

The noise intensity and its relation to traffic intensity in Lublin.

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1. Introduction
 - 1.1. Aim of the project
 - 1.2. Theoretical background
 - 1.3. Area of investigation
2. Methods and planning
3. Data presentation and analysis
4. Conclusion
5. Bibliography

1. Introduction

1.1. Aim of project

The aim of my project was to see the difference of noise and traffic level in different places in the city of Lublin. I hypothesized that the noise and traffic level will correlate and I conducted an investigation to see this relationship.

1.2. Theoretical background

Noise pollution also known as sound pollution or environmental noise. According to Britannica.com (prof. Jerry A. Nathanson) is an unwanted or excessive sound that can have deleterious effects on human health, wildlife, and environmental quality. Noise Pollution is always higher in big cities especially in the center.

Traffic according to Britannica.com (F.D. Hobbs) is the movement of people and goods from one location to another. Traffic congestion has its cumulation in city centers and big roads like highways.

Noise pollution and traffic congestion are directly connected. Traffic can cause more noise pollution. It's one of most important reasons why it's so loud in big cities.

1.3. Area of investigation

Lublin is the 9th most populated city and 17th biggest city in Poland. About 340.000 people (Polska w Liczbach, GUS, 31.XII.2019) are living in Lublin. Lublin is the biggest city on the eastern side of the country. It's capital of the Lubelskie voivodship and economical center of the region. It's situated on Lublin Upland and Bystrzyca river in the Vistula river basin.

Car transport is the most popular form of transport in Lublin. Even public transport mostly contains busses and trolleybuses. Road system is very dense and developed. Traffic is biggest in the city center and bigger avenues spread around the city connecting smaller roads. City is surrounded by a ring road from every side except south.

2. Methods and planning

For my project I needed to measure two different measurements. To do that I used two different methods.

The first measurement was noise intensity (noise pollution). To measure that I used an application on my mobile phone “Decibel X” made by “SkyPaw Co. Ltd”. My method consisted of using this application for a straight 5 min and getting an average decibel level in the measurement area.

Second measurement was traffic congestion. I chose one of the easiest ways of measuring it by just using pencil and notebook. I was standing next to the road and just counting the number of cars passing the area. I was doing it also for 5 min just like in the first measurement.

For the measurements I chose two close to each other spots in Lublin, but are totally different in infrastructure and crowdedness.

One of them was in a housing area next to a fairly calm road. Another was just next to main avenue with a lot of cars driving through.



Scale of the map:  200 m

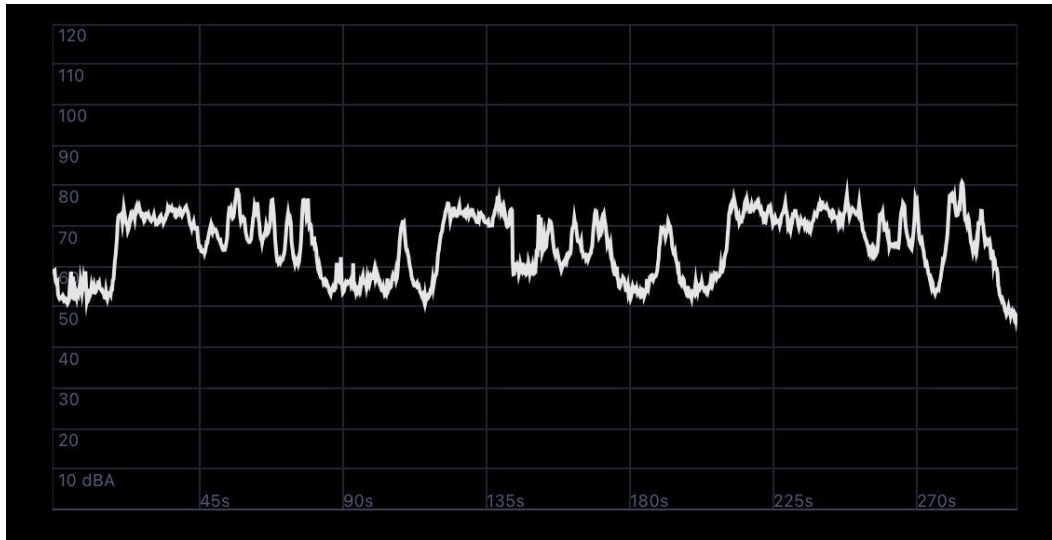
Map 1: Map shows two spots of measurements. Number 1 is spot near main avenue. Number 2 is spot at housing area.

