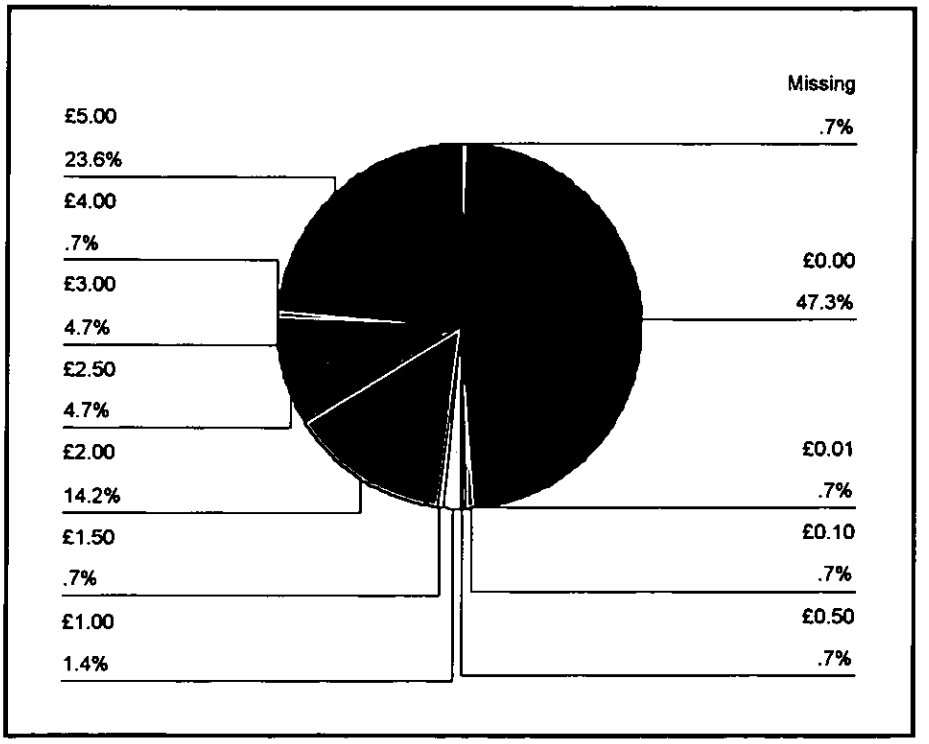
Category	Frequency	Percent
Go elsewhere in the Lake District National Park	31	20.9
Travel on Free Bus to Great Langdale	26	17.6
Other	8	5.4
Don't Know	3	2.0
Not Travel to Lake District National Park at all	2	1.4
Sub-Total	70	47.3
Willing To Pay a Road-User Charge	78	52.7
Total	148	100.0

Of the seventy respondents expressing a type of zero monetary preference, twenty-six respondents would still visit the area using the free bus service provided as part of the hypothetical road-user charging scheme. Whereas, thirty-one respondents would visit other destinations in the Lake District National Park and only two would be deterred from a visit to the Lake District National Park entirely by the imposition of a road-user charge for Great Langdale valley. The Other category contained eight

respondents', whose intentions ranged from protesting against the charge, arriving early to avoid the payment period or reduce other charitable donations. Three respondents did not know their behavioural response (see Table 5.2).

The use of the "take-it-or-leave-it offer (with follow-up)" elicitation method facilitated the understanding that 47.9% of the total sample stated had a WTP of at least £2.00 and 23.6% of the total sample stated a WTP of least at £5.00 (see Figure 5.2). However, as part of Question 4 - the follow-up elicitation question (see Appendix 4-5), those respondents stating a WTP between £4.99-0.01 did not have their behavioural reactions elicited to the imposition of a road-user charge above their stated WTP. This was for methodological reasons; as such a question would have increased the complexity of the elicitation method, potentially introducing increased strategic bias within the sample. Therefore, although imperfect, in the later discussion of behavioural reaction and potential displacement of visitors the £2.00 level with be used in conjunction with the displacement information gathered and the six individual respondents of the sample who stated a WTP between £1.99-0.01 for reasons of analytical practicality will be placed in the don't know category.

Figure 5.2 – Discrete Maximum WTP a road-user charge for Great Langdale Valley from visitor sample



The behavioural responses to the hypothetical road-user charge for Great Langdale valley (see Table 5.2 and Figure 5.2) reveal differing results to those observed by Steiner and Bristow (2000) for a similar scheme hypothesised for Upper Wharfdale in the Yorkshire Dales National Park. At a road-user charge of £2.00 it is estimated that; 47.9% of the Great Langdale visitor sample would pay for entry, 17.6% would substitute their private motor-vehicle for the free bus service, 20.9% of the sample would travel elsewhere within the Lake District National Park and 13.6% would not travel to the area, or perform other responses, did not know or their behavioural intentions were not analysed. Steiner and Bristow (2000) reported that at a toll of £2.00 per car and a bus fare of £0.90 per person: 34% would pay the entry toll, 49% of visitors would use the park and ride and 17% would go elsewhere. Therefore, in comparison 83% of the sampled individuals for the Upper Wharfdale scheme would still enter the area whereas 68.6% would still enter under the scheme proposed for Great Langdale valley. These figures potentially represent a difference in what Biswas (1992) terms "brand loyalty" between the respective areas, the influence of the larger spatial scale and through route of the proposed Yorkshire Dales scheme, the difference in bus headway timetable; 30 minutes for the proposed Great Langdale scheme and 5 minutes for the Yorkshire Dales scheme or the potential introduction of social desirability bias from the face-to-face elicitation of monetary preferences undertaken by Steiner and Bristow (2000).

A simplistic TDM analysis of the overall behavioural reaction to a road-user charge of £2.00 for Great Langdale valley potentially suggest a beneficial effect on road network efficiency. This would be a very simplistic positivist argument to advance, regardless of the inherently reductionist sample (Miller, 2001). As it would depend on two other fundamental assumptions 1) although a £2.00 road-user charge could remove a specific amount of motor-vehicles from the road network it might not have a correspondingly comparable reduction in congestion; 2) that the introduction of the scheme infrastructure would not create congestion inefficiencies in the road network of the Lake District National Park greater than any gains delivered for the specific locality of Great Langdale valley.

Lewis (1993) observes that any road network operates within a macro-scale repetitive behavioural framework. However, the potential for micro-scale behaviour to produce

congestion is also recognised e.g. a driver braking on a road can produce a cascade of braking behaviour back along the road network which can cause the spontaneous formation of traffic congestion (Lewis, 1993). Hence although a road-user charge of £2.00 could potentially reduce the overall number of motor-vehicles entering Great Langdale valley by just over 50%, this might not necessarily translate to a 50% reduction in congestion. Since the road-user charge would influence the macro-scale behaviour of the road network but not necessarily have a comparative influence on micro-scale behaviour within the same road network (Dendrinos, 1994). In addition, the increased presence of single decker buses along the road network could provide the catalyst for the production of micro-scale congestion events on the road network.

The construction of the charging cordon and specifically the location of the scheme tollbooths could lead to the formation of congestion at or near to the charging area boundaries (May, 1992). This potential for congestion could reduce the efficiency of the area's total road network; queues might form at any of the five projected tollbooth sites e.g. the tollbooth proposed for the B5343 near the Skelwith Bridge Hotel (see Figure 5.3 and Appendix 4) and spill back onto the A593, which could have a feedback effect creating greater congestion inefficiencies on the wider road network of the National Park (see Appendix 19) (Quinet, 1994). Therefore, the private motor-vehicles diverted elsewhere due to the individual's unwillingness to pay the road-user charge could directly generate increased congestion in other parts of the Lake District National Park. Those individuals displaced may for instance visit Borrowdale valley within the Lake District National Park instead, which could be simply a diversion of road network inefficiencies rather than generating an overall reduction (Schneider and Budruk, 1999; Parkhurst, 2000). In addition, road-user charging could potentially protect the tranquillity of one valley measured in terms of number of motor-vehicles present however it might potentially be at the cost of a reduction in another location's tranquillity (Button, 1998; Caffyn and Prosser, 1998). Furthermore, the potential for the elasticity of demand in regard to the level of road-user charge to change over time similar to the subjective reports of Peter Green for the Forestry Commission's Dalby Drive, where the initial price increase produces an elastic response but over time the individuals elasticity of demand reduces requiring further increases or the deterioration of the effectiveness of the scheme in reducing congestion inefficiencies (Goodwin, 1992; Green, 2001). Therefore, whether the financial subsidies needed to

operate the scheme could be justified for such potentially spatially and temporally limited road network efficiency and tranquillity gains. Further modelling studies using the appropriate computer software packages e.g. SATURN, would be required to provide the necessary evidence to accept or reject the hypothesis, which is unfortunately outside the scope of this research project (May and Milne, 2000)

Figure 5.3. – Junction of B5343 and A593 near Skelwith Bridge Hotel.

Photographed by George Eckton 27/3/2002 07:20

The most often stated discrete WTP individual response (see Figure 5.2) was a zero monetary preference with 70 out of a total 148 responses. Also due to the elicitation method used, the £5.00 category contained a large number of responses, as this was the upper bound imposed on the study for the reasons outlined on page 48-49. Therefore, the number of protest bids and the imposition of this upper bound for monetary preferences meant that the median stated response was an inappropriate WTP measure of this sample. Instead, the mean was chosen as the descriptive statistic for WTP although even this is biased for the same reasons outlined for rejecting the median.

The mean stated WTP amongst the visitor sample was; £2.46 excluding zero protest bids (see Table 5.3) and £1.79 (see Table 5.4) when calculated with the inclusion of protest bids. For the purposes of this research project the inclusion of protest bids

WTP mean of £1.79 will be employed as the average WTP of the visitor sample. This is because in subsequent cross-tabulation analysis of visitor sample results, protest zero bids, although not actual zero monetary preferences, were used in order to maintain a statistically significant sample size. This inclusion facilitated cross-tabulation of generalised WTP against other supplementary variables, in accordance with the requirements of the statistical tests employed i.e. minimum expected cell frequency of five or greater (Pallant, 2001).

Table 5.3 – Visitor Sample aggregated WTP in £ (excluding Protest bids as zero bids)

N	Minimum	Maximum	Sum	Mean		Std. Deviation
Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
107	.00	5.00	263.61	2.4636	.1962	2.0300

Table 5.4 – Visitor Sample aggregated WTP in £ (including protest bids as zero bids)

N	Minimum	Maximum	Sum	Mean		Std. Deviation
Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
147	.00	5.00	263.61	1.7933	.1691	2.0500

The mean WTP figure reported by the individual visitor respondents (see Table 5.4) contrasted with Steiner and Bristow's (2000) reported mean stated WTP of £2.80 for the Upper Wharfdale scheme is in excess of a pound below at £1.79. This could be the result of factors detailed previously e.g. difference in bus timetabling and/or Upper Wharfdale valley being a through route for traffic. If the mean WTP figures were replicated by the average 45000 monthly vehicle users of Great Langdale valley in April (see Appendix 1) this very simplistic and flawed aggregation would calculate somewhere around £49050[1] in monthly revenue for the scheme. However, over the six-month period of operation proposed for the scheme there would be massive fluctuations in traffic volume and the hypotheticated revenue calculation, notwithstanding the methodological assumptions this simple calculation is dependent upon, is therefore only proposed as a simple estimation. The actual calculation of

[1] Based on assumption of an optimistic 50/50 split in visitor and resident motor-vehicle traffic during the six months of operation. Therefore 22500 x £1.79 = £40275 (Visitor's WTP mean) and 22500 x £0.39 (Resident's WTP mean) = £8775. On peak days around 50-60% of traffic is leisure/holiday motivated however on off-peak days holiday/leisure motivated traffic may only comprise 20-25% (Lake District Transport Strategy, 2000). The calculation also uses April traffic levels to compute revenues for other months which previously have reported higher traffic levels (LDNPA, 1994)

financial viability is out with the aims and objectives of this research but an application of known costs of park and ride services facilitates a basic economic viability judgement. The fixed costs of providing a park and ride site is estimated to be £150 per space per annum at 1999 prices, the proposed Miller Field 300-space site would as a result cost £45000 (Parkhurst, 1999). Operating costs are estimated at £1.50 per bus km based on 1999 prices, with the operating schedule described requiring four buses to undertake a total of forty 24km round trips per day totalling 960 km to obtain the 30 minute headway described in the scheme resulting in a daily operating cost of £1440 and a monthly operating cost of £43,200 (Parkhurst, 1999). Therefore, the scheme would operate at a crudely estimated monthly profit of £5,850 after the hypotheticated contribution from the visitor sample but before the deduction of fixed costs, advertising costs, labour costs for patrol wardens and tollbooth operators and the start-up costs required to put in the place the necessary infrastructure e.g. the Miller Field site, buses, tollbooths as well as potential compensation payments to business operators in Great Langdale valley and inflation on 1999 prices (Langmyhr, 1997; Parkhurst, 1999). The scheme is unlikely to run at a surplus and would therefore require subsidies, which would not be within the budgetary constraints of the relevant authorities i.e. Lake District Transport Strategy (Nash, 2001).

WTP monetary road-user charges to enter certain congested urban areas within the United Kingdom has already been examined although little information is available on the policy outside an urbanised context. A comparison between data from these previously urban studies and the random visitor sample is an imperfect situation from which to generate statistically significant results. This is due to the differing methodological construction, the urban as opposed to rural context and that such singly expressed attitudinal statements are unreliable indicators of future behaviour (Ajzen, 1988). However, these limitations are recognised by the author but tolerated due to; the lack of other superior information on road-user charging in a non-urban context and that such comparisons facilitate a simple comparison of the random visitor sample with national attitudes on road-user charging.

WTP a road-user charge to drive into a congested town or city centre was asked of a UK sample of 2,202 individuals as part of the research by MORI for the Commission

for Integrated Transports' Public Attitudes to Transport 2001 report (CFIT, 2001). Just 7% of this UK sample would pay over £5.00, only 24% would be prepared to pay more than £2.00 and 26% stated a zero monetary preference in regard to such a charge (CFIT, 2001). The monetary preferences for road-user charging in Great Langdale valley (see Figure 5.2) differ from the UK sample. 47.9% of the visitor sample would pay £2.00 or more for entry to Great Langdale valley and 23.6% of the total sample stated that their WTP was at least £5. The total number of respondents stating a zero monetary preference was 47.3% of the sample. The remaining 4.8% were either not questioned on their behavioural intention or stated a WTP but did not specify a monetary figure.

Although, the author reiterates that these trends have no statistically significant relationships due to the rationale given previously, they highlight potentially different attitudes towards charging for entry to urban and rural areas, which are worthy of further investigation. A possible explanation for the difference in WTP between the two contexts could be the number of times an individual envisages visiting such localities over a period of time. Visiting a rural area such as Great Langdale valley only a few times a year with a primarily recreational motivation, as opposed to a potential daily commute to and from an urban area, could influence WTP.

Cross-tabulations performed on the visitor sample revealed significant[2] associations between the number of times the individual respondent envisaged revisiting Great Langdale valley[3] and their WTP[4] some level of monetary charge (see Table 5.5).

[2] To be a significant association in the context of this research the associated significance level (Asymp. Sig. (2-sided)) needs to be .05 or smaller (Pallant, 2001). The same significance level is used for all cross-tabulations in this chapter.

[3] The categories were collapsed for intention to revisit the Lake District National Park from 4 to 3, with 7-12 visits and 13+ visits categories producing one. Categories for intended revisiting of Great Langdale valley were collapsed from six to three, with 4-6, 7-9, 10-12 and 13+ times forming the category of 4+ visits.

[4] Cross-tabulations against WTP through this chapter is produced by two simplified variables; WTP which is the category for those respondents who expressed some form of monetary preference for the road-user charge and not willing to pay which encompassed all zero bids irrespective of legitimacy as defined in the context of this research (Heyes and Heyes, 1999).

Table 5.5 - Cross-tabulation of intended number of revisits to Great Langdale valley this year against generalized WTP

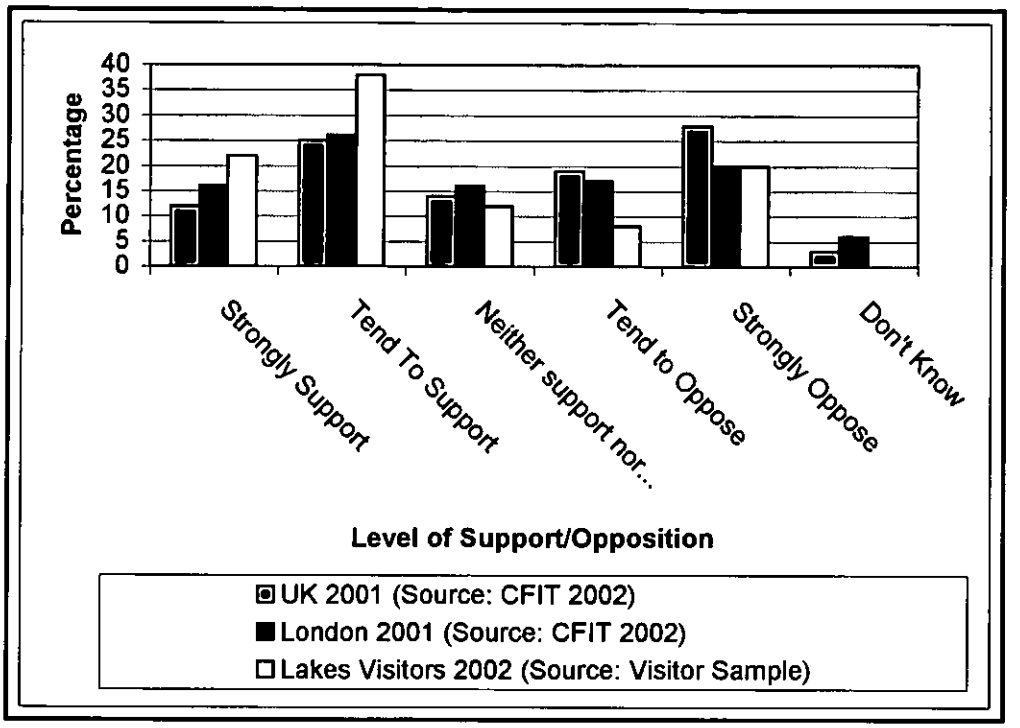
		Willing to Pay	Not Willing to Pay	Total
None	Count	11	5	16
	Expected Count	8.4	7.6	16.0
1-3 times	Count	50	34	84
	Expected Count	44.3	39.7	84.0
4+ times	Count	17	31	48
	Expected Count	25.3	22.7	48.0
	Total Count	78	70	148
	Expected Count	78.0	70.0	148.0

Chi-Square Test	Value	Degrees of Freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.975	2	.011

This cross-tabulation draws attention to the potential existence of certain thresholds within the visitor sample relating to the intention to revisit the area, beyond which individuals WTP a road-user charge in Great Langdale valley is potentially affected in relation to the existing significant costs of a recreational excursion e.g. petrol, equipment or opportunity costs. This significant association also highlights the potential for road-user charging to influence the number of repeat visits an individual motorist might undertake to Great Langdale valley. If road-user charging had an influence on the level of repeat visits, this would be a serious equity implication for visitor stakeholders, in addition to potentially representing a reduction in revenue for businesses dependent on the current spatial and temporal distribution of tourism.

The questionnaire administered to the visitor sample contained the same question posed to the CFIT UK 2001 and London 2001 sample regarding their support for road-user charging in congested urban areas. Although subject to similar sample and methodological limitations, as the previous comparison between these samples, it does highlight the visitor sample divergence from national attitudinal trends. The visitor stakeholder respondent's displayed 60% support for road-user charging in an urban context, which is in excess of the level of support displayed by the UK 2001 and London 2001 samples for the CFIT (2001) Public Attitudes to Transport report. The London 2001 sample totalled 490 individuals from the Greater London area for the UK 2001 sample is as detailed previously on page 66-67 (see Figure 5.4)

Figure 5.4 – Visitor's attitude towards road-user charges for large towns and cities



This comparison benchmarks the visitor sample as skewed in favour of urban road-user charging compared with national attitudes and a specifically urban based sample. However, as stated earlier such comparisons provide a useful benchmark but are only contrasting expressions of a single attitude which Ajzen (1988) observes to be unreliable predictors of future behaviour and furthermore have the potential to suffer from third-person bias due to the lack of a detailed scheme description contained in Question 10 in the visitor stakeholder questionnaire (see Appendices 5 and 6). The third-person effect occurs when an individual expresses an opinion on the personal cognitive basis that such an initiative would impinge solely on other individual's behaviour and not affect his or her own behaviour (Eveland and McLeod, 1999). Conversely, it is possible that these results highlight an avenue for further investigation, in that potentially individuals undertaking motor-vehicle dependent recreation in Great Langdale valley might hold more strongly supportive attitudes to urban road-user charging in comparison to other subsets of the general population. This would require further investigation to facilitate identification of any significant causal relationships and confirmation of a divergence from other specific samples of the general population e.g. non-recreational users of the Lake District National Park.

The use of road-user charging has potential equity implications for certain socio-economic groupings of visitor stakeholders. The foremost being that WTP is essentially reliant on ability to pay (Button, 1994; Baeten, 2000). Road-user charging is often proposed to possess potential Pareto-improving welfare efficiency gains, calculated regarding the sum of individual welfare gains and not their distribution across society (Reitveld and Verhoef, 1998). Therefore, although society could benefit from the overall effect of road-user charging, certain sections benefit more than others. The potential exclusion of lower income private motor-vehicle users from areas of the Lake District National Park could be a possible outcome of the introduction of road-user charging. The income[5] of individual respondents was cross-tabulated with WTP, to see if this variable had an impact on WTP (see Table 5.6).

Table 5.6 - Cross-tabulation of total household income against generalized WTP

		Willing to Pay	Not Willing to Pay	Total
under £19999	Count	13	19	32
	Expected Count	16.9	15.1	32.0
£20000-£39999	Count	33	27	60
	Expected Count	31.7	28.3	60.0
over £40000	Count	30	22	52
	Expected Count	27.4	24.6	52.0
	Total Count	76	68	144
	Expected Count	76.0	68.0	144.0

Chi-Square Test	Value	Degrees of Freedom	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.519	2	.284

The cross-tabulation of income generated an insignificant[6] association in regard to WTP the road-user charge. This could be viewed as an important deviation from the standard theoretical argument that the pricing of road use is regressive on lower income groups but the results should be viewed in the light of a potential explanatory factor. The collapsed lowest income category only had six original respondents in the less than £10000 category and the overall sample distribution was skewed towards the higher household income categories, which would be compatible with evidence for car ownership being positively correlated with a certain level of affluence within the

[5] Initially there were five income categories which were collapsed to three for analytical purposes: under £10000 and £10000-19999 formed one collapsed category and £20000-£29999 and £30000 - £39999 categories to form the other collapsed category.

[6] To be classified as an insignificant association in the context of this research the associated significance level (Asymp. Sig. (2-sided)) needs to be larger than .05 (Pallant, 2001).

general population (Banister, 1994; Button; 1994). In addition, the majority of recreational activities in environments such as the Lake District National Park require a level of household affluence above that of the simple functional use of a private motor-vehicle e.g. equipment costs, opportunity costs (Reiling et al., 1992; Tribe, 1995).

The idea that road-user charging is regressive on lower income groups must be carefully considered if such societal groupings are identified as users of a road network onto which road-user charging is introduced (Banister, 1994). However, regressive equity implications can only exist if less affluence sections of society directly use the resource. Otherwise, a regressive equity argument forwarded by other sections of the population opposed to the policy could be a mask for their own selfish gain (Giuliano, 1992). The notion that the lowest income sections of society will be excluded from road use is untrue as this social group is already excluded from private motor-vehicle ownership by the existing prohibitive costs of motoring (Banister, 1994). The potential exclusion of lower income groups by the introduction of road-user charging should be monitored but tempered by the knowledge that a free substitute good to access the area would be introduced. Although, whether excluded societal groups will use the socially stigmatised public transport alternative, in a society where the private motorvehicle has symbolic value far in excess of its utility as a mode of transport, would be open to question (Marsh and Collett, 1986; Urry, 1990). Road-user charging does present a potentially dangerous scenario if access to the total road network becomes purely a matter of money. Elitism would then be a very realistic possibility, forcedly reducing car dependence in the lower income sections of society whilst facilitating and increasing car dependence amongst the higher incomes societal groups whose time is more valuable to them and are willing to pay for time savings (Whitelegg, 1997; Calfee and Winston, 1998; Gleick, 2000). Certain private motor-vehicle journeys are the optimal transportation mode for all individuals; it would be inequitable and irrational to remove this first-best choice from an even larger section of society than is presently unable to access this transportation mode (Banister, 1994; Richardson and Chang-Hee, 1998; VTPI 2001:3).

There are also potential horizontal equity considerations. Firstly, the scheme proposed by this research stated that all current parking restrictions and charges would still be

enforced, road-user charging would simply aim to enhance the effectiveness of these current TDM measures. However, as highlighted on page 23 there was the potential inequitable factor of National Trust membership, which affords free car parking privileges to members. Therefore, WTP the road-user charge was cross-tabulated against membership of the National Trust in order to investigate the potential existence of an association. Although, the road-user charge would be an additional cost to all visitors, it was hypothesised that National Trust members might perceive it differently due to their exemption from existing parking costs (see Table 5.7).

