Objective

In simple words, the objective of this study is to develop a comprehensive database system to provide a data for highway safety engineering and management.

The highway safety enhancement – results in saving lives towards Nevada’s Zero Fatalities goal

Introduction

State-of-the-art tools such as SafetyAnalyst (SA) helps state DOTs to develop top 5% reports of potential sites for safety improvements by following:

- Identification of hazardous locations
- Diagnosis and countermeasure selection
- Estimation of the cost of the countermeasures
- Estimation of the benefits of the implemented countermeasure

In addition, SA addresses the limitations of traditional tools:

- Volume and segment length bias regression-to-the-mean (RTM)
- Incorrect model form and lack of a reliability measure

In order to address these limitations, the state-of-the-art tools use analytical methods that require comprehensive data sets providing sufficient information to capture intricate spatio-temporal characteristics and interactions in the traffic system.

Different divisions at many state agencies collect and maintain various datasets based on their corresponding data needs. The problems associated are:

- Data availability awareness
- No consistency
- Data from multiple divisions and agencies
- Coordination between different state-wide agencies

System Architecture – Proposed Approach

View Tool – SafetyAnalyst

Data Convertor and SA Attribute Mapping Interface

Google Earth Data Extraction

ArcGIS Tools

UNLV Data Management Tools

Data Uploader and Attribute Mapping Interface

FAST Volume and Speed Extraction Tool

DTA Simulation Tool

Concluding Comments

- Developed database system caters the NDOT data needs for highway safety engineering and improves Nevada highway safety with the help of SafetyAnalyst (SA).
- Database architecture supports also other state DOT’s data. Other states can also use SafetyAnalyst and improve their highway safety.
- SafetyAnalyst also helps the DOT decision makers to invest the economical resources precisely.
- This study will surely help towards Nevada’s Zero Fatalities goal.

Acknowledgements

- Nevada Department of Transportation, Regional Transportation Commission, Southern Nevada, Freeway and Arterial System of Transportation, and county and city agencies.