THE IMPACT ON EQUITY OF CHANGES TO ACCESS TO LOCAL FACILITIES

Roger L Mackett, Centre for Transport Studies, University College London
Kamal Achuthan, Centre for Transport Studies, University College London
Helena Titheridge, Centre for Transport Studies, University College London

ABSTRACT

Many of the needs of everyday life are met through the provision of local services such as post offices and public libraries. The level of access to them can have a significant impact on the quality of life. It can also have important implications for equity, since there may be large differences in levels of access between those with different income levels. In Britain there is a policy of rationalising such services, sometimes in order to save money, and sometimes as part of a modernisation programme. However, in developing these re-organisation programmes, the access and equity issues are rarely considered systematically. One way to do this is to use a computer-based tool, such as AMELIA (A Methodology for Enhancing Life by Improving Accessibility), which has been developed in the Centre for Transport Studies at University College London. AMELIA has been designed to test the extent to which transport and other policies influence social inclusion. AMELIA is a user-friendly, policy-oriented interface to a Geographic Information System (GIS). It requires data on the population in the group being considered (the elderly, those in wheelchairs and so on), the destinations that they wish to reach (shops, post offices, health facilities and so on) and how they can travel there. AMELIA can then be used to see how many more (or fewer) of this group can reach the opportunities as a result of the policy actions. In the paper AMELIA is applied to examine the implications of reorganisation programmes for post offices and public libraries in two areas: the London Borough of Tower Hamlets, which is an inner city area with a culturally diverse population and high levels of poverty, and Hertfordshire, a relatively wealthy area with high car ownership and a mixture of urban and rural areas. The results are presented in terms of the changes in the access to the various local facilities by members of different groups in society.

Key words: access, equity, policy, quality of life, post offices, health facilities, libraries

INTRODUCTION

Many of the needs of everyday life are met through the provision of local services such as post offices and public libraries. The level of access to them can have a significant impact on the quality of life. It can also have important implications for equity, since there may be differences in levels of access between those with different income levels. In fact, people who are socially excluded, such as elderly people with no car or people with disabilities on low incomes, may have greater need of such services in order to maintain their quality of life.

In Britain there is a policy of rationalising such services, sometimes in order to save money, and sometimes as part of a modernisation programme. However, in developing these re-organisation programmes the access and equity issues are rarely considered systematically.

One way to do this is to use GIS (Geographical Information Systems) in order to integrate spatial data on the facilities with that of the population. In the paper the use of a software tool AMELIA (A Methodology to Enhance Life by Increasing Accessibility) is used for this analysis. It is, in effect, a user-friendly policy-oriented interface to GIS being developed in the Centre for Transport Studies at University College London.

In this paper AMELIA is used to look at the impacts of changes in the provision of post offices and libraries in two areas of Britain, to see what the overall impact is and whether there is a differential impact on people in different groups in the community. The two areas are the London Borough of Tower Hamlets, which is an inner city area with a culturally diverse population and high levels of poverty, and Hertfordshire, a relatively wealthy area with high car ownership and a mixture of urban and rural areas. The results are also examined for the city of St Albans in Hertfordshire. The results are presented in terms of the changes in the access to the local facilities by members of different groups in society to see the effects on equity of the policies underlying the reorganisation programmes.

AMELIA

The purpose of AMELIA is to show the impact of a policy change on groups within the community. It can be used either to examine the impact of a particular policy action or to allow the user to compare a set of possible policy actions relevant to the policy objective being considered, and then to quantify and map the effects of these policy actions to help the user to assess which is the most effective. The policy objective is normally defined in terms of changes in accessibility for members of a particular group to a set of opportunities, such as shops or medical facilities. Sometimes a mode of travel such as walking is specified. Alternatively, the policy objective might be formulated in terms of overcoming a barrier to movement. AMELIA requires data on the population in the group being considered (the elderly, those in wheelchairs and so on), the nature of the facilities that they wish to reach (shops, jobs, health facilities and so on) and how they can travel there. AMELIA can then be used to see how many more or fewer of this group can reach the opportunities as a result of the policy actions. The policy action may be a change to the transport network or to the supply of opportunities at destinations. In order to assess whether a policy action is effective, it is necessary to use benchmarks representing a 'reasonable' level of access (Mackett, 2006, Titheridge et al, 2009). AMELIA is used to see how many members of the group meet the benchmark with and without the intervention represented by the policy action. To date, most of the analysis carried out with AMELIA has been at the microscale, examining barriers to walking (Mackett et al, 2008a, b). The key elements of AMELIA are shown in Figure 1.

Figure 2 shows how AMELIA is used. Having set the general policy objective of increasing accessibility, it can be focussed on particular groups in society or modes of travel by selecting the relevant characteristics. These will be used by AMELIA to identify some suitable policy actions. Some of these can take different values, such as the angle on dropped kerbs, so suitable values need to be selected. Guidance is provided on this, drawing on various sources such as the Inclusive Mobility Guidelines (Department for Transport, 2005). Cost data are also provided for some policy actions, since this may influence the scale of implementation. The data for testing the policy action then have to be set up by making appropriate changes to the GIS representing the study area. Advice is provided on how to do this through a 'help' system built into AMELIA. A suitable benchmark can be selected, on the basis of judgement about a 'reasonable' distance, or level of expenditure of time or money. AMELIA is then run and the results examined, possibly in the light of the cost of implementing the policy action. AMELIA can be run again using different values for the

policy action or another policy action. The user can repeat this process until satisfied that a policy action has been identified which is effective in meeting the accessibility needs of the group being considered.