Table 5.7 - Cross-tabulation of National Trust membership against generalized WTP

		WTPORNOT		Total
NTMEMBER		Willing to Pay	Not Willing to Pay	
Yes	Count	34	31	65
	Expected Count	34.7	30.3	65.0
No	Count	44	37	81
	Expected Count	43.3	37.7	81.0
	Total Count	78	68	146
	Expected Count	78.0	68.0	146.0

Chi-Square Test	Value	Degrees of Freedom	Asymp. Sig. (2-sided)
Continuity Correction[7]	.006	1	.940

The hypothesis generated an insignificant cross-tabulation association but the parking cost exemption afforded by National Trust membership should still be viewed as a potential deterioration of the financial deterrent aspect of road-user charging. In addition to, a horizontal equity consideration that would have to be addressed if such a policy was introduced (Emmerink et al., 1995).

The final cross-tabulation performed on the visitor sample was the Origin of respondents in regard to their permanent address against WTP. May (1992) highlighted that road-user charges based on entry across a cordon bear most heavily on those who live closest to the charging area, as it represents a proportionately larger percentage of their overall journey cost. The data regarding respondent's permanent

[7] Continuity Correction used when each variable has only two categories, this is Yates Correction for Continuity, which compensates for the overestimation of the chi-square when used with a 2 by 2 table (Pallant, 2001).

residence was collapsed into North of England and the rest of England and Wales categories to facilitate analysis[8] (see Table 5.8).

Table 5.8 - Cross-tabulation of the area of permanent residence against generalized WTP

		Willing to Pay	Not Willing to Pay	Total
North of England	Count	44	54	98
	Expected Count	51.4	46.6	98.0
Midlands and South of England + Wales	Count	32	15	47
	Expected Count	24.6	22.4	47.0
	Total Count	76	69	145
	Expected Count	76.0	69.0	145.0

Chi-square Test	Value	Degrees of Freedom	Asymp. Sig. (2-sided)
Continuity Correction	5.949	1	.015

The cross-tabulation revealed a significant association between location of permanent residence and WTP, which hints at differences in attitudes to paying more incidental to long distance visitors. In addition, this statistical analysis highlights the potential for the proposed road-user charging scheme to be regressive on those users of Great Langdale valley geographically residing closest (May, 1992).

Resident Sample Contingent Valuation Results

The initial residential population sampled was one hundred and sixty-five permanent residences by the distribution of mail-back questionnaires solely to residential properties, e.g. obvious timeshare and weekly letting property were excluded. Forty-seven questionnaires were returned a response rate of 28.5% from this spatially constrained sample (see Appendix 14). All of the returned questionnaires were deemed useable for analytical purposes, although some item non-response errors were present; they were not significant enough to exclude those questionnaires from the analysis, for example, Question 5 suffered five non-expressions of discrete monetary preferences for tourist's level of road-user charge, the most recorded for a single question in the resident sample.

[8] "North of England" category consists of Cumbria, Northumberland, Lancashire, Yorkshire, Cheshire, Humberside, Merseyside, Tyneside & Teesside and Greater Manchester, the remaining counties of England and Wales represent the "South of England and Wales" category.

Table 5.9 - Overall WTP road-user charge stated by Resident sample

Category	Frequency	Percent
Willing to Pay £5	2	4.3
Willing to Pay £4.99-£0.01	7	14.8
Not Willing to Pay	38	80.9
Total	47	100.0

19.1% of the resident sample displayed a monetary preference in relation to the level of road-user charge to enter Great Langdale valley (see Table 5.9). The remaining 80.9% of respondents not willing to pay a road-user charge were not segmented into legitimate zero and protest bids. Such a categorization was considered inappropriate as the individuals were residents in the area and the idea of being able to simply opt out of the hypothetical market was unrealistic. There are no previous studies of road-user charging in National Parks, which surveyed a resident population, and would facilitate comparison of the research results gathered from this resident stakeholder sample to another dataset.

The sample of the resident population revealed that twelve respondents were not permanent residents of Great Langdale valley. Only nine out of the 47 individual respondents stated a WTP some amount of road-user charge. Therefore, overall WTP was cross-tabulated with residential status[9] to see if these two variables displayed any significant association. The cross-tabulation did not reveal a significant association between residential status and WTP a road-user charge (see Table 5.10). The sample used was limited as it only revealed twelve non-permanent residents and these were assumed to be second homeowners due to the non-distribution of questionnaires to clearly marked timeshare/let properties. This insignificant cross-tabulation, assuming that non-permanent residents have travelled greater distances to reach Great Langdale valley, would seem to reject the hypothesis that the road-user charge burdens those closer to or in this instance within the charging area by representing a proportionately higher percentage of their journey cost (May, 1992). However, the simplistic division of the resident sample, its spatial limits and low response rate, requires a further detailed study of the wider residential population e.g. permanent residents, second-

[9] Residential status variables were generated by collapsing those respondents who permanently live in the area and ticked one of the four categories; less than 1 year, 1-10 years, 11-20 years and 20+ years into a permanent resident variable and cross-tabulating against those respondents who indicated non-permanent residential status.

home owners and timeshare/let occupants to establish a significant causal relationship.

Table 5.10 - Cross-tabulation of state of residency against generalized WTP

		Willing to Pay	Not Willing to Pay	Total
Permanent Resident	Count	4	30	34
	Expected Count	6.7	27.3	34.0
Not a permanent Resident	Count	5	7	12
	Expected Count	2.3	9.7	12.0
Total	Count	9	37	46
	Expected Count	9.0	37.0	46.0

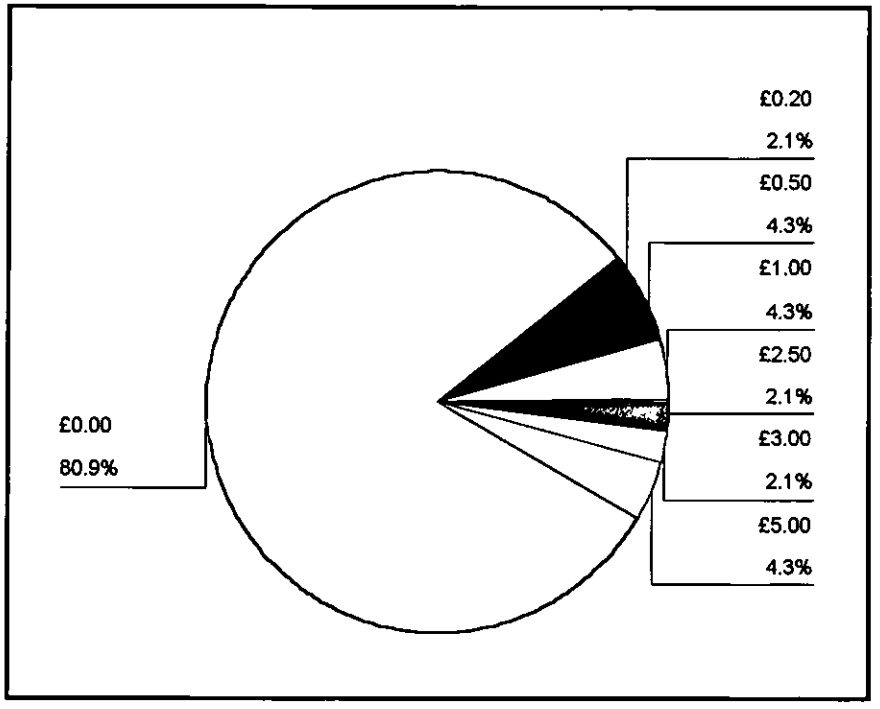
Chi- Square Test	Value	Degrees of Freedom	Asymp. Sig. (2-sided)
Continuity Correction	3.318	1	.069

The dominant category of individual WTP responses was zero monetary preferences accounting for 80.9% (see Figure 5.5) and therefore the mean instead of the median was identified as the most appropriate descriptive statistic for the resident sample and it facilitated analytical continuity. The skewed distribution dominated by zero monetary preferences also affects the mean statistics validity, which for the resident sample was £0.40 (see Table 5.11).

Table 5.11 – Resident Sample aggregated WTP in £

	N	Minimum	Maximum	Sum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
WTPIN£	47	.00	5.00	18.70	.3979	.1671	1.1454

Figure 5.5 – Discrete Maximum WTP a road-user charge for Great Langdale valley from the resident sample



The mean aggregated from residents preferences is affected by the large number of zero bids but it does bear comparison to the 90% discount offered to residents on the proposed £5.00 charge for the City of London road-user charging scheme (Transport for London, 2001). However, the domination of the sample response by the zero monetary preference category is perhaps a reflection of the enforced nature of car ownership in rural areas in order for access to more spatially dispersed resources and an unwillingness to assume additional costs for this enforced behaviour and for a good previously provided free of charge (Huszar and Seckler, 1975; Giuliano, 1992; Banister, 1994). Cullinane and Stokes (1998) observe that there are 511 cars to every 1000 individuals in rural areas compared to 370 cars per 1000 individuals in urban areas. Furthermore, unlike the residents of the proposed City of London road-user charging area, they do not have the myriad of public transportation services to transfer onto presently and the hypothetical scheme only offered the addition a 30-minute headway bus service to Ambleside between 8am – 6pm and no direct connections elsewhere were detailed. In addition, the limited spatial coverage of the scheme presents horizontal equity implications, the scheme description details that only a small spatial area of the National Park would be subject to the road-user charging whereas road use in other areas of the National Park would not be (Emmerink et al.,

1995). Therefore given the factors highlighted previously, 38 zero monetary preferences expressed by the resident sample, is not a wholly unexpected result (see Table 5.9).

The resident sample was also questioned for their opinion on whether they thought tourists to the area should pay in road-user charges. 36.2% of the resident sample stated that tourists to the area should pay a road-user charge (see Table 5.12). Zero bids were once again not segmented into legitimate zero and protest bids due to the context of the question, which required the expression of an opinion for another individual.

Table 5.12 – Resident's opinion on whether tourists should pay a road-user charge

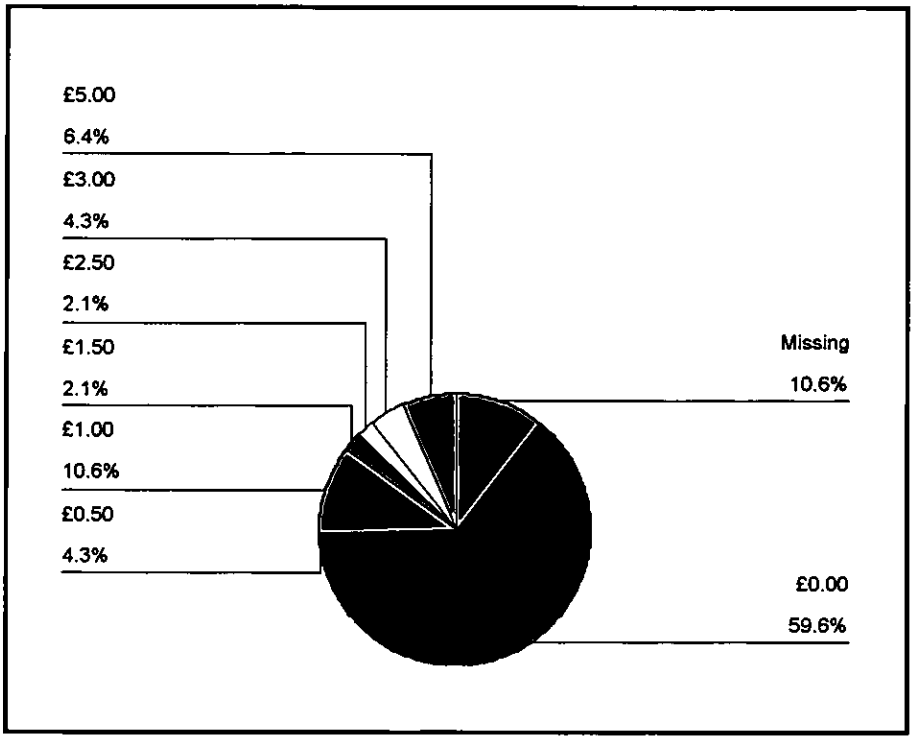
Category	Frequency	Percent
Yes	17	36.2
No	29	61.7
Sub-Total	46	97.9
Missing	1	2.1
Total	47	100.0

No upper limit was set for responses to the question, although the respondents might have inferred an upper bound from previous questions. Nevertheless, principally for continuity reasons, the mean was chosen as the descriptive statistic, which was calculated as £0.74. This was £1.05 below the WTP mean of £1.79 expressed by the visitor sample themselves for road-user charges (see Tables 5.3 & 5.13). Once more the mean is affected by the skewed distribution of responses, 59.6% stating zero monetary preferences (see Figure 5.6). Four of the five Missing entries on Figure 5.6 are from individual respondents who agreed that tourists should pay some level of monetary road-user charge but did not specify a figure.

Table 5.13 - Aggregated level of road-user charge Residents think tourists should Pay in £

	N	Minimum	Maximum	Sum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
WTSP	42	.00	5.00	31.00	.7381	.2210	1.4324

Figure 5.6 - Discrete level of road-user charge Residents think tourists should Pay in £



This author recognises that the term 'tourist' is very ambiguous and this level of support could change if the scheme got closer to implementation and the exact description was specified e.g. if visiting family and friends were subject to the charge, support might be eroded (Goodwin, 1989). A potential hypothesis for the 36.2% support for tourists paying a road-user charge was the dependency of household income upon tourism of each resident respondent. Cross-tabulation analysis of the resident sample revealed an insignificant association between the level of household income dependency on tourism[10] and attitude to tourists paying a road-user charge (see Table 5.14). Therefore, while recognising the limits of the resident sample, the result highlights the potential influence of other factors in the formulation of resident's attitude towards payment of a road-user charge by tourists to Great Langdale valley.

[10] The level of household income dependency on tourism was generated by collapsing those respondents who specified some level of household income dependency on tourism by ticking one of these three categories; somewhat dependent, dependent and very dependent into a dependent variable and cross-tabulating against those respondents who indicated a household income independent of tourism.

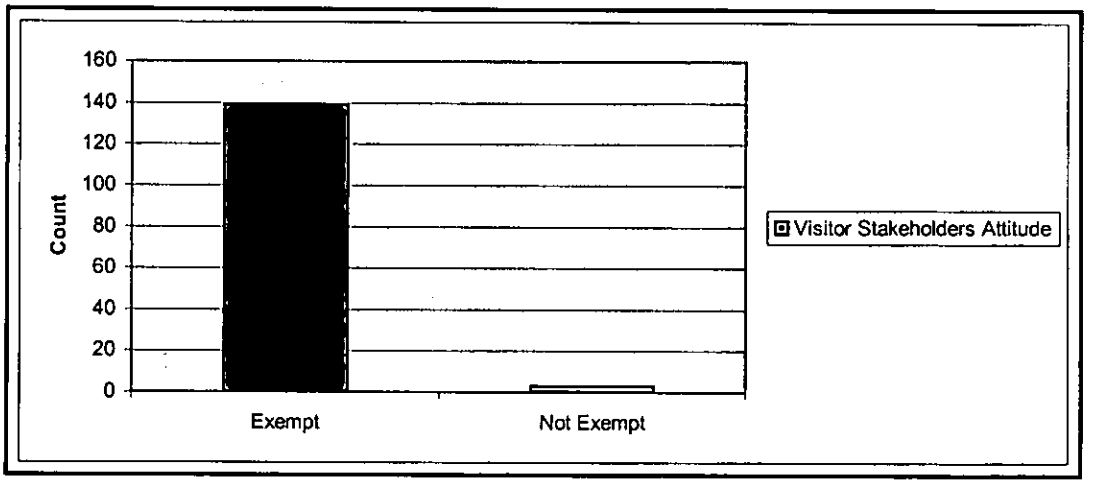
Table 5.14 - Cross-tabulation of residents opinion on tourists paying road-user charges against household income dependency upon tourism.

		Independent	Dependent	Total
Yes	Count	12	5	17
	Expected Count	10.8	6.2	17.0
No	Count	16	11	27
	Expected Count	17.2	9.8	27.0
Total	Count	28	16	44
	Expected Count	28.0	16.0	44.0

Chi-Square Test	Value	Degrees of Freedom	Asymp. Sig. (2-sided)
Continuity Correction	.193	1	.661

The visitor sample revealed a vast majority of respondents thought that residents should be exempt from the road-user charge (see Figure 5.7). This is significant as residential stakeholders are responsible for a large percentage of the recorded levels of motor-vehicle traffic in Great Langdale valley (Lake District Transport Strategy, 2000). The lack of support for subjecting these stakeholders to the road-user charge does reduce the financial practicality of the scheme to operate over the stated six-month temporal frame due to a loss of such a prominent revenue stream and the cost associated with producing a suitable exemption mechanism e.g. a resident's pass for their motor-vehicles (Langmyhr, 1997).

Figure 5.7 – Visitor stakeholders attitudes towards the granting of exemption for Great Langdale Valley resident's from the road-user charging scheme

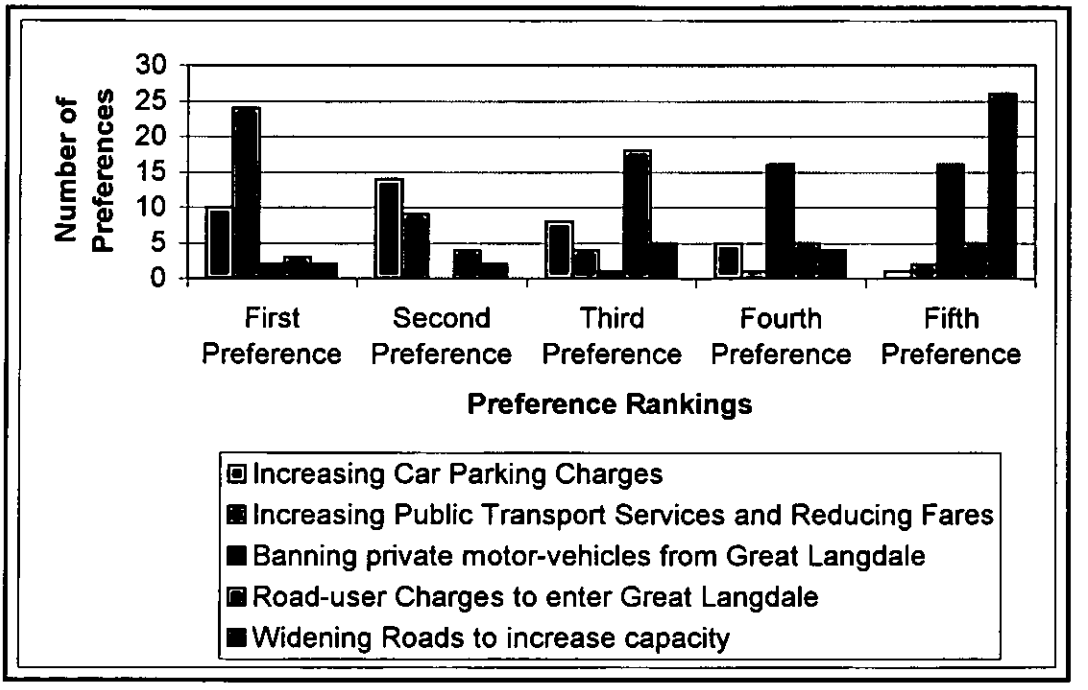


Residential exemption would be an equity requirement of the scheme due to the enforced nature of car ownership, the limited spatial coverage of the scheme and the

costs involved in leaving the market by relocating to a residential property elsewhere. Whether or not this level of support by the visitor sample for exemption of all residents e.g. second-home owners, would be maintained if the scheme were introduced would require further detailed research. Indeed, the closer a policy is to implementation the requirement to provide an exact description of the policy increases, which can modify original expressions of support. The original simplistic scheme description detailed for this research, facilitates different groupings to support the policy however when the details are finalised the policy may no longer advance the objectives of certain original supporters reducing support from these stakeholders (Goodwin, 1989).

Residents were also asked to rank five potential TDM strategies for Great Langdale valley in order of preference. The TDM scheme ranked first by 24 resident sample respondents was increasing the provision and reducing the cost of public transport services, followed by 14 second preferences for an increase in car parking charges in Great Langdale valley (see Figure 5.8).

Figure 5.8 – Resident's ranking of five potential TDM strategies

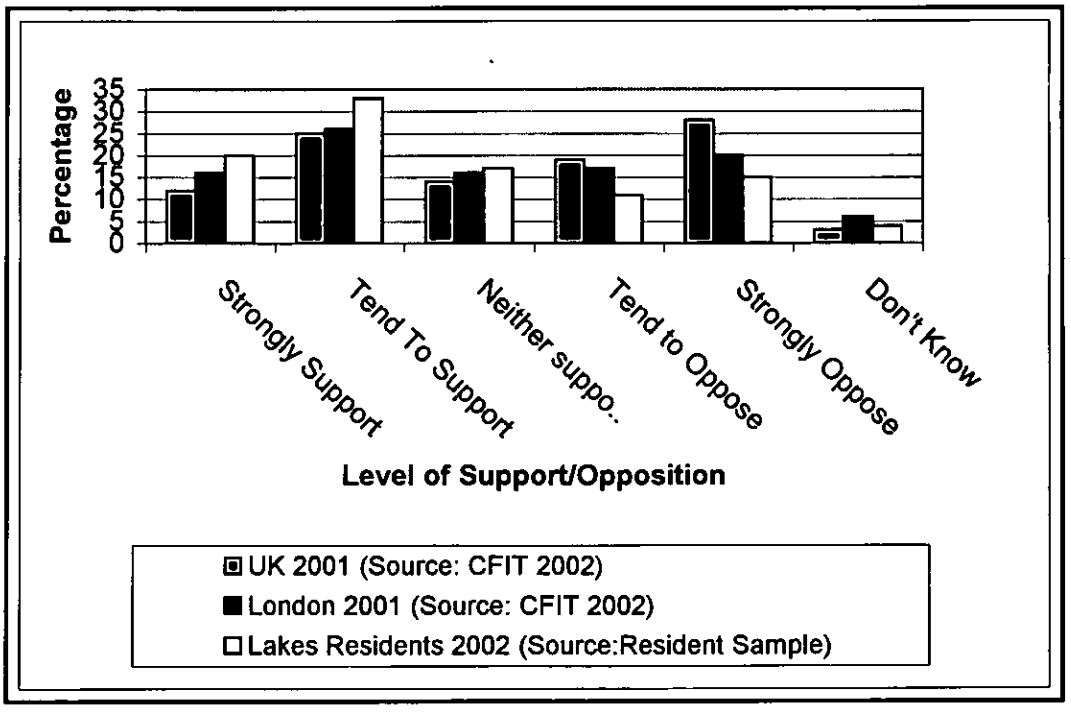


The ranking of these two preferences first and second is not surprising as these are the two measures, which would have least impact on resident's current mobility patterns.

There would be no enforcement of residents to use public transport it would simply add to the modal choices available to them (Cullinane et al., 1996). The majority of residents could also have private car-parking spaces shielding them from the cost of the increase in car-parking charges or local knowledge of the lack of enforcement of car-parking charges in Elterwater. Two of the remaining three TDM measures; road-user charging and banning motor-vehicles, would impact on their current private transportation mobility patterns (Cullinane et al, 1996). The option of widening the roads in Great Langdale valley could impact adversely on the current aesthetics of their residential environment, therefore the limited support for these measures is unexpected when analysed in this context (Dilley, 1993)

The resident sample displayed 53% support for road-user charging in an urban context (see Figure 5.9), which is in excess of the level of support displayed by the UK 2001 and London 2001 samples detailed previously on pages 66-67 and 68 respectively (CFIT, 2001). This benchmarks the resident sample as skewed in favour of urban road-user charging compared with national attitudes and a specifically urban-based sample but it is a flawed comparison due to the differing context, simplistic explanation and potential third-person effect as highlighted previously on page 69 (Eveland and McLeod, 1999).

Figure 5.9 – Attitude towards road-user charges for large towns and cities

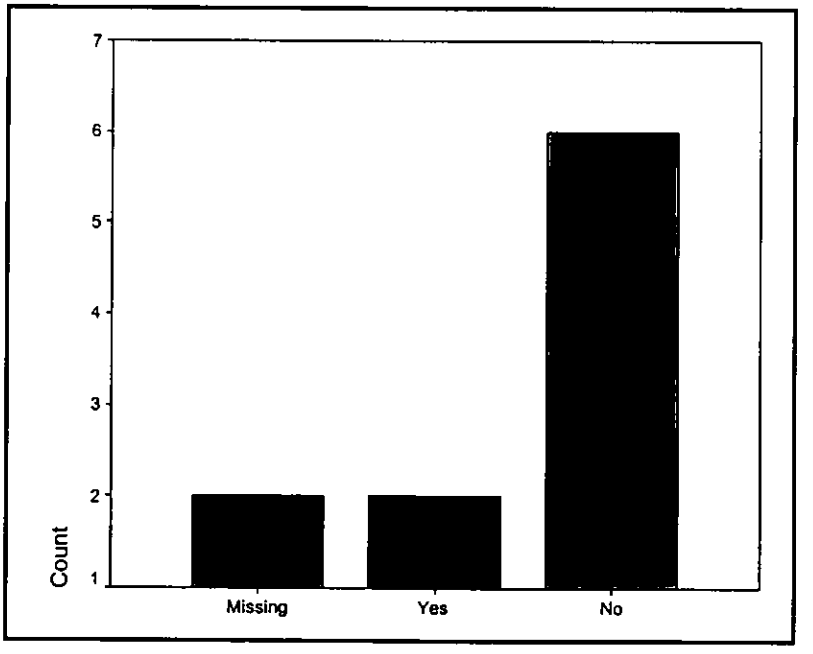


Business Operator Sample Contingent Valuation Results

A total population of 24 business operators were identified by the author as being dependent upon the current temporal and spatial nature of tourism within Great Langdale valley in this spatially limited sample (see Appendices 13 and 14). The sample was mailed a questionnaire on 2nd April 2002 to return in a pre-paid envelope. Ten questionnaires were returned from this sample, a response rate of 41.7%. All of the returned questionnaires were considered as reliable for descriptive purposes with only modest item non-response errors present e.g. Question 1 suffered two item non-responses the most recorded for a single question.

