Using GIS To Map Noise Levels Along King Street and St Machar Drive, Aberdeen

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SUMMARY

Noise pollution has become an increasingly pervasive problem in our modern world, particularly in densely populated urban areas. The constant hum of traffic, the roar of airplanes overhead, and the cacophony of construction sites all contribute to a soundscape that can have detrimental effects on human health and well-being. Recognizing the seriousness of this issue, the European Union has issued directives urging member states to actively monitor and mitigate noise pollution within their cities. This project, conducted in Aberdeen, Scotland, seeks to contribute to this effort by mapping and analyzing noise levels within a specific area of the city.

The project employed a novel approach to data collection, utilizing a smartphone converted into a sound level meter. This innovative method allowed for a cost-effective and flexible means of gathering noise data. Departing from traditional methods that often rely on stationary monitoring stations or vehicle-based surveys, this study employed a bicycle as the primary mode of transportation during data collection. This approach offered several advantages. Firstly, it allowed for greater accessibility to various locations, including narrow streets and pedestrian zones, which may be inaccessible to larger vehicles. Secondly, the bicycle's quiet operation minimized its own contribution to the noise environment, ensuring more accurate readings. Finally, this eco-friendly method aligns with broader sustainability goals.

The data collected was then processed and validated to create a comprehensive noise map of the study area. This map provides a visual representation of noise levels across different locations, highlighting areas of particular concern. This information can be invaluable to city planners and policymakers. For instance, it can inform decisions regarding traffic management, residential development, and the placement of noise barriers or green spaces. By understanding the distribution of noise pollution, authorities can implement targeted interventions to mitigate its impact on

residents. Furthermore, this project demonstrates the feasibility of using readily available technology and sustainable transportation methods for noise monitoring. The methodology employed in this study can be easily replicated and scaled up to cover larger areas or even entire cities.

The findings of this project have significant implications for public health, urban development, and environmental sustainability. Prolonged exposure to high levels of noise has been linked to various health problems, including cardiovascular disease, sleep disturbance, and cognitive impairment in children. By identifying noise hotspots and implementing mitigation strategies, cities can create healthier and more livable environments for their residents. Additionally, this project contributes to a growing body of knowledge on noise pollution and its effects, furthering our understanding of this critical environmental issue.

In conclusion, this project provides a valuable contribution to the ongoing efforts to address noise pollution in urban areas. By combining innovative data collection methods with a focus on community engagement, it offers a model for future research and action in this field. The resulting noise map and the insights gained from this study can empower local authorities to make informed decisions that promote a quieter, healthier, and more sustainable urban environment for all.