

GCSE Geography
Coursework
Investigation:
“What are the
characteristics of
Garstang’s functional
zones?”

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Introduction

In the project I have been assigned I will be studying the town of Garstang, and trying to discover “what are the characteristics of Garstang’s functional zones.” Garstang is situated between Lancaster and Preston and is thought to have originated as a settlement about 1,400 years ago. We can see the location on the map in more detail in **Figure 1**. At the time of the last population census (1991), the town’s population was 3,944. However, there have been several new property developments built since then, so the figure will no doubt be a little bit higher. In the project I will try to clearly define the functional zones of Garstang, and try to relate in a clear geographical manner.

Questions to be answered

- 1) What are the distinctive characteristics of the different functional zones found in the town of Garstang?
- 2) What are the main land uses of Garstang's CBD Core?
- 3) What are the main land uses of Garstang's CBD Frame?
- 4) In what ways do the land uses of Garstang's CBD Core and CBD Frame differ, and how can these differences be explained?
- 5) Does Garstang's pattern of functional zones relate to any of the traditional urban land use models?
- 6) What is the pattern of EQA scores across the town, and how does the pattern relate to the different functional zones found?
- 7) What is the town's pattern of Pedestrian Flow Measurements and of Traffic Flow Measurements, and how can the two patterns be related?
- 8) What are the main characteristics of the Green Lane West Industrial Estate, and why is it located where it is?
- 9) What are the factors that have defined the outer boundaries of Garstang's growth as a settlement?
- 10) How has the town been protected from flooding by the river Wyre?

Q1) What are the distinctive characteristics of the different functional zones found in the town of Garstang?

Data collection:

The main way we collected our data to discover the characteristics was by giving each site (**Figure 2**) an Environmental Quality Assessment(EQA) score, and creating an EQA table (**Figure 3**). We also went round the CBD Frame (**Figure 4**) and CBD Core (**Figure 5**) and named all the different services provided in the Core and Frame. The Traffic Flow Measurements (TFM) and the Pedestrian Flow Measurements (PFM), were also used to try and understand why these characteristics occurred. We chose to use these types of data collection, because they were the most effective in the short amount of time we had at our disposal.

Data Analysis:

We Looked at the EQA scores and applied the data we had found to create a diagram to show our findings. With the TFM we looked at cars in particular and we discovered some interesting information, which has been utilised to create a diagram that shows this accurately. We used the Pedestrian Flow Measurements and looked at a class mean. With the identification of the shops and services in the CBD Core and Frame, we could clearly assess what the most common use of the two zones.

Data Presentation:

With the data we had collected we were able to present the data in various ways. The EQA scores helped us to create a Housing Status Diagram (**Figure 6**), which shows us what the housing

pattern across the town of Garstang.. The Traffic Flow Measurements enabled us to create a Traffic Flow Routing Map-Cars Only (**Figure 7**). This shows the where most cars traffic is in the town of Garstang, and this could help to explain why the functional zones are present. The Pedestrian Flow Measurements helped us create a Pedestrian Flow Isopleth Map (**Figure 8**). It shows the highest and lowest pedestrians recordings in the town of Garstang, this obviously means we can clearly see where most people are in the town. The identification of the services in the CBD Core and Frame helped us to create a tally chart of the services provided in Garstang's CBD Core (**Figure 9**) and CBD Frame (**Figure 10**).

Conclusion:

The industrial zone in the town has a use of storage and is found here due to the cheap land and readily available space. It is also found here because of the goods it has on the premises, bulky noisy goods would not be appreciated in the CBD or in residential areas so they the industrial zone is placed here. Its main characteristics are low threshold goods, which are not important for day-to-day living. The CBD frame is mainly used for public amenities. These are services that the public use that aren't very expensive such as: car parks, libraries, phone boxes and doctors surgeries etc. They are situated in the Frame due to the high land values in the Core. The Core is mainly used for goods with high thresholds. They need a large sphere of influence because the land values are high in the Core, so the more customers a shop or service can attract (look at **Figure 7**) the less it has to worry about whether or not it can afford to pay the rent on the land (look at **Figure 8**). The main use of Garstang's functional zones is for residential purposes. Garstang's housing status can be split into five categories: upper class housing, upper middle class housing, lower middle class housing and lower class housing. These status boundaries have been drawn up thanks to the EQA table we have compiled (look at **Figure 3**). It shows how the different scores relate to the sites we have looked at (look at **Figure 2**) and we have scored them on certain criteria, such as:

typical type of property, state of repair of buildings, typical condition of cars, presence of litter, care of roads and pavements etc. We can see from **Figure 6** that the main type of housing found in Garstang is upper class housing which tells us that Garstang is very affluent. The rest of Garstang is used for recreational spaces farmland open spaces green belt land and flood plains.

