Changes in Guilford's Central Business District from 1968 to 2002

Aim

The changes of many aspects of a CBD from the 1960s to the beginning of the 21st century had been immense, the changes nevertheless is an important feature of human geography that needs to be carefully studied. In order to achieve my aim I will have to identify the changes in land use from 1968-2002 in the CBD of Guildford and also compare the changes that had been made over the time. I will locate the areas with high and low pedestrian counts, and also the areas of high and low land value, both of which would give me a better overview of the CBD area. It will be equally important to identify zones of recent assimilation and discard to identify the changes. An investigation on the future changes of the CBD of Guildford would also be helpful to reach a higher degree of the understanding of the CBD and to explain the changes as our world today is advancing at an extraordinary pace in recent decays in many areas that already have, and definitely will cause great impacts on our lives.

Guildford

The understanding of Guildford's economical structure would help us to explain the changes of the CBD since structure of any CBD is largely affected by the local economy. Statistics has shown that the economy of Guildford is relatively good compared to other cities of similar size, Guildford has an area of 104 squared miles, the population stands at 129,500, and out of whom 61,420 are economically active, the unemployment rate is at 0.7%. The population density is 4.5 people per hectare and the mean income (Surrey) is £23,000. Within the industrial sector, there are about 5020 businesses in Guildford Borough, the distribution of the working force shows that 81.7% of employees are based in the service sector, 9.5% of employees are based in the manufacturing sector, 4.4% are based in the construction sector, and another 4.4% are based in the primary industry. Guildford had already established itself as an important city in surrey, many major transportation links passes Guildford such as A3, the large railway station exemplify that Guildford has already became an important junction to link up the railway systems in the area. (Details see map illustrating the transportation links of Guildford)

Land Use

Due to the wealth and fast development of the western world in the 20th century, in the more economically developed UK, commercial and financial activities often dominate the land use in the CBD. Because of the outstanding qualities of the accessibility of the CBD area, large chain stores, department stores and stores of specialist good often choose the site where people can access easily e.g. by busses, trains or cars. Furthermore the companies that chose its site in the CBD often have higher turnover rates so that they are economically able to rent the property and benefit from the high visit rates. Many stores of similar purposes such as clothes stores are often close together in the CBD to increase their sell by "comparison shopping" or in another words impulse buying because in such way the consumers are encourages to visit a certain site, it is often not strange to see certain shops of the same function are located closely in the CBD. The CBD is in many cases the financial centre, also caused by the attraction of the good accessibility and transport facilities. Large car parks are essential for the employees when they go to work, vast transport network and equipment gave

the accessibility to others to reach the companies or other financial institutes for closer contact. The facts that the essential bodies of finance and others such as law firms are in the area close together also facilitate the running of the businesses.

