

6 Broomfield Hospital

6.1 Introduction

Broomfield Hospital is a major health facility. It is the general hospital for the local area and provides Accident & Emergency facilities as well as offering a large range of clinical services and is home to the world renowned St Andrews Burns and Plastics Centre. It is administered by the Mid-Essex Hospitals Services NHS Trust. Although it occupies the site of a former isolation hospital, the growth of Chelmsford urban area now sees it located on the edge of the built-up area. Currently there are approximately 3000 staff employed within the Hospital site.

The other major hospital in Chelmsford is St Johns Hospital, located centrally at Wood Street, just off the A414 Princes Road. It provides specialised services including the maternity unit, children's services and a specialist genito-urinary unit. Currently within the hospital site, around 300 staff are employed.

6.2 The merger of Broomfield & St Johns Hospitals

The Mid-Essex Hospitals Services NHS Trust (MEHT) is currently looking to consolidate health services on a single site at Broomfield which will involve the transfer of services and staff from the St John's site, thus releasing a valuable re-development site for disposal. Currently the site is being offered for sale although the MEHT, during a phased re-location programme, will retain use of the upper half of the site till 2008.

6.3 Works currently taking place on the Broomfield Hospital Site

During 2006 there has been considerable construction activity on-site covering various initiatives. A major element of the works has been concerned with the transfer of facilities from St Johns Hospital. These were the subject of a Transport Assessment in 2001 produced by Boreham Consulting Engineers. This Transport Assessment included proposals for an increase in parking spaces at Broomfield Hospital to 1550 spaces. This is significantly below maximum parking standards of Essex County Council which would allow up to 2000 spaces in total. In order to accommodate the increased traffic associated with the additional parking, some very minor kerb re-alignment was proposed at the roundabout junction of the B1008 Main Road with Hospital approach. In addition a 3m off-road cycle path was proposed on

the north side of Hospital Approach between the hospital entrance and the junction with the B1008 Main Road. Conditions of approval for this development included £400,000 towards improved bus services and £350,00 towards the realisation of a Travel Plan, which was approved under Section 106 of the Town & Country Planning Act. This set a target of a 5% reduction in single occupancy cars for staff. In the first year of assessment, 2004-5 a figure of 2% was achieved which is ahead of target.

Works are also taking place for the provision of key worker accommodation. Further works on-site in 2006 were enabling works for the PFI construction but these are of a relatively modest scale.

6.4 The Broomfield Hospital PFI

The PFI initiative would see the provision of major regional scale facilities including cardiac care and neo-natal facilities. Currently this is also proposed to include a new Accident and Emergency department; new women's and children's department; enlarged and consolidated outpatient facilities and improved radiology facilities including 2 CT and 2 MRI scanners. Implementation of this development would result in a doubling of staffing levels from 3300 (including those currently at St Johns) to 6000-6500 after completion of the PFI.

In association with these proposals a Transport Assessment was produced by Boreham Consulting Engineers in 2004. The proposals were related to proposals for a limited increase in car parking in the form of a decked parking area. The total increase in parking amounted to 1150 spaces which were allocated as 825 for the main hospital site, 175 for a new private hospital site and 150 spaces for the key worker residential units. This level of car parking was largely based on a projection of existing staff to car parking ratios, projected forward for the anticipated staffing levels for the PFI. It was perceived to be in line with experience elsewhere, particularly where travel plans have had more time to mature than is currently the case at Broomfield Hospital. It is also to be expected that continuing changes in clinical practice will affect working hours and working days in a way that will probably reduce the peak demand hours for travel, whilst not necessarily reducing the overall rate of travel.

In order to accommodate the predicted changes in traffic flows, minor junction improvements were proposed at the following junctions:

- Sheepcotes Roundabout widening of b1008 approach
- B1008/Hospital Approach widening of entries

- B108/Valley Bridge changes to kerbs & islands
- B1008/Patcjhing Hall Lane changes to lines and signal timings

In addition, further contributions of 250,000 were secured for rolling forward the Travel Plan for period of a further two years.

Currently the PFI proposals have been under review as part of announced changes that the Department of Health was making to the process of procuring capital investment projects across the NHS. It is expected that a decision would be announced in early 2007.