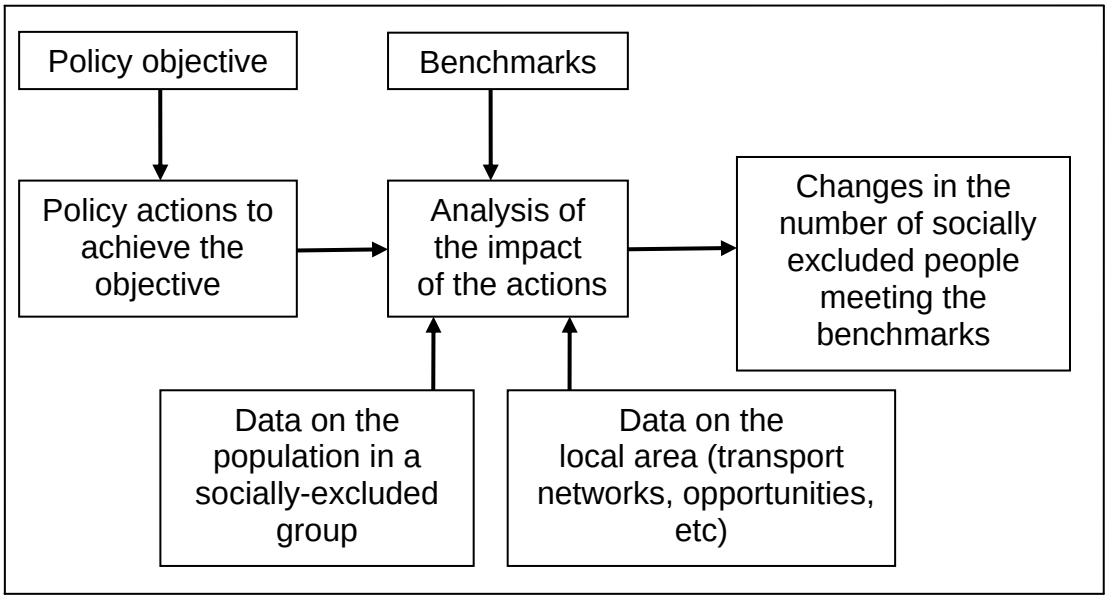

Figure 1 - The components of AMELIA

AMELIA has an information system built into it that identifies suitable policy actions that can be implemented to help achieve the chosen objective. When a policy action is tested with AMELIA, the key output is the increase (or, possibly, decrease) in the number of people in a particular group who can reach the opportunities being considered as a result of the implementation of the policy action.

THE IMPACT OF CHANGES TO THE POST OFFICE NETWORK

The Post Office Network Change Programme

The British Government has initiated the Network Change Programme in order to reshape the Post Office network and so reduce the cost of providing such services, arguing that fewer people are using Post Offices partly because many of the services that they have offered in the past are now available online or directly through banks (Post Office, 2006). In May 2007, it was announced that about 2,500 out of 14,300 branches would be closed. Minimum access criteria were defined in order to maintain 'the best possible access to Post Office services'. These included:

- 99% of the UK population to be within 3 miles (4.8 km) and 90% of the population to be within 1 mile (1.6 km) of their nearest Post Office branch.
- 99% of the total population in deprived urban areas across the UK to be within 1 mile (1.6 km) of their nearest Post Office branch.

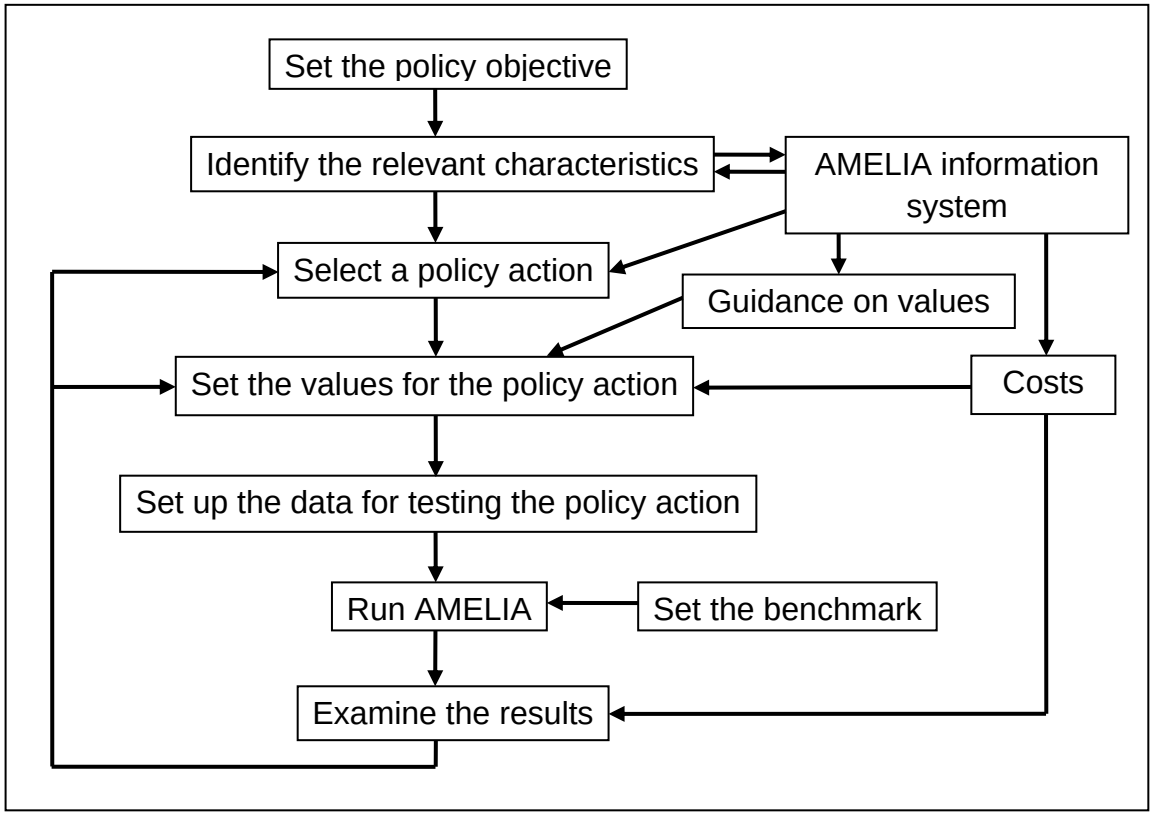

Figure 2 - The procedure for using AMELIA

The implementation of the policy for Tower Hamlets using AMELIA

The location of post offices in the London Borough of Tower Hamlets (LBTH) was obtained from the London - Area Plan Proposal document (Post Office Limited, undated a) published as part of Network Change Programme for post offices. The document also provided details of post offices proposed for closure. These were mapped as shown in Figure 1. In order to overcome boundary effects, post offices within a 2km buffer of the LBTH boundary were also included. In total there were 78 post offices open at the time of the issuing of the closure programme out of which 17 were planned for closure. Within the actual borough there were 26, with 5 planned for closure. These are shown in Figure 3.

