Table 4.2.1a *Visitor Numbers at Sites on the Wall and in the Immediate Vicinity of the Wall*

SITE	1988	1989	1990
Sites west of Carlisle			
Carlisle (Luguvalium) Museum and Art Gallery	-	-	25900
Lanercost Priory	9666	12524	13811
Banks East Turret (52a)	-	-	-
Pike Hill Signal Tower	-	-	-
Leahill & Piper Sike Turrets (51b and 51a)	-	-	-
Birdoswald Roman Fort (Banna)	-	19867	20625
Harrow's Scar Milecastle (49)	-	-	-
Willowford Bridge	-	-	-
Poltross Burn Milecastle (48)	-	-	-
The Roman Army Museum (Carvoran)	-	58750	61672
Walltown Crags, Wall & Turret (45a)	-	-	-
Cawfields to Winshields	-	-	-
Steel Rigg to Housesteads	-	-	-
Vindolanda Fort & Museum (Chesterholm)	77000	76940	79320
Housesteads Fort (Vercovicium)	121743	128467	132246
Sewingshields Milecastle (35)	-	-	-
Carrawburgh (Brocolitia)	-	-	-
Black Carts Turret (29a)	-	-	-
Chesters Roman Fort / Museum (Cilurnum)	70214	78055	82459
Brunton Turret (26b)	-	-	-
Corbridge Roman Town / Museum (Corstopitum)	21416	22088	21946
Heddon-on-the-Wall	-	-	-
Benwell Temple (Condercum)	-	-	-

SITE	1988	1989	1990
Museum of Antiquities, Newcastle	16377	17000	17500
Wallsend Heritage Centre & Fort (Segedunum)	-	11935	-
South Shields Roman Fort / Museum (Arbeia)	-	42451	51149
Other local Attractions			
Carlisle Castle	59094	150000	177000
Carlisle Cathedral	80000	71748	73708
Talkin Tarn Country Park - Brampton	120000	2000000	180000
St Andrews Church - Heddon-on-the-Wall	-	-	5000

Table 4.2.1b *Visitor Numbers - Long Term Range*

	1970	1973	1975	1978	1981	1984	1987	1990
Corbridge	55,034	65,106	53,393	44,000	26,100	25,256	19,735	21,118
Chesters	89,200	129,200	117,100	109,800	89,900	81,674	70,242	78,005
Housesteads	104,200	175,300	157,700	152,000	112,500	104,391	136,924	132,990
Vindolanda	5,760	88,056	94,536	110,000	90,000	-	73,445	79,320
Once Brewed	-	32,000	32,000	25,000	24,000	-	-	51,000
Carlisle Castle	40,100	43,700	64,400	55,200	39,100	43,003	57,495	73,708

Table 4.2.1c Visitor Numbers : Public Rights of Way in the Wall Area

	1989	1990	
Steel Rigg (stile counter on the line of the trail)	-	112,373	all walkers based on 8 hour counts*
Pennine Way / Hadrians Wall Trail	10,000	-	long distance walkers

* The figures for Steel Rigg incorporate figures for early season 30,688, peak season 41,871 and late season 39,834. The total figures include provision for climbers passing to and from Peel Crags and this is likely to inflate the estimated total numbers (pers comm).

4.2.2 *Surveys in England and Wales*

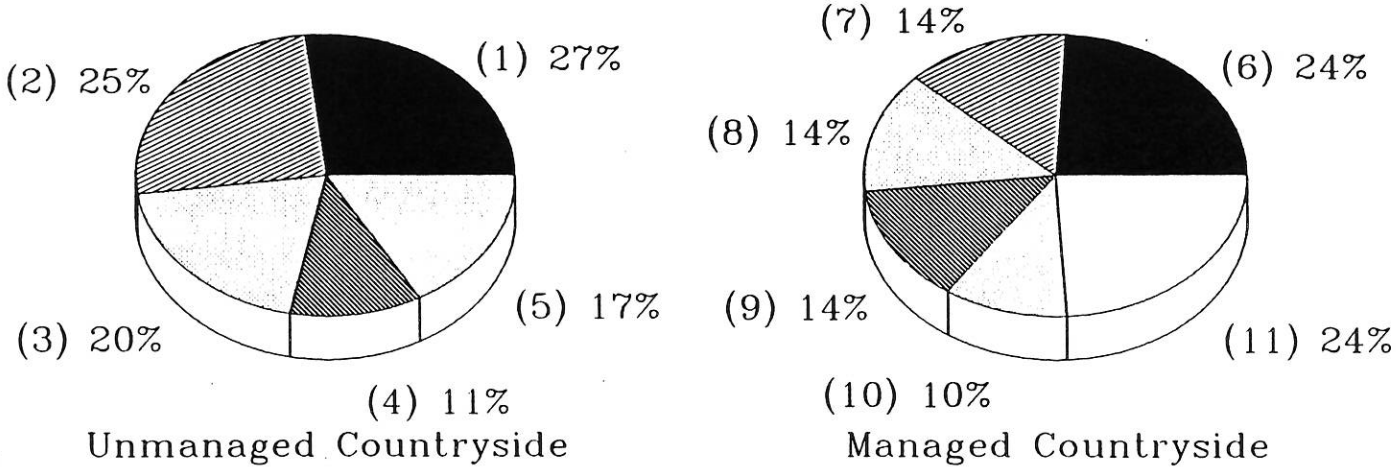
In 1987 the Countryside Commission published the results of a National Countryside Recreation Survey undertaken in 1984, which illustrated the level of visitor activity in the countryside. At a peak period summer Sunday 18 million people visit the countryside, Table 4.2.2a sets out, by percentage, eleven different categories of countryside activity and shows that the majority (71%) of people prefer to visit unmanaged countryside. These figures illustrate that there is considerable attraction in the countryside at certain times and that visitors exercise preference for informal visits to unmanaged areas. Hadrian's Wall is one such area.

4.2.3 *Review of Use of Other National Trails*

Visitor Numbers

Table 4.2.3a lists examples of usage of other National Trails. In general the number of visitors who are long distance walkers is less than 25% and in some cases such as on the Pennine Way fewer than 1 in 10 walkers are walking for more than a day at a time. The Ridgeway which is just a little longer than the proposed Hadrian's Wall route and is generally set in similar countryside attracts mostly day and part day walkers (85% of all walkers interviewed by Survey Research Associates Ltd 1987). Over 72% of the day walkers had travelled less than 20 miles to reach the Ridgeway. Therefore the Ridgeway, a route of moderate walking difficulty with several features capable of attracting visitors such as the North Wessex Downs Area of Outstanding Natural Beauty (AONB) and White Horse Hill and Letcombe Castle in Wiltshire, is used largely by local people for whole or part day walks.

