A Visualization Tool for a Highway Safety Management System

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Introduction

- With lot of research, Federal Highway Administration has released a highway Safety management System software called as SafetyAnalyst (SA)
- SA has a suite of analytical tools to identify and manage system-wide safety improvements:
  - Network Screening
  - Diagnosis and Countermeasure Selection
  - Economic Analyses and priority Ranking
  - Countermeasure Evaluation
- SA provides a very rudimentary approach to display results just in tabular and textual format

- This study proposes a visualization tool that expands the output capabilities provided by SafetyAnalyst

Objective

- To enable an easy use of SA and to provide visual information
- To facilitate the development of the database required by SA
- To enable extraction and formatting of the information required by SA with a little user involvement

Significant Functions

- visualization of output using multiple complementary displays and formats -- spatial plot, bar charts, tables and an editable report
- Spatial plot shows the location of sites of interest in Google map with standard pan, rotate and zoom
- Sites are displayed as a f(rank) such that user can retrieve information without milepost of a particular site of interest

SA Navigation GUI

SA Web Based Visualization Interface

Module II: Diagnosis and Counter Measure selection
Collision Diagram: Graphically represent crashes at particular location providing information on type, severity, speed, light conditions and roadway conditions

Module III: Economic Appraisal

Module IV: Countermeasure Evaluation

Conclusion

- Developed Visualization tool expands the input and output capabilities provided by Safety Analyst (SA)
- The tool facilitates the analysis by providing visual information to the user as soon as the information is generated by the SA
- The user can make better decisions during the modeling and analysis process without assessing all modules in SA
- This tool will be further developed with two alternative displays i.e. Google maps (existing) and ArcGIS (for advanced modeling and analysis)

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