Only one respondent calculated a specific level of monetary compensation for their individual business operation, which they stated was £300,000 per year. Another respondent stated that their business would be willing to accept a compensation payment but the monetary figure would depend on the level of impact road-user charging produced. Six respondents rejected the idea of a compensation payment and two did not respond to the question (see Figure 5.10).

Figure 5.10 – WTA a Compensation Payment for introduction of road-user charging in Great Langdale valley.



The limited sample did not tolerate significant investigation by cross-tabulation and the descriptive statistics were not calculated due to item response bias and the

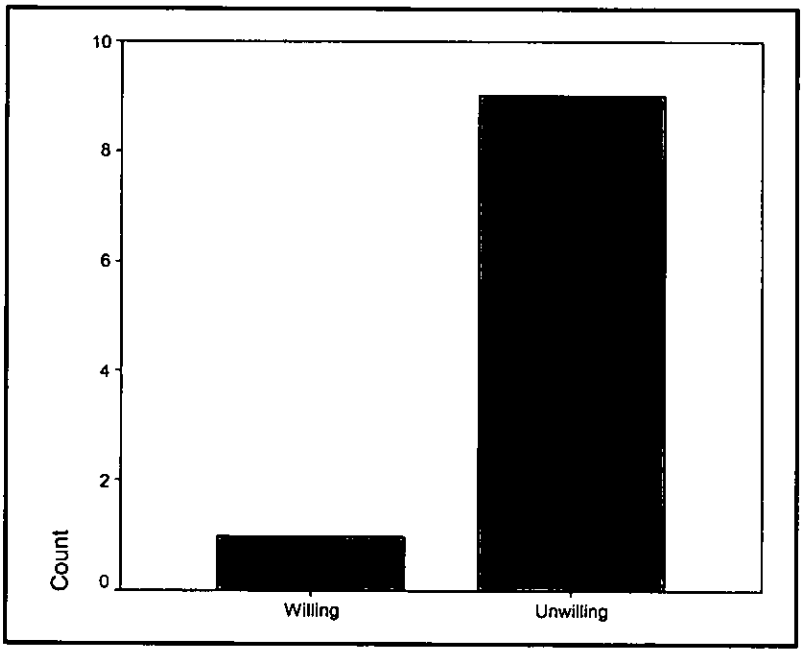
existence of a large outlier in the dataset. The prevailing attitude was against the proposed road-user charging scheme due to the economic impact it could have on the business community. One Respondent stating:

"Our Business relies heavily on car borne traffic therefore anything to put people off using their cars to visit Langdale would be a Disaster! For us and all other Langdale business".

While another respondent observed:

"If residents have to pay a fee to reach my business then why stay here when you can stay in Ambleside without a fee? Can you imagine a family staying for a week using a bus for luggage?"

Figure 5.11 - Acceptance of road-user charge for tourists by Business Operators



Only one business operator respondent out of the ten who replied thought that tourists should be charged for road-use (see Figure 5.11). This solitary positive response stated:

"The amount would depend upon needs. A plan costed and divided by the number of visitors could determine the amount."

Even this positive response displays a potential revenue maximisation rather than internalising the costs of road network congestion rationale underpinning to the response (Ramjerdi, 1994). The attitude of the majority of Business Operators to the potential charging of tourists for road use was unreceptive of the idea. One respondent stating:

"If you want to get our visitors back here, I don't think they should be paying a toll with last year's foot and mouth. I don't think this should go ahead".

Another respondent observed that:

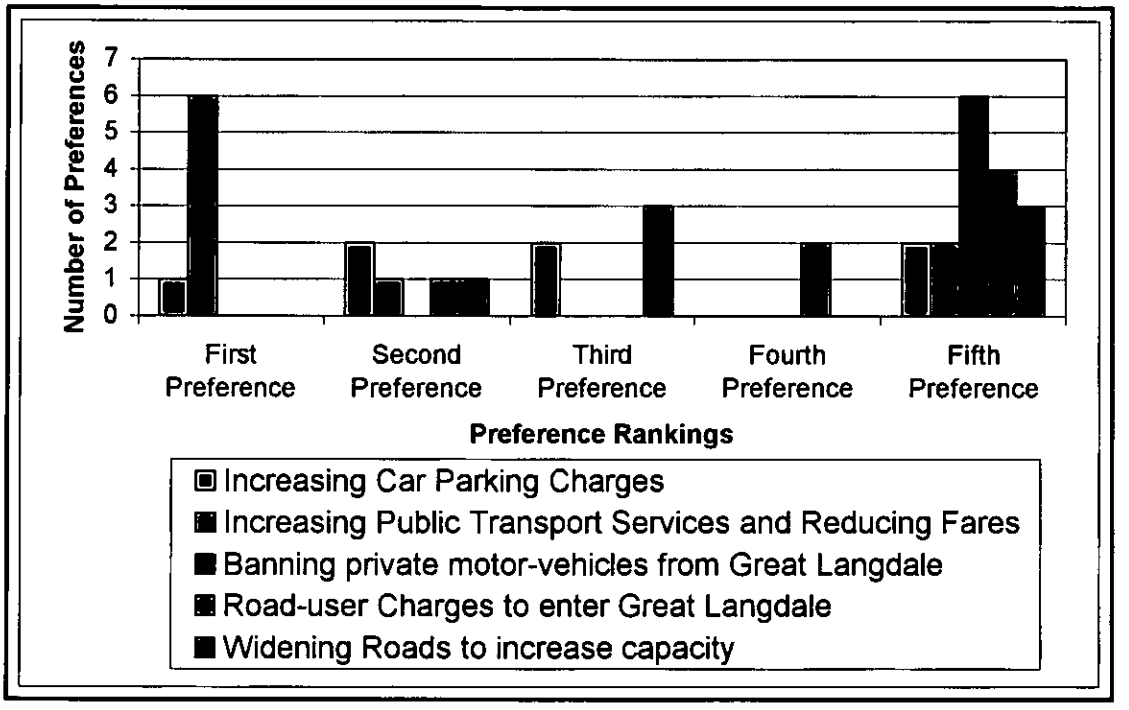
"People have to live and work in the area, it is not a museum!"

Consequently, considering the impacts of foot and mouth disease on the region and the policy emphasis placed on enticing back visitors to the area, it was not an unsurprising result that a scheme proposing further restrictions on visitor's main mode of transport to the area was rejected by 9 out of 10 of the business operator responses (see Figure 5.11). In addition to the road-user charging scheme contradicting current policy emphasis e.g. Lake District Transport Strategy (2000) aim to assist tourism industry to become sustainable and attempts to entice visitors back following the impact of foot and mouth disease in 2001, reducing the perception of plausibility within the sample and potentially increasing hypothetical bias. Furthermore, the horizontal inequity of a scheme which only introduces a road-user charge over a very small part of the wider National Park road network upon which all businesses rely on to facilitate the transportation to the area of most of it's customers would not have increased the scheme's popularity (Emmerink et al., 1995; Countryside Commission, 1996).

The business operation sample were asked to rank a list of five potential TDM measures in order of preference, this question suffered significant non-response error due to perhaps the simplistic one line description of each TDM measure or a total rejection of the TDM measures listed. The attitude of the sample in response to this and the results detailed previously (see Figures 5.9 & 5.10) appeared to be risk aversive with a desire for the status quo in regard to transportation policies for Great

Langdale valley (Tversky and Kahneman, 1981). The "carrot" measure of increased provision and reduced public transportation, with no incentive to modal shift simply an improvement in services, only gained six first preferences in this ranking exercise (Cullinane et al., 1996) (see Figure 5.12).

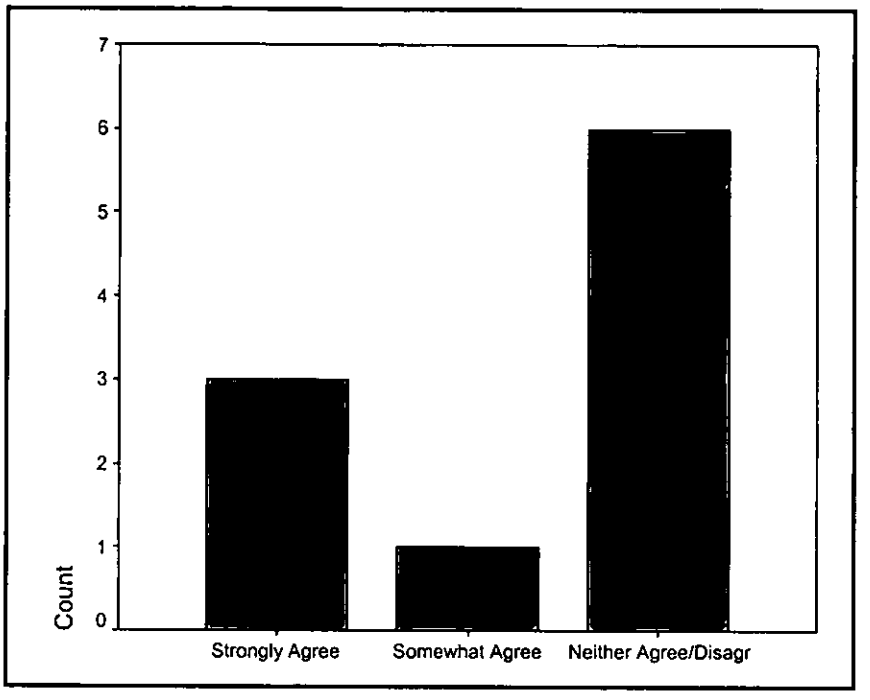
Figure 5.12 – Business Operator's rankings of potential TDM strategies in order of preference



The answers to the single attitude statement "I would like to see an increase in the number of tourists visiting Great Langdale valley", potentially provides further evidence for risk aversion, with a majority of six business operators taking the neutral view "Neither agree nor disagree" on this issue (see Figure 5.13). Risk aversive behaviour would be unsurprising considering the economic impact on the local economy by the foot and mouth disease outbreak. However, risk aversive behaviour is normally prevalent for choices involving gains not the losses envisaged by the business operators regarding road-user charging (Tversky and Kahneman, 1981). One respondent stating:

"People will not pay £5 daily fee to enter Langdale".

Figure 5.13 - "I would like to see an increase in the number of tourists visiting the Great Langdale valley".



However, the majority of the business operator sample initially rejected the rationale of the road-user charging scheme, a demonstration of risk aversive behaviour itself. Business operators may have also felt that any efficiency gains from road-user charging would be indirect to their businesses whereas any losses would be in a directly relevant context namely their own business turnovers. However, this behavioural study is limited by the small sample of business operator produced and the single attitude statements used. Further research would be required to produce a significant behavioural analysis

The respondent statements highlighted previously appear to emphasize that the prevalent attitude of the business operator's sampled is that the road-user charging scheme would cause a reduction in visitor numbers, which is seen as especially damaging considering the economic impact of foot and mouth disease. Cullinane et al. (1996) have previously quoted Hass-Klau's (1993) research on the impact of pedestrianisation and its potential ability to present a more pleasant consumption environment for consumers to justify the introduction of TDM strategies in rural areas. The implication being that the reduction in traffic levels might mitigate dissatisfaction generated by the reduction in personal mobility thereby retaining

visitor numbers at or near current levels. However, Hass Klau's (1993) research was urban in context and road-user charging or other rural TDM strategies might not produce the same reduction in traffic as pedestrainising an urban town/city centre therefore the transfer of similar benefits could not be guaranteed to an environment more spatially dispersed and with different motivations for consumption patterns within it (Crabtree et al., 2000). In addition, the complex causal relationships between land use and transportation could be altered by the introduction of road-user charging to Great Langdale Valley (Owens, 1995; Southworth, 2001). This particular form of TDM management could transform activities e.g. circular walks, which are based on the present transportation – land-use interaction (Macnaghten and Urry, 1998; Whitehead, 2002). Therefore, the current business operator's current clientele may not necessarily return to the area representing another motivation for risk aversive behaviour (Tversky and Kahneman, 1981).

Conclusion

This chapter has analysed in detail specific results from the three stakeholder sample questionnaires and related the findings to current academic theory. The analysis of the visitor sample generated a simplistic demand profile for road-user charging in Great Langdale valley (see Figure 5.2) and facilitated the understanding of behavioural response at specific prices for road use. The imposition of a £2.00 road-user charge could lead to a 52.1% reduction in intention to visit Great Langdale valley by motor-vehicle, overall 68.6% of the visitors sampled, would still access the area by either private motor-vehicle or the free bus provided by the hypothetical scheme.

The sample also generated a mean WTP figure of £1.79 by aggregation of all the stated monetary preferences including protest bids, facilitating a basic economic evaluation displaying a potentially large operating deficit for the scheme. The sample's attitude towards road-user charging for urban areas displayed increased support for this policy when benchmarked against national attitudes. WTP responses were collapsed into two polar categories to facilitate non-parametric cross-tabulation analysis to investigate if certain variables had significant associations with general WTP behaviour; number of visits, place of permanent residence, were all significant. The cross-tabulation of National Trust membership and income were not significant

but require consideration on the basis of horizontal equity distribution for all visitors for the former result and the reinforcement of vertical equity inequalities for the latter.

The resident sample generated a demand profile and the mean for this stakeholder group's WTP a road-user charge and demand profile for what level of road-user charge they thought tourists should pay. The response rate of the spatially limited sample and categories employed facilitated only two cross-tabulations to investigate the impact of permanent residence in the valley on WTP and income dependency on tourism on attitude for tourist's payment of a road-user charge, both produced insignificant associations. The mean of the two demand profiles were £0.39 for residents own WTP and £0.74 for their opinion of what tourists should pay in road-user charges. The resident's WTP only included nine positive monetary preferences whereas over a third of the sample expressed a positive monetary preference for what tourists should pay in road-user charges, generating a mean figure of £0.74. This sample was also benchmarked against national and urban attitudes towards road-user charging and demonstrated increased support in comparison to the two samples examined. The clear first preference for TDM strategies in the valley was increasing provision and reducing costs of public transport, a measure that would not negatively impact on the samples current mobility patterns.

The business operator sample did not facilitate the generation a significant compensation profile due to the rejection of the rationale underpinning the hypothetical scheme by the majority of the sample. The vast majority of the sample indicated their opposition to the scheme both in terms of themselves rejecting the idea of receiving a compensation payment and tourists having to pay a road-user charge to access the area. The business operator sample similar to the resident sample ranked public transport as their most preferred TDM strategy, stated that visitor numbers should be stabilised at current levels and generally exhibited risk aversive behavioural responses.

Chapter 6 – Conclusion

This chapter will conclude this research by addressing the findings of the research directly to the aims and objectives originally stated, summarise the research experience and recommend further avenues for academic investigation of this topic.

Aims and Objectives

The aim of this research is to analyse the potential contribution of road-user charging to the management of motor-vehicle volumes within a specific area of the Lake District National Park as well as investigate the potential socio-economic equity implications for all stakeholders involved. The specific objectives are:

1. To investigate the potential response of motorists currently using Great Langdale valley to the introduction of a charge for entry. This will test the hypothesis that increasing the cost of a road-user charge will decrease motorists stated intentions to enter a specific area of the Lake District National Park for recreation (Bovaird et al., 1984; Weinberger, 1997).

2. To investigate the impact of road-user charging on the host community of Great Langdale Valley. The values and attitudes of two subdivisions of the host community will be examined in relation to the road-user charging proposal; the residential population of Great Langdale Valley and the business community, whose revenue is dependent on the current temporal and spatial pattern of tourism. The host community of the Lake District National Park in it's entirety has previously been vociferous in their opposition to traffic management initiatives (Holding, 1998).

3. To facilitate a critical awareness of Contingent Valuation methodologies when applied to a complex environment.

The results from the random opportunity sample of visitor stakeholders highlight the potential response of motorists to road-user charging. An overall reduction of 31.4% in intention to use a private motor-vehicle on the road network of Great Langdale valley if a £2.00 road-user charge was implemented; 47.9% of the total valid visitor sample would continue to use a private motor-vehicle and 20.7% would use the free bus service. The visitor sample also displayed one other level of monetary charge: £5.00, which could trigger a significant response in terms of WTP the road-user charge, only 23.6% of the visitor sample were willing to pay this level of road-user charge. Zero monetary preferences accounted for 47.3% of the total visitor sample although only 27% were protest bids from individual respondents who would not enter Great Langdale valley at all if a positive monetary charge were levied (Heyes and Heyes, 1999).

However, the specific road-user charging scheme proposed in this research project for Great Langdale valley did not present a viable TDM strategy. The advantages of road-user charging in comparison to other TDM strategies detailed in Chapter 3 for example; traffic restraint policy for through traffic, financial incentive to transfer to public transport modes and reform of the current situation rather than revolutionary change of the present road network, are offset by the fact that the practical implementation of the scheme would present too many socio-economic equity implications. No TDM strategy is the first-best approach in regard to every possible equity implication; Small (1992) observes that when the objective is the reduction in road network congestion some section of the population will suffer a loss of welfare. Nevertheless the equity implications are too severe on certain stakeholder groups to pursue the proposed road-user charging scheme on the grounds of a potential Pareto improvement in overall welfare (Reitveld and Verhoef, 1998)

The relatively small spatial scale of scheme operation proposed would have the potential to simply displace congestion inefficiency to other parts of the road network not subject to road-user charging and disrupt the relatively constant equilibrium conditions produced by other TDM strategies currently implemented (May, 1992; Quinet, 1994; Lake District Transport Strategy, 2000). Also, the potential temporal reduction in an individual's motorist's elasticity of demand could simply negate any efficiency gains on the Great Langdale valley road network over time (Green, 2001).

In addition to the financial cost of implementing and subsiding the scheme for Great Langdale valley this research project observes the scheme would potentially require subsidies to operate. There could also be increased costs involved in the management of congestion reductions produced by the scheme being displaced into other parts of the National Park road network.

The proposed road-user charging scheme also has potential horizontal and vertical equity implications for visitor stakeholders based on the cross-tabulation analysis of this research. The origin of visitors is a potential equity issue. The longer the overall journey to the destination, the lesser percentage of travel costs the static cordon road-user charge proposed represents for the individual motorist, therefore the road-user charge is potentially regressive on those living closer to Great Langdale valley (May, 1992). Total household income was also cross-tabulated but produced an insignificant result however this research randomly sampled a group of individuals whose income distribution was skewed towards the higher categories. The potential for a road-user charging scheme to reinforce the already prohibitive financial costs of visiting the area should not be overlooked, if low-income groups are identified as recreational participants within Great Langdale valley (Reiling et al., 1992; Banister, 1994,).

Additionally, although WTP generated an insignificant result when cross-tabulated against membership of the National Trust this still presents a potential horizontal equity problem. The free car-parking afforded by membership means National Trust members continue to be exempt from parking costs which would still be imposed on other individual motorists under the proposed road-user charging scheme. Furthermore, this membership benefit has the potential to erode the financial deterrent aspect of road-user charging by individuals joining the National Trust to secure reduced parking costs. The cross-tabulation of WTP against intended number of times the respondent planned to revisit Great Langdale valley produced a significant result, which may highlight the potential existence of a threshold of the number of times an individual will pay the road-user charge per year. This could reduce the number of repeat visits to the area highlighting another potential horizontal equity problem. A reduction in repeat visitors could also signal a reduction in revenues for business operations dependent on the current spatial and temporal distribution of tourism within Great Langdale valley.

This research demonstrated that the attitude of the majority of the host community as a whole was one of opposition to the road-user charging scheme, bearing comparison to opposition towards previously proposed traffic management schemes (Holding, 1998). The main difference in values and attitudes towards the road-user charging scheme between the two samples of the host community is the increased acceptability of the residential sample to the notion of charging tourists visiting Great Langdale valley for entry. The road-user charging scheme proposed could have potential socio-economic impacts on both of the specific divisions of the host community identified by this research project: residents and business operators.

Unlike urbanised environments where the pricing of road use has previously been implemented, such a rural tourist area as Great Langdale Valley does not have the threshold levels of residential population to financially support the existence of a large network of public transportation, which would permit a simple modal shift to other transportation modes by the individual to maintain their current mobility patterns in spite of the proposed road-user charge (Cullinane and Stokes, 1998). This research has emphasised the higher levels and enforced nature of car ownership reported by Cullinane and Stokes (1998), within the residential population of U.K. rural areas probably due to the limited nature of public transport in rural areas compared to urban areas. In addition, the scheme proposed the introduction of road-user charging only in Great Langdale valley; other residential stakeholders within the rest of the National Park would not be subjected to similar financial charges on their private motor-vehicle mobility representing a horizontal inequity (Emmerink et al., 1995) Furthermore, re-emphasising the latter two points, the third strategic aim of the Lake District Transport Strategy (2000 p.1) is to 'enable the local community to go about its normal business' consequently the non-exemption of residents would leave the proposed scheme unable to be adopted into the wider policy framework of the Lake District Transport Strategy.

Therefore, it was not unsurprising for the residential stakeholders sampled during this research to demonstrate an unfavourable attitude to the scheme. 19.1% of the resident sample stated a positive monetary preference for a road-user charge, indeed 140 individual respondents from the visitor sample stated that residents of Great Langdale

valley should be exempt from the road-user charge. However, the rationale underpinning the proposed scheme was to investigate the potential of road-user charging to manage the amount of motor-vehicles in the area for recreational purposes not to reduce residential stakeholders individual mobility.

Road-user charging would also impact heavily on businesses operating within Great Langdale valley that are dependent on the current spatial and temporal provision of tourism. 89% of their clientele arrive in the Lake District National Park by private transportation and therefore any restriction on this mode of travel could have a massive impact on these businesses (Countryside Commission, 1996). This is especially important in light of the financial impact the outbreak of foot and mouth disease had on the area during the last financial year. In addition, the fourth strategic aim of the Lake District Transport Strategy (2000 p.1) is to 'maintain the tourism industry and assist it to become sustainable'. Therefore, the introduction of a scheme deterring a significant percentage of their customers from the use of their prime mode of transportation to the area and without the considerable modal shift onto public transport to maintain overall visitor numbers, would not fulfil this strategic aim. These potential reductions in visitor numbers would not assist a move towards sustainability presently especially considering the financial hardship most businesses in the National Park have faced over the last financial year (Pion Economics, 2001; CRE, 2002). Sustainability requires the continued operation of a process, the introduction of such the road-user charging scheme could be too short a temporal frame for the small-scale business operations to adapt, if adaptation was possible at all, for some the potential reduction in visitor numbers could make the difference between continued operation and bankruptcy.

Therefore, the risk aversive rejection by the business operator sample of the scheme both in terms of; WTA compensation payments and charging tourists for road-use are hardly unexpected especially since the road network congestion efficiency gains produced by the scheme would not benefit them directly but the potential loss of revenue from visitors would have a direct impact on their business operation (Tversky and Kahneman, 1981). Furthermore, the rejection of the road-user charging scheme is understandable given the horizontal equity situation; the business operators in Great Langdale valley would have to accept monetary compensation payment whereas

businesses in other areas of the National Park would be free to continue their current trading patterns (Emmerink et al., 1995).

This research has also facilitated critical evaluation of the Contingent Valuation Methodology and general survey design in a complex environment. The potential behavioural responses and socio-economic equity implications have to be analysed with appropriate recognition of the methodological context. The monetary preferences generated by this application of Contingent Valuation methodology are dependent on accurate representations of individual's WTP. Willis and Powe (1998) found divergence of actual and hypothetical WTP responses for a private good i.e. entrance ticket to a tourist attraction, a good not requiring a hypothetical market to value unlike the quasi-private good which is pricing of road use in Great Langdale Valley. Therefore, with only the hypothetical values generated for the Upper Wharfdale scheme and no actual revealed monetary preferences for a similar good to compare the monetary preferences for the Great Langdale Valley scheme to, the potential accuracy of the values generated by the application of Contingent Valuation Methodology will be in question (Diamond and Hausman, 1994; Vossler et al., 2002). Hypothetical statements of intent do not represent actual behaviour and the potential for such divergence should not be underestimated (Ajzen and Fishbein, 1977; Ajzen, 1988). However, the Contingent Valuation Method has generated suitable monetary preferences previously and instances of divergence should not be grounds for total dismissal of the methodology merely caution during every application (Mitchell and Carson, 1989). The author if using the methodology again would wait until actual monetary preferences had been displayed for the pricing of road use in a National Park (i.e. Upper Derwent valley scheme proposed by Derbyshire County Council but postponed due to the U.K. outbreak of foot and mouth disease in 2001) to enable a validation of hypothetically expressed values and attitudes to actual behaviour in a similar situation (Diamond and Hausman, 1994; Willis and Powe, 1998; Vossler et al., 2002)

The potential of road-user charging to initiate behavioural changes as highlighted by this research on the population as a whole is also based on the fundamental assumption that the findings generated from a random opportunity sample would occur in the wider population. Indeed, the results generated by the random visitor as

well as resident and business operator samples may not even be representative of the total population that initially received the questionnaires. There was no *a priori* knowledge of the three stakeholder random samples in terms of specific characteristics, values or attitudes and since no sample obtained a 100% response rate it should not be taken for granted that the overall results from the realized sample are representative of the initial distribution sample (Mattsson and Li, 1994). Cullinane et al (1996) observe that individual respondent's with strong views either negative or positive towards the scheme/policy described may have a higher motivation to return the questionnaire. In addition, the analytical procedures undertaken by this research did not facilitate the establishment of causal relationships and the cross-tabulation analysis undertaken is based on the assumption that protest bids represented zero monetary preferences when the categories were collapsed to facilitate analysis and not the non-revealing of an actual monetary preference (Heyes and Heyes, 1999)

In conclusion, the potential road network efficiency gains road-user charging could deliver to an overall TDM strategy for Great Langdale valley is severely reduced if not wholly erased by the problems produced by the application of such a large scale, rational utopian policy within a spatially small, complex, practical environment (Quinet, 1994; Skoble, 2001). The introduction and subsequent hypothetical reduction of 31.4% of visitors by a £2.00 road-user charge demonstrates that the spatially limited area of Great Langdale valley does not have the brand loyalty to operate the proposed scheme with a temporal frame of six months (Biswas, 1992). Too many visitors would simply travel in their private motor-vehicles elsewhere instead of modally transferring to other transportation to still visit the area. The underlying principle of road-user charging is sound but requires implementation on a larger scale e.g. congested urban areas, which would make plausible GPS based charging and facilitate the provision of a road-user charging scheme with a wider spatial scale and shorter temporal framework in a National Park environment reducing the impact of some of the equity issues highlighted during this research.