Table 4.2.2a Countryside Recreation Activities



KEY

1 Drives, outings, picnics
2 Long Walks
3 Visiting friends, relatives
4 Sea coast
5 Informal sport
6 Organised sport
7 Pick your own
8 Historic buildings
9 Country parks
10 Watched sport
11 Others

Source: National Survey of Countryside Recreation 1984

Table 4.2.3a *National Trails and Other Long Distance Routes, Estimated Use*

Trail	Length	Character	Total Walkers	No of Long Distance Walkers	No of Day Walkers	Overseas Walkers	Other Attractions
Pennine Way	250 miles Edale - Kirk Yetholm		163,000 Estimated (1989)	10,000 Estimated (1989)	153,000 Estimated (1989)	3% Day Walkers 5% Long Distance	Honeypots - Malham Tarn, High Force, Cauldron Snout, Steel Rigg, Caw Gap, Withens Gate
Ridgeway [1]	85 miles	40 miles designated as byway. Straight forward walking.	3,649 Individuals Interviewed	12% Sample 445	70% Samples 2564		Off road vehicle driving
West Highland Way	95 miles Milngavie - Fort William	Upland	65,500 Estimated April 1986 - March 1987	35,800 Estimate	29,700 Estimate	9% of Long Distance 3% of Day Walkers	Loch Lomond, Rob Roy's Cave
South Upland Way	212 miles Port Patrick - Cockburns Path	Some Long and Demanding Sections	850 Estimated June - September 1984 (11 weeks)	1,000 (Estimate 11 weeks)	4,850 (Estimate 11 weeks)	5% of Long Distance 2% of Day Walkers	
Cleveland Way	109 miles Filey - Helmsey	Coastal and Moorland	Not Known	5,000 (Estimate 1989)	72.2% Undertake Journeys < 1 day varies	Not Known	Yorkshire Holiday Resorts N York Moors NP

[1] Part of the Ridgeway is also a Highway therefore not all of the users interviewed were walkers.

Trail	Length	Character	Total Walkers	No of Long Distance Walkers	No of Day Walkers	Overseas Walkers	Other Attractions
Dorset Coast Path	72 miles	Coastal, Cliff	128 Individuals Interviewed over 10 Weeks - 3 Days/ Week August - October 1984	5%	95%	9% Not English	-
Offa's Dyke Path	168 miles	Upland	101 Individuals Interviewed over 10 Weeks - 3 Days/Week August - October 1984	43%	57%	30% Not English	Earthworks / Archaeology
S Down's Way	80 miles	Lowland	84 Individuals Interviewed over 10 Weeks - 3 Days/Week August - October 1984	21%	79%	25% Not English	
Wold's Way	79 miles	Upland, Coast	35 Individuals Interviewed over 10 Weeks - 3 Days/Week August - October 1984	20%	80%	20% Not English	

* Sources of information see references.

Long distance route walkers may be divided into two major categories, long distance walkers (LDWs) and day walkers. Long distance walkers can be sub-divided into those who complete the route in one visit, and those who complete sections of the route. The latter group are usually people who set out to complete a section of the route but may also include those who set out to walk the whole route but do not complete it. Day walkers may be sub divided into three distinctive groups - whole day, part day and "casual" walkers. Day walkers may include "day at a time" walkers people who intend to walk the whole route but do so a day at a time.

Table 4.2.3b breaks down walkers interviewed in the various surveys along long distance footpaths. It is notable that in the Pennine Way (ASH 1990), West Highland Way (ASH 1986) and Southern Upland Way (ASH 1984) surveys that there was an almost equal split between long distance and day walkers. In addition out of total day walkers on the West Highland Way and Pennine Way (ASH 1989) more than half were doing only part day walks. In the Ridgeway survey (1989) almost three quarters of those interviewed were day walkers, this unusual characteristic was probably due to the nature of the route, part of which is open to all vehicles, and therefore not typical long distance walking terrain.

	Long Distance Walkers			Day Walkers		
	Long Distance Walkers Total	Whole Way	Several Days	Day Walkers Total	Whole Day	Part Day
Pennine Way (1971)	62%	28%	44%	38%	38%	-
Pennine Way (1990)	40%	32%	8%	60%	4%	56%
West Highland Way (1986)	44%	34%	10%	56%	29%	27%
Southern Upland Way (1984)	52%	19%	33%	48%	30%	17%
Ridgeway (1989)[1]	-	-	12%	-	70%	-
Cleveland Way (1989)	-	-	23%	-	72%	-

[1] Part of the Ridgeway is also a Highway therefore not all of the users interviewed were walkers

(Percentages have been rounded to the nearest integer, therefore component figures may not sum to the independently rounded totals)

Table 4.3c highlights typical characteristics of long distance path walkers. It can be assumed from the survey results that the typical walker on a long-distance path is male between the age of 25 and 44 years old and is in a party of fewer than 3 people. The walker will also usually use a car as the most likely mode of transport from the starting and finishing points on the route.

Table 4.2.3c Walkers Characteristics

	Average Party Size	Average Age	Male Walkers	Typical Mode of Transport		Use of Guide Book
				To	From	
Pennine Way (1971)	2.7	15 - 44	67%	Car	Car	-
Pennine Way (1989)	2.6	25 - 44	67%	Car	Car	32%
West Highland Way (1981)	2.6	25 - 44	70%	-	-	82%
West Highland Way (1986)	3.0	25 - 44	73%	Car	Car	67%
Southern Upland Way (1984)	2.4	25 - 44	67%	Car / Bus	Car / Bus	38%

Table 4.2.3d illustrates the home areas of long distance walkers surveyed. The locality of a trail has an important influence upon the catchment area of that trail and it has been shown that between a third and almost three quarters of walkers are based in the home area of a route.

The individual surveys also highlight other important characteristics of walkers. The Cleveland Way Survey (1989) stated that only 15.9% of walkers were walking on the footpath because it was the Cleveland Way. The Pennine Way Survey (1990) found that 55% of day walkers were not aware that they were walking on the Pennine Way. It can be seen from Table 4.2.3c that between 32% and 83% of National Trail walkers used guide books to aid their route planning and enjoyment. It therefore becomes clear that it is not just the designation and naming of a National Trail which encourages walking use, but other factors such as publicity and promotion must also play an important role.

Except where a walker's home area and route coincide, proximity seems to have little influence upon attracting to a trail. In all of the surveys the second largest home area category for walkers was the south of England, which is not in close proximity to any of the routes used in Table 4.2.3c. Almost double the number of walkers interviewed in the Pennine Way Survey (Ash 1990) were from overseas than from Scotland.

Table 4.2.3d Home Area of Walkers

	Pennine Way (1989)	West Highland Way (1986)	Southern Upland Way (1984)
North of England	29%	5%	9%
Midlands	14%	5%	7%
East Anglia	4%	2%	1%
South of England	25%	11%	9%
Scotland	4%	70%	69%
Wales	2%	1%	<0.5%
Ireland	0	1%	-
Rest of Europe	4%	5%	<0.5%
Rest of World	5%	1%	1

Visitor Preferences

Table 4.2.3e provides a review of the elements which long distance walkers believe to be important in the composition of routes. The final column provides an estimate of the availability of these elements along Hadrian's Wall.

It is clear that the aesthetics of the countryside through which the route passes is an important element in the success of a trail. The possibility of "getting away from it all" into isolated countryside seems to be an attractive concept for many walkers. The addition of these elements with a defined, accessible path are the most important components of a long distance trail in the opinion of those interviewed in previous surveys. The challenge of completing these routes, often passing through wild upland country consistently appears to be of medium to high importance to those walkers who were interviewed.

The proposed Hadrian's Wall National Trail passes mostly through rural agricultural countryside with small sections in upland and urban settings. Therefore those walkers on other long distance routes searching for challenging wild country may not be attracted. The Hadrian's Wall Trail passes through towns and villages and through areas which are attractive to day visitors especially during the summer months. As a consequence the Hadrian's Wall National Trail is unlikely to be as attractive to walkers looking for isolation and peacefulness as some other established long distance routes.

The accessibility of the eastern and western sections of the proposed route to centres of populations will be significant factors in the decisions made by people to use the new trail. In addition the novelty of a new National Trail will be attractive to many walkers.

