Using GIS to Identify Sites for New Emergency Telephone Locations at Furman Campus

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Results

Discussion

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Geographic Information Systems (GIS) are frequently used by a wide range of professionals in business, government, and industry to visualize and analyze data. Law enforcement agencies may use GIS to analyze crime patterns in order to improve their services. This project used GIS to analyze several recent incidents that occurred at Furman University in order to propose new sites for "Code Blue" emergency telephones. The maps produced through this analysis revealed nine poorly lit, high crime areas that were relatively far from current Code Blue emergency telephones. These areas include the following:

1. Near center of South Housing Complex.
2. Slightly west of Lakeside Patio.
3. Near center of North Housing Complex.
6. Administration Building
7. Classroom Building
8. Condensed Matter Theory Lab
9. Near Back Gate

These nine areas were then prioritized into four tiers with Tier 1 being the most urgent and Tier 4 being the least urgent. The tiers were based on the following criteria:

- Tier 1: Areas with a high number of streetlights and a high number of emergency reports
- Tier 2: Areas with a high number of streetlights and a low number of emergency reports
- Tier 3: Areas with a low number of streetlights and a high number of emergency reports
- Tier 4: Areas with a low number of streetlights and a low number of emergency reports

Conclusion

GIS analysis revealed several areas of interest related to crime, lighting, and current Code Blue emergency telephone locations. These findings formed the basis for recommendations on placement for 9 new Code Blue emergency telephones. The 9 proposed sites have been prioritized into 4 tiers with Tier 1 being the most urgent and Tier 4 being the least urgent. For a detailed justification of Tier placement, see accompanying handout.

References

- Alternatives for Cease Fire Program Advertising, Furman University.
- "Crime Hot Spots" (The Most Violent Category), "Other Crimes" (The Least Violent Category) and "Other Violations" (The "Exclude" Category) were excluded based on the accompanying handout.
- Crime: Violations, Traffic or Vehicle Related, Informational Reports, Medical Assistance, and Must Exclude. (For more information on the Must Exclude category, see the Note on Fig. 4.) The name of the 103 areas of campus and the total number of each type of report that occurred at a particular area was then entered into a table.
- "Georeferenced building, athletic field, parking lot, and road/path shapefiles. Facilities Services, Furman Univ.
- Faculty and Staff Orientation - Crime Information, Communication, and Safety, Furman University.
- "I must throw an error. Furman, Public Safety Services, Facilities Services, Furman University for allowing and supporting my work with this project."

Abstract

GIS are used by a variety of professionals to visualize and analyze public and private sector data to accomplish very diverse goals. Analyzing variables that may influence crime patterns is an important component of law enforcement's efforts to respond to and prevent crime (Hess, 2002). GIS are well-suited to crime analysis (Hess et al., 1995). GIS were used to create a map of crime and telephone incident locations for the year 2003. The following areas were considered:

- All 700 streetlights
- 2000 Code Blue emergency telephones
- 1154 Code Blue emergency telephone locations
- 457 public safety responses

A shapefile containing campus buildings was buffered at 200 feet to create a Building Buffer layer. This layer was considered when making recommendations on locations for new Code Blue emergency telephones, but was not pictured in Figure 6 because it obscured the other layers.

Data Sources

- Crime: Violations, Traffic or Vehicle Related, Informational Reports, Medical Assistance, and Must Exclude. (For more information on the Must Exclude category, see the Note on Fig. 4.)
- "Crime: Violations, Traffic or Vehicle Related, Informational Reports, Medical Assistance, and Must Exclude. (For more information on the Must Exclude category, see the Note on Fig. 4.)"