6.5 Current operational issues at Broomfield Hospital

6.5.1 *Parking*

Staff parking within the hospital grounds is free and administered by permit. Visitor parking is though charged at the following rates:

- 0-1 hour £1.00
- 1-4 hours £2.50
- 4-8 hours £3.50
- 8-24 hours £5.00

Weekly parking tickets are available at a reduced rate.

Currently there are, in overall terms, just sufficient car parking spaces provided for current needs with the result that the existing staff and visitor parking is therefore fully utilised throughout most of the day.

Despite there being sufficient car parking spaces overall, some of the spaces are remotely and inconveniently located which can lead to staff parking in some surrounding streets purely for convenience. The numbers currently doing this are considered to be small.

There is also an identified shortfall in parking spaces for the Ambulance Service which operationally is a separate entity and not under the influence of MEHT.

The spillover from Ambulance Service and MEHT staff onto the surrounding streets sometimes given rise to some complaints from local residents.

6.5.2 *Traffic patterns*

The health service is subject to constant change and improvements in medical and clinical practice. It is likely that these will impact also upon working patterns and even working days. While such changes are not likely to affect overall travel demand, either positively or negatively, they may act to diffuse the current high peak demands which occur in the morning and the evening when shifts change.

7 Broomfield Hospital and Accessibility Issues

7.1 Background

Broomfield Hospital was originally constructed as an isolation hospital for TB patients and opened in 1940. Such facilities built at that time were deliberately located away from areas of population in open countryside where bed rest, fresh air and good food were all part of the therapy. In fact much of the produce used was grown on the hospital farm within the site. With the decline of TB during the 50s and 60s there was a change in emphasis to acute general care and by 1984 Accident and Emergency Services were also provided.

Major refurbishment work in the 1980s and significant extensions during the 1990s resulted in a 50% increase in clinical space. At the same time the extension of Chelmsford has resulted in the closing of the gap between the Hospital and the urban area of the town with the result that it now sits on the northern edge of the built up area. However it remains served by only a single access, known as Hospital Approach, which joins with Broomfield Road just to the north of Broomfield village.

Efforts are being made to reduce the impact of the private vehicle at the Hospital and recent development has been tied to a Travel Plan which forms part of an agreement under Section 106 of the Town & Country Planning Act. The aim of this Travel Plan is to achieve reductions in vehicular traffic by the promotion of car sharing and the use of alternative modes of transport. Progress is being made in these aspirations but the nature of work in the healthcare sector such as anti-social hours and shift working is always likely to mean a high level of car demand for personal transport.

The purpose of undertaking an accessibility analysis was therefore to assess the ease comparative ease of reaching the hospital by both public and private transport and to relate this measure of access to need and demand

7.2 Methodology

In transport planning, accessibility can have a range of meanings, particularly when applied to public transport. In the context of Broomfield Hospital this has been taken to include all aspects of the journey from end to end, including walk time, waiting time and transfer penalties for change of transport mode. Major roads and rail and bus routes have been added for all areas of the County.

The method used is based on Omnitrans[®] software which is a multi-modal modelling approach. The area of analysis covers the whole of the County which is split into

land use zones. These zones are based upon sub-divisions of census wards in the Chelmsford urban area and census wards and local authority areas for the rest of the County.

7.3 Patient Origins

In total more than 300,000 patient visits were analysed for the year 2005. It is interesting to note that the areas from which patients are drawn and the plots below show the relative visitation rates for each of the zones considered.

