The Built Environment and Pedestrian Safety in the Philadelphia Region

Purpose: To investigate relationships between neighborhoods' urban form, roadway characteristics, traffic collisions, and fatalities in the Philadelphia region.

Approach: The team focused on population density as one of the most common controls for safety. This included factors such as medical response times, slower vehicle speeds (due to denser population), and less traffic through urban areas.

Key Findings:

Technical Approach: The team found that there were mixed results in the data when reviewing previous studies. To gain a more controlled outcome, they introduced control variables.

- They first began by matching crashes, injuries and fatalities to street segments and intersections. They were then able to estimate models of total crashes, pedestrian-involved crashes, serious injuries, pedestrian serious injuries, fatalities, and pedestrian fatalities.
- Once the outcome was reached, they included a series of control variables that population density influences such as:
  - Neighborhood socio-demographics
  - Total vehicle travel
  - Total pedestrian exposure
  - Street design
  - Posted speed limits

Analysis: By working to understand whether denser neighborhoods and the variables tested correlate with higher and lower traffic fatalities, the team looked to shed light on public health effects of promoting traffic safety.

Conclusion: The study provided support that denser neighborhoods offer safer streets in the Philadelphia region. The team found that the greatest factor in this outcome to be the amount and type of roadway, because compact cities tend to have less roadways and less driving which also leads to increased pedestrian safety.

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