Q2) What are the main land uses in Garstang's CBD Core?

Data Collection:

The main way we collected the data to answer this question, was to go round the CBD Core and name all the shops and services in the in the Core (**Figure 5**). We also took photographs of the Core to help us to explain what shops and service we had found.

Data Analysis:

With the CBD Core identification sheet (**Figure 5**) we were able to divide the shops and services in the CBD core, and segregate the services and shops into fifteen different land uses.

Data Presentation:

With the data we had collected in the CBD Core we were able to show a large assortment of information. The CBD Core identification sheet (**Figure 5**) highlighted the fifteen land uses found in Garstang's Core. We were then able to make a tally chart of the Core (**Figure 9**), which showed the distribution of land uses throughout Garstang's CBD Core. This helped us to see which was the most common shop or service in the Core. With the identification sheet we were able to create a map that showed the CBD Core and it highlighted the fifteen different land uses (**Figure 11**), and their locations in the Core.

Conclusion:

In the CBD Core Garstang's main uses of this area are for financial services, food and drink services and gifts, toys etc. The main reason for this is due to the wealth of the town. We can see from the Housing Status Map (**Figure 6**) that most people live in

the upper class and upper middle class housing. These people will be working in high-income jobs, because after they have bought the everyday necessities such as clothing, groceries and financial services; they will have money left over to spend on luxury goods. So we can see that these land uses are most common in the CBD of Garstang due to the affluence of the town. The reason why these services can be found there can explained by the Bid Rent Cone (**Figure 13**), which explains why these high-income services are found in the CBD Core, because the have to pay for the high land prices in the Core.

Q3) What are the main land uses of Garstang's CBD Frame?

Data Collection:

The main way we collected the data to answer this question, was to go round the CBD Frame and name all the shops and services in the in the Frame (**Figure 4**). We also took photographs of the Frame to help us to explain what shops and service we had found.

Data Analysis:

With the CBD Frame identification sheet (**Figure 4**) we were able to divide the shops and services in the CBD Frame, and segregate the services and shops into fifteen different land uses.

Data Presentation:

With the data we had collected in the CBD Frame we were able to show a large assortment of information. The CBD Frame identification sheet (**Figure 4**) highlighted the fifteen land uses found in Garstang's Frame. We were then able to make a tally chart of the Frame (**Figure 10**), which showed the distribution of land uses throughout Garstang's CBD Frame. This helped us to see which was the most common shop or service in the Frame. With the identification sheet we were able to create a map that showed the CBD Frame and it highlighted the fifteen different land uses (**Figure 12**), and their locations in the Frame.

Conclusion:

The main land use in Garstang's CBD Frame are public amenities and offices. Public amenities are churches, leisure centres,

libraries, post offices, car parks, playing fields etc. The main reason why public amenities are found in the Frame due to the difference in land prices, which can be explained by the Bid Rent Cone (**Figure 13**), this clearly shows that the further away a service is from the CBD Core the lower the land prices are. This explains why these public amenities are found in the Frame, because in the Core these services wouldn't be able to generate the desired amount of profit to pay for the high land values in the core. Another reason why public amenities are found here is because of Garstang's tourist industry, it is an affluent town, which attracts many visitors.

Q4) In what ways do Garstang's CBD Core and CBD Frame differ, and how can these differences be explained

Data Collection:

We went round the CBD Frame (**Figure 4**) and CBD Core (**Figure 5**) and named all the different services provided in the Core and Frame. The Traffic Flow Measurements (TFM) and the Pedestrian Flow Measurements (PFM), were also used to try and understand why these characteristics occurred

Data Analysis:

With the TFM we looked at cars in particular and we discovered some interesting information, which has been utilised to create a diagram that shows this accurately. We used the Pedestrian Flow Measurements and looked at a class mean. With the identification of the shops and services in the CBD Core and Frame, we could clearly assess what the most common use of the two zones, and find the different uses of the CBD Core and CBD Frame.