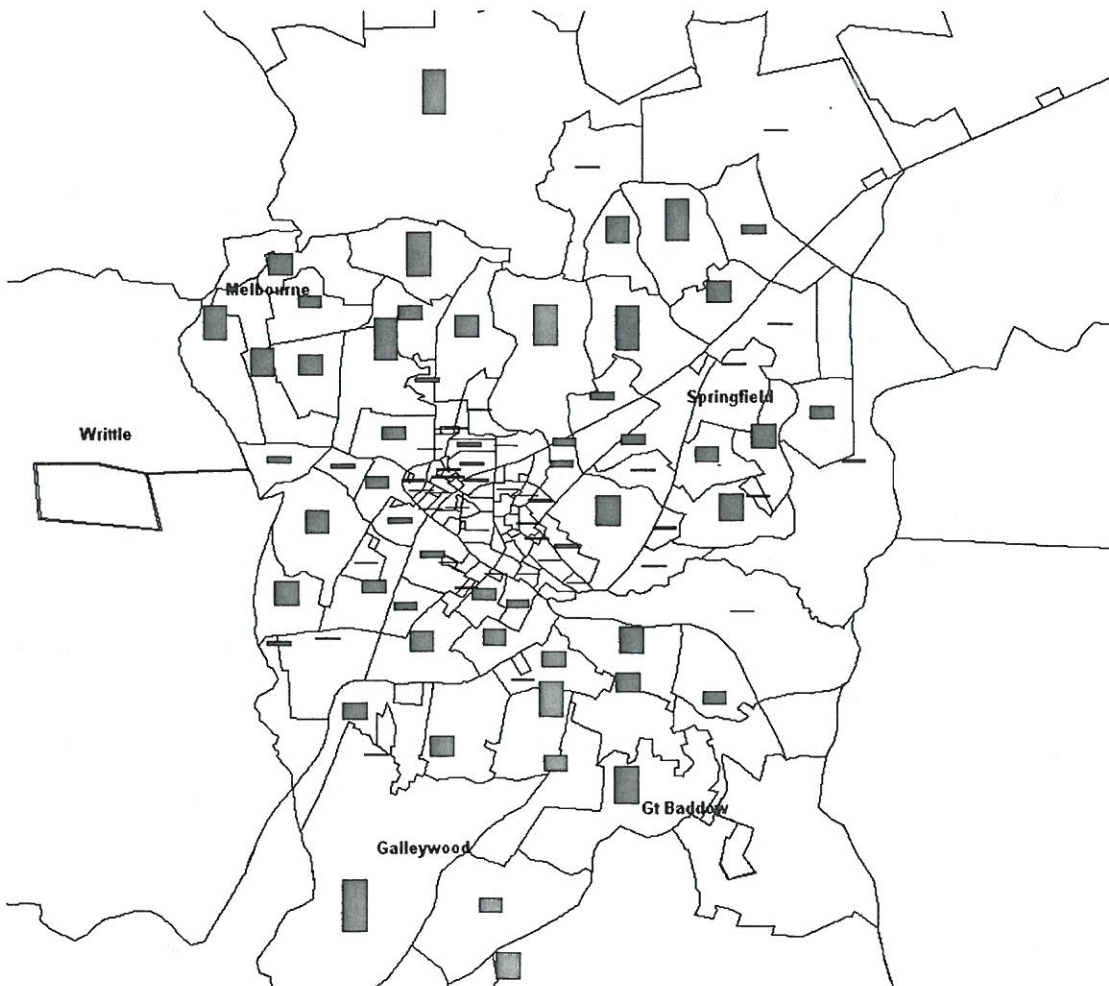


Figure 2 Patient home locations Chelmsford urban area

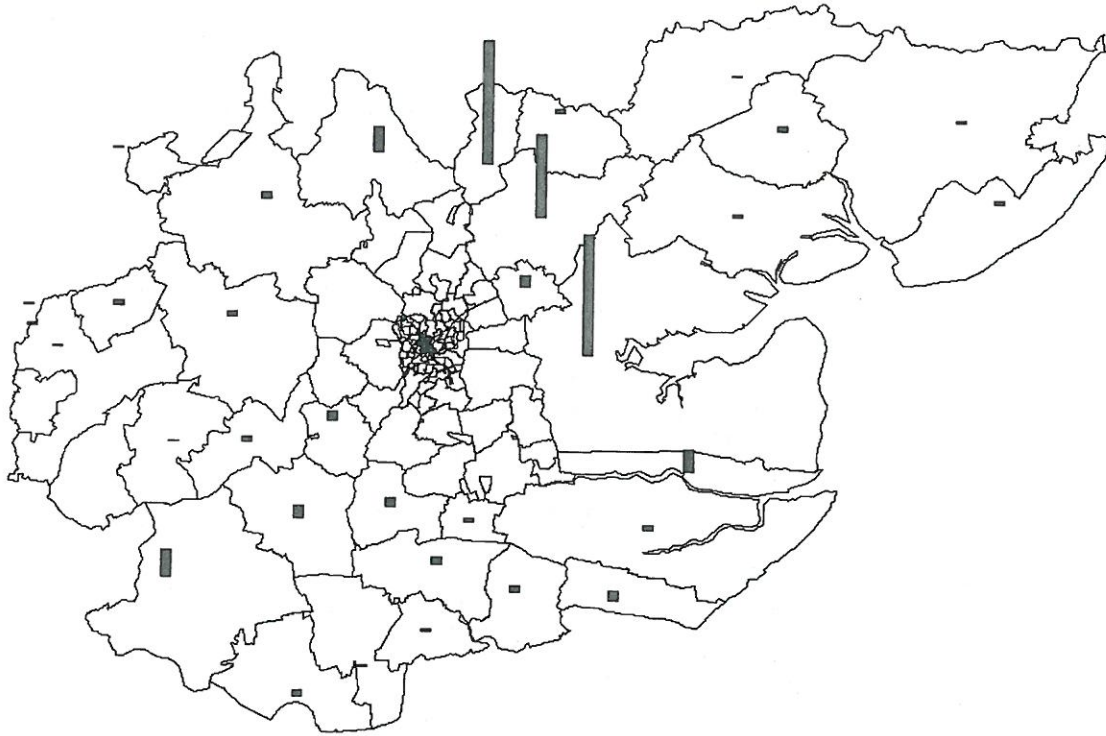


Figure 3 Patient home locations for the rest of Essex

Clearly, the zone sizes and populations for each of the zones considered varies widely so it is perhaps more interesting to consider a patient visitation rate in terms of trips per household.