A GIS database was initially set up for Tower Hamlets based on available data such as the Output Area data based on the 2001 Census (Office of National Statistics, 2010), and road centreline network from the MasterMap system set up by Ordnance Survey (2010). The analysis was carried out for walking as the mode of access to the destinations. Due to the lack of availability of pedestrian network data (a detailed network of footways and crossings), the road centreline network was used for the measurement of distance.

The results are considered in terms of the number of people losing their nearest post office, the change in the number of people living within one and three miles (1.6 and 4.8 km) of a post office and the number within thresholds of 300, 600 and 900 metres of a post office, which correspond to walk times of 5, 10 and 15 minutes respectively at an assumed walking speed of 1 metre/second. This is 3.6 km per hour which is fairly slow, but many of those who would wish to walk to the Post Office are elderly or have disabilities.

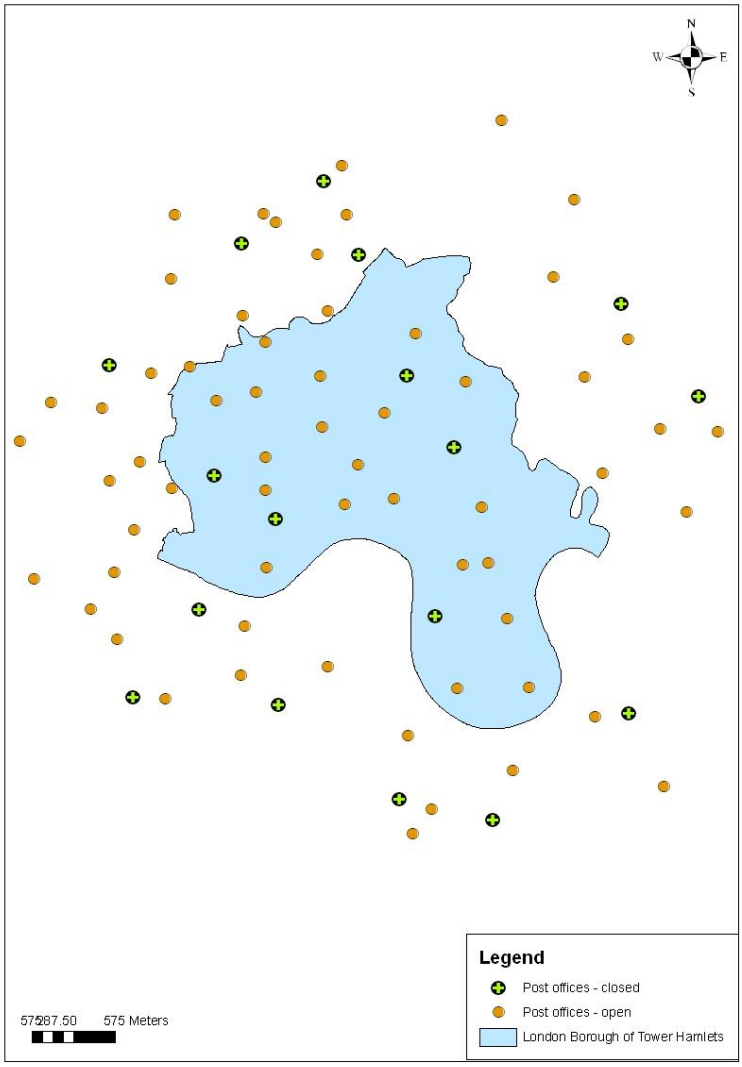

Figure 3 - The location of post offices in and adjacent to Tower Hamlets after the closure programme

The following groups are considered in the analysis:

- People who are permanently sick or disabled;
- People who are unemployed;
- People living in deprived areas (defined as being in the top 15% of Super Output Areas based on the ranking of the Indices of Multiple Deprivation (Department of Communities and Local Government, 2007));
- Single parent households with dependent children;
- Households without a car.

For comparison purposes, the figures for the all population and all households are also shown.

Changes to access to post offices in Tower Hamlets

All of the population of Tower Hamlets could reach a post office within one mile (1.6 km) before and after the implementation of the closure programme (and therefore are within 3 miles (4.8 km)) and so the first criterion is met before and after. This also means that all the population in Tower Hamlets living in deprived areas met the criteria before and after. This

does not mean that people living in Tower Hamlets were not affected by the closure programme. As Table 1 shows, 23% of the population of the area lost their nearest post office. Of the population groups being considered here, the unemployed suffered more than average, with 25% losing their nearest post office, and 24% those living in deprived areas losing theirs.

Table 1 - Number of people (or households) in Tower Hamlets who lose their nearest post office as a result of the Post Office Closure Programme.

	Population				Households		
	All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
Numbers	44394	2040	2356	35014	16558	1292	9538
%	23	22	25	24	21	23	21

Table 2 shows the changes in the percentages of the population living within various walking times of a post office. It can be seen that there is a fall from 17% to 14% in the number of people living within five minutes of a post office. There are larger decreases in the numbers within 10 and 15 minutes walk, from 60% to 51% and 92% to 84% respectively. More people living in deprived areas than the overall population within the borough lived close to post offices before and after the closures, but a greater percentage of them ceased to be within five minutes walk of a post office than some other groups and the overall population. More households with no car lived near to post offices, and seemed to suffer less from the closures at the 10 minute threshold.

The most obvious conclusion from this analysis is that the thresholds being used to ensure 'best possible access to Post Office services' are very insensitive. People living in Tower Hamlets met the criteria before and after and yet nearly one quarter of them have lost their nearest post office, with some socially excluded groups suffering more than average.