Table 4.2.3e *Review of Preferences of National Trail Walkers*

	Pennine Way (1971)	Pennine Way (1990)	West Highland Way (1981)	West Highland Way (1986)	Southern Upland Way (1984)	Ridgeway (1989)	Hadrian's Wall - Potential
High Quality Scenery	H	M	H	H	H	-	H
Good Way to see the Country-side	M	-	H	H	H	L	M
Good Walking	L	-	H	H	H	H	M
"Getting away from it all"	L	L	H	H	H	L	M
Wildlife and Natural History	-	L	H	H	M	-	M
Exercise	L	M	M	M	H	M	M
Challenge	H	L	M	M	-	M	L
Endurance	L	-	-	-	M	-	L
Peace and Quiet	M	M	-	-	-	L	L
Walk the Dog	-	-	-	-	-	M	M
Easy to get to	L	L	M	M	L	-	M
Novelty	-	-	L	L	-	-	H
Well Defined Path	L	L	M	M	M	-	M
Done Many LDRs	-	-	L	L	L	-	-

Key: H - High importance M - Medium importance L - Low importance

4.2.4 *Role of Public Transport*

Public transport access to the Hadrian's Wall National Trail was reviewed in a recent report (January 1992) prepared by Transport for Leisure on behalf of the Countryside Commission. Amongst its conclusions relevant to this study are the following:

- the Hadrian's Wall Trail will be extremely well served by Inter-City and Regional Rail services to both Carlisle and to Newcastle as well as National Express Coach Services. An important Regional Railways cross-country Tynedale Line (Newcastle - Carlisle) serves stations at Brampton, Haltwhistle, Bardon Mill, Haydon Bridge and Hexham;

- the areas within Tyne and Wear (which in fact are largely urban), Northumberland and Cumbria through which the proposed trail passes, are in the main well served by public transport by UK rural standards;

- two services would appear to have "significant" recreational use. The Tyne Valley Railway and a Hadrian's Wall Coach Service, sponsored jointly by the Northumberland National Park Authority, Tynedale District Council and the Countryside Commission, forms a key part of the transport network along the proposed Hadrian's Wall National Corridor;

  In 1991, between 20 July and 1 September, the service carried 2,693 people over 44 days of operation. This represents a 23.5% increase in traffic over 1990, which was itself a 29% increase over 1989.

4.2.5 *Summary of Visitor Distribution*

A summary of known distribution characteristics follows:

- the most popular facility is Housesteads, 132,246 (1990, visitors to Housesteads Museum). The figure in 1973 was 175,300;

- there is considerable variation in the numbers of visitors to each of the sites which records visitor numbers and these numbers have altered quite sharply in the time since visits have been recorded. For example since 1970 visitors to Corbridge have decreased from 55,034 to 21,118 (1990) but visitors to Vindolanda have increased from 5,760 to 7,9320;

- a large percentage of the recorded visitors to popular attractions on the Wall probably do not walk along the line of the Hadrian's Wall Trail;

- an estimated 10,000 people already walk a section of the Hadrian's Wall Trail as long distance walkers on the Pennine Way and therefore will spend at least one day on the Hadrian's Wall Trail;

- in addition a number of the 150,000 day visitors to the Pennine Way already walk sections of the Wall;

- 21 of 31 Wall related facilities identified in promotional literature are between Lanercost in the west and Heddon in the east;

- most recorded visitors to the Wall visit a central section [1] and walked on established paths which are within or close to the National Park, overlap with part of the Pennine Way and which have well known Wall related features;

- there are specific publications including circular walk guides, a Hadrian's Wall Coach service and events to encourage use of the area.

4.3 *VISITOR DISTRIBUTION, PREDICTED CHANGES*

4.3.1 *Introduction*

The following section reviews the predicted changes which are likely to occur in visitor distribution patterns following the creation of a new National Trail. It is assumed that visitor numbers will increase. However, a major constraint to that growth is the capacity of existing car parks to accept increased number of vehicles. Consideration is therefore given to the existing capacity of car parks and to the current levels of use.

The establishment of a long distance Hadrian's Wall Trail should have two distinct visitor related impacts as follows:

- the creation of a new trail will facilitate demand for the use of that trail for long distance and day walks;

- increase pressure on existing access points.

It is conceivable that the development of circular walks away from the central sector will have the effect of redistributing some visitors who currently walk in the central section.

An assessment of the range of the likely demand for the use of the new trail by long distance walkers is discussed in Section 4.4. Due to the vagaries of prediction estimates are made within a range which includes a worst case scenario figure.

4.3.2 *Carrying Capacity of Existing Car parks*

As discussed in Section 4.2 and identified in Table 4.2.3c walkers on long distance routes usually make use of a car to gain access to starting and finishing points on the route. It is assumed that, even with an improvement

[1] For the purpose of this Report the central sector is defined as being from Sewing Shields to Carvoran

in public access and possibly an extension of the Hadrian's Wall Coach Service, cars will continue to provide the principal mode of access.

Table 4.3.2a identifies each of the car parks which are closely identified with access to Hadrian's Wall. An estimate has been made of the physical carrying capacity of each car park for both coaches and cars. In addition the table refers to whether there is a charge for parking and whether the car parks are also used as starting points for people joining published circular walks.

Table 4.3.2a *Car Parks Closely Identified with the Use of Hadrian's Wall*

Car park Name	Car Spaces	Coach Spaces	Circular Walk	Comment
Bank Turrett	12	-	-	-
Birdoswald	45	-	-	Museum/Visitor Centre
Gilsland	20	-	-	In Village
Walltown Crags	15	-	Yes	Lay By
Carvoran	60	-	-	-
Cawfield Crags	75	-	Yes	Picnic Site
Once Brewed	85	-	Yes	National Park Information Centre
Steel Rigg	35		Yes	-
Vindolanda	60	6	Yes	Museum/Visitor Centre
Housesteads	130	5	Yes	Museum/Visitor Centre
Brocolitia	50	-	Yes	-
Chesters Roman Fort	60	8	-	Museum/Visitor Centre
Brunton Turrett (26B)	10	-	-	-

These estimated are maximum numbers and it is probable that fewer cars will actually park at these sites at any one time.

The car park at Housesteads has the largest capacity with an estimated 130 cars and 5 coaches. Assuming that 4 people travel in each car (from other visitor surveys it has been established that on average between 3 and 4 visitors are in each car), the maximum capacity of Housesteads is 520 car borne visitors at any one time. The information described in Table 4.2.1a shows that 132,000 visitors (approximately) visited Housesteads Museum during 1990. At peak periods, ie summer Sundays, observations of use indicate that at certain times during the day the car park may be close to its

existing capacity. Any additional visitors wishing to gain access to the trail will have to compete with existing visitors for car parking spaces. In addition a large number of visitors attracted to the new trail are likely to leave their cars in the car parks either all day or at least for longer periods of time than traditional visitors to the Wall. This should have a marked effect on the turnover of cars at all car parks along the Wall.

The total physical maximum capacity of car parks along the Wall between Chesters and Bank Turrett is approximately 657 spaces. Assuming 4 people per car (a slight overestimate) this gives a maximum carrying capacity for car borne visitors of 2,628. In addition a number may arrive by coach. An estimated 19 coach spaces are available and assuming a capacity of 50 per coach this provides for a maximum of 950 coach borne visitors. Added to these two figures are people who travel by public transport. From the information available it is known that for example 2,693 visitors were carried by the Hadrian's Wall Coach Service between July and September 1991.

4.3.3 *Impact of Publicity and Marketing on Visitor Distribution*

Table 4.2.3c illustrates the heavy reliance placed by many walkers on guide books to aid their route planning and enjoyment. Between the 1981 and the 1986 West Highland Way surveys the number of Scots walking on the route increased by 17%. It was felt by the reports authors Centre for Leisure Research and MacKay Associates that one reason for this increased representation by the Scots may have been particularly stimulated by a three part programme on Scottish television devoted to the Walking of the Way.