Hypotheses

In the CBD the areas of high pedestrian flow are often located at the inner core of the CBD where the large department, chain store and businesses are located. However within the CBD the pedestrian flow may vary since many of the high street areas have banned vehicle in recent years and there for will probably have more people walking pass. The development of the country would possibly affected people in the CBD, e.g. the percentage of car ownership had increased since 1968 and in the modern days that more people could have easier access to the commercial activities in a CBD. Government policies also affected more the commercial and financial activities, when the CBD had became far to crowded, many companies, retailers decided to move out of the city in the 1980s and early 1990s. However the decentralization was discouraged by the government and the pattern has changed once again. In recent years the shop floor space in the CBD is 63%, where in the 1980s it was 90%. The commercial activities are so important is because of the high demands from the consumers as shopping became a leisure activity in the 1970s, and the shopping malls and supermarkets out side the CBD with large car park suit the demand and the pressure is on the CBD, in another word since the malls provide every thing less people will go to the CBD to shop which would lower the pedestrian counts. Even the consumers are moving away, there is no doubt that the CBD has the highest land value in the city, and in the UK there is also no doubt about the pattern of increasing land values, especially the fast growth rate in the south where Guildford is located. More importantly the demands of the consumers had dramatically changed that the pattern of shop can not be the same for 1968 and 2002; in fact more people must rely on fast developing information technology that was not present in 1968, with the clock frequencies of the processor doubling every 18 months, not only the prospect in the future is unimaginative, the impact of which had in the past 20 years that I am able to look at, had enabled chain stores to develop, the electrical goods stores to increase… The changing of the pattern in the world of retails would also impact the distribution of different categories of shops in a modern CBD; the independent retailers would be severely weak when competing with the richer chain stores and transactional companies and there for would possibly be less as a percentage of all the shops with in the set boundary, the number of chain stores would increase as they are more profitable due to their larger share of the market. Although the pattern stated had been the case in many cities across the globe, but in the context of Guildford's special case, a few alternations have to be made. The speciality of Guildford's CBD, that is its advantage or great variation in retailing, would occupy most of the CBD area thus other tertiary activities would be relocated else were. The reality is that in 1995 Guildford was ranked 25th out of 95 shopping centres in the country based on the number of multiple retailers present; more recently the Experian Retail Centre Ranking placed Guild ford in the top 20 of 1100 shopping centres surveyed across the country, based on retail floor space, multiple floor space, number of multiple outlets, number of comparison outlets, vacant floor space, number of service/miscellaneous outlets and number of key attractors.

The peak land value intersection (PLVI) within the CBD would be around the highly dense commercial and financial activities where in Guildford they are very likely to be around the regions of High Street and North Street, I think that the pattern of land value may be the same in 1968. However within the CBD where space is limited, companies sometimes move to areas around the CBD, such as the newly formed research park where it is equally accessible. I think that the possible site for the assimilation of Guildford's CBD is on the west of which where the Fairy shopping centre and cinema had been build on, other wise the CBD

is surrounded buy old Victorian houses and narrow streets where development is difficult. In the future I think that the development will still be on the west of the CBD where the recent assimilation is, but thinking into long term development, the regeneration may be needed if further expansion is needed.

It is important, though before the data has been collected and analysed, to identify the CBD of Guildford on the maps of both times 1968 and 2002. The CBD had been defined by James H. Johnson (Urban Geography An Introductory Analysis 1972) as the area of a city where the retailing of goods and services and the performance of various office activities for private profit are completely dominant. In Guildford's case, such a small British town would not have a clear boundary of the CBD area: a zone rather than a line that distinguishes the CBD from the wholesale light manufacturing zone and the low residential zone when applying Burgess concentric model to Guildford. The following method can be used to delimitate the internal structure of the CBD at this early stage; the restricted parking zones can be identified and will help to identify the CBD area because usually short stay parking is permitted in the CBD along with many other restrictions. The central business index (CBI) can also be looked at, including the central business height index (CBHI) and the central business intensity index (CBII), alongside with the rate index (RI) thus a clear picture can be seen about the core area of the city. However the lack of information such as the flour spaces at this stage would cause a severe problem when applying such methods.

Data collection:

In order to identify the changes of the CBD of Guildford necessary data of some sort are needed, the ideal data would be rateable values, pedestrian count of the CBD, map identifying the shops and the quality decay index (QDI) scores of different areas. Firstly the pedestrian count, indicating which passages are most frequently visited can illustrate in some way the changes. In the core of the CBD of Guildford, much more of a commercial centre with retailing than a centre of business or industries, and the most frequently visited sites, shown by the isopleths map of pedestrian counts, would be the ones of the needs of the population, which the location and category of shops may well be dependent on. Once we are reassured of the need today, generally knowing the need of the people in 1968 the changes can be explained by looking at those patterns.

The collection of the data of pedestrian counts had been performed between 11.00pm.and 12.00pm Monday the 30th of September 2002, a day of no particular significance to the majority of the population, and a time when no special events such as morning rush hour or lunch break took place. The work of counting the pedestrian from both directions had been completed by several groups who had been positioned in different areas of the CBD, covering most of the major pathways. In order to count the pedestrian, one member of the group would have counted pedestrians walking to wards one direction and the other member would have done the same but only differed in counting the people who went the opposite direction.