Table 2 - Changes in the percentages of people in Tower Hamlets living within various walking time bands of a post office as result of the closure programme

		Population				Households		
Walk time		All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
5	Before	17	18	18	20	17	18	18
	After	14	15	14	16	14	15	15
10	Before	60	63	60	62	60	57	61
	After	51	54	50	52	51	51	53
15	Before	92	94	92	94	92	92	93
	After	84	85	83	84	84	82	85

The implementation of the policy for Hertfordshire using AMELIA

For Hertfordshire, the locations of the existing Post Offices and the proposed closures were obtained from the Post Office Ltd Network Change Programme Area Plan Proposals for Cambridgeshire, Hertfordshire, Bedfordshire and South Lincolnshire and for South Essex, South Hertfordshire and Buckinghamshire (Post Office Ltd, undated b and c). There were

194 post offices within the county of which 36 were planned for closure. A 10 km buffer was used to allow for travelling by car or public transport. Within the whole area, there were 535 post offices, out of which 97 were planned for closure. The locations of post offices are shown in Figure 5. The implementation with AMELIA was the same as that for Tower Hamlets.

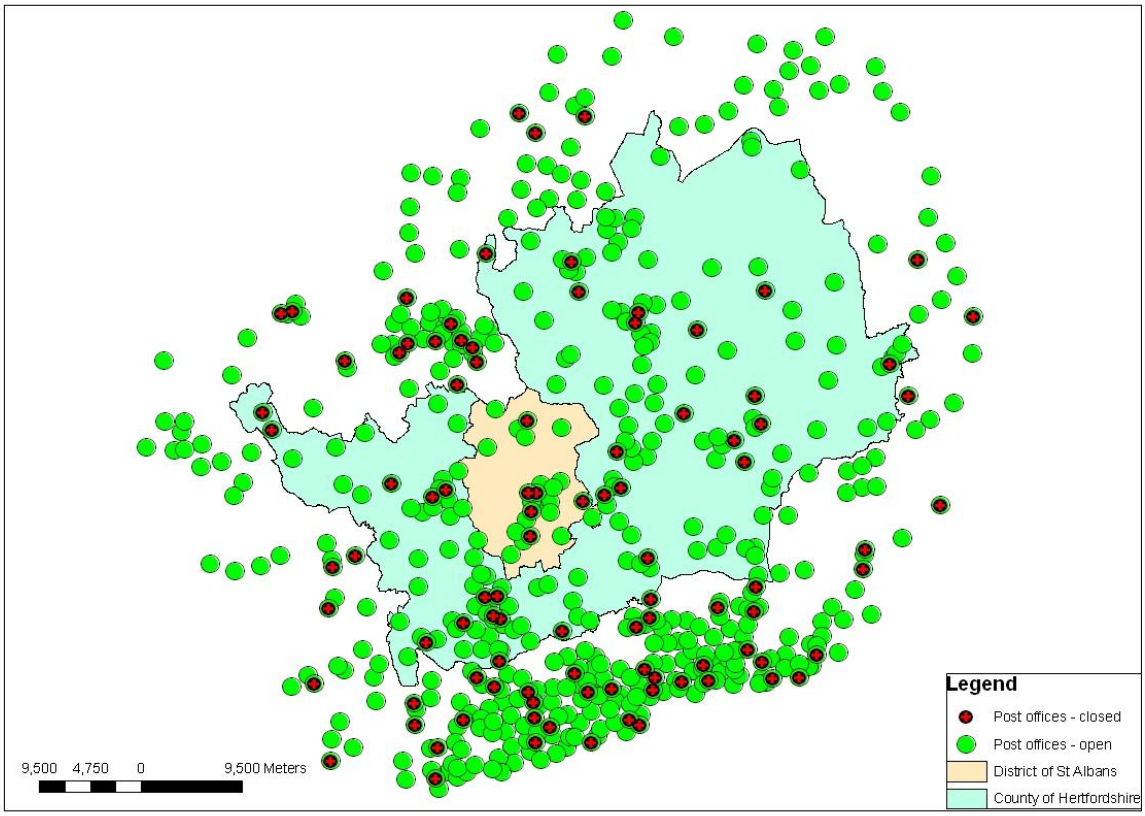

Figure 5 - The location of post offices in and adjacent to Hertfordshire after the closure programme

Changes to access to post offices in Hertfordshire

The overall picture in Hertfordshire is slightly different from that in Tower Hamlets. As Table 3 shows, 14% of the population of Hertfordshire lost their nearest post office, which is less than the figure of 22% in Tower Hamlets. More of those living in deprived areas (of which there are not many in Hertfordshire) lost their nearest post office than average for the whole population. However, a rather different picture emerges when those living within one mile (1.6 km) of a post office are considered (Table 4).

Table 3 - Number of people (or households) in Hertfordshire who lose their nearest post office as a result of the Post Office Closure Programme.

	Population				Households		
	All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
Numbers	141611	3233	2121	710	57366	3093	10618
%	14	14	13	15	14	14	14

Table 4 - Percentages of people (or households) in Hertfordshire living within one mile (1.6 km) of their nearest post office before and after the Post Office Closure Programme.

	Population				Households		
	All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
Before	89	89	89	100	87	90	93
After	85	85	86	94	85	86	89

It can be seen that even before the closure programme fewer than 90% of the population were within one mile (1.6 km) of a post office, and after it, the percentage falls from 89% to 85%. Over 99% of the population live within 3 miles (4.8 km) of a post office before and after the closure programme. Whilst the population living in deprived areas falls within one mile of a post office falls from 100% to 94%, they live only just outside the 1 mile (1.6 km) threshold after the closures. None of the population groups are significantly worse off than the average population.

Table 5 shows the changes in the percentages of the population of Hertfordshire living within the walking thresholds. The percentages are much lower than those for Tower Hamlets because of the lower population density. There is not a very large decrease in the relatively small numbers living very close to a post office, with rather larger drops for the longer time thresholds. Those living in deprived areas have a greater proportion living within the thresholds than the overall population. A greater percentage lose access within 10 and 15 minutes than the overall population, but there are still more living within the thresholds after the closure procedure than the overall population.