3. Data presentation and analysis

Here are results of my measurements:

Spot number 1: Main avenue

Noise intensity:



Graph 1: Graph showing the level of noise during the time of 5 min in the spot 1.

Average dB level: 70.2

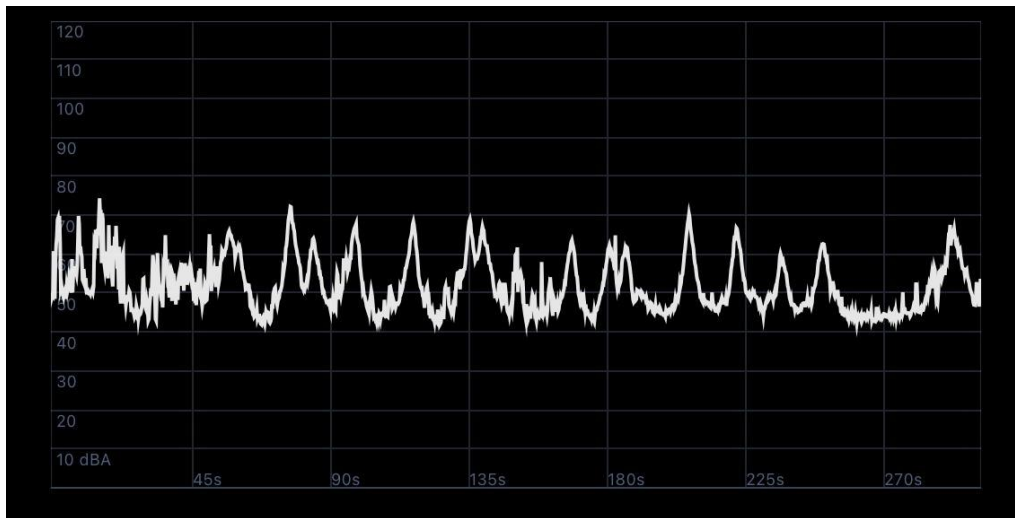
Maximum dB level: 81.0

Traffic intensity:

During the time of 5 minutes there were 260 cars passing the area of measurement.

Spot number 2: Housing area

Noise intensity



Graph 2: Graph showing the level of noise during the time of 5min in the spot 2.

Average dB level: 58.4

Maximum dB level: 74.6

Traffic intensity:

During the time of 5 minutes there were 17 cars passing the area of measurement.

	Average Noise	Max Noise
Main avenue	70.2 dB	81.0 dB
Housing area	58.4 dB	74.6 dB

Table 1: Table is presenting both average noise level and maximum noise level in two areas of measurement. Average level was calculated from 5 min of constant measuring.

	Number of cars
Main avenue	260
Housing area	17

Table 2: Table is showing the number of cars passing two areas of measurement during 5 min.

As we can see in the data area around main avenue has much more noise and also has much more cars passing through. Housing area is definitely more quiet and calm with only a few cars passing this terrain.

Main avenue has average noise level at 70.2 dB, when housing area has it at 58.4 dB . Average noise level at main avenue is 11.8 dB higher than at housing area.

Number of cars passing through the area of main avenue is 260 during 5 min of measuring. Number of cars in the housing area is 17 during the same time of measurement. Main avenue has 243 more cars passing through the area during the time of 5 min than the housing area.

4. Conclusion

From the data that I collected we can clearly see that places with less traffic intensity have less noise pollution. Noise level has direct dependence with traffic intensity. Traffic intensity is usually the most important factor causing a lot of noise pollution in big cities, especially centers as there is its highest number. It is caused by the number of services we can find in the city center. A lot of people work in the city center and use cars to travel from housing areas and suburbs.

5. Bibliography

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Lublin (lubelskie) » mapy, nieruchomości, GUS, noclegi, szkoły, rejon, atrakcje, kody pocztowe, wypadki drogowe, bezrobocie, wynagrodzenie, zarobki, tabele, edukacja, demografia. (2019). Polska w liczbach. <https://www.polskawliczbach.pl/Lublin>