As I have mentioned above, the QDI score also needs to be inscribed, the significance of the QDI is that because the social and environmental factors had been taken into account, it is also possible to distinguish the change in the social front which often reflects many other issues related to the economy. A clean, civilized society often reflects on its wealth, because the money made high quality education available. It is a fact that on national scale people had became wealthier since the 60s, thus the pattern in the towns and cities must have changed to enable this but to take place and they must also have been impacted by it. In this case more areas would receive lower QDIs as more money can be put onto improvement plans by the councils as well as by the property owners themselves once more money is available. Areas had been divided into squares on the maps and a QDI score was given for each square

according to the guideline below. Again this had been done in groups with each group covering one or two areas.

QDI	Description
1	Excellent quality of building; high quality window display; makes people want to go in; welcoming, immaculate; may be evidence pf improvements
4	Good quality of building; good window display; no peeling pain; positive image of building
7	Some signs of deterioration; some paint peeling; some graffiti; poor window display; rundown; uninviting; litter; weeds
10	Derelict; boarded up; graffiti clearly present; paint only in places; windows broken; very uninviting

The results of the collected data of the 20 areas are presented on table 1.

Analysis:

During the process of producing this piece of coursework I have found that the data of 1968 is limited, i.e. the rateable value of 1968… however it is still possible to draw a conclusion with the results available. During the course of the process of identifying and explaining the changes of Guildford's CBD, I have found that the land use maps are the most useful because the land use map was the only 1968 data available, thus I shall start analysing with the land use maps.

First we must note that the land use maps of 1968 and 2002 covers different areas of CBD, thus made difficult the comparison. But the CBD had been expanding and transitioning for the past decay, it is already difficult to identify the boundary of the CBD and to compare the shops within the set area. Because the CBD had changed its location, the comparisons of the non-CBD area will have no significant to suite the aim of this project. The data of 1968 goad map will be taken from 28-168 High Street, 35-85 North Street, and 1-25 North Street, and all the data on 2002 land use map will be taken simply because the expansion of CBD area. The figures of different land use are presented on table 4 and graph 4. From the bar graph it is possible to see the increase in the majority of the sectors, especially in chain stores, restaurants/café/and pubs and housing, because different areas had been looked at and the total number of shops was increased it is then difficult to judge the level of significance between these sets of values. We must ensure there is a 'real difference' between the two sets of frequencies, i.e. the number of shops of 2002 in each category did not increase because the total number of shops had increased. To see if there is significance between the figures of 1968 and 2002, a test must be implied to which. The suitable test would be the χ^2 test since the data is nominal. First we must establish the null hypothesis (H_0): there is no significance between the values of 1968 and 2002, and the alternative hypothesis (H_1) there is in fact significance between the two figures. In order to reach a high level of accuracy, I will only reject my hypothesis at 0.01 significance level. The results that I have obtained enables me to reject my null hypothesis at 0.01 significance level with great confidence, and It is now clear that even the CBD has transformed it is still possible to compared the land uses.

By looking at graph 4, the significance of which has already been approved, the most dramatic increase lay in the field of chain stores. This indeed is agreed with my hypothesis that the existence of chain stores would mostly be located in the CBD because there high turnover rates in able to support the high rent fees, the fundamental difference between the comparison shops i.e. the chain stores found in the CBD and the convenient shops is that they

do not sell everyday goods but high-order goods that needs a large threshold population, this is why the shops selling comparison goods can be benefited from the superb accessibility of the CBD. What also matched my prediction is that the number of independent food retailers had decreased, most probably due to the domination of the fast food markets by 3 or 4 major companies, yet no signs decline has shown in other independent retailing from graph 4 along, but when comparing graph 3 with graph 2 it is very clear that the percentage of the independent retailers (cloth and others) had declined considerably, from 12% and 27% to only 5% and 6%. The explanation to the problem that the difference is not shown on graph 4 is that the frequency of the independent retailers have increased simply because the CBD had expanded and the probability for the independent retailers to occur would be higher which could have cancelled out the effect of the decline on the graph.