Data Presentation:

The Traffic Flow Measurements enabled us to create a Traffic Flow Routing Map-Cars Only (**Figure 7**). This shows the where most cars traffic is in the town of Garstang, and this could help to explain why the functional zones are present. The Pedestrian Flow Measurements helped us create a Pedestrian Flow Isopleth Map (**Figure 8**). It shows the highest and lowest pedestrians recordings in the town of Garstang, this obviously means we can clearly see where most people are in the town. The identification of the services in the CBD Core and Frame helped us to create a

tally chart of the services provided in Garstang's CBD Core (**Figure 9**) and CBD Frame (**Figure 10**).

Conclusion:

The main differences between the Core and the Frame are the price of land in these areas. The Frame has lower land values than the Core, so the types of businesses you find in them will differ. The Core has a higher percentage of hobbies / arts / specialist shops than the Frame. The Frame on the other hand has a higher percentage of public amenities. More high-income services are found in the Core, because unlike the Frame more money needs to be generated if a business wants to stay situated in the CBD Core. This is all due to the land price differences in the two zones. The Bid Rent Cone clearly explains what is going on (**Figure 13**). It tells us that the further away a business is located from the CBD Core the less it pays on land rent. So the reason why there are more high-income services like clothes and retail, health hair and beauty, food services etc. is because of the difference between land prices in the CBD Core and CBD Frame.

Q5) Does Garstang's pattern of functional zones relate to any of the traditional urban land use models?

Data Collection:

The main way we collected our data to discover the characteristics was by giving each site (**Figure 2**) an Environmental Quality Assessment score(EQA score), and creating an EQA table (**Figure 3**). We also went round the CBD Frame (**Figure 4**) and CBD Core (**Figure 5**) and named all the different services provided in the Core and Frame.

Data Analysis:

We Looked at the EQA scores and applied the data we had found to create a diagram to show our findings.

Data Presentation:

With the table of land use models we created we were able to see which one out of a possible three Garstang could represent(**Figure 14**). With the use of the Housing Status diagram (**Figure 6**)and the table of land use models (**Figure 14**), we were able to create our own Garstang land use model (**Figure 15**)

Conclusion:

With the use of the land use table (**Figure 14**) and the housing status diagram (**Figure 6**), we were able to create our own Garstang model (**Figure 15**). You can see from my diagram that the most probable relation to any of the traditional models is the

Hoyt Sector model. The model we created of Garstang's functional zones, consisted of "wedges of cheese" showing Garstang's upper class housing, upper-middle class housing, lower middle-class housing, lower class housing, CBD Core, CBD Frame and Industrial zone. Comparing our Hoyt interpretation of Garstang, to the other two traditional land use models of the Burgess Concentric Rings model and the Ullman and Harris model, we can see that the Hoyt model best describes Garstang because the "wedges of cheese" help to not only show the position of the functional zones and the size of the functional zones. So I believe that compared to the Burgess Concentric Rings model and the Ullman and Harris model, the Hoyt Sector model best fits Garstang's functional zones.

Q6) What is the pattern of EQA scores across the town, and how does the pattern relate to the different functional zones found?

Data Collection:

We collected our data by taking Environmental Quality Assessment scores (EQA scores) at each of the twelve sample sites we visited (look at **Figure 2**). We gave each site a score out of 3, on various characteristics of the area.

Data Analysis:

We looked at the EQA scores and tried to see if a diagram to show our findings could be created. We looked at the three classic land use models and looked to see if The EQA scores helped to create a model that resembled either the Burgess Concentric Rings model, the Ullman and Harris model or the Hoyt Sector model (see **Figure14**).

Data Presentation:

With the EQA scores we were able to create a Housing Status diagram which helped us to see where the different types of housing was located in the town of Garstang (**Figure 6**). With the table of land use models (**Figure 14**) and the EQA scores table (**Figure 3**) and the Housing Status diagram (**Figure 6**), we were able to create a Garstang Model, which shows us how Garstang would look if it was displayed in one of the three classic land use models (**Figure 15**).