Turning to St Albans, which is one district within Hertfordshire, Table 6 shows the numbers who lost their nearest post office. It should be noted that there are no deprived areas within St Albans (on the definition being used here). It can be seen that 20% of the population lost their nearest post office, compared with 14% in the whole of Hertfordshire and 23% in Tower Hamlets. If these areas are typical of areas in Britain of their type, it suggests that the programme of post office closures had led to a more even pattern of access, with the places with highest access before the closures suffering most. The socially excluded groups in St Albans lost out on access at least as much as the overall population.

Table 5 - Changes in the percentages of people in Hertfordshire living within various walking time bands of a post office as result of the closure programme

		People				Households		
Walk time		All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
5	Before	7	8	8	15	8	8	10
	After	6	6	6	15	6	7	8
10	Before	32	34	34	65	33	33	39
	After	27	28	28	49	28	28	33
15	Before	53	55	54	87	54	54	61
	After	46	48	48	64	47	47	53

Table 6 - Number of people (or households) in St Albans who lose their nearest post office as a result of the Post Office Closure Programme.

	People			Households		
	All	Sick or disabled people	Unem-ployed people	All	Single parents with children	Households without a car
Numbers	26141	587	327	10603	538	1664
%	20	22	21	20	23	21

St Albans was at the one mile (1.6 km) threshold prior to the closure programme. After it, St Albans is below it at 84% compared with 85% in the whole of Hertfordshire, as shown in Table 7. Those who are sick or disabled went from 89% before the closures to 81% after, and single parent households with dependent children went from 92% to 81%, so both these groups had larger than average decreases in the numbers meeting the one mile (1.6 km) threshold.

Table 7 - Percentages of people (or households) in St Albans living within one mile (1.6 km) of their nearest post office before and after the Post Office Closure Programme.

	People			Households		
	All	Sick or disabled people	Unem-ployed people	All	Single parents with children	Households without a car
Before	90	89	92	91	92	94
After	84	81	84	85	81	85

Turning to the walking thresholds, fewer people in St Albans lived within the 5 and 10 minute thresholds than in Hertfordshire before the closures, but more within the 15 minute threshold (Table 8). The decreases are similar to those in the whole county for the smaller thresholds, but rather greater for the largest threshold. The group that seems to have suffered more than average is the households with no car.

Table 8 - Changes in the percentages of people in St Albans living within various walking time bands of a post office as result of the closure programme

		People			Households		
Walk time		All	Sick or disabled people	Unem-ployed people	All	Single parents with children	Households without a car
5	Before	6	6	5	6	6	8
	After	4	4	4	4	4	6
10	Before	31	31	30	32	29	39
	After	24	25	24	25	23	31
15	Before	57	54	55	59	54	64
	After	47	45	45	48	44	52

THE IMPACT OF CHANGES TO THE LOCATION OF PUBLIC LIBRARIES

The programme of changes to libraries in Tower Hamlets

This analysis was performed for two different location scenarios based on the document 'A Library and Lifelong Learning Development Strategy for Tower Hamlets' (London Borough of Tower Hamlets, 2002). The document provided details of the old libraries and their locations and also the strategies for 'Idea stores' and their locations. 'Idea Stores' are schemes which bring together the traditional concept of a library with that of lifelong learning, linked with community renewal by presenting them as a new package in order to draw in new users and retain the existing ones. The current libraries and Idea Stores and their location data was obtained from LBTH's website. Figure 6 shows the locations of the 8 libraries prior to reorganisation and Figure 7 shows the situation after with an addition of a newly developed Idea Store in Canary Wharf and the Whitechapel library relocated and redeveloped as an Idea Store. The Bow and Chrisp Street libraries have been redeveloped in their existing locations as Idea Stores.

Changes to access to public libraries in Tower Hamlets

The programme for reorganizing public libraries in Tower Hamlets was not one of closure, but one of renewal, so some people could be better off as a result of it. As Table 9 shows, this was the case, with 7% better off in terms of having a library nearer than they did before, and 3% worse off, making a net improvement of 4%. Those living in deprived areas made a greater net gain. The net effect was similar to that of the overall population across the other groups.

Table 9 - Percentages of people (or households) in Tower Hamlets who gain or lose their nearest library as a result of the reorganization programme.

	People				Households		
	All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
Gain	7	6	7	6	8	6	8
Lose	4	3	4	2	5	2	5
Net gain	3	3	3	4	3	3	3

Using the same criterion as used for post offices, it can be see in Table 10, that nearly 90% of the population lived within one mile (1.6 km) of a public library, with no significant changes as a result of the reorganisation programme.