What was unexpected though, was the increase in the number of restaurants in both the frequency table and the pie charts. Although this I have not specifically predicted in my hypothesis, but the increase of the restaurants in both number and percentage does follow the trend in the development in the tertiary activities; partly associated with the increase standard of living, partly with the increasing number of clerical workers to service modern society. What had also greatly impacted our life style in the late 20th century was the rapid development in the high-tech goods that are powered by electricity, the concept of which I have already explained in my hypothesis which turns out be true as the number of electronic shops had doubled.

The sectors that had shown signs of decline were the number of supermarkets and vacant buildings. Supermarkets, like department stores sells a variety of goods, and from other source of statistics we already know that today we are much wealthier than we were 34 years ago in 1968 and thus a trend of increase should have shown. The reality is that, as previously mentioned, the decentralization of such retails had lead to the transition to other areas outside the CBD where they can be benefited from a variety of aspects such as more flour space. The trend in the vertical development of the CBD, even though it is more commonly occurred in the USA rather than small British town, had increased the flour space of many shops, the results shown on the bar graph would be ultimate outcome of the two factors stated above. The explanation for the decrease of the vacant building would simply be the more efficient use of the land space of the CBD because the superb accessibility offers companies, especially retailers high turnover rates.

What was also unexpected, and did not match the common features of the CBD was the lack of offices with in the CBD. This did, cause somewhat of confusion, but I soon realized that the majority of the firms are indeed located in the Surrey research park, where many high tech firms e.g. Avaya, bullfrog and Erickson, the R&D of Surrey University is one of it attraction.

From the location of goad map 1968, an approximate site of discard at the time can identified and it would be interesting to compare the developments in 1968 with the recent situation. The method of centre of gravity and index of dispersion will be applied to the vacant buildings of 1968, which could give a rough idea of the area that was not favoured by people at the time, unsurprisingly, the location of the centre of gravity of the vacant buildings in 1968 is very much similar to the location of centre of gravity of buildings of non-CBD usage such as churches, libraries and museums. The index of dispersion however would not be much use on their own, but when the values of the two, both in centimetres, are applied to the maps, a generalized initiative about the areas that is covered by the radius of the values of the index of dispersion, which is the average distance between the centre of gravity and each points on the map. Although the coverage of the maps are indeed very limited, and many other problems has been caused by the poor quality of data, the centre of gravity in fact isn't placed at the centre of the map shows that the distribution of neither the vacant land uses in

1968 nor the non-CBD land uses in 2002 are randomly located. They have, regardless of the possible caused of anomalies, directed us to the similar location which is on the west side, on the part of the CBD of higher altitude. The possible cause for such occurrence in 2002 could be that the land values of such area is at the lower end of the whole range of land values in the CBD, thus such non-CBD land use, nevertheless non-profit making also, are located in such areas due to the lack of funding. It would therefore be logical to say that such area where non-CBD land uses are clearly present is perhaps the zones of discard. One other way to identify such areas would be to look at the quality decay index of areas as they show the environment of one area, where in a zone of assimilation the quality decay index would be at the lowest, due to the poor maintenance of the buildings as the owners would be financially troubled to do so. Consequently businesses would re-establish their site to seek higher profit, and thus the area will have less pedestrian as the retailers and other services has migrated.

The recent development schemes are indeed established in the bottom of the hill of Guildford, the Onslowhouse (see photo) is a new construction of offices is located on Onslow Street which is at the recent zone of assimilation- the bottom of the hill. Many building around the area actually did not exist in the goad map of 1968, although the area is present in the map, such developments in the area are probably build recently as a result of the redevelopment of the area, and also possibly affected by the larger number of pedestrian at the bottom of the hill. The geographical features of one area, e.g. its latitude can affect the pedestrian of the area because people normally would not make the effort to walk up the hill when their intentions can be fulfilled without doing so. The zone of discard, is as I have already stated above, is at the top of the hill.