The pattern of visitor distribution along Hadrian's Wall Trail will be influenced for example by:

- provision and availability of publicity material locally, nationally and even internationally as most national trails attract some walkers from overseas;
- at which stage of the trail's establishment that an authorative guide book is prepared;
- degree of media interest in the development of the route.

The level of publicity and marketing of the trail will have a large influence on the number of walkers attracted to the route and to which sections they will visit. National and international marketing of the whole route is likely to attract visitors along the length of the trail. However, the promotion of particular sections of the route is likely to unevenly distribute walkers, attracting more walkers to sections where, a walk could be combined with a visit to a major archaeological attraction. This could, for example add pressure to the central section.

As reviewed in Section 4.3.1 once the new trail is established there is likely to be an extension of existing demand for the use of a long distance trail and this is likely to lead to an increase in the following activities:

- long distance walks;
- day visits by people who will wish to spend the day walking;
- day visits by people who will enjoy part day walks;
- day visits by people who will seek a short walk.

The creation of new public rights of way may lead to a redistribution of existing walkers concentrated on existing rights of way. Predicted visitor numbers includes an assessment of current visitor trends along the length of the Wall plus an estimate of future use (demand stimulated by the actual designation of the National Trail and the establishment of new public rights of way). For the purpose of predicting the number of walkers who may use the new Hadrian's Wall trail as a result of it being designated a National Trail it has been assumed that the numbers will be similar to those who currently walk the Pennine Way.

Reasons for this assumption are that although the Pennine Way is longer and more demanding than the Hadrian's Wall Trail and attracts walkers looking for a challenge the easier walking of Hadrian's Wall although it might not attract some of those long distance walkers seeking a greater challenge, it will gain others through the archaeological interest of the route and also by being popular with families and less energetic long distance walkers.

Long Distance Walkers

Table 4.2.3a indicates that an estimated 10,000 long distance walkers walked the full length of the Pennine Way in 1989. All of these walkers will have also walked that section of the proposed Hadrian's Wall Trail which is common to the Pennine Way. It is assumed therefore that an estimated 10,000 long distance walkers already spend one day on the proposed Hadrian's Wall Trail.

In addition to the 10,000 walkers currently using the Pennine Way and therefore the Hadrian's Wall Trail, it is assumed that at least 10,000 long distance walkers will wish to use the Hadrian's Wall Trail. It is assumed that long distance walkers will take at least 5 days to complete the Hadrian's Wall Trail. When total numbers of walkers are multiplied by day walks a figure of 50,000 day walks are anticipated.

Day Visitors - all day walkers

An estimated 55,000 walkers use the Pennine Way for full day walks and because the routes overlap then a small percentage of these full day walkers also walk on the Hadrian's Wall Trail. It is assumed that at least 55,000 all day walkers will also use the new Hadrian's Wall Trail. In a busiest case scenario it could be assumed that twice as many 110,000 all day walkers will use the new Hadrian's Wall Trail in one year.

Day Visitors - part day walkers

This represented the largest group of walkers on the Pennine Way, 80,000 in 1989. Using a busiest or worst case scenario and assuming twice that number of people gives a figure of a possible 160,000 part day walkers.

Day Visitors - short walks

Day visitors undertaking short walks along the Pennine Way are estimated at 18,000 walkers. Using a worst case scenario then an estimated 36,000 short walk trips may be generated along the new Hadrian's Wall Trail.

Table 4.4a described the estimated total visitor day walks predicted following the opening of a new trail.

Table 4.4a ***Predicted Total Number of Visitor Day Walks***

Category	Total Day Walks	
	Least Case	Worst Case
Long distance walkers		
Predicted	50,000	100,000
Existing	10,000	10,000
Day visitors: all day walkers		
Predicted	55,000	110,000
Day visitors: part day walkers		
Predicted	80,000	160,000
Day visitors: short walks		
Predicted	18,000	36,000
	212,000	**416,000**

In a worst case scenario this would give a daily figure of over 1,000 walkers per day throughout each day of the year, however, this figure takes no account of seasonal variation. If account is taken of seasonal variation and of existing visitor figures to sites such as Housesteads which may already be near physical capacity at peak times the conclusion to be drawn is that the

predicted walkers will experience problems of gaining access to the most popular areas of the trail at peak times.

To accommodate this increased demand there is a possibility that the traditional visitor season may become extended as people observe or experience overcrowding at peak periods. A perceptual capacity will be established as visitors perceive a preference to avoid busy periods. This has certainly been experienced at other facilities eg the Broads where O'Riordan (unpublished) identified a "*Broadland conscious*" group which avoided busy or peak periods.

Table 4.2.1c described annual visitor numbers at Steel Rigg (based on 8 hour counts). The total figure is 112,373 per annum and as discussed in Section 4.2 should only be assumed to be a guide figure. However it is likely that current visitor numbers on this section of the trail are likely to be in the range of 100,000 per annum divided almost equally throughout the season. The predicted figures of 212,000 in a least case scenario indicate a doubling of walker trips in the area of Steel Rigg. In a worst case scenario walker trips may quadruple. This assumes that the additional walkers can gain access to the trail. If visitor figures double then it is highly likely that the physical capacity of existing car parks will be exceeded during peak periods. If visitor figures quadruple then it is inevitable that existing car parking provision in the area between Lanercost and Heddon will not be adequate to deal with the increase in visitor numbers particularly at peak periods.

Walkers and visitors will have a choice if they are unable to gain access to the trail at selected points due to a shortage of car parking. Either they can make a decision to gain access to the trail at other locations or they can move off to an alternative walking route. Visitors who travel to existing Wall related facilities such as Housesteads are more likely to move off to an alternative attraction. Those who wish to gain access to the trail may select an alternative access point possibly closer to Carlisle or Newcastle.

One other likely development is that those walkers who wish to spend a whole day or substantial part of the whole day walking the trail will arrive early and will occupy car parking spaces throughout the day. A large proportion of existing visitors to Housesteads, for example, probably would not traditionally occupy a car parking space for longer than a few hours at any one time. However the number of car spaces available to existing visitors may be significantly reduced as they are likely to be occupied by walkers involved in all day or part day walks.

Conclusion

The existing pattern of visitor distribution is concentrated on that section of the trail between Lanercost and Heddon where there are already existing car parks and where there is parking for in excess of 2,600 visitors at any one time. Existing information shows that these facilities already experience significant visitor activity and furthermore indicate that these sites were at their busiest in the early 1970s although more recent trends indicate a

growth in the total number of visits since the lowest numbers were experienced in the early 1980s.

Patterns of distribution are likely to change in two ways as follows:

- there will be visitors in areas where there is currently no trail - an estimated 20,000 people will wish to walk the full length of the trail annually;

- existing visitor facilities will become busier for the following reasons:

  - a large proportion of walkers will require access to existing car parks to undertake parts of the trail;

  - visitor numbers to the trail will increase only where visitors can gain access to the trail ie at existing car parks or along footpaths, it is assumed that most will continue to use cars to gain access to the Wall;

  - throughout the full length of the National Trail between 200,000 and 400,000 additional walks are predicted, assuming walkers can gain access to the trail;

  - activity however will be confined to those locations where walkers can access the trial;

  - those sections of the walk which are accessible and in particular between Lanercost and Heddon where most of the car parks exist could experience at least a doubling of current use. Therefore sites which are already busy will become busier.