The residential and business communities are dependent, to differing degrees, on private modes of transportation for mobility due to relatively limited coverage of public transportation and income generated by private motor-vehicle dependent visitors, both of which could potentially be negatively affected by the introduction of

the scheme. The use of Contingent Valuation methodology proved successful albeit with the recognition of the methodological assumptions and limitations detailed in this research and the potential for modifications in further applications of the Contingent Valuation Method. This author recommends methodological and descriptive refinements for future use of this methodology in a similar environment and the addition of further survey instruments are suggested to overcome the limitations of certain aspects of Contingent Valuation Method.

Recommendations

The six-month temporal frame proposed for methodological simplicity should be replaced by a specific operating schedule based on the peak traffic flow days of the tourism season e.g. August weekends and Bank holidays. Reducing the temporal period of operation to the busiest days of the year could increase support for the scheme, reduce the level of financial subsidies a road-user charging scheme would require initially and reduce the temporal impact of the equity inefficiencies the scheme produces. The future data collection should be undertaken on the days proposed for scheme operation to increase the realism of the description still further. Also, the visitor stakeholder should be allocated with another questionnaire, which would facilitate the segmentation of respondents into psychographic behavioural groups based on multiple attitudinal answers rather than the expression of single attitudes, which are imprecise predictors of future behaviour (Ajzen and Fishbein, 1977; Ajzen, 1988). The questionnaire should be based on Ajzen's (1988) Theory of Planned Behaviour and could build on the work of Anable (2002) who segmented the visitor population to an urban tourist attraction into six psychographic groupings.

The questionnaire analysis of the tourist population should also be supported by a qualitative focus group study of specific types of users of the Lake District National Park; e.g. young families, hikers, non-motorvehicle users, facilitating the investigation of deeper motivations and cultural values which Contingent Valuation Methodology is limited in its ability to elicit. Covering issues such as the utility & liberation afforded by private motor-vehicles, the cost of different modes of transport, environmental impact, the social meanings and the personal negotiation of private motor-vehicles (Maxwell, 2001).

The residential population in future studies of road-user charging in Great Langdale valley should be exempt from the charge in the scheme description and the horizontal equity issue of the small spatial scale of the scheme should be addressed by detailing in the research questionnaire that other areas e.g. Borrowdale valley, would be subjected to a similar road-user charging scheme. The results from a further visitor sample should be collected, analysed and incorporated into the scenario presented to the business operators, along with the reduction in the temporal span of the scheme operation and an increased spatial scale.

A subsequent stage of data collection would investigate in increased depth the opinions of all major sections of the host community. The survey instrument to be used would be a hybrid technique of the Citizen's Jury and a Contingent Valuation questionnaire developed by Kenyon and Hanley (2000) called the Valuation Workshop. A representative sample of host community should be invited to attend and participate in the workshop. The technique would investigate individual attitudes towards the proposed scheme by administering a Contingent Valuation questionnaire to each person attending the workshop. This questionnaire would explore attitudes on the pricing of road use, their own individual WTP under the scheme, local transport policy and the impact of motorvehicles in the National Park. Furthermore, the Valuation Workshop would examine wider resident and business 'community' attitudes by forming discussion groups within the workshop to debate specific parts of the scheme. Kenyon and Hanley (2000) observed that a Contingent Valuation individual questionnaire generated an individual consumer prospective response and that in the Citizen's Jury part of the workshop the response had more of a community perspective. The workshop participants would hear evidence from a range of speakers and have the chance to question the speakers. Elster (1983) and Payne et al. (1999) both stress that preferences expressed after being exposed to both sides of an argument are better behavioural indicators (Kenyon and Hanley, 2000).

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APPENDICIES

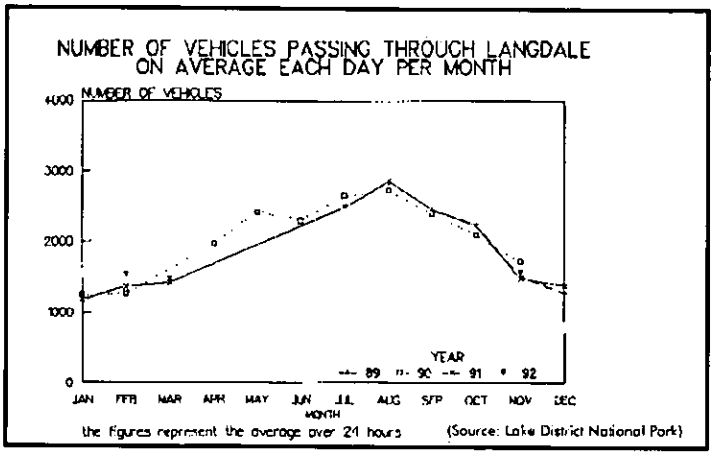
Results

APPENDIX 1

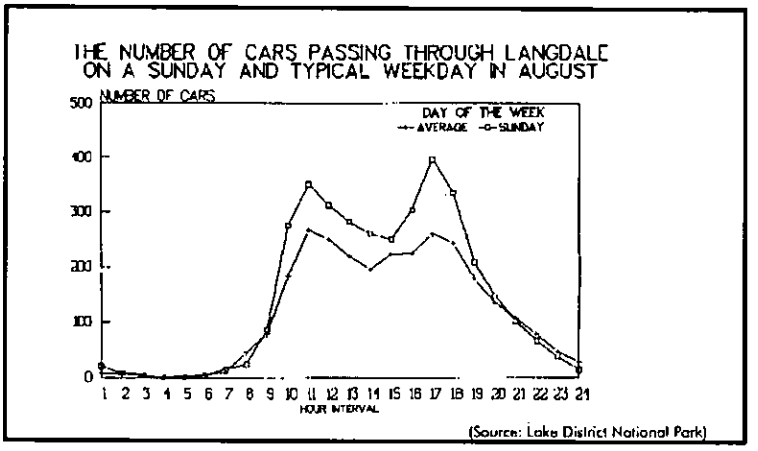
Traffic Flow Counter Records from Silverthwaite, Langdale

NY 341037

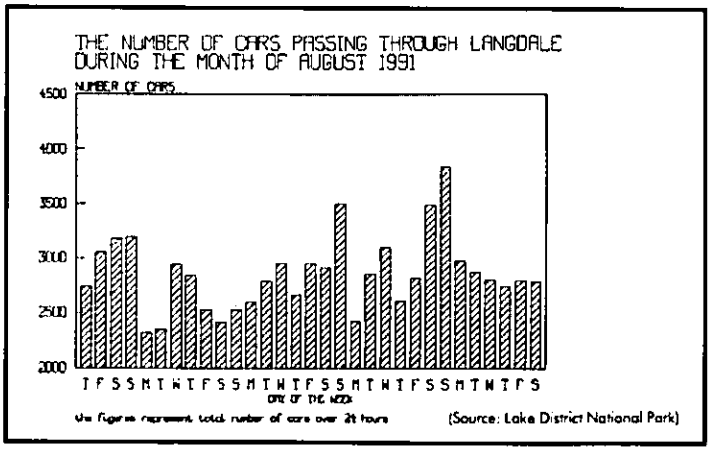
Monthly Traffic Flows at Silverthwaite, 1990 & 1991 (LDNPA, 1994).



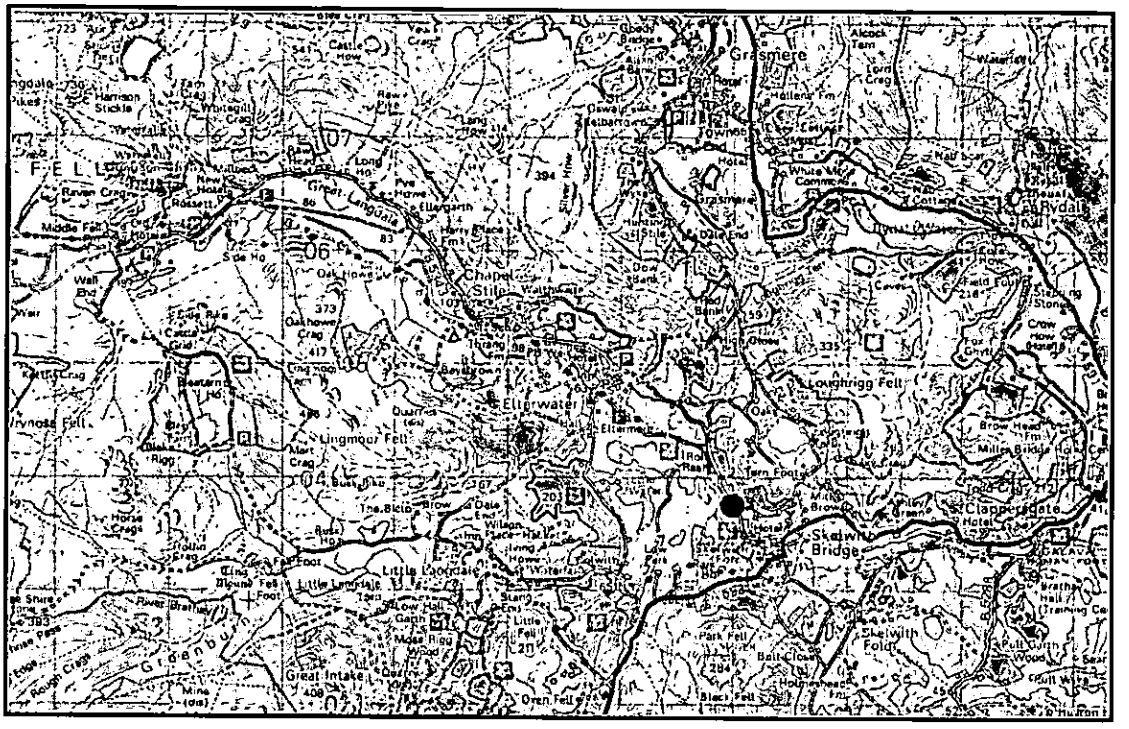
Average and Sunday August Traffic Flows at Silverthwaite, 1991 (LDNPA, 1994).



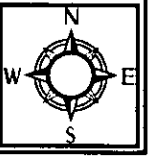
Daily August Traffic Flows at Silverthwaite, 1991 (LDNPA, 1994).



Map detailing the estimated position of the Silverthwaite Traffic Counter



Key: ● Estimated Traffic Counter Position
Map not to Scale



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APPENDIX 2

Car parking charges at The National Trust's Old Dungeon Ghyll and Stickle Ghyll car parks and the Lake District National Park Authority's Stickle Ghyll car park

The National Trust Car-parking charges at Old Dungeon Ghyll and Stickle Ghyll car parks

Parking Period	Financial Cost
Up to 4 hours	£2.00
4 to 24 hours	£3.00
National Trust members	Free

The Lake District National Park Authority Car-Parking charges at Stickle Ghyll car park

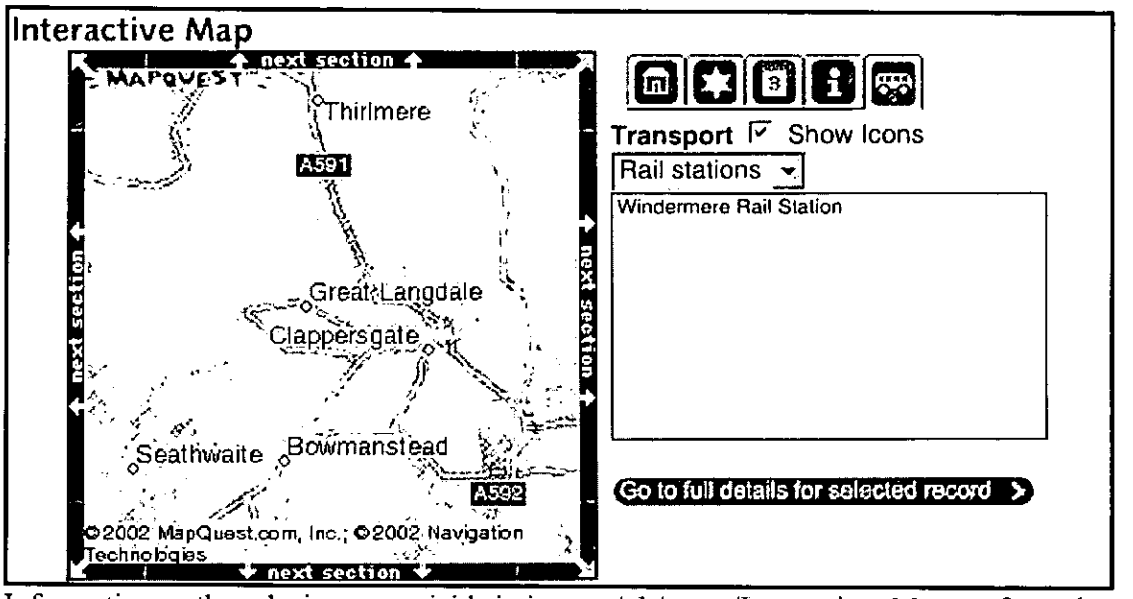
Parking Period	Financial Cost
Up to 1 hour	£1.20
Up to 2 hours	£1.40
Up to 3 hours	£1.60
Up to 4 hours	£1.80
Up to 12 hours	£2.20
Up to 7 days	£6.00
Annual Pass	£50.00
Disabled	Free

Figures correct as of the 29th March 2002.

APPENDIX 3

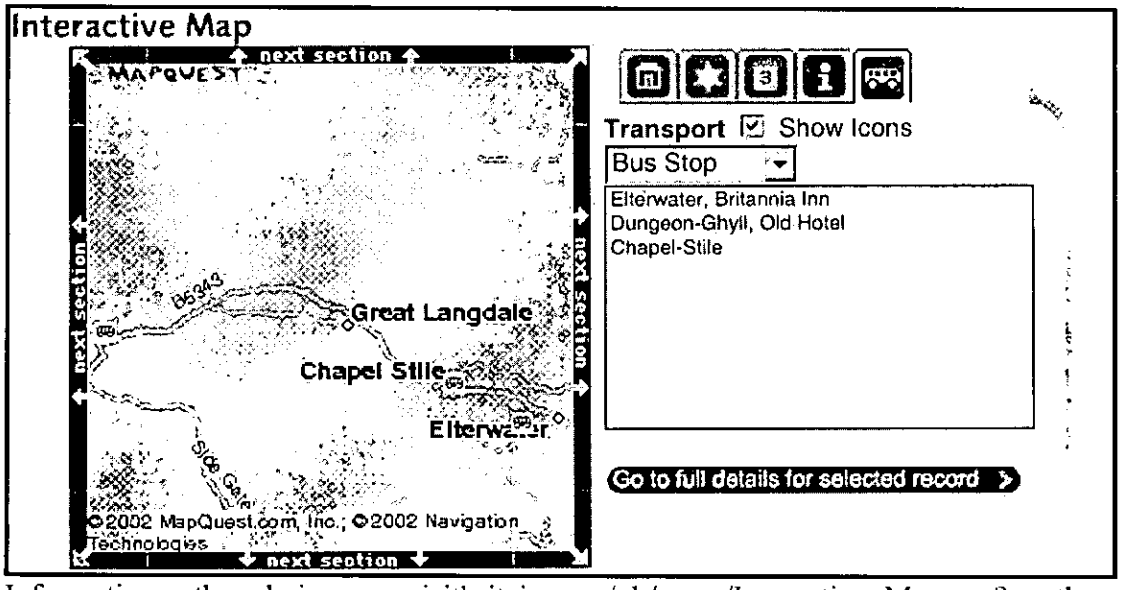
Details of Public Transport Facilities for Great Langdale Valley

Rail Stations in the surrounding locality of Great Langdale Valley



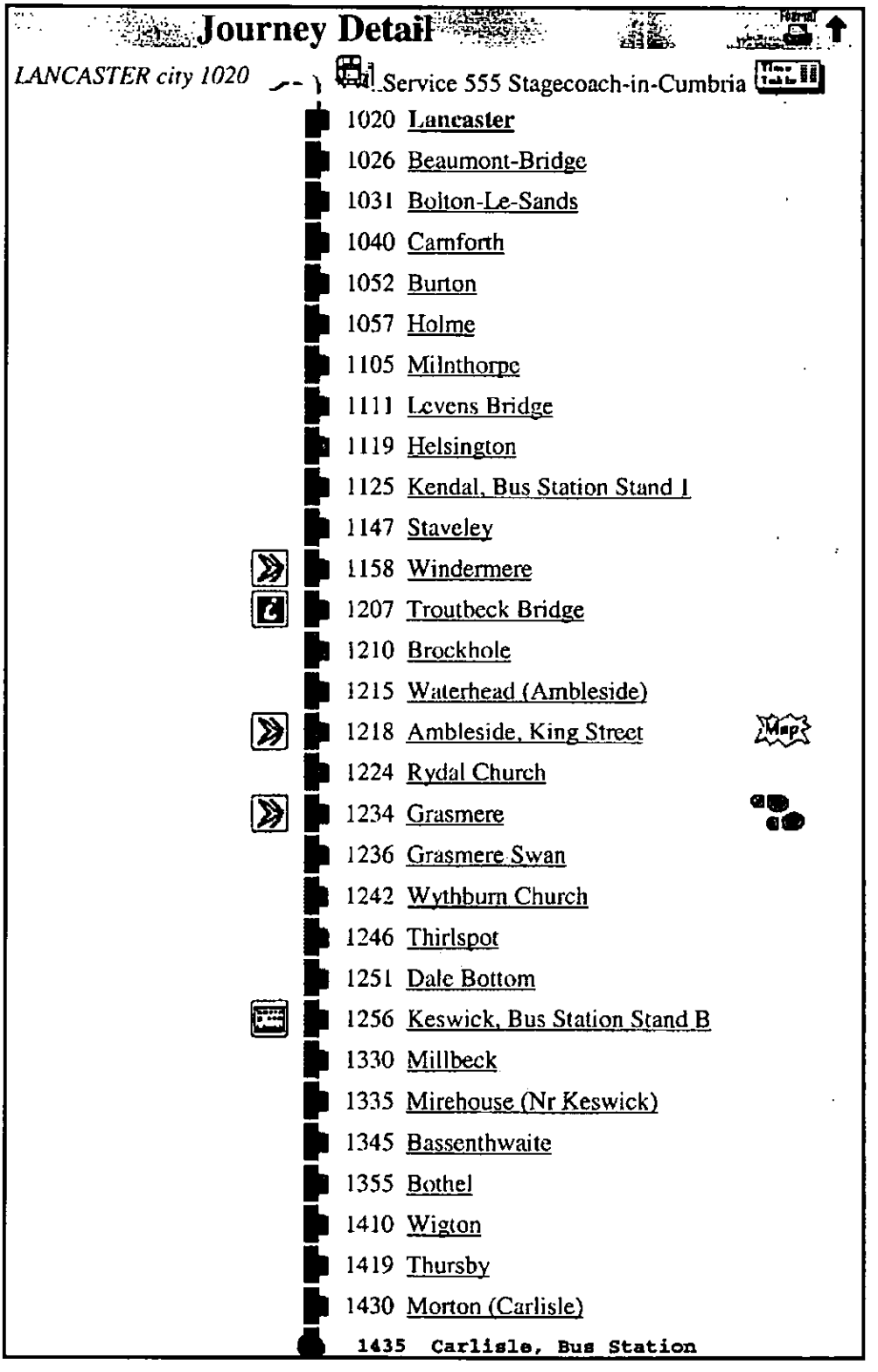
Information gathered via www.visitbritain.com/uk/maps/Interactive_Map.asp? on the 27th June 2002

Bus Stops on the Great Langdale Valley Road Network



Information gathered via www.visitbritain.com/uk/maps/Interactive_Map.asp? on the 27th June 2002

555 Bus timetable for Thursday 27th June 2002



Journey Detail

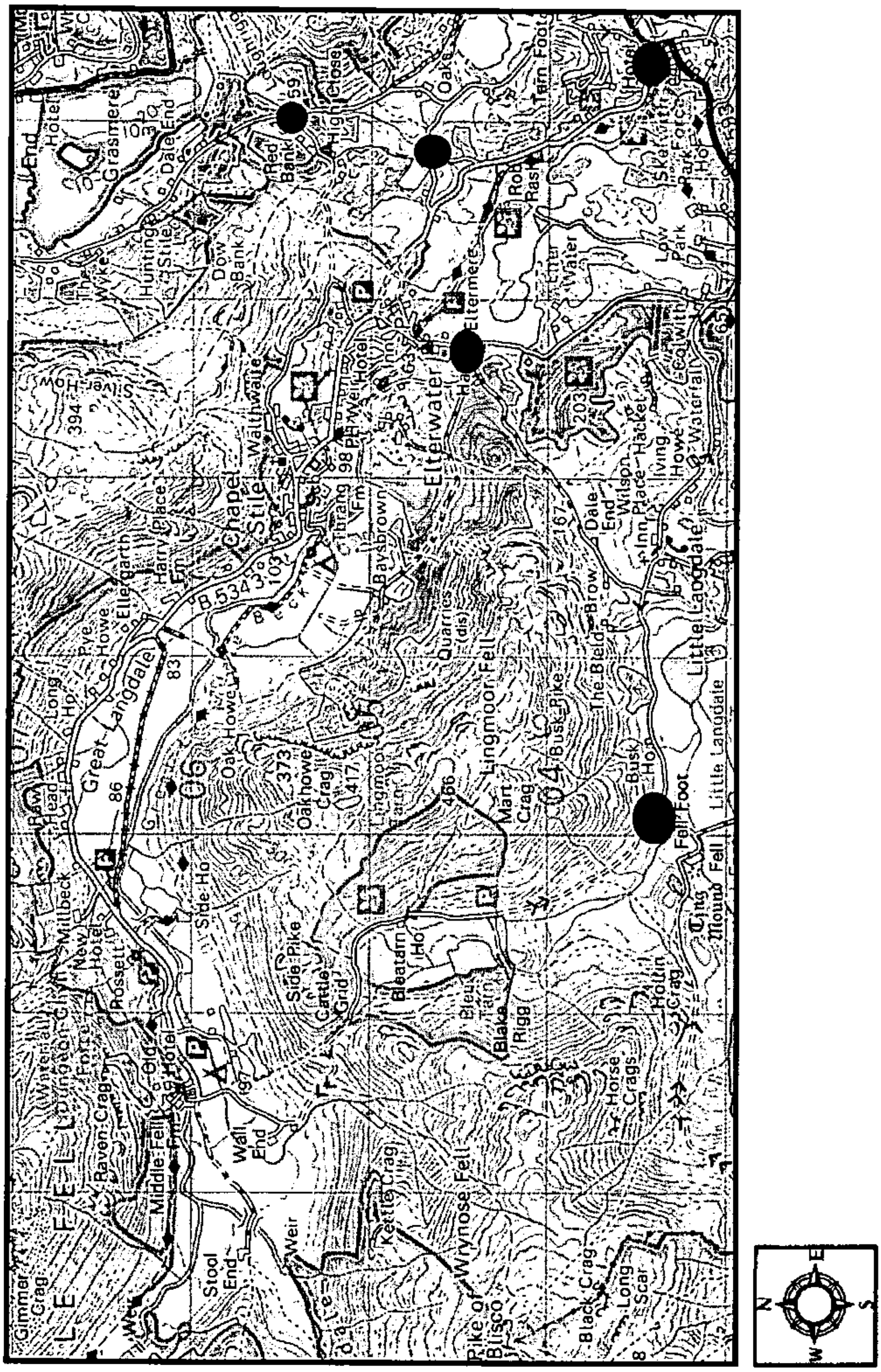
LANCASTER city 1020 — Service 555 Stagecoach-in-Cumbria

1020	**Lancaster**
1026	Beaumont-Bridge
1031	Bolton-Le-Sands
1040	Carnforth
1052	Burton
1057	Holme
1105	Milnthorpe
1111	Levens Bridge
1119	Helsington
1125	Kendal, Bus Station Stand 1
1147	Staveley
1158	Windermere
1207	Troutbeck Bridge
1210	Brockhole
1215	Waterhead (Ambleside)
1218	Ambleside, King Street
1224	Rydal Church
1234	Grasmere
1236	Grasmere Swan
1242	Wythburn Church
1246	Thirlspot
1251	Dale Bottom
1256	Keswick, Bus Station Stand B
1330	Millbeck
1335	Mirehouse (Nr Keswick)
1345	Bassenthwaite
1355	Bothel
1410	Wigton
1419	Thursby
1430	Morton (Carlisle)
1435	**Carlisle, Bus Station**

Information gathered via www.ukbus.u-net.co.uk/cgi/jp.exe? On the 27th June 2002.