Conclusion:

The EQA scores clearly show the patterns across the town of Garstang. Sites two, three, four and twelve scored the highest marks, while sites eight, nine and ten scoring the lowest marks. Site eleven achieved average marks. A type of pattern can be seen here though;

sites two, three, four and to an extent site twelve scored the best marks, so these would be your upper-class housing and your upper-middle class housing (see **Figures 2 and 6**). Sites eight, nine and ten scored lowest so these would be your lower-middle class housing and your lower class housing (see **Figures 2 and 6**). Site eleven scored average so I would class it as your middle-class housing (see **Figures 2 and 6**). If you look at **Figure 6** you will see that the high scoring sites are further away from the CBD Core and CBD Frame than the lower scoring sites. So the pattern I have observed is the further away a site is from the CBD Core or the CBD Frame the better EQA score the site will attain.

Q7) What is the town's pattern of Pedestrian Flow Measurements and Traffic Flow Measurements, and how can the two patterns be related?

Data Collection:

We collected our data by taking Pedestrian Flow Measurements at each of the twelve sample sites and recording them down (see **Figures 2** and **16**). We did the same for the Traffic Flow Measurements and recorded down the results (see **Figures 2** and **17**).

Data Analysis:

We looked at the Pedestrian Flow Measurements and tried to see if a pattern could be formed (see **Figure 16**). We decided to only look at cars in the Traffic Flow Measurements seeing as though it was the most common type of transport recorded (see **Figure 17**).

Data Presentation:

With the Pedestrian Flow Measurements we were able to create a Pedestrian Flow Isopleth Map (**Figure 7**). It shows the distribution of pedestrians throughout the town; it shows the highest and lowest positions of the pedestrian flow in Garstang. With the Traffic Flow Measurements we were able to create a Traffic Flow Routing Map (Cars Only), which showed where the highest and lowest car traffic activity in the town.

Conclusion

The Pedestrian Flow Isopleth Map clearly shows that the main distribution of pedestrian activity in Garstang is in the CBD Core and CBD Frame. The same is found with the Traffic Flow Routing Map, it shows that the most traffic activity was recorded in the CBD Core and CBD Frame. This is mainly due to the CBD Core. It has

many high-income services found within it, and all these services have a large sphere of influence. This is due to the fact that the land values in the CBD Core are very high, so businesses need a large sphere of influence, which attracts more customers through its door.

Q8) What are the main characteristics of the Green Lane West Industrial Estate, and is it located where it is?

Data Collection:

The main way we collected our data to discover the characteristics was by giving the site (**Figure 2**) an Environmental Quality Assessment(EQA) score, and creating an EQA table (**Figure 3**). The Traffic Flow Measurements (TFM) and the Pedestrian Flow Measurements (PFM), were also used to try and understand why these characteristics occurred.

Data Analysis:

We Looked at the EQA scores and applied the data we had found to create a diagram to show our findings. With the TFM we looked at cars in particular and we discovered some interesting information, which has been utilised to create a diagram that shows this accurately. We used the Pedestrian Flow Measurements and looked at a class mean.

Data Presentation:

With the data we had collected we were able to present the data in various ways. The EQA scores helped us to create a Housing Status Diagram (**Figure 6**), which shows us what the housing pattern across the town of Garstang.. The Traffic Flow Measurements enabled us to create a Traffic Flow Routing Map-Cars Only (**Figure 7**). This shows the where most cars traffic is in the town of Garstang, and this could help to explain why the functional zones are present. The Pedestrian Flow Measurements helped us create a Pedestrian Flow Isopleth Map (**Figure 8**). It shows the highest and lowest pedestrians recordings in the town of Garstang, this obviously means we can clearly see where most people are in the town.

Conclusion:

The Green Lane West Industrial Estate is Situated in the Northwest of the town, on its periphery. It is surrounded on three sides by housing and to the west it borders the A6 and green belt land. It is between 1km² and 2km², which houses twelve to fourteen storage units. Its appearance is one of a large prefabricated warehouse. They have large roller doors for lorry access, and they all look uniform in appearance. Its industrial uses are for removal companies, chemical storage, glassmakers, mechanics and body workshop, seafood storage, plastics manufacturers, insulation, blacksmiths, printers and wholesale florists. It is situated here because of many reasons. There are bulky goods stored, some are noisy, easy access to main road is available, low land values means more land can be bought if necessary and at a cheap price, its close to the town and plenty of space is needed so keeping away from residential areas creates more space.