4.5 *Overview of Predicted Visitor Distribution along the Trail*

As outlined in Section 3.6 for the purposes of the modelling process predicted visitor numbers along any particular stretch of the trail have been simplified into a broad range scale which is dependant on:

- current visitor numbers and trends;

- predicted numbers of new users of the National Trail;

- attractions such as archaeological remains and museums;

- existing public rights of way;

- existing circular walks;

- proposed new facilities including new circular walks.

The scale which has been used is shown in Table 3.6b and repeated below.

Table 3.6b

Predicted Visitor Numbers to Hadrian's Wall

Low	< 50,000
Medium	50,000 - 100,000
High	> 100,000

The predicted distribution of visitors along the trail as well as major attractions and car parks have been marked on a 1:250,000 map lodged with the Countryside Commission.

5 ASSESSMENT OF POTENTIAL IMPACTS OF THE NATIONAL TRAIL ON HADRIAN'S WALL

5.1 INTRODUCTION

This section outlines and assesses the potential impacts on the monument that might arise as a result of the proposed trail. In order to define these potential impacts a review of both the impact of visitors at other archaeological sites (Section 5.2) as well as the impacts of visitors on other National Trails (Section 5.3) has been undertaken.

5.2 VISITOR PRESSURE RESEARCH AT OTHER ARCHAEOLOGICAL SITES

5.2.1 *Introduction*

There is apparently relatively little published research on either the impact of visitors to archaeological sites or the management of visitors at archaeological sites. However, the major studies are reviewed briefly in this section.

5.2.2 *Research at Stonehenge*

A major study was initiated in 1988 by English Heritage on wear and tear around ancient monuments (Land Use Consultants 1988). This study reviewed wear and tear very briefly at Tynemouth Priory and Castle, Dunstanburgh Castle and Housesteads in North East England but the main part of the study concentrated on the much more extreme problems of wear and tear damage at Stonehenge in Wiltshire.

The three northern sites showed only "localised but limited wear and tear problems" in Spring 1988. Signs of wear were associated with pinch-points (including step-off points, interest points and information boards), desire lines, poorly drained areas and areas of steeper gradient.

Wear and tear at Housesteads, where visitor numbers were 111,954 in 1987 and 124,666 in 1988, was recorded as "minimal." This was felt to be due to the fact that visitors are dispersed over a fairly wide area and also that there was a member of maintenance staff on site who dealt with problems as they arose. This included filling eroded areas with gravel which had proved very effective.

At Stonehenge more extreme wear and tear damage was linked with "extremely large visitor numbers" (496,138 visitors in 1986 and 617,295 in 1984 and now 615,377 in 1990) within a site of relatively small area (4,500 m^2 maximum).

Until 1963 there had been unrestricted public access to the stones but increasing erosion problems were so great that the stability of the stones

themselves was at stake and this led to the stripping of turf within the stone circle and its replacement with clinker and gravel. By the 1970's more extreme control was necessary to prevent damage to the stones and visitors were channelled round a path outside the stone circle. This path has been subject to intensive wear by visitors and the effects have been made worse by the absence of effective grounds maintenance.

The aims of the recent research at Stonehenge were "to monitor wear in relation to visitor pressure and initiate prescriptive treatments" (Ahern and Wimble 1990). The research has shown that the thin chalk soil was easily compacted by visitor pressure and this prevented adequate surface drainage after rainfall. The results of a monitoring programme indicated that "*a grass cover might be sustainable with proper repair, visitor management and intensive grass maintenance.*"

Experimental plots of turf and also some strengthened with commercial reinforcement materials that were seeded or turfed were managed with an intensive maintenance regime involving regular mowing, aeration, fertiliser treatment, scarification, weed killing and periods of rest. Again wet weather combined with heavy trampling pressure was demonstrated as the key factor causing loss of cover. "Nottsward" proved most effective in preventing erosion and compaction of the surface soil and maintained a reasonable area for walking and a suitable surface for re-seeding. "Nottsward" proved more successful than the other reinforcement material "Netlon" because it required less intensive maintenance in the establishment period.

The major conclusions of the study to date are that all the grass subject to heavy trampling should be given periods of rest to allow adequate management. This will be more frequent in periods of wet weather.

In addition in areas of heavy use, compaction is a key problem and this destroys soil structure and prevents the re-establishment of grass cover. To help combat this deep aeration is essential after heavy use.

Other suggested management techniques include regular grass cutting to encourage tillering of the grass and also heavy fertiliser treatment because the Sports Turf Research Institute have shown that the wear tolerance of *Lolium perenne* (perennial rye grass) is greater with higher rates of nitrogen fertiliser applications.

5.2.3 *Other Research*

Research elsewhere in Britain at other archaeological sites has indicated that "*a well maintained grassland cover is the best landscape environment for the preservation of archaeological remains*" (Darvill 1987). Observations at an experimental earthwork which was constructed on Overton Down (Jewell 1963) have indicated that after a short unstable period both the bank and ditch profiles were established and within 20 years a mixed species grass cover has developed which has greatly reduced the rate of erosion.

Major conservation programmes have been initiated at Badbury Rings, Dorset (Thackray 1985) and Maiden Castle, Dorset (Wainwright and Cuncliffe, 1985) by English Heritage in conjunction with the National Trust.

Areas suffering from erosion from visitor pressure and also as a result of cattle poaching have been treated by fencing off, repair work and re-seeding in order to re-establish a stable grass cover for the earthworks. Different types of erosion barrier to restore gullies at Badbury Rings are being monitored for their success.

There have been many management agreements between English Heritage and landowners to change the established land-use pattern to pasture in order to reduce the threat of erosion on remains (Darvill 1987). Darvill also reviews management of sites which are at present under arable cultivation and suggests where sites cannot be taken out of cultivation that some minimum cultivation may be appropriate. In addition general management principles should include not removing old hedges or fences; the avoidance of deep cultivation; the planning of new field boundaries to site monuments in the boundary zone and creating uncultivated boundary zones around sites.

Darvill (1986) in a review of archaeological resource management suggests "*widespread and successful management of the archaeological resource is not imminent.*" However, he reviews a variety of situations where management plans do exist for archaeological sites integrated with those for wider environmental issues such as the needs of nature conservation. Darvill points out that archaeological advice to users of the land is a key component of successful management.

Discussions with English Heritage, Cadw and Historic Scotland did not highlight any further published work although it is apparent that management work in relation to visitor pressure has been carried out at some sites.

An ICOMOS [1] convention in 1990 reviewed tourist pressure at World Heritage Sites but many of the papers related to the impact of visitors on cathedrals.

5.3 *Review of Impacts of Visitors on Other National Trails*

5.3.1 *Introduction*

There is apparently little published material on the impact of visitors on other National Trails. The major source of information which give an indication of what these impacts might be is from visitor opinions expressed in long distance footpath surveys and also from published management strategies of other National Trails.

[1] The International Council of Monuments and Sites

5.3.2 *Impacts of Visitors on Other National Trails*

In the West Highland Way Survey (Centre for Leisure Research / Mackay Consultants, 1986) respondents were asked to identify things which might spoil a walker's enjoyment of their walk. Forty six per cent of walkers could think of nothing that had spoiled their walks and for the remainder adverse features only had a minor effect on enjoyment as only 1% of walkers did not enjoy their trip. The main problems identified were path erosion (56%) and litter (41%). Generally, more long distance walkers than day walkers were annoyed by the various features because they were on the path longer and were more likely to be exposed to them. However, litter and path erosion annoyed day walkers almost as much. The 1981 West Highland Way Survey (Aitken 1982) also identified other tourists as a particular impact.