APPENDIX 4

Map detailing the positions of the five proposed tollbooths



Key:	• Proposed Tollbooth Site
	Map not to Scale

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APPENDIX 5

Letter of permission to use The National Trust's Old Dungeon Ghyll and Stickle Ghyll Car Parks

THE NATIONAL TRUST
for Places of Historic Interest or Natural Beauty
GRASMERE & GREAT LANGDALE PROPERTY MANAGER'S OFFICE
HIGH CLOSE · LOUGHRIGG · AMBLESIDE · CUMBRIA LA22 9HH
Telephone +44 (0)15394 37663 · Facsimile +44 (0)15394 37131 · Website www.nationaltrust.org.uk

Mr G Eckton
Research Student
Dept of Tourism and Leisure Management
University of Central Lancashire
PRESTON
PR1 2HE

E-mail
Your ref
Our ref DW/dw/Gen/Traf
Date 29 January 2002

Dear George

LANGDALE: TRAFFIC MANAGEMENT QUESTIONNAIRE

Thank you for your letter of the 25 January outlining your plans for distributing questionnaires at National Trust Car Parks this year.

I would like to confirm that the National Trust has no objection to you undertaking this work as described in the attachments to your letter.

I hope that your research is successful. If it is possible I would be interested in seeing a copy of your report when it is completed as traffic management is obviously an aspect of our management.

Yours sincerely

David Wilkinson
Property Manager

PRESIDENT: HM QUEEN ELIZABETH THE QUEEN MOTHER
VICE-PRESIDENT: HRH THE PRINCE OF WALES
CHAIRMAN: CHARLES NUNNELEY DIRECTOR-GENERAL: MARTIN DRURY
Registered Charity Number 205846

APPENDIX 6

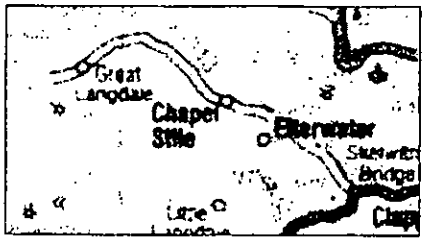
Visitor Stakeholder Questionnaire

(Non-Easter Version)

UNIVERSITY
OF CENTRAL
LANCASHIRE

Department of Tourism and Leisure Management
University of Central Lancashire
Preston PR1 2HE
Tel 01772 201201
Fax 01772 892927
http://www.uclan.ac.uk
email: ghaldwin@uclan.ac.uk
Head of Department
Graham Baldwin
BA(Hons) MSc PGCE

Figure 1: Map of Great Langdale Valley
[Scale: 1 inch to 1.5 miles]



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UNIVERSITY OF CENTRAL LANCASHIRE TRAFFIC SCHEME RESEARCH

Thank you for agreeing to take part in this research study.

This research is being undertaken at the University of Central Lancashire to investigate the potential of new road-user charging powers available to County Councils' in the United Kingdom following the passing of the Transport Act 2000. This questionnaire is aimed at gathering attitudes of **motor-vehicle users currently using the Great Langdale Valley** towards paying for road use as a potential method of controlling the volumes of private motorvehicles (cars, vans, motorbikes) in the area between Skelwith Bridge and the Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). The road-user charging scheme described on page 2 is purely hypothetical and there are no plans to use the legislation to introduce it.

All that we ask is that:

1) The questionnaire is completed by a member of the household over 17 years old.
2) When you have completed the questionnaire, detach this front sheet and return only pages 3/4 & 5/6 in the prepaid envelope supplied.

If you have any questions at all about the project, please contact George Eckton, Department of Tourism And Leisure Management, University of Central Lancashire on 01772 201201 or email geckton@uclan.ac.uk.

Please read the description of the road-user charging scheme on page 2 carefully before answering the questions on pages 3-6.

The road-user charging scheme would involve paying a **daily** fee per private motor-vehicle (cars, vans, motorbikes, minibuses) to enter into the Great Langdale valley between the hours of 9am and 4pm. The scheme would be in operation from 1st March to 1st October every year. Tollbooths with human attendants, similar to those shown in Figure 2 would be stationed on **all routes** into Great Langdale valley and would issue a windscreen sticker similar to that shown in Figure 3. Any profits generated would be used to improve local public transport. All existing traffic regulations such as car parking charges, parking restrictions, would still be actively enforced within Great Langdale valley. Wardens would patrol the Great Langdale Valley checking for the display of the appropriate days sticker. Cyclists would be exempt from the road-user charge.

The other alternative to not paying this charge would be to leave your private motor-vehicle in a car park in Ambleside and board a low-floored Single Decker bus (see Figure 4). A bus would leave from the Ambleside Depot every 30 minutes and travel to and from Great Langdale Valley serving all major destinations between Skelwith Bridge and The Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). Buses would run every day the scheme was in operation, the first bus leaving Ambleside to Great Langdale would be at 8am and the last bus leaving the Old Dungeon Ghyll Hotel at the end of the B5343 Great Langdale road would be at 6pm. Both the Ambleside car park and return bus journey would be free of charge.

Figure 2

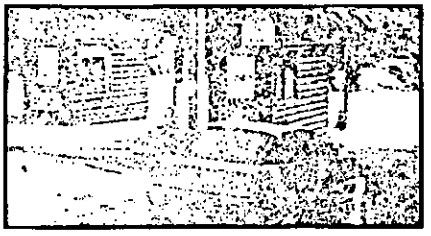

Figure 3

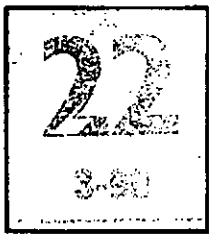

Figure 4

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THE RESPONSES ON THIS FROM ARE ABSOLUTELY CONFIDENTIAL AND YOUR INDIVIDUAL ANONYMITY IS GUARANTEED BY LAW.

Q.1 How often do you intend to revisit the Lake District National Park this year? (please tick one box only)

- ☐ none
- ☐ 1-6 visits
- ☐ 7-12 visits
- ☐ 13+ visits

Q.2. How often when in the Lake District National Park this year do you intend revisiting Great Langdale Valley? (please tick one box only)

- ☐ none
- ☐ 1-3 times
- ☐ 4-6 times
- ☐ 7-9 times
- ☐ 10-12 times
- ☐ 13+ times

Q.3 Would you be willing to pay a £5 daily fee to enter Great Langdale Valley in a motor-vehicle each time you visit, if the circumstances were as described on page 2? (please tick one box only)

- ☐ Yes (go to Question 7)
- ☐ No (go to Question 4)

Q.4 Would you be willing to pay a daily fee which was between £4.99-£0.01 to enter Great Langdale Valley in a motor-vehicle each time you visit, if the circumstances were as described on page 2? (please tick one box only)

- ☐ Yes please specify amount....£_____(go to Question 7)
- ☐ No (go to Question 5)

Q.5 Please explain your reasons for the No answer in Question 4, using the box below.

Q.6 (ONLY ANSWER IF A NO ANSWER WAS RECORDED FOR QUESTION 3 and 4)
How would you change your travel plans in reaction to the fee to enter Great Langdale Valley in a motor-vehicle? (please tick one box only)

- ☐ Travel to the Great Langdale valley on the free bus provided
- ☐ Go somewhere else in the Lake District NP using your motorvehicle
- ☐ Not travel to the Lake District NP at all
- ☐ Other [please specify].....
- ☐ Don't Know

Q.7. Should any of the categories of people listed in the left-hand column below be exempt, or given discounts on the entry fee to Great Langdale valley? (please tick only one box per category)

	Exempt	Discounts	Not Exempt
Great Langdale Valley Residents			
Lake District National Park residents			
People who work in Great Langdale			
Commercial Vehicles delivering to the area			
Great Langdale tourist accommodation occupants			
Pensioners			
Unemployed			
Students			
Disabled			
School Party Vehicles			
Other [please specify].....			

Q.8 How would you describe the level of motor-vehicle traffic you experienced throughout your visit to the Lake District National Park? (please tick one box only)

- ☐ Very Light
- ☐ Light
- ☐ Moderate
- ☐ Heavy
- ☐ Very Heavy
- ☐ Don't Know

Q.9 Did you find the level of motor-vehicle traffic in the Lake District National Park a problem? (please tick one box only)

- ☐ Yes
- ☐ No
- ☐ Don't Know

Q.10 How strongly would you support or oppose charges being introduced for drivers who want to drive into the centre of large towns and cities where there is major congestion WITH the revenue generated solely being used to make significant improvements in LOCAL public transport? (please tick one box only)

- ☐ Strongly Support
- ☐ Tend to support
- ☐ Neither support or oppose
- ☐ Tend to oppose
- ☐ Strongly oppose
- ☐ Don't Know

Do you agree with the following statements?

11. "A £5 fee to enter the Great Langdale Valley would be a good policy".

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

12."Using a car in the Lake District National Park will always be better than using public transport". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

Q.13 Was your visit to the Lake District National Park a day-trip leaving and returning to your permanent address within 24 hours? (please tick one box only)

- ☐ Yes
- ☐ No

Q.14. Which of the following categories describes your main mode of transport to REACH the Lake District National Park? (please tick one box only)

- ☐ Private Car
- ☐ Motorcycle
- ☐ Bus (public transport)
- ☐ Train + Bus
- ☐ Train + Bike
- ☐ Minibus (private hire)
- ☐ Coach (private hire)
- ☐ Other [please specify].....

Q.15. Which of the following categories describes your main mode of transport to TRAVEL AROUND the Lake District National Park? (please tick one box only)

- ☐ Private Car
- ☐ Motorcycle
- ☐ Bus (public transport)
- ☐ Bicycle
- ☐ Minibus (private hire)
- ☐ Coach (private hire)
- ☐ Other [please specify].....

Q.16 Are you a member of the National Trust? (please tick one box only)

- ☐ Yes
- ☐ No

Q.17 Are you (please tick one box only)

- ☐ Male
- ☐ Female

Q.18 Age last Birthday (please tick one box only)

- ☐ 17-30 years
- ☐ 31-50 years
- ☐ 51-64 years
- ☐ 65+ years

Q.19 Are you (please tick one box only)

- ☐ Employed Full Time
- ☐ Employed Part Time
- ☐ Retired
- ☐ Unemployed
- ☐ Unable to work for medical reasons
- ☐ In full time education / training
- ☐ Looking after the home full time
- ☐ Other [please specify] .....

Q.20 Which of the following categories represents your total household income per year before tax? (please tick one box only)

- ☐ Less than £10,000
- ☐ £10,000 - £19,999
- ☐ £20,000 - £29,999
- ☐ £30,000 - £39,999
- ☐ More than £40,000

Q.21 How many of the following normally live in your household? (please complete as you think appropriate)

- ☐ Adults aged 18 – 35 years
- ☐ Adults aged 36 – 64 years
- ☐ Adults aged 65 years or older
- ☐ Children aged under 5 years
- ☐ Children aged 5 – 12 years
- ☐ Children aged 13 – 17 years

Q.22 Do you currently hold a Driving Licence? (please tick one box only)

- ☐ Yes
- ☐ No

Q.23 What are the first 3 digits of the postcode at your permanent address?

(NB This will not be used to identify you or send you further information).....

Please return your questionnaire by the **30th April 2002** and once again thank you for taking the time and effort to complete this research questionnaire. If you have any further comments please attach an additional sheet.

APPENDIX 7

Visitor Stakeholder Questionnaire

(Easter Version)

UNIVERSITY
OF CENTRAL
LANCASHIRE

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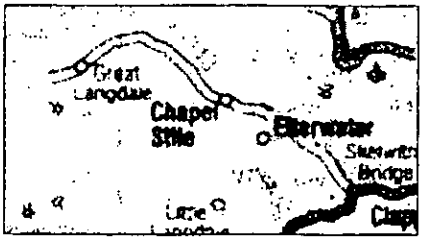
Head of Department
Graham Baldwin
BA(Hons) MSc PGCE

Figure 1: Map of Great Langdale Valley
[Scale: 1 inch to 1.5 miles]



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UNIVERSITY OF CENTRAL LANCASHIRE TRAFFIC SCHEME RESEARCH

Thank you for agreeing to take part in this research study.

This research is being undertaken at the University of Central Lancashire to investigate the potential of new road-user charging powers available to County Councils' in the United Kingdom following the passing of the Transport Act 2000. This questionnaire is aimed at gathering attitudes of **motor-vehicle users currently using the Great Langdale Valley** towards paying for road use as a potential method of controlling the volumes of private motorvehicles (cars, vans, motorbikes) in the area between Skelwith Bridge and the Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). The road-user charging scheme described on page 2 is purely hypothetical and there are no plans to use the legislation to introduce it.

All that we ask is that:

1) The questionnaire is completed by a member of the household over 17 years old.
2) When you have completed the questionnaire, detach this front sheet and return only pages 3/4 & 5/6 in the prepaid envelope supplied.

If you have any questions at all about the project, please contact George Eckton, Department of Tourism And Leisure Management, University of Central Lancashire on 01772 201201 or email geckton@uclan.ac.uk.

Please read the description of the road-user charging scheme on page 2 carefully before answering the questions on pages 3-6.

The road-user charging scheme would involve paying a **daily** fee per private motor-vehicle (cars, vans, motorbikes, minibuses) to enter into the Great Langdale valley between the hours of 9am and 4pm. The scheme would be in operation from 1st March to 1st October every year. Tollbooths with human attendants, similar to those shown in Figure 2 would be stationed on **all routes** into Great Langdale valley and would issue a windscreen sticker similar to that shown in Figure 3. Any profits generated would be used to improve local public transport. All existing traffic regulations such as car parking charges, parking restrictions, would still be actively enforced within Great Langdale valley. Wardens would patrol the Great Langdale Valley checking for the display of the appropriate days sticker. Cyclists would be exempt from the road-user charge.

The other alternative to not paying this charge would be to leave your private motor-vehicle in a car park in Ambleside and board a low-floored Single Decker bus (see Figure 4). A bus would leave from the Ambleside Depot every 30 minutes and travel to and from Great Langdale Valley serving all major destinations between Skelwith Bridge and The Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). Buses would run every day the scheme was in operation, the first bus leaving Ambleside to Great Langdale would be at 8am and the last bus leaving the Old Dungeon Ghyll Hotel at the end of the B5343 Great Langdale road would be at 6pm. Both the Ambleside car park and return bus journey would be free of charge.

Figure 2

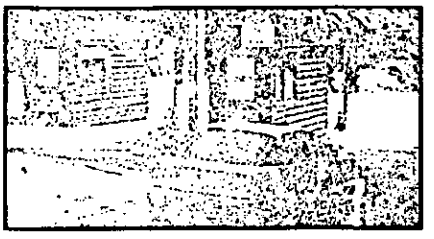

Figure 3

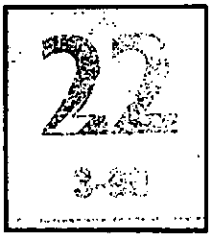

Figure 4

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THE RESPONSES ON THIS FROM ARE ABSOLUTELY CONFIDENTIAL AND YOUR INDIVIDUAL ANONYMITY IS GUARANTEED BY LAW.

Q.1 How often do you intend to revisit the Lake District National Park this year? (please tick one box only)

- ☐ none
- ☐ 1-6 visits
- ☐ 7-12 visits
- ☐ 13+ visits

Q.2. How often when in the Lake District National Park this year do you intend revisiting Great Langdale Valley? (please tick one box only)

- ☐ none
- ☐ 1-3 times
- ☐ 4-6 times
- ☐ 7-9 times
- ☐ 10-12 times
- ☐ 13+ times

Q.3 Would you be willing to pay a £5 daily fee to enter Great Langdale Valley in a motor-vehicle each time you visit, if the circumstances were as described on page 2? (please tick one box only)

- ☐ Yes (go to Question 7)
- ☐ No (go to Question 4)

Q.4 Would you be willing to pay a daily fee which was between £4.99-£0.01 to enter Great Langdale Valley in a motor-vehicle each time you visit, if the circumstances were as described on page 2? (please tick one box only)

- ☐ Yes please specify amount....£_____(go to Question 7)
- ☐ No (go to Question 5)

Q.5 Please explain your reasons for the No answer in Question 4, using the box below.

Q.6 (ONLY ANSWER IF A NO ANSWER WAS RECORDED FOR QUESTION 3 and 4)
How would you change your travel plans in reaction to the fee to enter Great Langdale Valley in a motor-vehicle? (please tick one box only)

- ☐ Travel to the Great Langdale valley on the free bus provided
- ☐ Go somewhere else in the Lake District NP using your motorvehicle
- ☐ Not travel to the Lake District NP at all
- ☐ Other [please specify].....
- ☐ Don't Know

Q.7. Should any of the categories of people listed in the left-hand column below be exempt, or given discounts on the entry fee to Great Langdale valley? (please tick only one box per category)

	Exempt	Discounts	Not Exempt
Great Langdale Valley Residents			
Lake District National Park residents			
People who work in Great Langdale			
Commercial Vehicles delivering to the area			
Great Langdale tourist accommodation occupants			
Pensioners			
Unemployed			
Students			
Disabled			
School Party Vehicles			
Other [please specify].....			

Q.8 Over the Easter Weekend 2002 how would you describe the level of motor-vehicle traffic you experienced throughout your visit to the Lake District National Park? (please tick one box only)

- ☐ Very Light
- ☐ Light
- ☐ Moderate
- ☐ Heavy
- ☐ Very Heavy
- ☐ Don't Know

Q.9 Over the Easter Weekend 2002 did you find the level of motor-vehicle traffic in the Lake District National Park a problem? (please tick one box only)

- ☐ Yes
- ☐ No
- ☐ Don't Know

Q.10 How strongly would you support or oppose charges being introduced for drivers who want to drive into the centre of large towns and cities where there is major congestion WITH the revenue generated solely being used to make significant improvements in LOCAL public transport? (please tick one box only)

- ☐ Strongly Support
- ☐ Tend to support
- ☐ Neither support or oppose
- ☐ Tend to oppose
- ☐ Strongly oppose
- ☐ Don't Know

Do you agree with the following statements?

11. "A £5 fee to enter the Great Langdale Valley would be a good policy".

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

12."Using a car in the Lake District National Park will always be better than using public transport". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

Q.13 Was your visit to the Lake District National Park during the 2002 Easter Weekend a day-trip leaving and returning to your permanent address within 24 hours? (please tick one box only)

- ☐ Yes
- ☐ No

Q.14. Which of the following categories describes your main mode of transport to REACH the Lake District National Park? (please tick one box only)

- ☐ Private Car
- ☐ Motorcycle
- ☐ Bus (public transport)
- ☐ Train + Bus
- ☐ Train + Bike
- ☐ Minibus (private hire)
- ☐ Coach (private hire)
- ☐ Other [please specify].....

Q.15. Which of the following categories describes your main mode of transport to TRAVEL AROUND the Lake District National Park? (please tick one box only)

- ☐ Private Car
- ☐ Motorcycle
- ☐ Bus (public transport)
- ☐ Bicycle
- ☐ Minibus (private hire)
- ☐ Coach (private hire)
- ☐ Other [please specify].....

Q.16 Are you a member of the National Trust? (please tick one box only)

- ☐ Yes
- ☐ No

Q.17 Are you (please tick one box only)

- ☐ Male
- ☐ Female

Q.18 Age last Birthday (please tick one box only)

- ☐ 17-30 years
- ☐ 31-50 years
- ☐ 51-64 years
- ☐ 65+ years

Q.19 Are you (please tick one box only)

- ☐ Employed Full Time
- ☐ Employed Part Time
- ☐ Retired
- ☐ Unemployed
- ☐ Unable to work for medical reasons
- ☐ In full time education / training
- ☐ Looking after the home full time
- ☐ Other [please specify] .....

Q.20 Which of the following categories represents your total household income per year before tax? (please tick one box only)

- ☐ Less than £10,000
- ☐ £10,000 - £19,999
- ☐ £20,000 - £29,999
- ☐ £30,000 - £39,999
- ☐ More than £40,000

Q.21 How many of the following normally live in your household? (please complete as you think appropriate)

- ☐ Adults aged 18 – 35 years
- ☐ Adults aged 36 – 64 years
- ☐ Adults aged 65 years or older
- ☐ Children aged under 5 years
- ☐ Children aged 5 – 12 years
- ☐ Children aged 13 – 17 years

Q.22 Do you currently hold a Driving Licence? (please tick one box only)

- ☐ Yes
- ☐ No

Q.23 What are the first 3 digits of the postcode at your permanent address?

(NB This will not be used to identify you or send you further information).....

Please return your questionnaire by the **30th April 2002** and once again thank you for taking the time and effort to complete this research questionnaire. If you have any further comments please attach an additional sheet.

APPENDIX 8

Resident Stakeholder Questionnaire

UNIVERSITY
OF CENTRAL
LANCASHIRE

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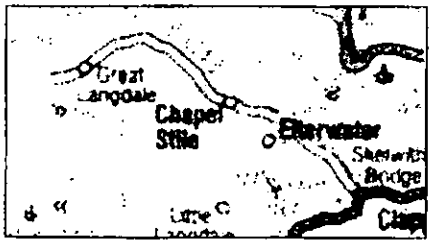
email: ghaldwin@uclan.ac.uk

Head of Department
Graham Baldwin
BA(Hons) MSc PGCE

Figure 1: Map of Great Langdale Valley
[Scale: 1 inch to 1.5 miles]



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UNIVERSITY OF CENTRAL LANCASHIRE TRAFFIC SCHEME RESEARCH

This research is being undertaken at the University of Central Lancashire to investigate the potential of new road-user charging powers available to County Councils' in the United Kingdom following the passing of the Transport Act 2000. This questionnaire is aimed at gathering attitudes of **Great Langdale Valley residents** towards paying for road use as a potential method of controlling the volumes of private motorvehicles (cars, vans, motorbikes) in the area between Skelwith Bridge and the Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). The road-user charging scheme described on page 2 is purely hypothetical and there are no plans to use the legislation to introduce it.

All that we ask is that:

1) The questionnaire is completed by a member of the household over 17 years old.
2) When you have completed the questionnaire, detach this front sheet and return only pages 3/4 & 5/6 in the prepaid envelope supplied.

If you have any questions at all about the project, please contact George Eckton, Department of Tourism And Leisure Management, University of Central Lancashire on 01772 201201 or email geckton@uclan.ac.uk.

Please read the description of the road-user charging scheme overleaf carefully before answering the questions on pages 3-6.

The road-user charging scheme would involve paying a **daily** fee per private motor-vehicle (cars, vans, motorbikes, minibuses) to enter into the Great Langdale valley between the hours of 9am and 4pm. The scheme would be in operation from 1st March to 1st October every year. Tollbooths with human attendants, similar to those shown in Figure 2 would be stationed on **all routes** into Great Langdale valley and would issue a windscreen sticker similar to that shown in Figure 3. Any profits generated would be used to improve local public transport. All existing traffic regulations such as car parking charges, parking restrictions, would still be actively enforced within Great Langdale valley. Wardens would patrol the Great Langdale Valley checking for the display of the appropriate days sticker. Cyclists would be exempt from the road-user charge.

The other alternative to not paying this charge would be to leave your private motor-vehicle in a car park in Ambleside and board a low-floored Single Decker bus (see Figure 4). A bus would leave from the Ambleside Depot every 30 minutes and travel to and from Great Langdale Valley serving all major destinations between Skelwith Bridge and The Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). Buses would run every day the scheme was in operation, the first bus leaving Ambleside to Great Langdale would be at 8am and the last bus leaving the Old Dungeon Ghyll Hotel at the end of the B5343 Great Langdale road would be at 6pm. Both the Ambleside car park and return bus journey would be free of charge.

Figure 2

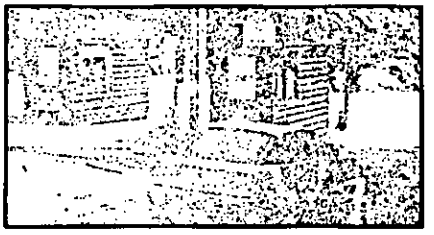

Figure 3

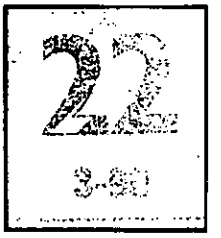

Figure 4

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THE RESPONSES ON THIS FROM ARE ABSOLUTELY CONFIDENTIAL AND YOUR INDIVIDUAL ANONYMITY IS GUARANTEED BY LAW.

Q.1 Would you be willing to pay a £5 daily fee to enter Great Langdale Valley in a motor-vehicle, under the circumstances described on page 2? (please tick one box only)

☐ Yes (go to Question 4)
☐ No (go to Question 2)

Q.2 Would you be willing to pay a daily fee which was between £4.99-£0.01 to enter Great Langdale Valley in a motor-vehicle, under the circumstances described on page 2? (please tick one box only)

☐ Yes please specify amount....£_____(go to Question 4)
☐ No (go to Question 3)

Q.3 Please explain your reasons for the No answer in Question 2, using the box below.

