

Capstone Two: Project Proposal

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Problem Statement

What measures can the City of Chapel Hill, NC take in order to reduce the incidence and severity of pedestrian/cyclist accidents?

Context

The City of Chapel Hill, NC has received an increasing number of complaints from pedestrians and cyclists of dangerous conditions on the roadways. The City is interested in taking measures to address these complaints, such as speed limit changes, modifying problematic intersections, or other policy changes to alleviate dangerous conditions. The North Carolina Department of Transportation (NCDOT) has pedestrian and cyclist crash data spanning 2007 to 2018 for the entire state. The city of Chapel Hill would like to initiate a case study to determine there are particularly problematic intersections within the city and how Chapel Hill specifically compares in terms of pedestrian/cyclist safety compared to North Carolina at large in order to justify legislating new policies.

Criteria for Success

1. Determine whether or not there are particularly problematic intersections
2. Determine how Chapel Hill compares to North Carolina at large in terms of pedestrian/cycling accidents.
 - a. Does Chapel Hill have more/less serious accidents? What are possible causes?
3. Would speed limit (or other) changes reduce the severity and incidence of crashes?

Scope of Solution Space

Use the pedestrian and cyclist crash data provided by the City of Chapel Hill and the NCDOT which includes data such as: geocoordinates, ages involved, alcohol/drug use, time of accident, injuries, etc.

Constraints

Pedestrian and cycling crashes are not exceedingly common events and Chapel Hill is a relatively small municipality; Chapel Hill only had 142 reported bicycle crashes from 2008-2018. However, there are approximately 44,000 reports from North Carolina at large for the same period. This should be sufficient data to be able to model the effects of things such as speed limit changes.

One possible thing to consider is that Chapel Hill is a college town and its demographics may not be representative of North Carolina at large. Demographics data may be necessary in order to properly account for any differences (such data can be scraped from public sources such as Wikipedia or census data).

Stakeholders

The city of Chapel Hill

Data Sources

kaggle.com/adityadesai13/11000-bike-crash-data

<https://opendata-townofchapelhill.hub.arcgis.com/datasets/NCDOT::ncdot-bikepedcrash>