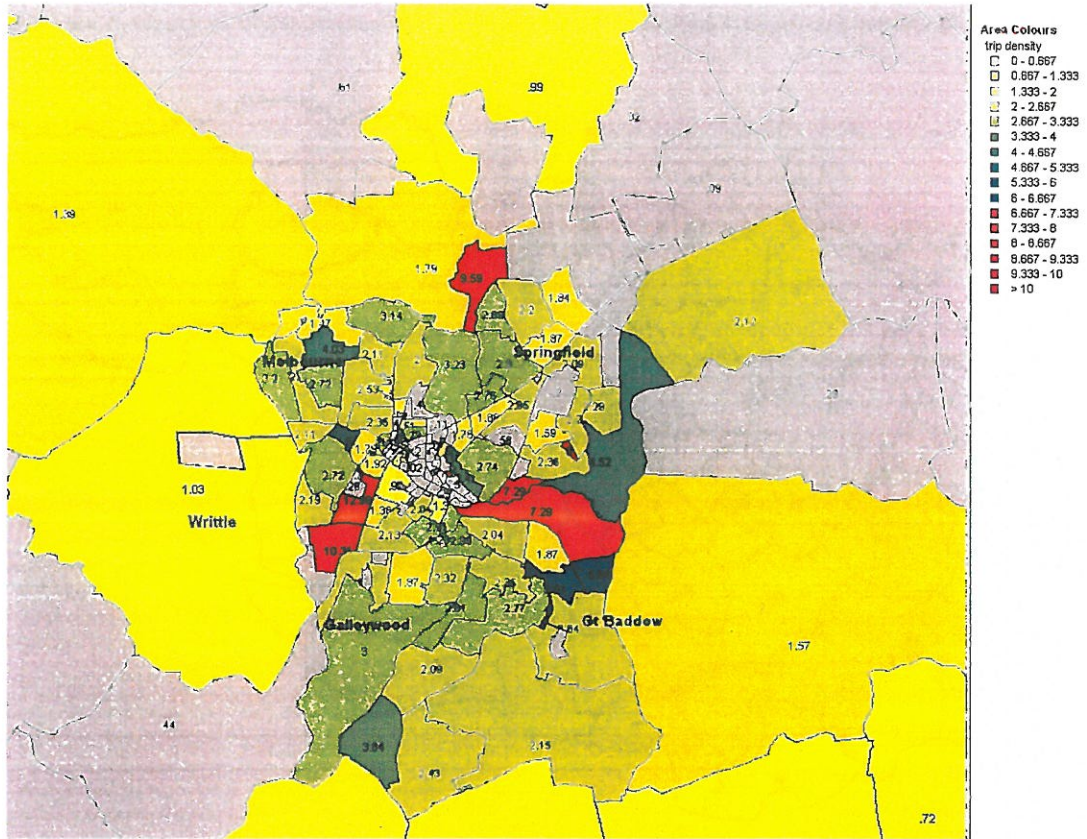


Figure 4 Patient visitation rate in trips per household Chelmsford urban area

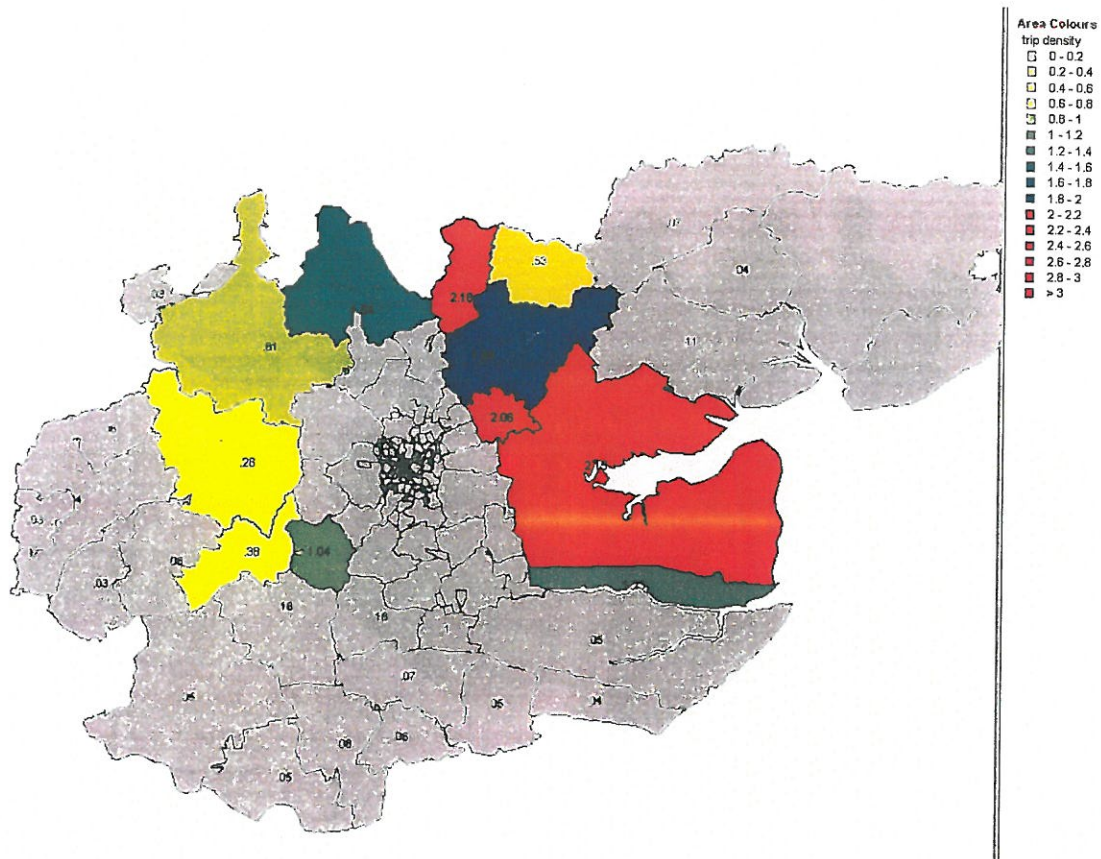


Figure 5 Patient visitation rates in trips per household the rest of Essex

It is clear from the previous figures that the catchment for patients is primarily mid-Essex as would be expected but that there are also significant numbers of patients visiting from the south of the County.

7.4 Travel times to Broomfield Hospital

Having established the catchment it is important to then see how this demand is matched by the ability to travel easily to the hospital in terms of accessibility. Most important is to compare the ease of access by both public and private transport to ensure that patients have a viable choice and are encouraged to visit by public transport wherever possible.

Accessibility has been worked out on the basis of travel time to give a direct correlation between the alternatives of public and private transport. The travel times are shown below for both public and private transport modes.