Q.4. Should any of the categories of people listed in the left-hand column below be exempt, or given discounts on the fee to enter Great Langdale valley? (please tick only one box per category)

	Exempt	Discounts	Not Exempt
Great Langdale Valley Residents			
Lake District National Park residents			
People who work in Great Langdale			
Commercial Vehicles delivering to the area			
Great Langdale tourist accommodation occupants			
Pensioners			
Unemployed			
Students			
Disabled			
School Party Vehicles			
Other [please specify].....			

Q.5 Do you think tourists' should have to pay a daily fee to enter Great Langdale valley? (please tick one box only)

☐ Yes please specify amount £_____(box below for further comments)
☐ No (box below for further comments)

Q.6 How strongly would you support or oppose charges being introduced for drivers who want to drive into the centre of large towns and cities where there is major congestion WITH the revenue generated solely being used to make significant improvements in LOCAL public transport? (please tick one box only)

☐ Strongly Support
☐ Tend to support
☐ Neither support or oppose
☐ Tend to oppose
☐ Strongly oppose
☐ Don't Know

Q.7 How would you describe the level of motor-vehicle traffic you experience in the Lake District National Park between March-October each year? (please tick one box only)

☐ Very Light
☐ Light
☐ Moderate
☐ Heavy
☐ Very Heavy
☐ Don't Know

Q.8 Do you find the level of motor-vehicle traffic in the Lake District National Park between March-October a problem? (please tick one box only)

☐ Yes
☐ No
☐ Don't Know

Q.9. Which of the following categories describes your main mode of transport to TRAVEL AROUND the Lake District National Park? (please tick one box only)

☐ Private Car
☐ Motorcycle
☐ Bus (public transport)
☐ Bicycle
☐ Minibus (private hire)
☐ Coach (private hire)
☐ Other [please specify].....

Do you agree with the following statements?

10."Using a car in the Lake District National Park will always be better than using public transport". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

11. "Tourism is good for the Lake District Economy". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

12. "Public Transport Facilities in the Lake District National Park are of a high standard". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

13. "There would be lower levels of motor-vehicle traffic in the Lake District National Park if it were not for the tourists". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

14. "I would like to see an increase in the number of tourists visiting the Great Langdale valley". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

Q.15 Do you currently hold a Driving Licence? (please tick one box only)

- ☐ Yes
- ☐ No

Q.16 Could you rank the following motor-vehicle traffic management measures in order of preference? (1 - being most preferred to 5 - least preferred)

- ☐ Increasing existing car parking charges in Great Langdale Valley
- ☐ Increasing the number of public transport services and reducing bus fares
- ☐ Banning private motor-vehicles from Great Langdale Valley
- ☐ Road-user charges to enter Great Langdale Valley
- ☐ Widening Roads to increase capacity in Great Langdale Valley

Q.17 How long have you been a permanent resident of the Great Langdale Valley? (please tick one box only)

- ☐ Less than 1 year
- ☐ 1 to 10 years
- ☐ 11 to 20 years
- ☐ over 20 years
- ☐ Not a permanent resident at this address

Q.18 How would you describe the dependence level of your total household income on tourism?

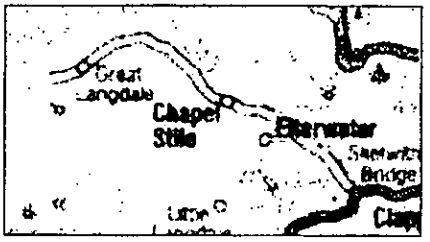
- ☐ Independent
- ☐ Somewhat Dependent
- ☐ Dependent
- ☐ Very Dependent

Please return your questionnaire by the **30th April 2002** and once again thank you for taking the time and effort to complete this research questionnaire.

APPENDIX 9

Business Operator Stakeholder Questionnaire

Figure 1: Map of Great Langdale Valley
[Scale: 1 inch to 1.5 miles]



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UNIVERSITY
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Head of Department
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This research is being undertaken at the University of Central Lancashire to investigate the potential of new road-user charging powers available to County Councils' in the United Kingdom following the passing of the Transport Act 2000. This questionnaire is aimed at gathering attitudes of **business operators in Great Langdale Valley** towards paying for road use as a potential method of controlling the volumes of private motorvehicles (cars, vans, motorbikes) in the area between Skelwith Bridge to Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). The road-user charging scheme described on page 2 is purely hypothetical and there are no plans to use the legislation to introduce it.

All that we ask is that:

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Please read the description of the road-user charging scheme overleaf carefully before answering the questions on pages 3-6.

INVESTOR IN PEOPLE

The road-user charging scheme would involve paying a **daily** fee per private motor-vehicle (cars, vans, motorbikes, minibuses) to enter into the Great Langdale valley between the hours of 9am and 4pm. The scheme would be in operation from 1st March to 1st October every year. Tollbooths with human attendants, similar to those shown in Figure 2 would be stationed on **all routes** into Great Langdale valley and would issue a windscreen sticker similar to that shown in Figure 3. Any profits generated would be used to improve local public transport. All existing traffic regulations such as car parking charges, parking restrictions, would still be actively enforced within Great Langdale valley. Wardens would patrol the Great Langdale Valley checking for the display of the appropriate days sticker. Cyclists would be exempt from the road-user charge.

The other alternative to not paying this charge would be to leave your private motor-vehicle in a car park in Ambleside and board a low-floored Single Decker bus (see Figure 4). A bus would leave from the Ambleside Depot every 30 minutes and travel to and from Great Langdale Valley serving all major destinations between Skelwith Bridge and The Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). Buses would run every day the scheme was in operation, the first bus leaving Ambleside to Great Langdale would be at 8am and the last bus leaving the Old Dungeon Ghyll Hotel at the end of the B5343 Great Langdale road would be at 6pm. Both the Ambleside car park and return bus journey would be free of charge.

Figure 2

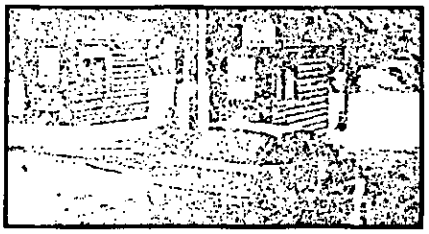

Figure 3

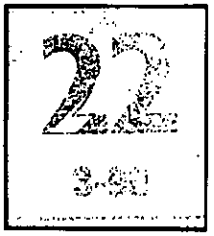

Figure 4

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THE RESPONSES ON THIS FROM ARE ABSOLUTELY CONFIDENTIAL AND YOUR INDIVIDUAL ANONYMITY IS GUARANTEED BY LAW.

Q.1 Would you be willing to accept an annual compensation payment, to your business, if a daily £5 fee to enter Great Langdale Valley in a motor-vehicle was introduced, under the circumstances described on page 2? (please tick one box only)

☐ Yes please specify amount per annum £_____
☐ No please give explanation in box provided below

Q.2 Do you think tourists' visiting Great Langdale should have to pay a daily fee to enter Great Langdale valley? (please tick one box only)

☐ Yes please specify amount £_____(box below for further comments)
☐ No (box below for further comments)

Q.3. Should any of the categories of people listed in the left-hand column below be exempt, or given discounts on the fee to enter Great Langdale valley? (please tick only one box per category)

	Exempt	Discounts	Not Exempt
Great Langdale Valley Residents			
Lake District National Park residents			
People who work in Great Langdale			
Commercial Vehicles delivering to the area			
Great Langdale tourist accommodation occupants			
Pensioners			
Unemployed			
Students			
Disabled			
School Party Vehicles			
Other [please specify].....			

Q.4 How would you describe the level of motor-vehicle traffic you experience in the Lake District National Park between March-October each year? (please tick one box only)

- ☐ Very Light
- ☐ Light
- ☐ Moderate
- ☐ Heavy
- ☐ Very Heavy
- ☐ Don't Know

Q.5 Do you find the level of motor-vehicle traffic in the Lake District National Park between March - October a problem? (please tick one box only)

- ☐ Yes
- ☐ No
- ☐ Don't Know

Q.6. Which of the following categories describes your main mode of transport to TRAVEL AROUND the Lake District National Park? (please tick one box only)

- ☐ Private Car
- ☐ Motorcycle
- ☐ Bus (public transport)
- ☐ Bicycle
- ☐ Minibus (private hire)
- ☐ Coach (private hire)
- ☐ Other [please specify].....

Q.7 Could you rank the following motor-vehicle traffic management measures in order of preference? (1 - being most preferred to 5 - least preferred)

- ____ Increasing existing car parking charges in Great Langdale Valley
- ____ Increasing the number of public transport services and reducing bus fares
- ____ Banning private motor-vehicles from Great Langdale Valley
- ____ Road-user charges to enter Great Langdale Valley
- ____ Widening Roads to increase capacity in Great Langdale Valley

Do you agree with the following statements?

8."Using a car in the Lake District National Park will always be better than using public transport". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

9. "Tourism is good for the Lake District Economy". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

10. "Public Transport Facilities in the Lake District National Park are of a high standard". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

11. "There would be lower levels of motor-vehicle traffic in the Lake District National Park if it were not for the tourists". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

12. "I would like to see an increase in the number of tourists visiting the Great Langdale valley". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

Q.13 How long have you been running your business in the Great Langdale Valley? (please tick one box only)

- ☐ Less than 1 year
- ☐ 1 to 10 years
- ☐ 11 to 20 years
- ☐ over 20 years
- ☐ Not a permanent resident at this address

Q.14 Please briefly describe your type of business?

Q.15 How much of your business's turnover is due to tourists visiting Great Langdale Valley?

- ☐ 0 - 25%
- ☐ 26 - 50%
- ☐ 51 - 75%
- ☐ 76 - 100%

Q.16 How would you describe the dependence level of your total household income on tourism?

- ☐ Independent
- ☐ Somewhat Dependent
- ☐ Dependent
- ☐ Very Dependent

Please return your questionnaire by the **30th April 2002** and once again thank you for taking the time and effort to complete this research questionnaire. If you have any further comments please attach an additional sheet.

APPENDIX 10

Business Operator Stakeholder Questionnaire Covering Letter

UNIVERSITY
— OF CENTRAL —
LANCASHIRE

Department of Tourism and Leisure Management
University of Central Lancashire
Preston PR1 2HE
Tel 01772 201201
Fax 01772 892927
email: gbaldwin@uclan.ac.uk
www.uclan.ac.uk
Head of Department
Graham Baldwin
BA(Hons) MSc PGCE

Ref: GDCE/GreatLangdale

Date: 2 April 2002

«JobTitle»
«Company»
«Address1»
«Address2»
«State»
«PostalCode»

Dear Sir/Madam

As a business operator in Great Langdale, you may be aware about proposals relating to potential traffic management measures within Great Langdale Valley. Your business is one of the small number in which people are being asked to give their opinion on these matters. In order that the results of the study truly represent the thinking of people in the Great Langdale business community, it is important that each questionnaire be completed and returned in the envelope provided. You may be assured of complete confidentiality.

I would be happy to answer any questions you may have about this study. Please write to the above address or email geckton@uclan.ac.uk . Thank you very much for your assistance.

Yours sincerely

George Eckton
Project Officer

northwest

INVESTOR IN PEOPLE

APPENDIX 11

Correspondence from David Ashworth of Stagecoach in Cumbria

Stagecoach in Cumbria

Stagecoach
Broadacre House
16-20 Lowther Street
Carlisle CA3 8DA

T 01228 597222
F 01228 597888

stagecoachgroup.com

Traveline 0870 6082608

Mr George Eckton
56 Clifton Green
Clifton
PRESTON
Lancashire
PR4 0DB

DMA/EG/trg
19 March 2001

Dear Mr Eckton

I refer to your correspondence of the 9 March and apologise for the delay in replying.

In recognition that you are to formulate your own timetables, I herewith list below the realistic running times that would be required to operate a PCV vehicle between the points identified:

Ambleside – Great Lagdale	*40 minutes*
Kendal – Windermere	*45 minutes*
Kendal – Ambleside	*45 minutes*
Penrith – Keswick	*40 minutes*
Keswick – Seatoller	*30 minutes*

Obviously however, due consideration would have to be given to varying traffic flows during the summer periods, which would of necessity require layover to be built in at either end of the route.

Whilst I trust this is sufficient, obviously should you require any further details I would be pleased to assist.

Yours sincerely

David Mashworth
Operations Director

APPENDIX 12

Visitor Stakeholder Questionnaire Inset Interview Prompt Sheet

UNIVERSITY
— OF CENTRAL —
LANCASHIRE

Department of Tourism and Leisure Management
University of Central Lancashire
Preston PR1 2HE
Tel 01772 201201
Fax 01772 892927
email: gbaldwin@uclan.ac.uk
www.uclan.ac.uk

Head of Department
Graham Baldwin
BA(Hons) MSc PGCE

GOOD MORNING/AFTERNOON SIR/MADAM

1) WOULD YOU BE INTERESTED IN COMPLETING A QUESTIONNAIRE THAT IS PART OF A RESEARCH PROJECT AT THE UNIVERSITY OF CENTRAL LANCASHIRE, PRESTON **(SHOW STAFF CARD)** ON A POTENTIAL ROAD-USER CHARGING SCHEME FOR GREAT LANGDALE VALLEY?

   EXAMPLE – LONDON £5 CHARGE - KEN LIVINGSTONE

2) CAN I ASK ARE YOU A PERMANENT RESIDENT OF THE LAKE DISTRICT NATIONAL PARK?

   IF YES – THANK YOU FOR YOUR TIME BUT THIS PART OF THE RESEARCH PROJECT IS AIMED AT VISITORS TO THE LAKE DISTRICT NATIONAL PARK

3) **GIVE INDIVIDUAL A QUESTIONNAIRE.** PLEASE COULD YOU TAKE THE QUESTIONNAIRE AWAY WITH YOU, GIVE IT SOME CONSIDERATION AND RETURN IT IN THE PREPAID ENVELOPE PROVIDED.

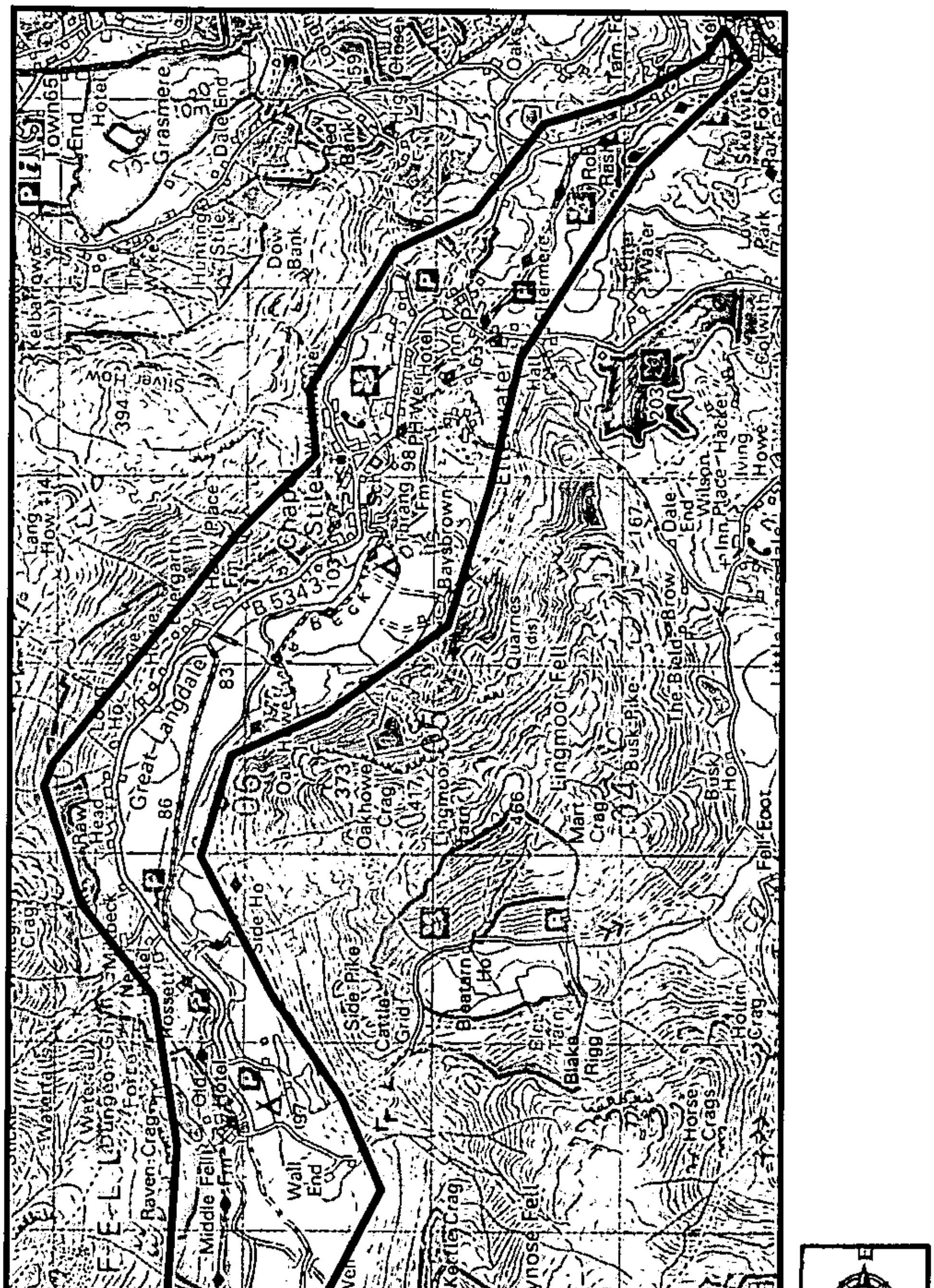
APPENDIX 13

Distribution List for Business Operator Questionnaires

Job Title	Company	Address1	Address2	State	Postal Code
The Manager	The Britannia Inn	Elterwater	Ambleside	Cumbria	LA22 9HP
The Manager	Old Dungeon Ghyll Hotel	Dungeon Ghyll	Ambleside	Cumbria	LA22
The Manager	Greenmoor Caravan Park	Great Langdale	Ambleside	Cumbria	LA22
The Manager	New Dungeon Ghyll Hotel	Dungeon Ghyll	Ambleside	Cumbria	LA22
The Manager	Sticklebarn Tavern	Dungeon Ghyll	Ambleside	Cumbria	LA22
The Manager	Maple Tree Corner Newsagents/Post Office	Elterwater	Ambleside	Cumbria	LA22
The Manager	Judy Boyes Studio	Elterwater	Ambleside	Cumbria	LA22
The Manager	The Wooly Rug Company	Elterwater	Ambleside	Cumbria	LA22
The Manager	Langdale Hotel and Country Club	Elterwater	Ambleside	Cumbria	LA22
The Manager	Eltermere Country House Hotel	Elterwater	Ambleside	Cumbria	LA22 9HY
The Manager	Wheelwrights Holiday Village	Elterwater	Ambleside	Cumbria	LA22
The Manager	Millbeck Farm Accommodation	Dungeon Ghyll	Ambleside	Cumbria	LA22
The Manager	The Wainwright Inn	Chapel Stile	Ambleside	Cumbria	LA22
The Manager	Elterwater YHA	Elterwater	Ambleside	Cumbria	LA22
The Manager	Bishop's Scale	Great Langdale	Ambleside	Cumbria	LA22
The Manager	Robinson's Place Bed & Breakfast	Great Langdale	Ambleside	Cumbria	LA22
The Manager	Baysbrown Campsite	Chapel Stile	Ambleside	Cumbria	LA22
The Manager	Langdale Co-op Village Store	Chapel Stile	Ambleside	Cumbria	LA22
The Manager	Brambles Cafe	Chapel Stile	Ambleside	Cumbria	LA22
The Manager	Langstrath Bed & Breakfast	Chapel Stile	Ambleside	Cumbria	LA22
The Manager	The Talbot Public House	Skelwith Bridge	Ambleside	Cumbria	LA22
The Manager	Skelwith Bridge Hotel	Skelwith Bridge	Ambleside	Cumbria	LA22
The Manager	National Trust Great Langdale Campsite	Dungeon Ghyll	Ambleside	Cumbria	LA22
The Manager	Copt Howe Gardens	Chapel Stile	Ambleside	Cumbria	LA22

APPENDIX 14

Map detailing the spatial extent of the Resident and Business Operator stakeholder samples



Key:	— Spatial Limit of Resident and Business Operator Stakeholder Samples Map not to Scale

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APPENDIX 15

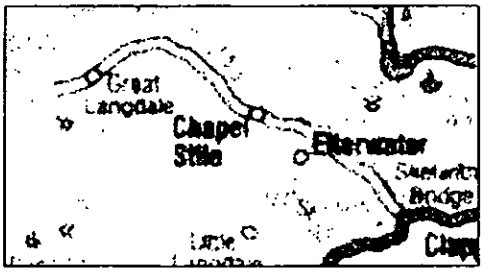
Temporary Resident Stakeholder Questionnaire

UNIVERSITY
OF CENTRAL
LANCASHIRE

Department of Tourism and
Leisure Management
University of
Central Lancashire
Preston PR1 2HE
Tel 01772 201201
Fax 01772 892927
http://www.uclan.ac.uk
email: ghaldwin@uclan.ac.uk

Head of Department
Graham Baldwin
BA(Hons) MSc PGCE

Figure 1: Map of Great Langdale Valley
[Scale: 1 inch to 1.5 miles]



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UNIVERSITY OF CENTRAL LANCASHIRE TRAFFIC SCHEME RESEARCH

Thank you for agreeing to take part in this research study.

This research is being undertaken at the University of Central Lancashire to investigate the potential of new road-user charging powers available to County Councils' in the United Kingdom following the passing of the Transport Act 2000. This questionnaire is aimed at gathering attitudes of **temporary residents of the Great Langdale Valley** towards paying for road use as a potential method of controlling the volumes of private motorvehicles (cars, vans, motorbikes) in the area between Skelwith Bridge and the Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). The road-user charging scheme described on page 2 is purely hypothetical and there are no plans to use the legislation to introduce it.

All that we ask is that:

1) The questionnaire is completed by a member of the household over 17 years old.
2) When you have completed the questionnaire, detach this front sheet and return only pages 3/4 & 5/6 in the prepaid envelope supplied.

If you have any questions at all about the project, please contact George Eckton, Department of Tourism And Leisure Management, University of Central Lancashire on 01772 201201 or email geckton@uclan.ac.uk.

Please read the description of the road-user charging scheme on page 2 carefully before answering the questions on pages 3-6.

The road-user charging scheme would involve paying a **daily** fee per private motor-vehicle (cars, vans, motorbikes, minibuses) to enter into the Great Langdale valley between the hours of 9am and 4pm. The scheme would be in operation from 1st March to 1st October every year. Tollbooths with human attendants, similar to those shown in Figure 2 would be stationed on **all routes** into Great Langdale valley and would issue a windscreen sticker similar to that shown in Figure 3. Any profits generated would be used to improve local public transport. All existing traffic regulations such as car parking charges, parking restrictions, would still be actively enforced within Great Langdale valley. Wardens would patrol the Great Langdale Valley checking for the display of the appropriate days sticker. Cyclists would be exempt from the road-user charge.

The other alternative to not paying this charge would be to leave your private motor-vehicle in a car park in Ambleside and board a low-floored Single Decker bus (see Figure 4). A bus would leave from the Ambleside Depot every 30 minutes and travel to and from Great Langdale Valley serving all major destinations between Skelwith Bridge and The Old Dungeon Ghyll Hotel at the end of the B5343 (see Figure 1). Buses would run every day the scheme was in operation, the first bus leaving Ambleside to Great Langdale would be at 8am and the last bus leaving the Old Dungeon Ghyll Hotel at the end of the B5343 Great Langdale road would be at 6pm. Both the Ambleside car park and return bus journey would be free of charge.

Figure 2

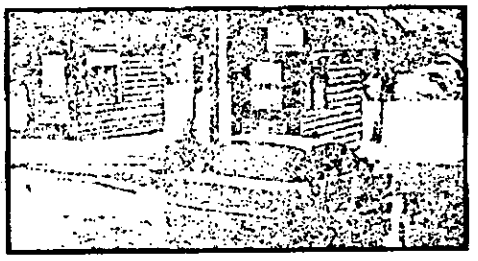


Figure 3

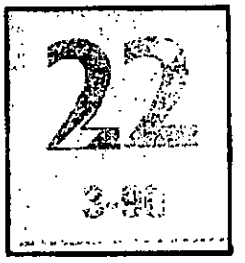


Figure 4

Thanks go to the following organisations for their kind permission to use their facilities or reproduce their materials: Geographer's A-Z Map Company Ltd., The National Trust, Thomas Telford Services Limited.

THE RESPONSES ON THIS FROM ARE ABSOLUTELY CONFIDENTIAL AND YOUR INDIVIDUAL ANONYMITY IS GUARANTEED BY LAW.

