**Development of a Comprehensive Database System for a Highway Safety Engineering and Management**

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**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 and 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 maintenance

**System Architecture – Proposed Approach**

**View Tool – SafetyAnalyst**

Data Convertor and SA Attribute Mapping Interface

**Database Update - Interface**

**SafetyAnalyst Results**

Network Analysis Results – Data with SA

**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

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