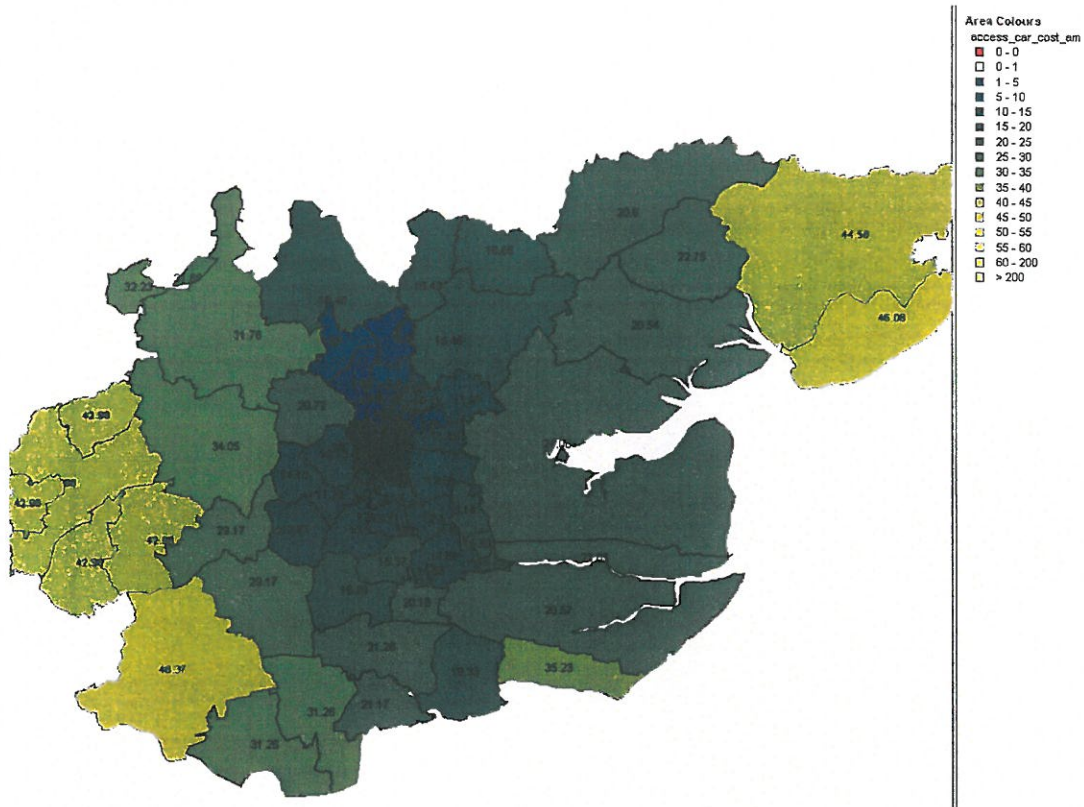


Figure 6 Car travel times to Broomfield Hospital (in minutes)

For private transport the cost of travel, calculated in minutes, correlates almost exactly with the distance of travel since network speeds can be assumed to be pretty uniform. However there is a pattern of shorter journey times within the A12 corridor. The rural areas in the south-west of the County show up with high journey costs due to the mainly rural nature of the roads in that area.

The picture below shows the same information for public transport. It should be borne in mind when interpreting this figure that the areas shown as pale orange in fact have no viable public services for access to Broomfield Hospital. It can be seen that for public transport the times of travel are not in proportion to the distance from the Hospital and the effects of the availability of public transport services in specific corridors are quite marked leading to very marked differences in the times for travel.