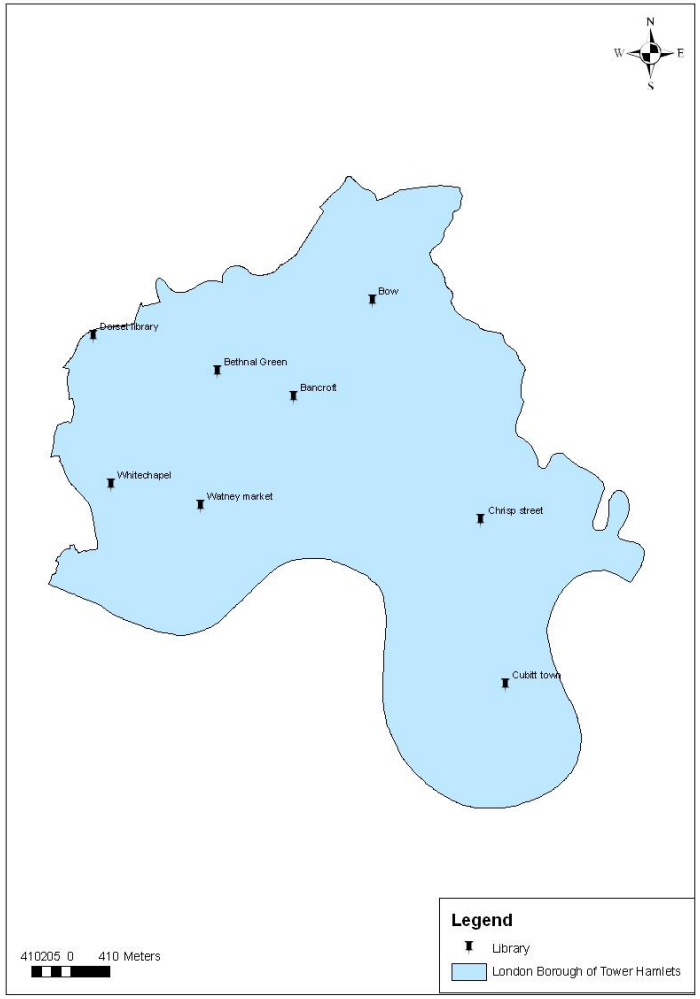

Figure 6 - The location of libraries in Tower Hamlets prior to reorganization

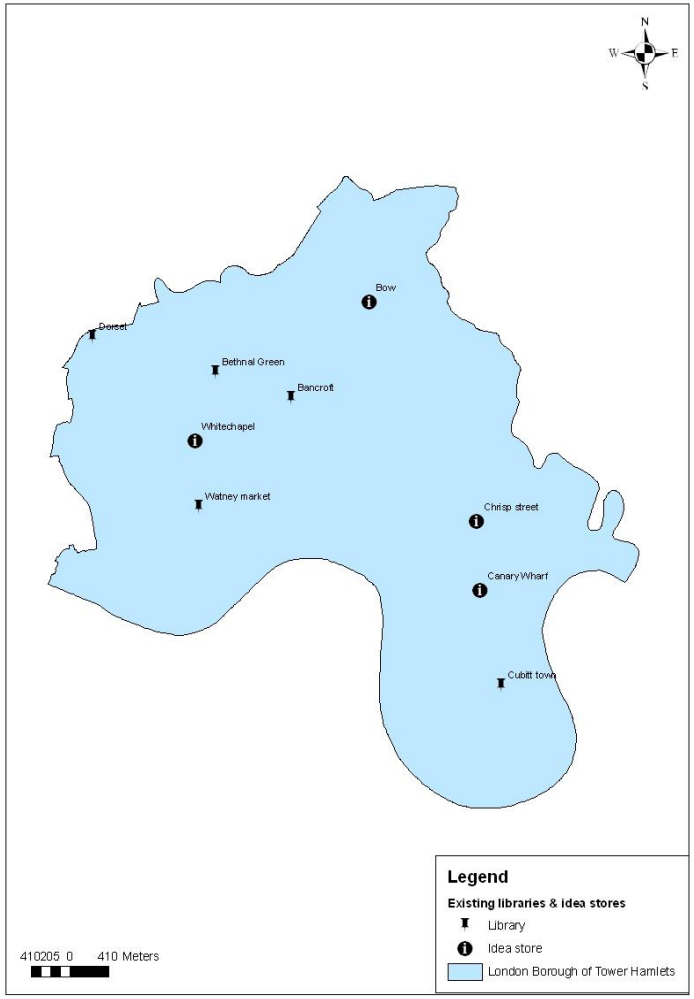

Figure 7 - The location of libraries in Tower Hamlets after reorganization

Table 10 - Percentages of people (or households) in Tower Hamlets living within one mile (1.6 km) of their nearest library before and after the reorganisation programme.

	People				Households		
	All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
Before	88	91	89	91	89	89	89
After	88	91	89	91	89	89	89

There are some small differences discernable if the more detailed walking thresholds are used. As Table 11 shows, there was an increase in the numbers living within a five minute walk of a public library, from 4% to 5%, with similar effects across all the population groups, with a similar increase living within 10 minutes of a public library. Some people living to the south of the old Whitechapel library were worse of, since fewer of them could reach a public library within a 15 minute walk. This is reflected in the decrease in the numbers of the unemployed and the sick and disabled meeting the 15 minute threshold.

Table 11 - Changes in the percentages of people in Tower Hamlets living within various walking time bands of a public library as result of the reorganisation programme

		People				Households		
Walk time		All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
5	Before	4	5	4	4	4	4	4
	After	5	5	5	5	5	5	5
10	Before	24	27	24	26	23	24	24
	After	25	27	25	26	24	25	25
15	Before	46	49	48	50	45	46	47
	After	46	48	47	49	44	46	47

The programme of changes to libraries in Hertfordshire

Hertfordshire had 51 public libraries. Hertfordshire County Council (2006) has carried out a review of provision of public libraries. The proposals included extending opening hours at a number of libraries, replacing eleven libraries by relocation or rebuilding and closing four at Cranbourne, Cunningham, Fleetville and Jackmans. These four were all small libraries which offered only a limited range of services. They attracted low numbers of visits. Cranbourne and Jackmans were close to larger, busier libraries. The analysis with AMELIA has examined the implications of the closure of these four libraries. St Albans District had eight libraries of which two (Cunningham and Fleetville) were closed. The locations of libraries in Hertfordshire, including those in St Albans, are shown in Figure 8.