Q.1 How often do you intend to revisit the Lake District National Park this year? (please tick one box only)

- ☐ none
- ☐ 1-6 visits
- ☐ 7-12 visits
- ☐ 13+ visits

Q.2. How often when in the Lake District National Park this year do you intend revisiting Great Langdale Valley? (please tick one box only)

- ☐ none
- ☐ 1-3 times
- ☐ 4-6 times
- ☐ 7-9 times
- ☐ 10-12 times
- ☐ 13+ times

Q.3 Would you be willing to pay a £5 daily fee to enter Great Langdale Valley in a motor-vehicle, if the circumstances were as described on page 2? (please tick one box only)

- ☐ Yes (go to Question 7)
- ☐ No (go to Question 4)

Q.4 Would you be willing to pay a daily fee which was between £4.99-£0.01 to enter Great Langdale Valley in a motor-vehicle, if the circumstances were as described on page 2? (please tick one box only)

- ☐ Yes please specify amount....£_____ (go to Question 7)
- ☐ No (go to Question 5)

Q.5 Please explain your reasons for the No answer in Question 4, using the box below.

Q.6 (ONLY ANSWER IF A NO ANSWER WAS RECORDED FOR QUESTION 3 and 4) **How would you change your holiday plans in reaction to the fee to enter Great Langdale Valley in a motor-vehicle?** (please tick one box only)

- ☐ Travel to and from the Great Langdale valley on the free bus provided
- ☐ Stay somewhere else in the Lake District National Park
- ☐ Not travel to the Lake District NP at all
- ☐ Other [please specify].....
- ☐ Don't Know

Q.7. Should any of the categories of people listed in the left-hand column below be exempt, or given discounts on the entry fee to Great Langdale valley? (please tick only one box per category)

	Exempt	Discounts	Not Exempt
Great Langdale Valley Residents			
Lake District National Park residents			
People who work in Great Langdale			
Commercial Vehicles delivering to the area			
Great Langdale tourist accommodation occupants			
Pensioners			
Unemployed			
Students			
Disabled			
School Party Vehicles			
Other [please specify].....			

Q.8 How would you describe the level of motor-vehicle traffic you experienced throughout your visit to the Lake District National Park? (please tick one box only)

- ☐ Very Light
- ☐ Light
- ☐ Moderate
- ☐ Heavy
- ☐ Very Heavy
- ☐ Don't Know

Q.9 Did you find the level of motor-vehicle traffic in the Lake District National Park a problem? (please tick one box only)

- ☐ Yes
- ☐ No
- ☐ Don't Know

Q.10 How strongly would you support or oppose charges being introduced for drivers who want to drive into the centre of large towns and cities where there is major congestion WITH the revenue generated solely being used to make significant improvements in LOCAL public transport? (please tick one box only)

- ☐ Strongly Support
- ☐ Tend to support
- ☐ Neither support or oppose
- ☐ Tend to oppose
- ☐ Strongly oppose
- ☐ Don't Know

Do you agree with the following statements?

11. "A £5 fee to enter the Great Langdale Valley would be a good policy".

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

12."Using a car in the Lake District National Park will always be better than using public transport". (please tick one box only)

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree
- ☐ Don't Know

Q.13 How long will you be visiting Great Langdale Valley for?

- ☐ 1-7days
- ☐ 8-14 days
- ☐ 14+ days
- ☐ Don't Know

Q.14. Which of the following categories describes your main mode of transport to REACH the Lake District National Park? (please tick one box only)

- ☐ Private Car
- ☐ Motorcycle
- ☐ Bus (public transport)
- ☐ Train + Bus
- ☐ Train + Bike
- ☐ Minibus (private hire)
- ☐ Coach (private hire)
- ☐ Other [please specify].....

Q.15. Which of the following categories describes your main mode of transport to TRAVEL AROUND the Lake District National Park? (please tick one box only)

- ☐ Private Car
- ☐ Motorcycle
- ☐ Bus (public transport)
- ☐ Bicycle
- ☐ Minibus (private hire)
- ☐ Coach (private hire)
- ☐ Other [please specify].....

Q.16 Are you (please tick one box only)

- ☐ Male
- ☐ Female

Q.17 Age last Birthday (please tick one box only)

- ☐ 17-30 years
- ☐ 31-50 years
- ☐ 51-64 years
- ☐ 65+ years

Q.18 Are you (please tick one box only)

- ☐ Employed Full Time
- ☐ Employed Part Time
- ☐ Retired
- ☐ Unemployed
- ☐ Unable to work for medical reasons
- ☐ In full time education / training
- ☐ Looking after the home full time
- ☐ Other [please specify] .....

Q.19 Which of the following categories represents your total household income per year before tax? (please tick one box only)

- ☐ Less than £10,000
- ☐ £10,000 - £19,999
- ☐ £20,000 - £29,999
- ☐ £30,000 - £39,999
- ☐ More than £40,000

Q.20 How many of the following normally live in your household? (please complete as you think appropriate)

- ___ Adults aged 18 – 35 years
- ___ Adults aged 36 – 64 years
- ___ Adults aged 65 years or older
- ___ Children aged under 5 years
- ___ Children aged 5 – 12 years
- ___ Children aged 13 – 17 years

Q.21 Do you currently hold a Driving Licence? (please tick one box only)

- ☐ Yes
- ☐ No

Q.22 What are the first 3 digits of the postcode at your permanent address?

(NB This will not be used to identify you or send you further information).....

Please return your questionnaire by the 30th April 2002 and once again thank you for taking the time and effort to complete this research questionnaire. If you have any further comments please attach an additional sheet.

APPENDIX 16

Visitor Stakeholder Questionnaire Survey Frequency Results

Q.1 How often do you intend to revisit the Lake District National Park this year?

Category	Frequency	Percent
None	11	7.4
1-6 visits	78	52.7
7-12 visits	20	13.5
13+ visits	39	26.4
Total	148	100.0

Q.2 How often when in the Lake District National Park this year, do you intend revisiting Great Langdale valley?

Category	Frequency	Percent
None	16	10.8
1-3 times	84	56.8
4-6 times	32	21.6
7-9 times	7	4.7
10-12 times	6	4.1
13+ times	3	2.0
Total	148	100.0

Q.3 Would you be willing to pay a £5 daily fee to enter Great Langdale Valley in a motor-vehicle each time you visit, if the circumstances were as described on page 2?

Category	Frequency	Percent
Yes £5	35	23.6
No	113	76.4
Total	148	100.0

Q.4 Would you be willing to pay a daily fee which was between £4.99-£0.01 to enter Great Langdale Valley in a motor-vehicle each time you visit, if the circumstances were as described on page 2?

Category	Frequency	Percent
Yes	43	29.1
No	70	47.3
Sub-Total	113	76.4
WTP a Road-User Charge	35	23.6
Total	148	100.0

Discrete Willingness to Pay Levels calculated from Questions 3 and 4 responses

WTP in £	Frequency	Percent
.00	70	47.3
.01	1	.7
.10	1	.7
.50	1	.7
1.00	2	1.4
1.50	1	.7
2.00	21	14.2
2.50	7	4.7
3.00	7	4.7
4.00	1	.7
5.00	35	23.6
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.5 Please explain your reasons for the No answer in Question 4?

Category	Frequency	Percent
Elitist/Wrong on Principle	15	10.1
Already Pay Road/Other Taxes	18	12.2
Take exception to certain parts of scheme described	16	10.8
Resident of Cumbria	4	2.7
Use Free Bus	8	5.4
Have Negative Effect on Business Community	2	1.4
National Members so pay enough already	3	2.0
Arrive Early to avoid Fees	2	1.4
Simply go Elsewhere	1	.7
Don't Know Why	1	.7
Sub-Total	70	47.3
WTP some level of Road-User Charge	78	52.7
Total	148	100.0

Q.6 – How would you change your travel plans in reaction to the fee to enter Great Langdale Valley in a motor-vehicle?

	Frequency	Percent
Travel on Free Bus to Great Langdale	26	17.6
Go elsewhere in the Lake District NP	31	20.9
Not travel to Lake District National Park at all	2	1.4
Other	8	5.4
Don't Know	3	2.0
Sub-Total	70	47.3
WTP some level of road-user charge	78	52.7
Total	148	100.0

Q.7. Should any of the categories of people listed in the left-hand column below be exempt, or given discounts on the entry fee to Great Langdale valley?

Category	Exempt	Discounts	Not Exempt
Great Langdale Valley Residents	139	0	3
Lake District National Park Residents	59	45	31
People who work in Great Langdale	124	10	5
Commercial Vehicles delivering to the area	106	18	12
Great Langdale tourist accommodation occupants	63	36	37
Pensioners	43	63	29
Unemployed	33	64	36
Students	22	78	31
Disabled	52	50	32
School Party Vehicles	35	54	43
Other	19	1	7

Q.8 How would you describe the level of motor-vehicle traffic you experienced throughout your visit to the Lake District National Park[1]?

Category	Frequency	Percent
Very Light	4	2.7
Light	24	16.2
Moderate	90	60.8
Heavy	23	15.5
Very Heavy	3	2.0
Don't Know	2	1.4
Sub-Total	146	98.6
Missing	2	1.4
Total	148	100.0

Q.9 Did you find the level of motor-vehicle traffic in the Lake District National Park a problem[2]?

Category	Frequency	Percent
Yes	22	14.9
No	120	81.1
Sub-Total	142	95.9
Missing	6	4.1
Total	148	100.0

[1] Easter version title contained a slightly different temporal frame to the non-Easter version, but not significant to analyse separately - Q.8 Over the Easter weekend how would you describe the level of motor-vehicle traffic you experienced throughout your visit to the Lake District National Park? (see Appendix 5 & 6).

[2] Easter version title contained a slightly different temporal frame to the non-Easter version, but not significant to analyse separately – Q.9 Over the Easter Weekend 2002 did you find the level of motor-vehicle traffic in the Lake District National Park a problem? (see Appendix 5 & 6).

Q.10 How strongly would you support or oppose charges being introduced for drivers who want to drive into the centre of large towns and cities where there is major congestion?

Category	Frequency	Percent
Strongly Support	32	21.6
Tend to Support	55	37.2
Neither support or oppose	17	11.5
Tend to oppose	12	8.1
Strongly oppose	29	19.6
Sub-Total	145	98.0
Missing	3	2.0
Total	148	100.0

11 A £5 fee to enter the Great Langdale Valley would be a good policy

Category	Frequency	Percent
Strongly Agree	12	8.1
Somewhat Agree	36	24.3
Somewhat Disagree	39	26.4
Strongly Disagree	57	38.5
Don't Know	2	1.4
Sub-Total	146	98.6
Missing	2	1.4
Total	148	100.0

12 Using a car in the Lake District National Park will always be better than using public transport

Category	Frequency	Percent
Strongly Agree	51	34.5
Somewhat Agree	47	31.8
Somewhat Disagree	32	21.6
Strongly Disagree	15	10.1
Don't Know	2	1.4
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.13 Was your visit to the Lake District National Park during the 2002 Easter Weekend a day-trip leaving and returning to your permanent address within 24 hours?

Category	Frequency	Percent
Yes	66	44.6
No	81	54.7
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.14 Which of the following categories describes your main mode of transport to REACH the Lake District National Park?

Category	Frequency	Percent
Private Car	143	96.6
Motorcycle	1	.7
Train + Bus	1	.7
Minibus (private hire)	1	.7
Other	1	.7
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.15 Which of the following categories describes your main mode of transport to TRAVEL AROUND the Lake District National Park?

Category	Frequency	Percent
Private Car	138	93.2
Motorcycle	1	.7
Other	8	5.4
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.16 Are you a member of the National Trust?

Category	Frequency	Percent
Yes	65	43.9
No	81	54.7
Sub-Total	146	98.6
Missing	2	1.4
Total	148	100.0

Q.17 Are You (Gender)

Category	Frequency	Percent
Male	113	76.4
Female	34	23.0
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.18 Age last Birthday

Category	Frequency	Percent
17-30 years	16	10.8
31-50 years	70	47.3
51-64 years	53	35.8
65+ years	8	5.4
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.19 Are you (Employment Type)

Category	Frequency	Percent
Employed Full Time	102	68.9
Employed Part Time	12	8.1
Retired	20	13.5
Unemployed	1	.7
In full-time education/ training	7	4.7
looking after the home full time	2	1.4
Other	3	2.0
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.20 Which of the following categories represents your total household income per year before tax?

Category	Frequency	Percent
< £10000	6	4.1
£10000-£19999	26	17.6
£20000-£29999	23	15.5
£30000-£39999	37	25.0
> £40000	52	35.1
Sub-Total	144	97.3
Missing	4	2.7
Total	148	100.0

Q.21 – How many of the following normally live in your household? (Household Type)

Collapsed Category	Frequency	Percent
Single Person Household	23	15.5
Household of 2 or more Adults	74	50.0
Household of Adult(s) and Children	50	33.8
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.22 Do you currently hold a Driving Licence

Category	Frequency	Percent
Yes	143	96.6
No	4	2.7
Sub-Total	147	99.3
Missing	1	.7
Total	148	100.0

Q.23 – What are the first 3 digit of the postcode at your permanent address?

Allotted Category	Frequency	Percent
North	22	14.9
North-West	58	39.9
Yorkshire and Humberside	17	11.5
East Midlands	10	6.8
Wales	2	1.4
West Midlands	7	4.7
East Anglia	3	2.0
South East and Greater London	19	12.8
South-West	6	4.1
Sub-Total	145	98.0
Missing	3	2.0
Total	148	100.0

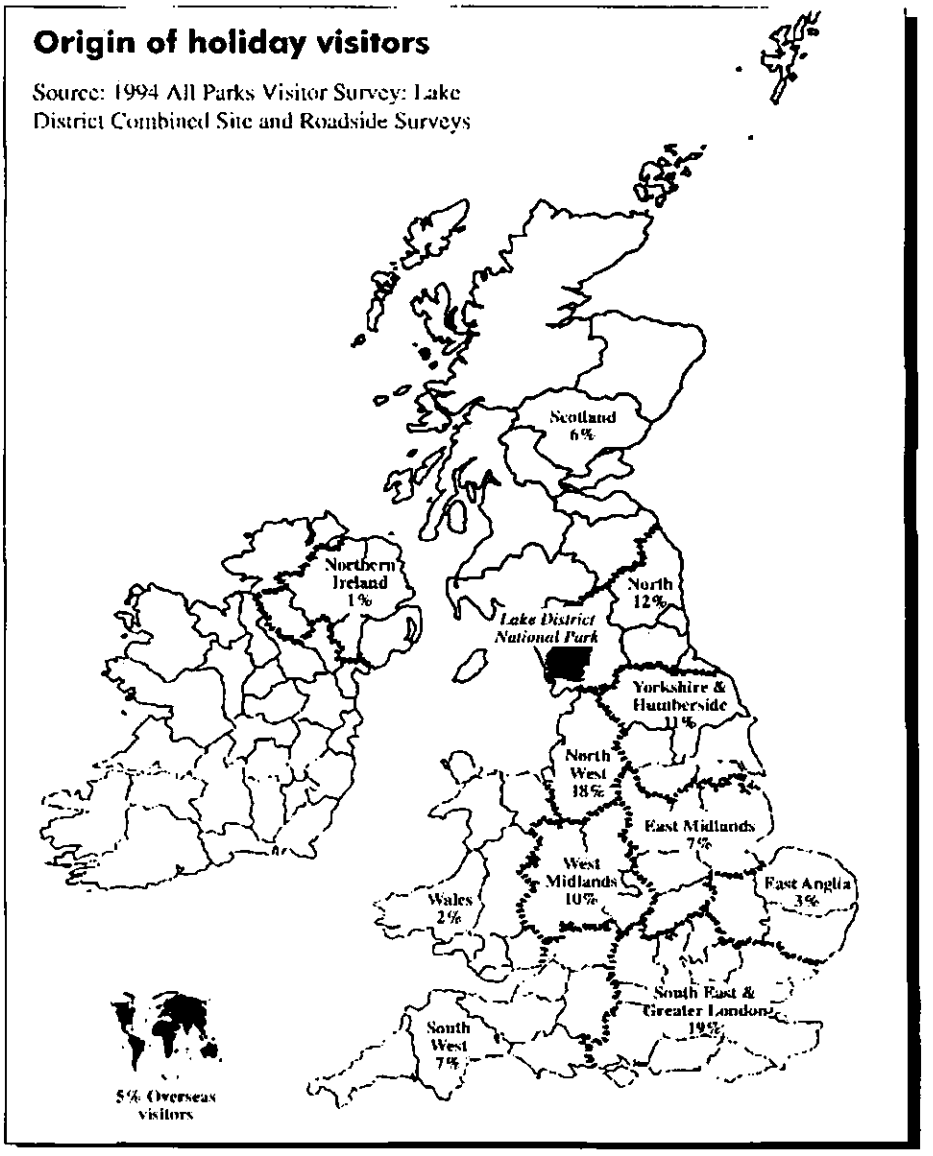
Table Q.23 based on Regional Categories for Countryside Commission All Park Visitor Survey 1994, see figure overleaf.

First 3 Postcode Digits	Post Town/City	Origin Category
LA8	KENDAL	NORTH
BD1	BRADFORD	YORKSHIRE & HUMBERSIDE
CH48	CHESTER	NORTH WEST
SY8	LUDLOW	WEST MIDLANDS
NG13	NOTTINGHAM	EAST MIDLANDS
LA9	KENDAL	NORTH
GU3	GUILDFORD	SOUTH EAST & GREATER LONDON
LE10	LEICESTER	EAST MIDLANDS
PR1	PRESTON	NORTH WEST
OU6	ROCHDALE	NORTH WEST
SK8	CHEADLE HULME	NORTH WEST
SK22	NEW MILLS, PDNP	EAST MIDLANDS
HX3	HALIFAX	YORKSHIRE & HUMBERSIDE
PR3	PRESTON	NORTH WEST
CA8	BRAMPTON	NORTH
M28	MANCHESTER	NORTH WEST
CA1	CARLISLE	NORTH
SE16	LONDON	SOUTH EAST & GREATER LONDON
NR1	NORWICH	EAST ANGLIA
HX2	HALIFAX	YORKSHIRE & HUMBERSIDE
NE2	NEWCASTLE UPON TYNE	NORTH
TA2	TAUNTON	SOUTH WEST
LA15	DALTON IN FURNESS	NORTH
BD2	BRADFORD	YORKSHIRE & HUMBERSIDE
NM2	NORTHAMPTON	EAST MIDLANDS
LA9	KENDAL	NORTH
CA1	CARLISLE	NORTH
NG9	NOTTINGHAM	EAST MIDLANDS
W13	LONDON	SOUTH EAST & GREATER LONDON
PR8	PRESTON	NORTH WEST
M28	MANCHESTER	NORTH WEST
BT4	ELLESMERE PORT	NORTH WEST
NE2	NEWCASTLE UPON TYNE	NORTH
LA7	KENDAL	NORTH
PR4	PRESTON	NORTH WEST
PR2	PRESTON	NORTH WEST
LA1	LANCASTER	NORTH WEST
LA1	LANCASTER	NORTH WEST
LA2	LANCASTER	NORTH WEST
WA2	WARRINGTON	NORTH WEST
WA14	WARRINGTON	NORTH WEST
LA14	BARROW IN FURNESS	NORTH
PR8	PRESTON	NORTH WEST
HD9	HUDDERSFIELD	YORKSHIRE & HUMBERSIDE
LL12	WREXHAM	WALES
NE46	HEXHAM	NORTH
HU10	KINGSTON UPON HULL	YORKSHIRE & HUMBERSIDE
NN12	NOTTINGHAM	EAST MIDLANDS
PR8	PRESTON	NORTH

GL3	GLOUCESTER	SOUTH WEST
LA1	LANCASTER	NORTH WEST
S80	WORKSOP	YORKSHIRE & HUMBERSIDE
SK2	STOCKPORT	NORTH WEST
BB2	BLACKBURN	NORTH WEST
AL8	WELWYN GARDEN CITY	SOUTH EAST & GREATER LONDON
BL1	BOLTON	NORTH WESTQ
FY4	LYTHAM ST ANNES	NORTH WEST
SG1	STEVENAGE	SOUTH EAST & GREATER LONDON
BN25	BRIGHTON	SOUTH EAST & GREATER LONDON
NN1	NORTHAMPTON	EAST MIDLANDS
LA1	LANCASTER	NORTH WEST
OX28	OXFORD	SOUTH EAST & GREATER LONDON
S11	SHEFFIELD	YORKSHIRE & HUMBERSIDE
L39	LIVERPOOL	NORTH WEST
L22	LIVERPOOL	NORTH WEST
BD20	BRADFORD	YORKSHIRE & HUMBERSIDE
WA12	WARRINGTON	NORTH WEST
CA25	WHITEHAVEN	NORTH
PR2	PRESTON	NORTH WEST
NR25	NORWICH	EAST ANGLIA
SW4	LONDON	SOUTH EAST & GREATER LONDON
BS22	WESTON SUPER MARE	SOUTH WEST
RH1	REDHILL	SOUTH EAST & GREATER LONDON
LA5	CARNFORTH	NORTH WEST
NE3	NEWCASTLE UPON TYNE	NORTH
WA1	WARRINGTON	NORTH WEST
ST7	STOKE ON TRENT	WEST MIDLANDS
DN18	KINGSTON UPON HULL	EAST MIDLANDS
LA9	KENDAL	NORTH
CW5	NANTWICH	NORTH WEST
BA1	BATH	SOUTH WEST
BB1	BLACKBURN	NORTH WEST
PR5	PRESTON	NORTH WEST
NG2	NOTTINGHAM	EAST MIDLANDS
LA2	LANCASTER	NORTH WEST
LA1	LANCASTER	NORTH WEST
PR1	PRESTON	NORTH WEST
BB4	BLACKBURN	NORTH WEST
LA9	KENDAL	NORTH
HG1	HARROGATE	YORKSHIRE & HUMBERSIDE
HA4	LONDON	SOUTH EAST & GREATER LONDON
	MANCHESTER	NORTH WEST
SY5	SHREWSBURY	WEST MIDLANDS
CW4	CREWE	WEST MIDLANDS
WA1	WARRINGTON	NORTH WEST
SK12	STOCKPORT	NORTH WEST
LA12	ULVERSTON	NORTH
N16	LONDON	SOUTH EAST & GREATER LONDON
BB1	BLACKBURN	NORTH WEST
WA2	WARRINGTON	NORTH WEST

HG2	HARROGATE	YORKSHIRE & HUMBERSIDE
WA11	WARRINGTON	NORTH WEST
SK1	STOCKPORT	NORTH WEST
BB8	BLACKBURN	NORTH WEST
BD2	BRADFORD	YORKSHIRE & HUMBERSIDE
SA5	SWANSEA	WALES
SK11	STOCKPORT	NORTH WEST
FY8	LYTHAM ST ANNES	NORTH WEST
KT1	KINGSTONUPON THAMES	SOUTH EAST & GREATER LONDON
LS21	LEEDS	YORKSHIRE & HUMBERSIDE
B45	BIRMINGHAM	WEST MIDLANDS
HA5	LONDON	SOUTH EAST & GREATER LONDON
GL11	GLOUCESTER	SOUTH WEST
LA9	KENDAL	NORTH
CW12	CREWE	WEST MIDLANDS
AL5	WELWYN GARDEN CITY	SOUTH EAST & GREATER LONDON
RG6	READING	SOUTH EAST & GREATER LONDON
WD3	WATFORD	SOUTH EAST & GREATER LONDON
FY8	LYTHAM ST ANNES	NORTH WEST
IP3	IPSWICH	EAST ANGLIA
DL1	DARLINGTON	NORTH
LA9	KENDAL	NORTH
SK13	STOCKPORT	NORTH WEST
LA5	CARNFORTH	NORTH WEST
L23	LIVERPOOL	NORTH WEST
PR2	PRESTON	NORTH WEST
GU34	GUILDFORD	SOUTH EAST & GREATER LONDON
L30	LIVERPOOL	NORTH WEST
CV33	WARWICK	WEST MIDLANDS
GL4	GLOUCESTER	SOUTH WEST
YO25	YORK	YORKSHIRE & HUMBERSIDE
NE2	NEWCASTLE UPON TYNE	NORTH
CR6	BIGGIN HILL	SOUTH EAST & GREATER LONDON
S33	SHEFFIELD	YORKSHIRE & HUMBERSIDE
NG1	NOTTINGHAM	EAST MIDLANDS
S8	SHEFFIELD	YORKSHIRE & HUMBERSIDE
SK13	STOCKPORT	NORTH WEST
L39	LIVERPOOL	NORTH WEST
FY5	LYTHAM ST ANNES	NORTH WEST
LA9	KENDAL	NORTH
WN7	WIGAN	NORTH WEST
M20	MANCHESTER	NORTH WEST
YO2	YORK	YORKSHIRE & HUMBERSIDE
TN2	ROYALTUNDBRIDGEWELLS	SOUTH EAST & GREATER LONDON
PR3	PRESTON	NORTH WEST

Origin of Holiday Visitors to the Lake District National Park (LDNPES, 1997).



APPENDIX 17

Resident Stakeholder Questionnaire Survey Frequency Results

Q.1 Would you be willing to pay a £5 daily fee to enter Great Langdale Valley in a motor-vehicle, under the circumstances described on page 2?

Category	Frequency	Percent
Yes	2	4.3
No	45	95.7
Total	47	100.0

Q.2 Would you be willing to pay a daily fee which was between £4.99-£0.01 to enter Great Langdale Valley in a motor-vehicle, under the circumstances described on page 2?

Category	Frequency	Percent
Yes	7	14.9
No	38	80.9
Total	45	95.7
Missing	2	4.3
	47	100.0

Discrete Willingness to Pay Levels calculated from Questions 1 and 2 responses

WTP in £	Frequency	Percent
.00	38	80.9
.20	1	2.1
.50	2	4.3
1.00	2	4.3
2.50	1	2.1
3.00	1	2.1
5.00	2	4.3
Total	47	100.0

Q.3 Please explain your reasons for the No answer in Question 2, using the box below.