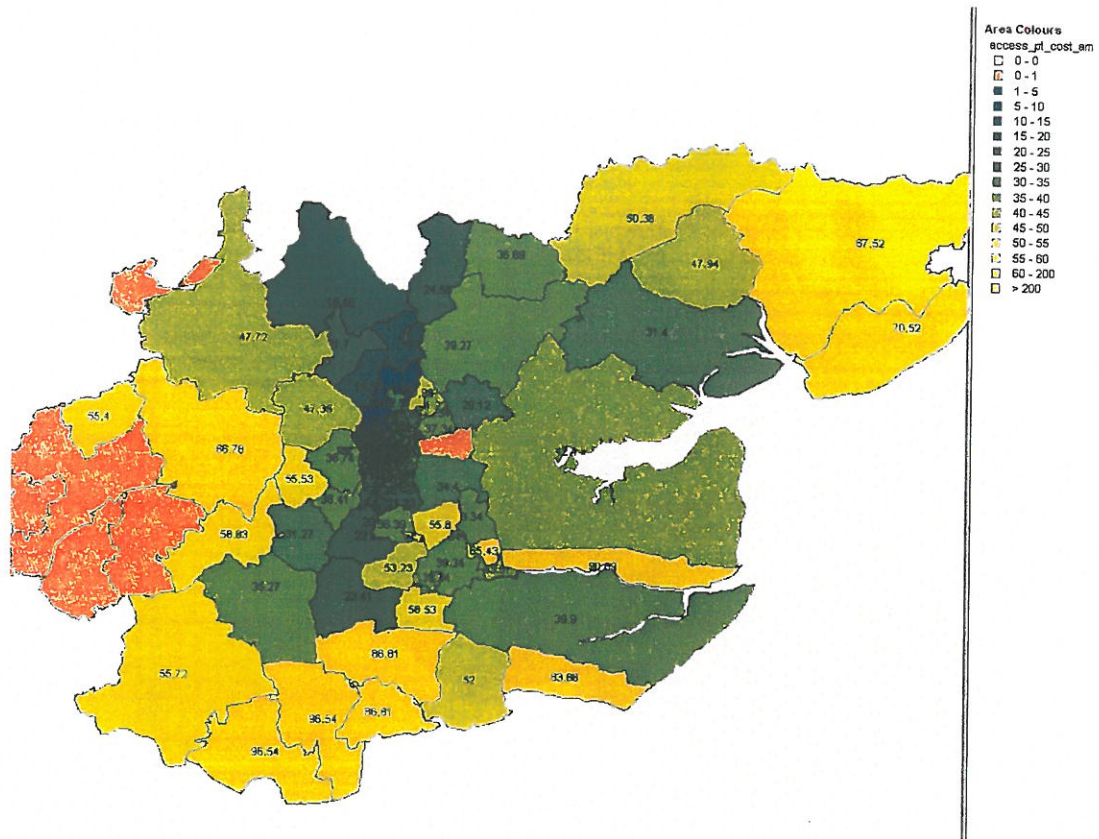


Figure 7 Public transport travel times to Broomfield Hospital (in minutes)

Of particular interest is the difference between car and public transport as it is this factor that affects people's choice if given the option to choose between modes of travel. These are shown in the figure below.

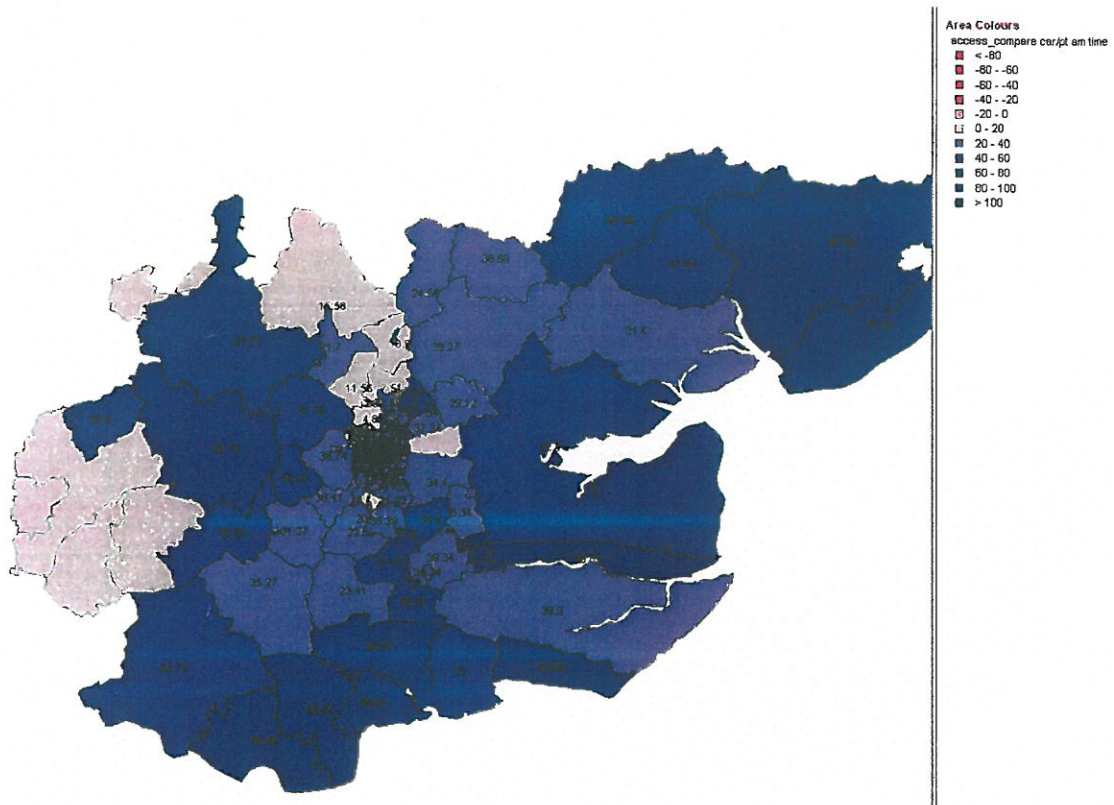


Figure 8 Difference in travel times between public and private transport modes to Broomfield Hospital