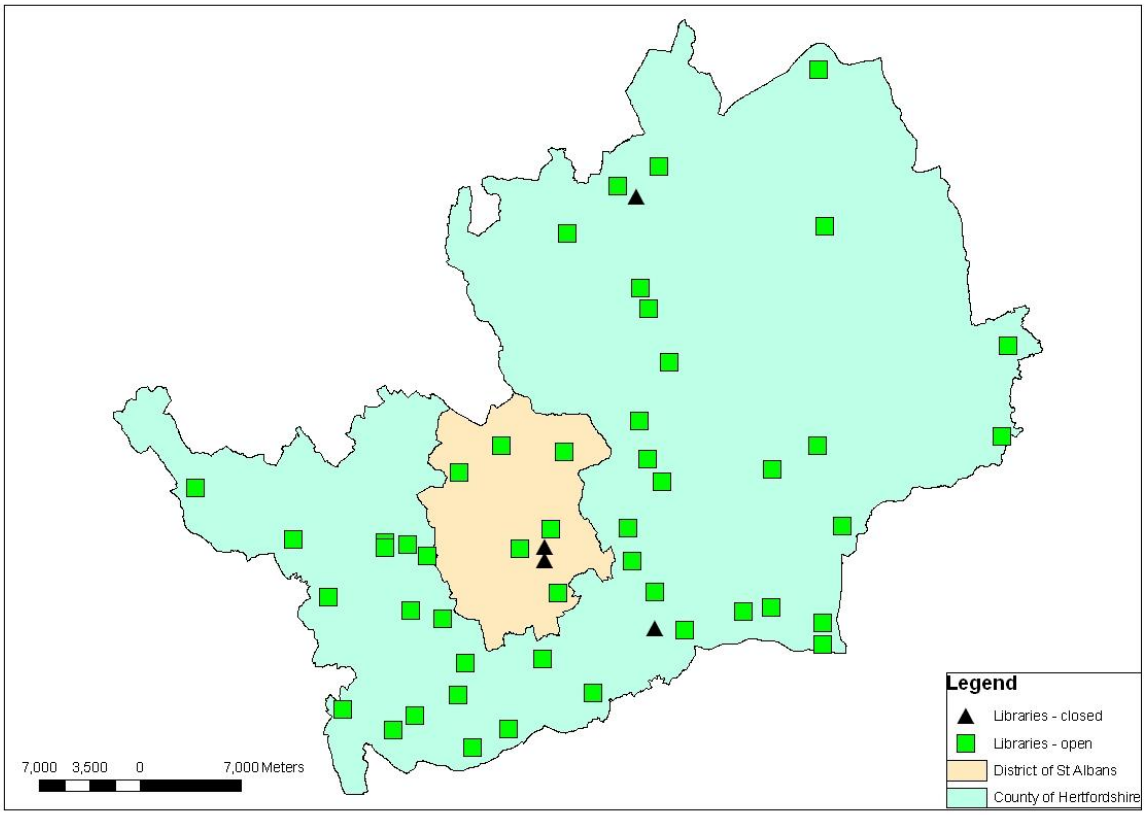

Figure 8 - The locations of libraries in Hertfordshire.

Changes to access to libraries in Hertfordshire

Unlike the library reorganisation programme in Tower Hamlets, the changes in Hertfordshire have been closures, so it would be expected that nobody would have better access to a public library. As Table 12 shows, 4% of the population lost their nearest public library, with slightly more sick and disabled people worse off than the general population. Because those living in deprived areas in Hertfordshire did not live near any of the public libraries being closed, none of them lost their nearest library.

Table 12 - Numbers of people (or households) in Hertfordshire who lose their nearest public library as a result of the reorganisation programme.

	People				Households		
	All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
Numbers	42439	1031	586	0	17087	868	2938
%	4	5	4	0	4	4	4

As Table 13 shows, the percentage of people living within one mile (1.6 km) of a public library decreased from 48% to 45%, with a slightly larger decrease for the sick and disabled. Very few people in Hertfordshire lived within a five minute walk of a public library (Table 14), and this did not change as a result of the closures, but there was a decline of one percent living within a ten minute walk of a public library and of two percent in the numbers living within 15 minutes. There were similar declines across all the groups, except those living in deprived areas who were not affected. It may be noticed how much further people in

Hertfordshire live from public libraries on average than those in Tower Hamlets because of the lower population density.

Table 13 - Percentages of people (or households) in Hertfordshire living within one mile (1.6 km) of their nearest public library before and after the reorganisation programme.

	People				Households		
	All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
Before	48	48	48	72	49	47	55
After	45	44	45	72	46	44	52

Table 14 - Changes in the percentages of people in Hertfordshire living within various walking time bands of a public library as result of the reorganisation programme

		People				Households		
Walk time		All	Sick or disabled people	Unem-ployed people	People living in deprived areas	All	Single parents with children	Households without a car
5	Before	1	1	1	10	1	1	2
	After	1	1	1	10	1	1	2
10	Before	8	8	9	31	9	8	12
	After	7	7	8	31	8	7	11
15	Before	18	18	18	39	19	17	23
	After	16	16	16	39	17	15	21

Because two of the libraries that have been closed were in St Albans, more people living in St Albans lost their nearest public library than in Hertfordshire, as Table 15 shows in comparison to Table 12. 16% of the population of St Albans lost their nearest library, compared to 4% in the whole county, with 20% of sick and disabled people losing theirs.

Table 15 - Number of people (or households) in St Albans who lose their nearest public library as a result of the reorganisation programme.

	People			Households		
	All	Sick or disabled people	Unem-ployed people	All	Single parents with children	Households without a car
Numbers	20308	516	249	8188	388	1359
%	16	20	16	16	17	17

As Table 16 shows, in St Albans the decrease in the numbers living within one mile (1.6 km) of a public library was from 56% to 45% compared with a decrease from 48% to 45% in the whole county (Table 13). The sick and disabled have a larger than average decrease from 55% to 40%. The numbers of single parent households with dependent children and those without a car who live more than one mile from a post office decrease more than the overall population.

Table 16 - Percentages of people (or households) in St Albans living within one mile (1.6 km) of their nearest public library before and after the reorganisation programme.

	People			Households		
	All	Sick or disabled people	Unem-ployed people	All	Single parents with children	Households without a car
Before	56	55	56	57	56	62
After	45	40	45	46	43	49

The greater decline in the number of people in St Albans having poorer access to a public library as result of the closure programme than the whole of Hertfordshire can be seen by comparing Table 17 with Table 14, particularly at the 10 and 15 minute thresholds, with a decline of 5% in the 10 minute band compared to a 1% decrease in the whole county, and a 8% decline in the 15 minute band compared with 2%. Once again, it is the sick and disabled and those without a car who suffer a greater decrease than average.