A mix use scheme at a site known as St. Domenic Square had been granted, the existing shopping area will expand since with in the new development scheme. Although not very much about the scheme is learn by me, but it is almost predictable that it will stretch the and expand the prime shopping area, leading to the developments in other areas such as North Street.

The link between the QDI score and pedestrian count is shown on graph 5, and its correlation is proved by the method of spearman's rank where the null hypothesis is rejected at 0.01 significance level as the value of spearman's rank is greater than the critical value of 19 degrees of freedom. From the data of the isopleths map of the rateable values, the agreement of the zone of discard can also be reached with the isopleths map of pedestrian count, where the correlation is once again proven at 0.01 significance level by using spearman's rank (See table 2 and graph 1). Speaking from a more logical rather than a statistical approach, these values are in fact affected by each other; an area of high QDI score would be less attractive to the pedestrian since the streets are dirty and the shops' appearance that does not meet up with the standards of other buildings in the CBD would eliminate the number of visitor to the area. Consequently, if an area is not anymore an attraction to people, the land values would fall, as competition for one area is little. Since it is the rateable value that is shown on the graph, the understanding of such occurrence could be interpreted as in order to determine the rateable value of one area, it must be affordable to the owners. For example one retailer or co-corporation would not be located on a piece of land where the rateable value is extremely high but the turn over rate once situated could not meet the expense of which.

Furthermore, the degree of restriction of parking within the CBD can also indicate the internal structure of the CBD, but influenced by the inspiration of the local council to a certain degree. In High Street where the highest rateable value and pedestrian count are located, the parking restriction is far greater than the restrictions in its neighbour-North Street. Traffic is only allowed to enter the central section of High Street in the weekdays, and their permitted time to park is limited to one hour when goods can be unloaded. The control in

North Street is more flexible, parking spaces are provided and traffic only unrestricted to a certain degree. It is, though, not uncommon in modern planning strategies to limit the congestion of the CBD by using varies methods, double yellow line frequently occurs in CBD to solve the problems of congestion, thus the more restrictions, the more prosperous the place is, i.e. the PLVI. The degree of prosperity of High Street is conformed can be conformed by the isopleths maps of pedestrian count and land value.

After studied the data, a clearer trend can be seen, the outline of which indeed matches my prediction, whilst some did not due to the special nature of the CBD of Guildford , e.g. I have predicted the intense use of land in office buildings etc. in 2002 but the reality turned out to be that there are very few of which visible on the map, because Guildford is, more or less a town of intense commercial activities. (Facts see end part of prediction)

Evaluation:

It was difficult to reach a conclusion since many of the ideal data was unavailable due to varies reason, in addition to the errors that could have occurred in the collecting and obtaining of the data.

The possibility of the occurrences of anomalies can be traced right back to the collection of data, not mentioning the severe limitations of the secondary data itself. The primary data were collected between 11.00 and 12.00, which would not represent the destination of the pedestrians since the intention of whom varies very much at different times of the day and different days of a week. The use of pedestrian count to analyse the internal structure of the CBD is very help to indicate the location of PLVI, the relationship of which has already been explored in the analysis. In this case the restaurant for instance, which would be a popular site at lunch times could, according to my analysis have a high rateable value, but this is not the case according to my data. A more accurate interpretation would be that the overall pedestrian count would have a stronger positive correlation between the rateable values. The data that I have collected clearly could not represent the overall pedestrian count of the day and the absence of such factor could have affected the accuracy of my data to quite some degree.

Also during the collection of the data, the land uses had to be categorised into varies types, during the process of which, because some land uses can be classify into two or more categories, not the same judgement can be made by all those who took part in the investigation. The same problem is applied to the scoring of the QDI, when not all levels have been given a description, the judgement is totally dependent on one's own preferences and can not be uniform, and causing the results to be anomalous. The three dimensional growth of the modern CBD can also cause inconvenience when trying to analyse which; in comparison with the buildings in 1968, land uses in 2002, if not all of which, would have grown vertically, which would increase the difficulty when trying to present such data on the maps. Within the category of land uses, department store are not present, but yet the multi storage and functional department stores, such as the Fairy Centre and the White Lion Walk contains large number of floor spaces of varies purposes, again not accurately and entirely included in the maps. Although I have come up with a conclusion about the changes in the land uses in the CBD of Guildford, the reality is that my conclusion could contain some degrees of inaccuracy.