The Southern Upland Way Survey in 1984 (Ash 1985) found that for 47% of long distance walkers and 70% of day walkers nothing had detracted from their enjoyment of their walk. The problems identified by long distance walkers were aircraft noise (29%) and metalled roads (22%). However 11% of groups found path erosion a problem and 8% litter. In contrast day walkers were more annoyed by litter (30%).

The Pennine Way Visitor Survey in 1989 (Ash 1990) found that 63% of day walkers and 35% of long distance walkers had no dislikes of the route. However the main problems were:

	Long distance Walkers	Day walkers
Footpath erosion	18%	9%
Litter	12%	7%
Too many people	11%	1%

Due to the level of use on stretches of the Pennine Way, the path is subject to considerable wear and tear. Walkers views were sought about the necessities of this walk and the effect of it on their own enjoyment. Overall, 74% thought repairs were necessary and when asked if repair work would reduce or improve their enjoyment, 63% said it would improve it. On the whole most walkers felt that repairs should be carried out where necessary but that the walking should not be made easier. Requests to make the finished surface "natural" were also made by a number of walkers.

The Baseline Survey of the Cleveland Way (Cleveland Management Strategy 1990) found that 23.2% of the inland moorland sections were classified as being severely eroded. However, these sections were over peat and there had been little active management.

Bridleway accounts for 12.5% of the Cleveland Way of which 3.7% was found to show evidence of damage by equestrian activity. Damage from

four wheel drive vehicles and motor cycles (mostly from farm / forestry vehicles) was found on 16.5% of the route.

5.3.3 *Comparison between the Pennine Way Baseline Survey and the Hadrian's Wall Baseline Survey*

The Pennine Way Baseline Condition Survey was carried out in 1989; the Hadrian's Wall Baseline Condition Survey was conducted in September - October 1991. The proposed Hadrian's Wall National Trail and the Pennine Way National Trail co-incide for a 12 km stretch west of Housesteads and east of Gilsland. Three areas of the joint route were compared using the information from the surveys to give an indication of deterioration, if any, in the path condition in the two years between surveys.

A section of path east of Carvoran was examined and little change was found in the path condition. Generally the effects of wear and tear on the path surface has remained light with occasional sections showing signs of medium wear.

A second section of the joint route was examined in the vicinity of Cawfields. The condition of this section as compared with the area close to Carvoran in the 1989 survey showed some wear and tear and this has remained the case. The path surface in this example has fewer areas of light wear but more show medium erosion than in the previous section. In addition the condition of a few sections has worsened between the two surveys with one part showing signs of braiding which was not apparent in 1989.

The results of the two baseline surveys was also compared for a section between Peel Craggs and Housesteads, the most heavily walked area of the coinciding route. In the intervening period between the two surveys being carried out some deterioration in the path condition has occurred with some increase in the erosion recorded. The path also showed evidence of braiding since 1989, (28 m in total).

The overall condition of the three sections chosen as examples of the path to compare the results of the 1989 and 1991 surveys has generally slightly deteriorated. There are several possible reasons for this.

- Visitor numbers on the Housesteads to Peel Craggs section have probably increased. (Visitors to Housesteads Museum increased by 4,000 between 1989 and 1990).
- The two dry years between surveys will have:
    - reduced the ability of vegetation to recover from walker pressure;
    - encouraged more people to take a walk.
- The amount of erosion in each example section does seem to increase with slope, lack of soil moisture would reduce slope stability.

In conclusion it must be noted that in the period between the two baseline surveys no active footpath management of the path has taken place along this stretch. In addition it should be observed that the two surveys were undertaken for different routes and the data therefore is not directly comparable. Only general trends in path condition can be obtained from examining the two sets of data not direct comparisons.

5.3.4 *Summary*

The major impact of visitors on long distance paths are as a cause of erosion to its surface. In addition litter left behind by visitors also forms a major impact on the trails. The visitors themselves by walking the route may also form a visual impact on the surrounding countryside.

5.4 *POTENTIAL IMPACTS OF THE NATIONAL TRAIL ON THE MONUMENT*

5.4.1 *Introduction*

Impacts arising from the development of a National Trail may be numerous but in this survey only those which have some relevance to the archaeology of Hadrian's Wall are considered.

Section 5.4.2 lists such potential impacts which might occur as a result of the proposed National Trail. Experience from other National Trails and other archaeological sites are taken into account (see Section 5.2 and 5.3). The impacts are assessed in Section 5.4.3.

5.4.2 *Potential Impacts*

Impacts of any new development may be either positive or negative and may have direct effects in the vicinity of the development or more indirect effects in the area generally. Potential effects of the National Trail are listed below with an indication of their type of impact.

- The creation of a new trail will stimulate demand for the use of that trail for long distance walks.
- Increased trampling from increased numbers of walkers on existing footpaths. This may lead to:
  - wear and tear on grass and other vegetation;
  - erosion of heavily used areas;
  - soil compaction which will contribute to problems of grass regeneration and drainage;
  - increased erosion around signboards, pinch-points etc.

As indicated in the model process the vulnerability of any archaeological feature is defined as a combination of its own inherent vulnerability as well as the inherent stability of the surrounding terrain.

- New footpaths where none existed before with associated problems cf those above.

- Increase pressure on existing access points in order to gain access to the trail.

- New infrastructure to improve access to the trail such as car parks and other facilities could lead to:

  - the creation of new honey pots and associated problems of intense visitor usage;

  - increased numbers of signboards and other pinch-points with associated erosion problems.

- Damage to archaeological features. This could include:

  - erosion and even destruction of sensitive earthwork features;

  - instability of stone features from people climbing on the features or erosion of stabilising vegetation around them;

  - acts of vandalism;

  - the necessity for increased maintenance of features such as consolidation thus detracting from their genuine archaeological value.

- Increased resources will be made available for the upkeep of existing and new footpaths:

  - existing problem areas will be dealt with;

  - improved management of existing footpaths may increase the stability of some archaeological features;

  - strengthening of existing control barriers would further protect archaeological features.

- The creation of a new continuous linear footpath will allow:

  - public access to larger stretches of the Wall which will allow perception of the Wall as a complex linear monument;

  - more access and thus education to an extremely significant Ancient Monument and World Heritage Site (one of the objectives of English Heritage).

- The positive effects on tourism and economy in the vicinity of the Wall in Tynedale and Cumbria will allow:
  - more public awareness of a national monument;
  - problems with increased visitor numbers (see above).
- Creation of circular walks may:
  - increase numbers at some honeypots;
  - spread visitor numbers along the Wall;
  - give more public access to the countryside and the monument.
- Increased visitor numbers may:
  - detract from the wilderness setting of the Wall;
  - increase litter and other obtrusions in the vicinity of the Wall.

The magnitude of the impacts of the National Trail will be directly related to:

- the number of walkers using the trail (as defined by current visitor numbers and predicted visitor numbers outlined in Section 4);
- the fragility of the archaeological features affected;
- the potential success of preemptive management prescriptions to mitigate the potential impacts.

5.4.3 *Assessment of Impacts*

The creation of a new trail involving sections where no previous public right of way existed will inevitably lead to some impacts in the creation of new footpaths and use of areas which have previously not been visited.

Some increased impacts from increased visitor numbers are also inevitable in sections already in use especially those where there is heavy use at present such as in the central section near Housesteads. The comparison of the recent Baseline Survey with that for the Pennine Way (1989) (see Section 5.3.3) shows some deterioration in the path even over such a short period however there had apparently been only minimum management of the section (pers comm).