Response	Frequency	Percent
Because I'm a Resident	18	38.3
Wrong in Principle	6	12.8
Already Pay road/Council Taxes	6	12.8
Negative Effect on Tourism Economy	1	2.1
Not a problem with traffic	4	8.5
Impractical Solution	2	4.3
None Given	1	2.1
Sub - Total	38	80.9
WTP a Road-User Charge	9	19.1
Total	47	100.0

Q.4. Should any of the categories of people listed in the left-hand column below be exempt, or given discounts on the entry fee to Great Langdale valley?

Category	Exempt	Discounts	Not Exempt
Great Langdale Valley Residents	47	.	.
Lake District National Park Residents	29	11	4
People who work in Great Langdale	42	3	1
Commercial Vehicles delivering to the area	35	6	6
Great Langdale tourist accommodation occupants	29	9	7
Pensioners	21	12	11
Unemployed	19	12	14
Students	16	15	13
Disabled	23	8	12
School Party Vehicles	17	6	19
Other	15	3	6

Q.5 – Do you think tourists' should have to pay a daily fee to enter Great Langdale valley?

Category	Frequency	Percent
Yes	17	36.2
No	29	61.7
Total	46	97.9
Missing	1	2.1
	47	100.0

Discrete What Tourists Should Pay Levels calculated from Questions 5 responses

WTSP in £	Frequency	Percent
.00	28	59.6
.50	2	4.3
1.00	5	10.6
1.50	1	2.1
2.50	1	2.1
3.00	2	4.3
5.00	3	6.4
Sub - Total	42	89.4
Missing	5	10.6
Total	47	100.0

Q.6 - How strongly would you support or oppose charges being introduced for drivers who want to drive into the centre of large towns and cities where there is major congestion WITH the revenue generated solely being used to make significant improvements in LOCAL public transport?

Category	Frequency	Percent
Strongly Support	9	19.1
Tend to Support	15	31.9
Neither support or oppose	8	17.0
Tend to oppose	5	10.6
Strongly oppose	7	14.9
Don't Know	2	4.3
Sub-Total	46	97.9
Missing	1	2.1
Total	47	100.0

Q.7 - How would you describe the level of motor-vehicle traffic you experience in the Lake District National Park between March-October each year?

Category	Frequency	Percent
Very Light	2	4.3
Moderate	18	38.3
Heavy	12	25.5
Very Heavy	13	27.7
Sub-Total	45	95.7
Missing	2	4.3
Total	47	100.0

Q.8 - Do you find the level of motor-vehicle traffic in the Lake District National Park between March-October a problem?

Category	Frequency	Percent
Yes	22	46.8
No	23	48.9
Don't Know	1	2.1
Sub-Total	46	97.9
Missing	1	2.1
Total	47	100.0

Q.9 - Which of the following categories describes your main mode of transport to TRAVEL AROUND the Lake District National Park?

Category	Frequency	Percent
Private Car	46	97.9
Motorcycle	1	2.1
Total	47	100.0

10 - Using a car in the Lake District National Park will always be better than using public transport

Category	Frequency	Percent
Strongly Agree	26	55.3
Somewhat Agree	12	25.5
Neither Agree nor Disagree	4	8.5
Somewhat Disagree	4	8.5
Don't Know	1	2.1
Total	47	100.0

11 - Tourism is good for the Lake District Economy

Category	Frequency	Percent
Strongly Agree	33	70.2
Somewhat Agree	12	25.5
Somewhat Disagree	1	2.1
Sub-Total	46	97.9
Missing	1	2.1
Total	47	100.0

12 - Public Transport Facilities in the Lake District National Park are of a high standard

Category	Frequency	Percent
Strongly Agree	2	4.3
Somewhat Agree	3	6.4
Neither Agree nor Disagree	10	21.3
Somewhat Agree	9	19.1
Strongly Agree	20	42.6
Don't Know	3	6.4
Total	47	100.0

13 - There would be lower levels of motor-vehicle traffic in the Lake District National Park if it were not for the tourists

Category	Frequency	Percent
Strongly Agree	38	80.9
Somewhat Agree	8	17.0
Neither Agree nor Disagree	1	2.1
Total	47	100.0

14 - I would like to see an increase in the number of tourists visiting the Great Langdale valley

Category	Frequency	Percent
Strongly Agree	6	12.8
Somewhat Agree	6	12.8
Neither Agree nor Disagree	15	31.9
Somewhat Disagree	8	17.0
Strongly Disagree	12	25.5
Total	47	100.0

Q.15 - Do you currently hold a Driving Licence

Category	Frequency	Percent
Yes	45	95.7
No	1	2.1
Total	46	97.9
Missing	1	2.1
	47	100.0

Q.16 – Could you rank the following motor-vehicle traffic management measures in order of preference?

Preferences	First Preference	Second Preference	Third Preference	Fourth Preference	Fifth Preference
Increasing Car Parking Charges	10	14	8	5	1
Increasing Public Transport Services and Reducing Fares	24	9	4	1	2
Banning private motor-vehicles from Great Langdale	2	.	1	16	16
Road-user Charges to enter Great Langdale	3	4	18	5	5
Widening Roads to increase capacity	2	2	5	4	26

Q.17 - How long have you been a permanent resident of the Great Langdale Valley?

Category	Frequency	Percent
Less than 1 year	2	4.3
1 to 10 years	6	12.8
11 to 20 years	6	12.8
Over 20 years	20	42.6
Not a permanent resident at this address	12	25.5
Sub-Total	46	97.9
Missing	1	2.1
Total	47	100.0

Q.18 - How would you describe the dependence level of your total household income on tourism?

Category	Frequency	Percent
Independent	28	59.6
Somewhat Dependent	6	12.8
Dependent	3	6.4
Very Dependent	8	17.0
Sub-Total	45	95.7
Missing	2	4.3
Total	47	100.0

APPENDIX 18

Business Operator Stakeholder Questionnaire Survey

Frequency Results

Q.1 - Would you be willing to accept an annual compensation payment if a daily £5 fee to enter Great Langdale in a motor-vehicle was introduced?

Category	Frequency	Percent
Yes	2	20.0
No	6	60.0
Sub-Total	8	80.0
Missing	2	20.0
Total	10	100.0

Discrete Willingness to Accept Levels calculated from Questions 1 responses

Category	Frequency	Percent
WTA-Dependent on Impact	1	10.0
300,000.00	1	10.0
Sub-Total	2	20.0
Missing	8	80.0
Total	10	100.0

Q.2 – Do you think tourists' visiting Great Langdale should have to pay a daily fee to enter Great Langdale valley?

Category	Frequency	Percent
Yes	1	10.0
No	9	90.0
Total	10	100.0

Discrete What Tourists Should Pay Levels calculated from Questions 2 responses

Category	Frequency	Percent
Tourist Fee Dependent on Impact	1	10.0
Missing	9	90.0
Total	10	100.0

Q.3 – Should any of the categories of people listed in the left-hand column below be exempt, or given discounts on the fee to enter Great Langdale valley?

Category	Exempt	Discounts	Not Exempt
Great Langdale Valley Residents	9	.	.
Lake District National Park Residents	6	2	.
People who work in Great Langdale	8	.	.
Commercial Vehicles delivering to the area	8	.	.
Great Langdale tourist accommodation occupants	7	.	1
Pensioners	6	2	.
Unemployed	6	1	1
Students	6	1	1
Disabled	6	2	.
School Party Vehicles	7	1	.
Other	6	.	.

Q.4 - How would you describe the level of motor-vehicle traffic you experience in the Lake District National Park between March-October each year?

Category	Frequency	Percent
Moderate	6	60.0
Heavy	2	20.0
Very Heavy	2	20.0
Total	10	100.0

Q.5 Do you find the level of motor-vehicle traffic in the Lake District National Park between March - October a problem?

Category	Frequency	Percent
Yes	2	20.0
No	8	80.0
Total	10	100.0

Q.6. Which of the following categories describes your main mode of transport to TRAVEL AROUND the Lake District National Park?

Category	Frequency	Percent
Private Car	10	100.0

Q.7 Could you rank the following motor-vehicle traffic management measures in order of preference?

Category	First Preference	Second Preference	Third Preference	Fourth Preference	Fifth Preference
Increasing Car Parking Charges	1	2	2	.	2
Increasing Public Transport Services and Reducing Fares	6	1	.	.	2
Banning private motor-vehicles from Great Langdale	.	.	.	.	6
Road-user Charges to enter Great Langdale	.	1	.	2	4
Widening Roads to increase capacity	.	1	3	.	3

8."Using a car in the Lake District National Park will always be better than using public transport".

Category	Frequency	Percent
Strongly Agree	6	60.0
Somewhat Agree	3	30.0
Neither Agree nor Disagree	1	10.0
Total	10	100.0

9. "Tourism is good for the Lake District Economy".

Category	Frequency	Percent
Strongly Agree	10	100.0

10. "Public Transport Facilities in the Lake District National Park are of a high standard".

Category	Frequency	Percent
Somewhat Agree	2	20.0
Somewhat Disagree	3	30.0
Strongly Disagree	3	30.0
Don't Know	2	20.0
Total	10	100.0

11. "There would be lower levels of motor-vehicle traffic in the Lake District National Park if it were not for the tourists".

Category	Frequency	Percent
Strongly Agree	3	30.0
Somewhat Agree	5	50.0
Neither Agree nor Disagree	1	10.0
Sub-Total	9	90.0
Missing	1	10.0
Total	10	100.0

12. "I would like to see an increase in the number of tourists visiting the Great Langdale valley".

Category	Frequency	Percent
Strongly Agree	3	30.0
Somewhat Agree	1	10.0
Neither Agree nor Disagree	6	60.0
Total	10	100.0

Q.13 How long have you been running your business in the Great Langdale Valley?

Category	Frequency	Percent
1 to 10 years	3	30.0
11 to 20 years	3	30.0
Over 20 years	4	40.0
Total	10	100.0

Q.14 Please briefly describe your type of business?

1 - Youth Hostel – Budget Accommodation; 2 - Holiday Accommodation/B&B; 3 - Hotel/Inn; 4 - Village Shop + Post Office; 5 - General Store; 6 - Hotel + Public House; 7 - Hotel, Restaurant, Public Bar; 8 - Hotel; 9 - Café; 10 - Holiday Cottage Accommodation.

Q.15 How much of your business's turnover is due to tourists visiting Great Langdale Valley?

Category	Frequency	Percent
51-75%	3	30.0
76-100%	7	70.0
Total	10	100.0

Q.16 How would you describe the dependence level of your total household income on tourism?

Category	Frequency	Percent
Somewhat Dependent	1	10.0
Dependent	2	20.0
Very Dependent	7	70.0
Total	10	100.0

APPENDIX 19

Stress/Congestion calculation for A593 at Clappersgate

NY 370037

Congestion Reference Flow

Link	Capacity	NL	Wf	PkF	PkD	AADT	AAWT	CRF	Stress
2002 A595 Existing situation (example)	1379	1	0.95	9.4	57.4	23335	24056	23553	99
2000 A593 Clappersgate	1000	1	0.95	9.4	57.4	7986	7778	18045	44
2001 A593 Clappersgate	1000	1	0.95	9.4	57.4	6848	6659	18063	38
2000 A593 Clappersgate	1380	1	0.95	9.4	57.4	7986	7778	25550	31
2001 A593 Clappersgate	1380	1	0.95	9.4	57.4	6848	6659	24878	28

Note - See DMRB Vol 5 Sect 1TA46/97 for Details
See 'Guidance on the Methodology for Multi-Modal Studies' section 6.3.12 for the definition of 'Stress'

A593 1000 capacity based on A591 estimation of 1050 vehicles per hour capacity by Lake District Transport Strategy (2000).

Capacity = max hourly lane throughput
NL = no lanes in each direction
Wf = Width Factor
PkF = %of total 2-way flow that occurs in peak hour
PkD = directional % split of the peak hour flow
PkH = percentage of Heavy Vehicles in the peak hour
AADT = Annual Average Daily Traffic flow
AAWT = Annual Average Weekday Traffic flow
CRF = Capacity * NL * Wf * 100/PkF * 100/PkD * AADT/AAWT
Stress = AADT / CRF *100

Width Factor
Single Carriageway Widths

Width	Wf
11	1.83
10	1.46
9	1.29
8	1.12
7.3	1
7	0.95
6	0.78

Width Factor
Dual Carriageway Widths

Width	Number of lanes	Wf
14.6	4	1

Capacity of Link

Value A - Single cway	1380
Value B - Single cway	15
Value A - Dual cway	2100
Value B - Dual cway	20
Value A - Motorway	2300
Value B - Motorway	25

Percentage of HGVs in the peak hour

PkH	5.95
Single cway capacity=(A-B*%HGV)	1379
Dual cway capacity=(A-B*%HGV)	2099
Motorway capacity=(A-B*%HGV)	2299

George Eckton

From: "Jane Gibson" <jane.gibson@capitadbs.co.uk>
To: <george.d.c.eckton@btinternet.com>
Sent: 01 July 2002 15:02
Attach: Clappersgate_00_AADT.LIS.txt; Clappersgate_01_AADT.LIS.txt; highways agency.pdf; StressCalc.xls
Subject: Traffic information

Dear George

There are a number of attachments with info you requested. There are 2 text files which contain traffic flow info from the nearest Automatic Traffic Counter on the A593 near to Langdale (exact location given in the file). The AADT for 2000 and 2001 are 7986 & 6848 resp.

There is also a spreadsheet to help you calculate any overcapacity at that location. The spreadsheet is set up for another location all you need to do is amend the relevant data. A file downloaded from the Highways Agency is also included to help you fill in the spreadsheet. You only need to use Annex D on Congestion Reference Flows.
A stress calculation of close to 100 indicates the road is approaching capacity. Over 100 and it is overcapacity.

Hope this is useful to you. Good luck with your thesis.

Jane Gibson
Transport Modeller
Capita
01228 606222

Traffic Flows on the A593 at Clappersgate 2000

Clappersgate_00_AADT.LIS

1
Countywide T.A.D.U.
Site Name A593 Clappersgate District ? Road ??
Site Reference 370037c All Channels Ordinance Survey Grid Reference:
3370-5037
Printout for Year 2000

Month	5-Day Ave Flow	Oct Ratio	7-Day Ave Flow	Oct Ratio	Comment
JANUARY	4564	0.599	4733	0.605	
FEBRUARY	5498	0.721	5788	0.740	
MARCH	6021	0.790	6507	0.832	
*APRIL	8450	1.109	8654	1.107	
*MAY	7829	1.027	8018	1.026	
*JUNE	7991	1.048	8163	1.044	
JULY	8804	1.155	8980	1.149	
AUGUST	9918	1.301	10147	1.298	
*SEPTEMBER	6999	0.918	7281	0.931	
*OCTOBER	7622	1.000	7818	1.000	
NOVEMBER	5179	0.679	5331	0.682	
DECEMBER	4191	0.550	4290	0.549	

[*=neutral]

	NEUTRAL	ALL
Annual average hourly traffic (7-day):	332	297
Annual average daily traffic (7-day):	7986	7142
Annual average weekday traffic (5-day):	7778	6922
Total annual traffic:	2914890	2606830

Traffic Flows on the A593 at Clappersgate 2001

Clappersgate_01_AADT.LIS

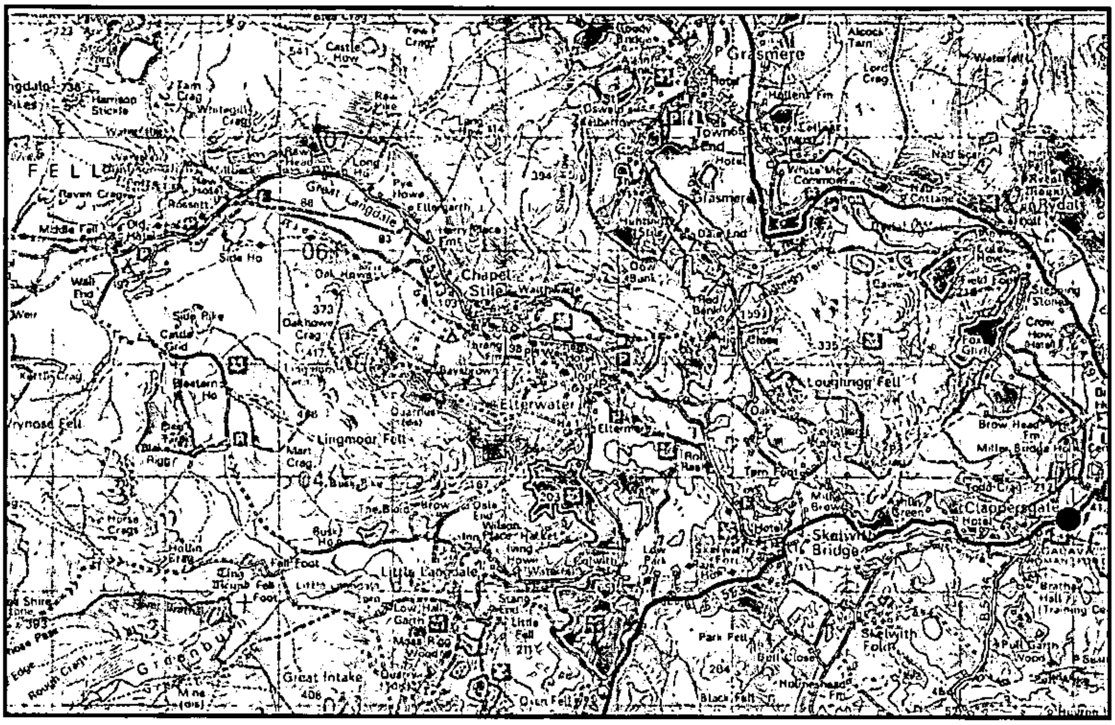
1
Countywide T.A.D.U.
Site Name A593 Clappersgate District ?
Road ??
Site Reference 370037c All Channels Ordinance Survey Grid Reference:
3370-5037
Printout for Year 2001

Month	5-Day Ave Flow	Oct Ratio	7-Day Ave Flow	Oct Ratio	Comment
JANUARY	4411	0.582	4529	0.572	
FEBRUARY	5267	0.694	5322	0.672	
MARCH	4628	0.610	4603	0.581	
*APRIL	4907	0.647	5024	0.634	Part Est.
*MAY	6421	0.847	6404	0.808	
*JUNE	6755	0.891	6999	0.883	
JULY	8092	1.067	8331	1.052	
AUGUST	9785	1.290	9875	1.247	
*SEPTEMBER	7629	1.006	7892	0.996	
*OCTOBER	7584	1.000	7922	1.000	
NOVEMBER	5440	0.717	5664	0.715	
DECEMBER	4712	0.621	4896	0.618	

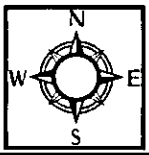
[*=neutral]

	NEUTRAL	ALL
Annual average hourly traffic (7-day):	285	268
Annual average daily traffic (7-day):	6848	6455
Annual average weekday traffic (5-day):	6659	6302
Total annual traffic:	2499520	2356075

<u>Map detailing the estimated position of the Clappersgate Traffic Counter</u>



Key: • Estimated Traffic Counter Position
Map not to Scale



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ANNEX D

CONGESTION REFERENCE FLOWS

D.1 The Congestion Reference Flow (CRF) of a link is an estimate of the Annual Average Daily Traffic (AADT) flow at which the carriageway is likely to be 'congested' in the peak periods on an average day. For the purposes of calculating the CRF, 'congestion' is defined as the situation when the hourly traffic demand exceeds the maximum sustainable hourly throughput of the link. At this point the effect on traffic is likely to be one or more of the following: flow breaks down with speeds varying considerably, average speeds drop significantly, the sustainable throughput is reduced and queues are likely to form. This critical flow level can vary significantly from day to day and from site to site and must be considered as an average. **The CRF is a measure of the performance of a road link between junctions. The effect of junctions must be considered separately.**

D.2 Links of the same standard will have different CRF values determined by the proportion of heavy vehicles, the peak to daily ratio, the peak hour directional split and the weekday/weekly flow ratio. The variation of the local daily/peak hour flow profile over the year indicates when the peak hours/periods occur. Thus a link which experiences the traditional morning and evening commuter peaks, and has AADT traffic levels equal to the CRF, is likely to be 'congested' for approximately 250 hours per year in the weekday peaks in the peak direction. (There being approximately 500 weekday peak hours in the year, half of which will have a higher than average demand flow). In the case of links in recreational areas, peak period congestion is likely to be concentrated in the summer months.

D.3 The CRF of a link is given by the formula:

CRF = CAPACITY * NL * Wf * 100/PkF * 100/PkD * AADT/AAWT

where, CAPACITY is the maximum hourly lane throughput (see note 1);

NL is the Number of Lanes per direction;

Wf is a Width Factor (see note 2);

PkF is the proportion (percentage) of the total daily flow (2-way) that occurs in the peak hour;

PkD is the directional split (percentage) of the peak hour flow;

AADT is the Annual Average Daily Traffic flow on the link;

AAWT is the Annual Average Weekday Traffic flow on the link.

Notes on Congestion Reference Flow (CRF) calculations

Note 1. CAPACITY - the maximum sustainable hourly lane throughput.

In reality this value varies day to day due to the prevailing conditions (for example, day/night, wet/dry, percentage heavy vehicles, regular/holiday traffic) and values used must be an average. For **new links and existing links not currently experiencing congestion** this can be estimated from the following relationship:

CAPACITY = |A - B * Pk%H|

where, Pk%H is the percentage of 'Heavy Vehicles' in the peak hour. The term 'Heavy Vehicles'

always includes the vehicle categories OGV1, OGV2 and PSV's according to the COBA definition;

A and B are parameters dependant on road standard;

	A	B
Single Carriageway	1380	15.0
Dual Carriageway	2100	20.0
Motorway	2300	25.0

For **existing links already experiencing congestion** the maximum hourly throughput should ideally be an observed, robust estimate. This can be determined from observations on a minimum of ten days in fine, dry, daylight conditions. When observing the maximum hourly throughput the major problem is to determine when the link is actually operating at "capacity" (paragraph D.1 describes the likely traffic conditions at "capacity").

Note 2. Carriageway Width Factor (Wf)

This factor is designed to adjust the CRF for all-purpose links, generally single carriageways, with non-standard lane widths. Carriageway width is defined as the total paved width of the carriageway less the width of ghost islands and hard strips.

Motorways - the width factor Wf should always be unity for motorways as there is no evidence to suggest that the maximum hourly throughput of motorway links is affected by minor changes in lane width.

All-purpose dual carriageways - to reflect the different standards of some dual carriageways. The width factor is given by:

Wf = Carriageway Width / (Number of Lanes * 3.65).

The majority of dual carriageways will have lane widths of 3.65 metres and hence a width factor of unity. Some will have reduced lane widths, generally those built to older design standards, and in these cases the width factor can be less than unity. Should the lane width be greater than 3.65 metres the width factor should be restricted to a maximum value of unity.

Single carriageways (2-lane) - the main purpose of the width factor is to differentiate between the different carriageway width standards of single carriageways. The width factor is given by:

Wf = (0.171 * Carriageway Width) - 0.25

Roads built to modern designs usually have 7.3 metre of 10 metre carriageways, that is, a width factor of unity or 1.46. The width of older roads can vary significantly but the width factor relationship is not valid for road widths less than 5.5 metres or greater than 11 metres. For roads with widths outside these limits the traffic analyst must use judgement to decide on the relevant value.

D.4 Table D/1 gives observed 1995 traffic characteristics which should be used as a guide to the selection of the appropriate parameter values for use in the CRF calculations when reliable local data is not available.

Traffic Characteristic		Motorway	Trunk Road	Principal Road
AADT % Heavy Vehicles (Typical Range)		15.5 (6-26)	12.1 (4-26)	7.5 (2-20)
Peak Hour Flow / AADT % (Typical Range)	(PkF)	10.0 (7-12)	9.4 (7-12)	9.6 (7-12)
Peak Hour Directional Split % (Typical Range)	(PkD)	56.3 (50-70)	57.4 (50-70)	58.4 (50-70)
Peak Hour % Heavy (Typical Range)	(Pk%H)	13.5 (5-25)	10.4 (3-20)	5.6 (2-12)
Peak Hour %Heavy / AADT %Heavy (Typical Range)		0.87 (0.50-1.00)	0.86 (0.50-1.00)	0.75 (0.50-1.00)
AADT / AAWT (Typical Range)		0.93 (0.89-1.00)	0.97 (0.90-1.00)	0.98 (0.90-1.02)

Table D/1: Observed 1995 Values

D.5 Substituting the average values given in Table D/1 produces the Congestion Reference Flows (CRFs) given in Table D/2. These values have been given for illustrative purposes only, **local values should always be used.** The differences between the Trunk and Principal road values for the same standard are due mainly to the different proportions of heavy vehicles in the peak hour.

Carriageway Standard		Trunk Road	Principal Road
Single 7.3m	(S2)	22,000	23,000
Wide Single 10m	(WS2)	32,000	33,000
Dual 2 lane all purpose	(D2AP)	68,000	70,000
Dual 3 lane all purpose	(D3AP)	103,000	104,000
		Motorway	
Dual 2 lane motorway	(D2M)	65,000	
Dual 3 lane motorway	(D3M)	97,000	
Dual 4 lane motorway	(D4M)	130,000	

Table D/2: Example CRFs Using 1995 Traffic Characteristics