Not only the primary data had added disadvantages to my analysis, the secondary data also had its own limitations. From the data given, it was not possible to draw a boundary to the CDB, as the possible methods that are within my capabilities (see early part of the assay) are not applicable. In addition, I do not agree that the maps had shown the CBD area fully, from experience as a frequent visitor to Guildford, rather than statistical mean, I feel that there are more to areas that matches the descriptions of a stereotypical CBD that are excluded

from the map, or at least the 2002 map, which made the investigation almost lost its principle. Even though the boundary of the CDB area, including one of Guildford, are very vague, but the results that we have obtained will lose its significance to a certain degree if the only part of the CBD had been looked at, rather than the whole of the CBD. Due to the lack of geographical and statistical data, to what degree have I miss-delimited the CBD I know not, nor do I know the degree of significance of my results.

But with the acknowledgements of a few more geographical data, such problem can be overcome. The knowledge of the floor spaces is vital in terms of analysing the internal structure of the CBD, studies of the CBD had been done by two US geographers, Murphy and Vance, who had devised a technique to delimit the three dimensional modern CBD, it is the central business index (CBI) which I have mentioned in the early parts. The in formation of floor space is imperative to calculate the central business height index (CBHI) and the central business intensity index (CBII), in this way, for each block in CBD, the height, since most of the modern CBD have high rose building, can be recognized; and the intensity of the CBD land use as a percentage of the total land use can be identified. The contrast of relative values from blocks to blocks can give a good indication of the boundary of the CBD.

One other benefit of the knowledge of floor spaces of the CBD is that the rate index (RI) can be obtained, which is obligate to indicate more applicable values of the rateable in the CBD. RI is able to allocate a average value, since the rateable value fluctuate with the floor space of one certain land use, by such mean can a more accurate results be obtained. In this investigation the rateable value of one divided square have been calculated by members of staff, but due to the nature of the value that it is an average of all shop within the square, the location of which is easier said than done. To facilitate the comparison with the pedestrian count isopleths map, the average rateable values had been positioned at the points where the data to pedestrian count had been collected. All the factors stated can well vary the location of the PLVI, that it will not be, nor should be where it is from the evidence of my results.

During the course of the investigation, I have also discovered that certain policies of the Guildford Borough Council to encourage certain types of development in High Street, which could very much affect the distribution of certain types of land uses. The council regard the prime shopping area as the High Street based on rental levels, pedestrian flow levels and vacancy rates of shops, financial services and food outlets are not encouraged in this area but are acceptable around the periphery. This could have affected some of my data, the pedestrian isopleths map for instance, because when the data was collected, most people would be in the prime shopping area, but by lunch time the number would dramatically decline as there are no restaurants in the prime shopping area. The discovery of this also denies my worries about the PLVI, because the establishment of the prime shopping area is around the PLVI, as it is based on the factors stated above.

More evidence such the one above can be very useful to support my result, especially the policies of the council over a period of time, such as ones of the regenerations of a certain area. As a matter of fact, I was informed about the occurrence of a floor in Guildford quite sometime ago, but there are no evidence supporting the possible refurnishing of the flooded area, most likely the bottom of the hill. If that had been the case, my assumption of the location of the zone of assimilation can be consolidated.

To fully analyse the internal structure of Guildford's CBD, it would help furthermore to look at the transition of each type of land use within the CBD, and to see if they tends to locate in the same area or randomly scattered in the CBD. In general, I think that my discoveries of the changes of Guildford's CBD from 1968 to 2002 are more or less accurate, supported by my data.

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