Q9) What are the factors that have defined the outer boundaries of Garstang's growth as a settlement?

Data Collection:

We collected our data by looking at the westward and southward directions of Garstang and see what lay there.

Data Analysis:

We looked at the data we had collected and we looked at a map of Garstang and we tried to highlight the key constricting influences.

Data Presentation:

We were able to create a map that showed the main hindrances that have stopped Garstang from growing (**Figure 18**). We also created a sketch of the Flood Basin Storage Scheme (**Figure 19**). We also created a map that shows the westward hindrances in Garstang (**Figure 20**).

Conclusion:

The main hindrance that has affected Garstang's growth is the River Wyre to the east of it. Since it floods regularly there has been a Flood Basin Storage scheme to protect the town. It has extensive floodplains to the east of the town, which have hemmed it in on that side (see **Figures 18 and 19**). To the west it is contained by the A6 and green belt land, which has also defined the growth of the town, and given it a linear shape to the settlement (see **Figure 20**). The only way Garstang can grow is to the north because the river Wyre extends to the south of Garstang. Beyond the Flood Plain area Garstang will not grow due to the area being used for farmland and already housing ann. extensive railway system.

Q10) How has the town been protected from flooding by the River Wyre?

Data Collection:

We looked at the Flood Basin Storage Scheme and took notes of the appearance, size etc. We also answered some questions about the Flood Basin Storage Scheme and took some sketches.

Data Analysis:

We looked at the notes we had made and the sketches, and we tried to describe what we had seen at the Flood Basin Storage Scheme. We looked at maps as well and tried to show what else apart from the Flood Basin Storage Scheme had been used to protect Garstang.

Data Presentation:

We created a sketch of the Flood Basin Storage Scheme and annotated it to show its main characteristics (**Figure 19**). We also created a map, which showed the other protection schemes in place apart from the Flood Basin Storage Scheme (**Figure 18**).

Conclusion:

Garstang is very prone to flooding due to the River Wyre, so in 1989 a comprehensive flood control scheme was undertaken at a cost of £7.5 million. The scheme raised and strengthened the flood embankments on the Wyre and its main tributaries, and the construction of a flood storage basin in Garstang. The flood storage basin in Garstang is controlled by gates, which are raised when necessary to control the flow downstream through Garstang within safe limits. The Garstang basin has a capacity of 1.3 million cubic metres, in an area of 89 hectares. We can see from **Figure 19** that to the left and right of the gates there are

extensive flood plains, which enable the gates to release the 1.3 million cubic metres of water. Beyond that we can see from **Figure 18** that there are extensive embankments, which protect the overlying farmland. We can also see from **Figure 18** that properties are being built right up against the embankments because of the lack of space in the area.

Limitations:

The main limitation I experienced with this project was the weather. The very heavy rainfall altered the readings in the Pedestrian Flow Measurements, because of the heavy rainfall more people would travel in their cars rather than by foot, so we saw a decrease in pedestrian activity and an increase in traffic activity. Due to the heavy rainfall, when trying to record results the rain would smudge the pen ink or would damage the paper entirely, which would make data recording impossible. Due to the bad weather we experienced it was very difficult to go about our task of identifying the different services within the CBD Core and CBD Frame, because a large number of the shops and services had shut for the day early.

Improvements

The main way I thought we could have improved my project was if we had had a full day to collect the data. If we had more time to collect data a lot of the errors experienced would have not occurred. The major improvement I thought that would have helped was if we could have gone back to Garstang on another day and retried the experiment. We wasted a lot of class time going over the data we had collected and finding out who had lost what due to the weather.

Overall Summary

To sum up the project I believe Garstang is a diverse , modern and affluent town. Its growth has been hampered due to frequent flooding, but it still manages to have a population of over 4,000. it has many different functional zones, which have all been utilised with maximum efficiency to create a diverse and interesting town, while making use of the little space available to it.

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