Although a need for detailed research into trampling and the sensitivity of different soils and vegetation has been highlighted by ITE (unpublished) there is no doubt that trampling leading to soil compaction and the resultant changes in soil chemistry and physical structure may inhibit plant growth (Liddle 1975). Eventually a lack of vegetation may lead to soil erosion as a

result of physical abrasion as well as climatic influences. An increase in walkers has resulted in a two fold increase in the bare and trampled widths in areas of the Pennine Way between 1971 and 1983 (Bayfield 1985). However, the major problems on this trail are where it crosses peat and in addition little proper maintenance was carried out over the period.

Table 5.4.3a from an ITE unpublished draft report for the Countryside Commission highlights the impacts of increasing visitor pressure on vegetation and soils. Under wet conditions resistance to wear is generally reduced and soils compaction occurs more rapidly.

Table 5.4.3a ***Impacts of Increasing Use on Soil and Vegetation***

Level of Use	Vegetation Impacts	Soil Impacts
Unused	None	None
Very light use	Decrease in height	Slight compaction
Light use	Decrease in species diversity and invasion by trample resistance species	Comminution of plant litter and moderate compaction
Moderate use	Low plant cover on the path with few species remaining	Loss of plant litter, severe compaction and structural damage
Heavy use	Path devoid of vegetation and an increase in the width of the bare zone	Surface erosion with exposed subsoil

The impacts on vegetation increase significantly with increased trampling. The main conclusions from research are:

- low levels of trampling increase vegetation cover (Liddle 1975);
- persistent trampling results in decreases in both the height of vegetation and the number of species (Liddle 1975);
- effect on vegetation is greater on steeper slopes (Quinn et al 1980), especially when walking downhill (Bayfield 1973);
- path width increased with slope (Bayfield 1973);
- wear resistant species predominate as trampling increases (Cole 1981), although such properties vary from species to species (BTCV 1983) and consequently between habitat types.

Peat and clay soils are the least resilient to wear since they are very easily compacted, as has been demonstrated on stretches of the Pennine Way. The Baseline Condition Survey for Hadrian's Wall has identified only 0.2 miles of organic soil on the proposed route (near Turret 54A west of Walton). Over

72 miles is recorded as a mineral soil much of which is well drained (only 6.02 miles of the whole proposed trail were recorded with impeded drainage and these were mainly small sections crossing streams, wet patches in fields etc).

At present the Baseline Condition Survey records 0.23 miles of the route with extensive erosion and 4.82 miles with heavy erosion where extensive vegetation or soil loss (over 25%) was greater than 5 m in width or the path was braided. These areas were confined to the central section between Housesteads and just west of Steel Rigg.

The impact of visitor pressure on vegetation and the resulting erosion is greater on steeper slopes (Quinn et al 1980) and it is in the central section where the steepest gradients as well as the most intense visitor pressure are encountered. Generally analysis of the Baseline Condition Survey shows that only 12.15 miles of the proposed route has a gradient of over 10° and over 33 miles is less than 5°. Despite the steep gradients and heaviest visitor numbers in the central section of the trail the path does in fact at present stand up very well to pressure particularly in the absence of much active management.

The intensity of trampling impacts will be directly correlated to the number of visitors. Section 4 has demonstrated that the carrying capacity of the trail is severely limited by the present facilities and will limit the numbers of new day walkers on the busiest sections of the trail. Visitor distribution to the west and east of the central sections is anticipated to be light (up to 50,000) and in fact very light in terms of visitor numbers to sites of interest elsewhere in Britain (cf 600,000 + visitors at Stonehenge for example). In addition as compared with Stonehenge where visitors were restricted to a very small area (4,500 m^2) the trail will allow some spread of visitors (nearly 80 miles).

Although the facilities will to some extent limit the increase of visitors in the central section increased numbers from long distance walkers and perhaps a longer season of walking may cause additional problems in an area where existing heavy visitor pressure in combination with steep slopes has led to some erosion and vegetation damage problems already. Further braiding of paths may occur. Steep sections may be further eroded and path widths may increase. Any poorly drained areas will be subject to increased soil compaction (such as near the Nag Burn Gate east of Housesteads for example).

Erosion is generally more marked at pinch-points such as view points and sign boards etc (Ahern and Wimble 1990). On Hadrian's Wall the Baseline Survey has demonstrated erosion near signboards (such as those in parts managed by the National Trust). In addition erosion is more marked at the constricted entrance to a feature such as a milecastle gate (personal observation). Increases in visitor numbers would accentuate these effects.

In summary significant increased wear and tear damage is most likely in the central section of the trail and particularly on poorly drained or steep

sections of the trail and at pinch-points elsewhere. Low predicted visitor numbers will reduce effects away from the honeypot areas.

There is no doubt that the construction of new car parks within the central section would increase the numbers who are able to visit this part of the Wall (cf Bayfield and Barrow 1976) however, this does not seem to be a likely option in the central section and thus the creation of additional honeypots in this already busy section is unlikely.

Damage to some of the monument has been an ongoing problem over the centuries and much of the linear monument has already been removed or remains only as vestigial traces. The impact of extensive further damage would thus be extremely significant to an already fragile system. Wherever the proposed trail is routed people will undoubtedly still follow desire lines as they do today. The BTCV (1983) suggest for example an optimum slope of 7° is followed from choice by walkers despite where the path may be routed. Seasonal wetness may change the normal route of the path. Archaeological features not expected to be at risk may quickly be subjected to unexpected visitor pressure.

The challenge of walking on the Wall or on parts of the Vallum is very likely to cause pressure on stone work or on earthwork features. It has been suggested that features such as the glacis (an upturned mound) on the Vallum between Milecastles 24 and 25 may be particularly vulnerable. Generally if the turf is strong on top of the Vallum the problem should be reduced and it is the points of access to it which will be most at risk. Sections of the Clayton consolidated Wall west of Housesteads have already shown signs of pressure from visitors. Some restorative measures have already reduced the archaeological significance of some sections of the Wall. However suitable mitigation measures outlined in Section 6 are expected to greatly reduce these risks.

Whilst acts of vandalism cannot be ruled out the risk is expected to be no greater than it is at present. The trail will not be a cycleway for much of its length but the unlawful use of mountain bikes which might be very damaging is expected to be less significant if policed by present wardens.

The very positive effects of resource availability and management strategies to improve the present footpath and hence the stability of terrain near archaeological features should not be underrated.

In addition, the possibility for carefully managed access for the public to larger stretches of an important monument is extremely important despite the problems that may follow. The central section is already well visited and while increased numbers of visitors may detract to a degree from the wilderness feeling of the landscape the inherent beauty of the landscape will not be diminished.

The opportunity of creating circular walks linking with the National Trail could open up quieter sections of countryside to the public and perhaps decrease the numbers of all-day walkers in the central section very slightly.

In Section 6 a series of mitigation measures and management prescriptions will be outlined which will help to offset the effects of some of the more negative impacts outlined in this Section.

5.4.4 *Model Results*

The detailed results from all stages of the model are contained within Annex C. The final three tables (Table 5 - 7) group the archaeological features according to their sensitivity indices. This index defines the inherent stability of any archaeological feature in terms of the expected sensitivity to the visitor numbers which are predicted in the vicinity of that feature.

The model has shown that from 1814 archaeological features defined on the trail 314 (17%) are identified as having a high sensitivity index (and therefore very vulnerable to visitor pressure); 220 (12%) a medium sensitivity index and 1280 (71%) a low sensitivity index. The results are discussed in more detail in Section 3.8.

Suitable management techniques to safeguard those features which may be most at risk from the trail are outlined in Section 6.