It is encouraging that for major parts of the catchments, such as the corridor through to Braintree to the north of the Hospital the time differences are very small. However for other areas, such the Rodings and the Ongar area to the west of the Hospital the time differences are quite significant with the car providing much quicker journey times. It is also noticeable that the area including Maldon and The Dengie Peninsular, which provides a large proportion of the patients from outside the Chelmsford area, also shows journey times which favour of car significantly.

7.5 Accessibility to Broomfield Hospital

It is important therefore that accessibility is related to the need to travel since poor accessibility is more acceptable for an area where there is little demand but much less so where there is high demand. The way of balancing these two elements is through indexing of the demand and accessibility. The measure used in this instance is known a Hansen index and can be defined as:

$$W(A^k, R_i^s, s)_i = R_i^s \times \sum_{j=1}^{selzones} A_j^k \times \exp(-\lambda^s c_{ij}^s)$$

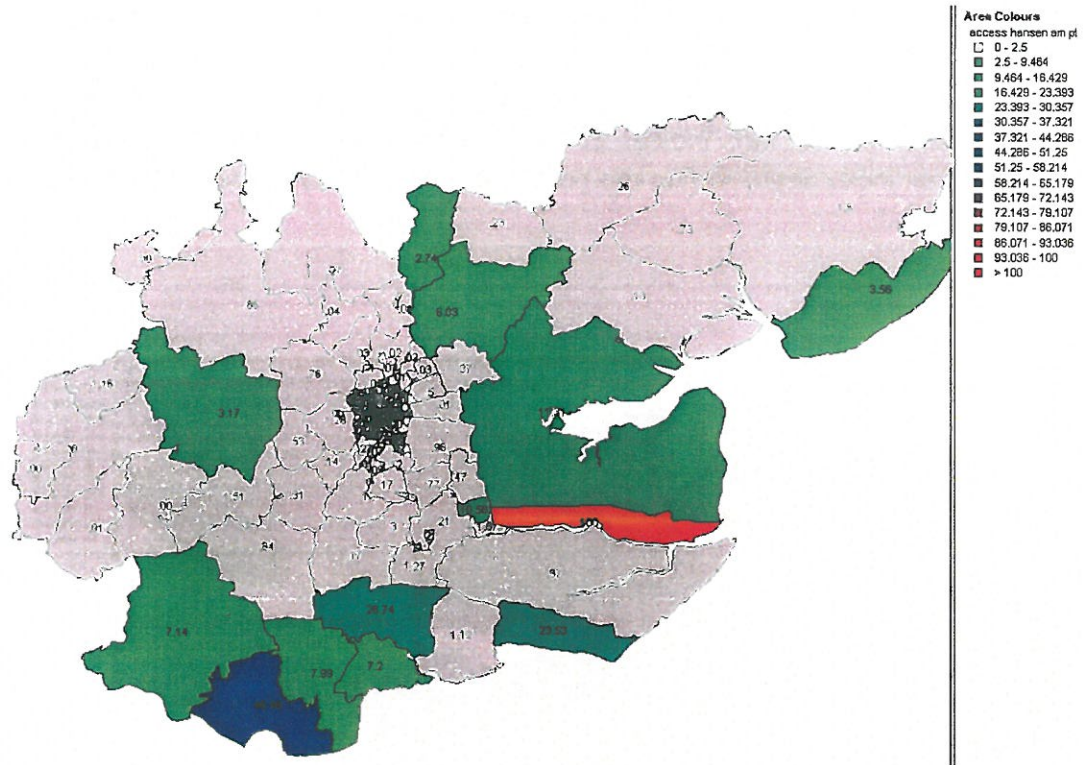


Figure 10 Index of accessibility by public transport for Broomfield Hospital

In conclusion, as an important health facility, Broomfield Hospital has a wide catchment in terms of both staff and patient trips employing 3000 staff and attracts over 300,000 patients trips in a year. An analysis of this demand in conjunction with the ease of travel to the Hospital has demonstrated that for many key areas it is considerably easier to gain access by car than by public transport. This is likely to perpetuate the high demand for access by car to the hospital as the size of its facilities increase.