Table 17 - Changes in the percentages of people in St Albans living within various walking time bands of a public library as result of the reorganisation programme

		People			Households		
Walk time		All	Sick or disabled people	Unem-ployed people	All	Single parents with children	Households without a car
5	Before	2	2	2	2	2	4
	After	2	1	1	1	1	2
10	Before	11	12	10	12	10	16
	After	6	6	7	7	5	10
15	Before	24	26	24	26	25	31
	After	16	15	16	17	16	20

CONCLUSIONS

In this paper it has been shown how AMELIA can be used to examine the impacts of changes in the location of services, using post offices and libraries as examples, including those for particular groups in society. Because the differences for the groups reflect only the variation in the spatial distribution of their homes and not differences in income levels, the effects shown here probably underestimate the effects, because those in the various groups considered here probably have below average incomes and car ownership levels, and so have fewer alternatives to walking to the reduced opportunities (where they have been reduced).

According to the analysis in this paper, there are places in Britain that fall below the minimum access criteria defined by the Post Office as a result of its closure programme. In fact, Hertfordshire was below it even before the closure programme. It is not clear what spatial scale was used for the analysis carried out for the Post Office, but Hertfordshire is quite a large area, so this raises some questions about the analysis underpinning the closure programme. It has been shown here that the criteria used are pretty insensitive. For example, in Tower Hamlets, all the population lived within one mile (1.6 km) of a post office both before and after the implementation of the closure programme, but 23% of the population lost their nearest post office. There were some differential impacts on the various

population groups, with the unemployed and those living in deprived areas suffering more than average in Tower Hamlets, while in St Albans, it was the sick and disabled and single parents with dependent children who had greater than average losses.

The public library reorganisation programmes had different effects in Tower Hamlets and Hertfordshire. In Tower Hamlets, the programme led to a net improvement in access, but there were some people who suffered a loss by the relocation of one library, and this is an area with above average levels of unemployment and people who are sick and disabled. In Hertfordshire there were quite large percentages of the population who lost their nearest public library, particularly in St Albans. More of the sick and disabled lost access to nearby libraries than the population as a whole.

This analysis is interesting and suggests that there are important equity issues in planning access to local facilities, and that a tool like AMELIA offers scope to carry out such analysis. In Britain today there are many programmes to reorganise the location and structure of local services, for example in health. It is important that the public is consulted widely on these issues, and offered the opportunity to suggest alternatives. AMELIA can be used not only to help develop and test alternatives, it can also be used with members of the public as a consultation tool, to see whether the suggestions from the public are better than the official proposal, or to demonstrate that they would not be so effective. Recent work with AMELIA has shown that members of the public are able to understand the concept of AMELIA and make suggestions that can be tested with it. There is scope for much more work in this area as governments seek to obtain best value from public services. AMELIA can help in this process.

ACKNOWLEDGEMENT

This paper has been written as part of a project entitled ‘Accessibility and User Needs in Transport’ which is being funded by the UK Engineering and Physical Sciences Research Council (EPSRC) under grant GR/S90867/01 as part of its Sustainable Urban Environments Programme. The co-operation of the Environment Department of Hertfordshire County Council is greatly appreciated.

REFERENCES

Department for Transport (2005). Inclusive mobility, originally published 2002, updated 2005. Available from http://www.dft.gov.uk/stellent/groups/dft_mobility/documents/page/dft_mobility_503282.hcsp.

Department of Communities and Local Government (2007) Index of Multiple Deprivation 2007. Available from http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/.

Department of Trade and Industry (2006). The Post Office Network: A consultation Document. Available from http://www.berr.gov.uk/files/file36025.pdf.

Hertfordshire County Council (2006). Implementing the Hertfordshire Vision for Libraries in the 21st Century. Available from http://www.hertsdirect.org/infobase/docs/pdfstore/L421Cimplement.pdf.

London Borough of Tower Hamlets (2002). A Library and Lifelong Learning Development Strategy for Tower Hamlets: A joint accommodation strategy developed by the Customer Services and Education Directorates for the Arts, Leisure, Sports and Youth and Community Services Committees, April 1999, updated at January 2002. Available from http://www.ideastore.co.uk/public/documents/PDF/A_Library_and_Lifelong_Learning_Development_Strategy_for_Tower_Hamlets.pdf.

Mackett, R.L. (2006). Benchmarking accessibility, Presentation at the AUNT SUE Symposium on Inclusive Transport and Urban Design, held at London Metropolitan University, 18 January 2006. Available from http://www.londonmet.ac.uk/aunt-sue/events.html.

Mackett R. L., K Achuthan and H. Titheridge (2008a). AMELIA: Making streets more accessible for people with mobility difficulties, Urban Design International, 13, 80-89.

Mackett R. L., K. Achuthan and H. Titheridge (2008b). AMELIA: A tool to make transport policies more socially inclusive, Transport Policy, 15, 325-412.

Office of National Statistics (2010). Census 2001. Available from http://www.statistics.gov.uk/census2001/census2001.asp.

Ordnance Survey (2010). MasterMap. Available from http://www.ordnancesurvey.co.uk/oswebsite/products/osmastermap/.

Post Office Ltd (undated a). Network Change Programme. Area Plan Proposal - London. Available from ftp://ftp.royalmail.com/Downloads/public/ctf/po/London_Area_Plan_Proposal_2.pdf.

Post Office Ltd (undated b). Network Change Programme. Area Plan Proposal - Cambridgeshire, Hertfordshire, Bedfordshire and South Lincolnshire. Available from ftp://ftp.royalmail.com/Downloads/public/ctf/po/Cambridge_Area_Plan_proposal_booklet.pdf.

Post Office Ltd (undated c). Network Change Programme. Area Plan Proposal - South Essex, South Hertfordshire and Buckinghamshire. Available from ftp://ftp.royalmail.com/Downloads/public/ctf/po/SouthEssex_SouthHerts_Bucks_%20AreaPlan_proposal_booklet_2.pdf.

Titheridge H., K. Achuthan, R. Mackett and J. Solomon (2009). Assessing the extent of transport social exclusion among the elderly. Journal of Transport and Land Use, 2, 31-48, available from https://www.jtlu.org/index.php/jtlu/article/view/44/56.