6.1 INTRODUCTION

The impact of the National Trail on the archaeological features of the Wall will be lessened by sensitive management prescriptions. The challenge of the management of this trail is that the management must satisfy a range of archaeological, ecological and landscape constraints within a World Heritage Site.

Archaeological heritage is a non-renewable and irreplaceable resource (Darvill 1987) and hence the conservation of this unique monument must be the underlying principle to any management prescription. It is incumbent on our own generation to pass on to posterity an undiminished resource.

Those parts of the monument which are most readily accessible to the understanding of visitors, the visible, upstanding stone walls are the parts in which the information potential has already been realised to some extent. However, it is where the stone lies hidden beneath rubble and turf, or in undisturbed earthwork features sometimes very small in scale and vulnerable to damage that the information potential is undiminished. It is perhaps to these features that the risk of unintended damage is greatest.

Potential problems can be minimized by preemptive and also ongoing maintenance based on regular inspections (cf ICCROM (The International Centre for the Study of the Preservation and the Reservation of Cultural Property) Draft for the Management of World Cultural Heritage Sites 1990).

The brief for this project specifies that the walking surface of the trail where possible should:

- not impact upon the archaeology;
- be preemptive in its management against erosion;
- be sustainable.

The Countryside Commission believes the most appropriate surface in such a landscape setting to be a "*sustainable greensward path*" managed with a policy of minimum intervention to the path surface wherever possible. Darvill (1987) also considers a well maintained grass cover to be the best landscape environment for the preservation of archaeological remains. A brief review of current management techniques is given in Annex B of this report. The management plan process is outlined in Section 6.3.

6.2 KEY ARCHAEOLOGICAL CONSIDERATIONS

Darvill (1987) lists 3 main objectives of effective archaeological resource management.

1. *"To retain the rich diversity of archaeological remains that is known to exist in the landscape."*

2. *"To make the archaeological heritage satisfy the demands made upon it by society as a whole."*

3. *"To reconcile conflict and competition for the use of land containing ancient monuments."*

The main focus of the model outlined in Section 3 is to determine a vulnerability index for each of the archaeological features identified as part of the linear monument. Testing of the model indicates that key sensitive situations are highlighted by the model.

However in order to highlight particular features which are at high risk from any increase in visitor pressure the following table 6.2a should be referred to. Headings refer to the archaeological database.

Table 6.2a ***Archaeological Features Most at Risk from the Trail***

Main Category	Physical Form	Physical Form Subheading	Control	Proximity
* *Earthwork*	Under plough	Vestigial traces	Cross / along	
* *Earthwork or Stone Structure*	All entries	Erosion patches	Cross / along	
* *Earthwork or Stone Structure*	All entries	Negative feature	Cross / along	
All entries	All entries	All entries	Cross / along	
All entries	All entries	All entries	Pinch-point	
Earthwork or Stone Structure	All entries	Erosion patches		< 10 m

The first three entries with asterix are particularly vulnerable with high physical vulnerability indices and sensitivity indices. An example of vestigial traces of an earthwork under plough would be Milecastle 14 at Rudchester.

It has been suggested by archaeologists we have consulted that wherever the trail crosses an unconsolidated monument, particularly a vestigial earthwork, the monument should be protected in some way preferably by re-routing the trail or by strengthening a turf cover over the feature. Especially sensitive parts of the monument (such as the north berm of the Wall Ditch where

upcast material survives) should always be avoided, rather than preemptive action taken.

Wherever the proposed trail crosses or runs along the monument particular attention should be taken either in instigating preemptive management or in routine monitoring to assess the situation where obviously any feature will be at increased risk. In addition routine monitoring to identify where desire lines away from the marked route may make a feature more vulnerable than indicated by the model. Similarly extra attention should be paid to any pinch-point situation or where erosion patches on a feature have already been identified.

Wherever an alternative route is proposed to avoid a sensitive feature careful reassessment of the archaeological scoring of the part affected would be necessary. For example, any encouragement for visitors not to walk on the Clayton - consolidated wall in Housesteads Plantation could create a serious problem in that the alternative might cross a complex series of earthworks.

It is essential to remember that because of the linear elements the monument does not have a curtilage in the conventional sense, but the frontier zone shades off into its hinterland in a way which may be difficult to define with a line on a map and thus difficult to demarcate for management prescriptions.

6.3 *MANAGEMENT PLANS TO SAFEGUARD THE MONUMENT*

6.3.1 *Introduction*

With the key aims of the management plan (see Sections 6.1 and 6.2) in mind as well as the information available from research at other sites and trails (see Annex B) the following sections outline the suggested management prescriptions for the monument. It must be noted that any management work on the monument would have to be given Scheduled Ancient Monument consent by English Heritage.

6.3.2 *Route Alignment*

Of fundamental importance to the preservation of the monument must be the detailed route alignment on the ground. Information from the model would suggest that archaeological features with high sensitivity indices should be given particular attention when the final route is planned on the ground. It is inevitable that the route will have to cross or pass along stretches of the monument but detailed discussions with archaeologists who have intimate knowledge of the Wall would suggest that where the route will cross vestigial traces of earthwork features in arable land or earthwork or stone features which are only now found as negative features such as robber trenches that the most appropriate action would be to re-route the path off the feature.

Where erosion patches have already been recorded on an earthwork or stone structure (an "8" in the physical form sub-heading of archaeological data) the

feature is already at high risk and again the route should be redirected if at all possible or immediate remedial action taken.

A number of alternative routes have been outlined for the trail in the Baseline Condition Survey and the model in combination with the maps which mark the lcoation of key sensitive features that are lodged with the Countryside Commission will indicate which route will have the least impact on highly sensitive archaeological features and also which alternative has a lower landform index indicating higher inherent stability of the terrain.

Two examples are given below:

In the first example east of Sewing Shields Farm, shown in Table 6.3.2a there are 13 archaeological features in the proximity of the route but 30 features occur in the proximity of the alternative route. In actual fact it is the line of the alternative route which is the desire line for walkers at present rather that the public right of way. A comparison of the sensitivity indices for each route is given below:

Sensitivity	Route	Alternative Route
Low	39%	43%
Medium	15%	40%
High	46%	17%

Even though more archaeological features occur along the alternative route, as a proportion of the total number occurring there are over twice as many highly sensitive features in the vicinity of the public right of way.

A detailed comparison of the results in Annex C, repeated in Table 6.3.2a also supplies additional details such as the distance of features from the trail or those features which are at highest risk from increased visitor pressure (cf Table 6.3a). Thus the data shows that the trail is actually on 9 features when following the public right of way whereas only 3 features are in very close proximity to the alternative route. However, 5 features along the alternative route are defined as being very vulnerable to visitor pressure (vestigial traces or negative features) and although not in close proximity to the trail would require routine monitoring to identify any damage in its early stages.

In the second chosen example west of Birdoswald (see Table 6.3.2b) there are 24 archaeological features along the chosen route and 29 features in the vicinity of the alternative route. Their sensitivity indices are shown below:

Sensitivity	Route	Alternative Route
Low	96%	48%
Medium	-	4%
High	4%	48%

In this example, the proportion of features with low sensitivity indices (and therefore less sensitive to visitor pressure) is much greater in the vicinity of the alternative route. A detailed comparison of the data (see Table 6.4.2b) shows the alternative route passes or touches 7 features existing as vestigial remains whereas the proposed route passes only 1 which is in addition protected by a control boundary. In addition the table indicates that the alternative route follows the Turf Wall a feature of rarity value (see Section 3.3.1). Thus, the alternative route is more sensitive to visitor pressure than the chosen one and the trail should follow the original plan.