Development of a Tool for Documenting, Tracking, Recording, and Analyzing Improvements to Intersection Sites and Roadway Departures in Curve Locations

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Number of Drivers Involved in Crashes

- 1 out of 10 Louisiana drivers is involved in a crash each year
About 45% of drivers crash either at an intersection or run off the road in a single vehicle crash.
53% of all injuries occur either at an intersection or in a single vehicle crash.
Fatalities

2 out of 3 fatalities occur either at an intersection or in a single vehicle crash.
Louisiana’s SHSP includes an infrastructure focus area that addresses the locations of the majority of serious injury and fatal crashes.

The SHSP implementation strategy calls for the aggressive deployment of low cost safety treatments in a systematic manner based on both historic data and roadway characteristics.
Hundreds of intersections have been treated with “standard” packages
Have those improvements reduced the number of crashes and or severity?
• Data warehouse at
  – Crash data
  – Road data
    • Sections
    • Road Characteristics
    • AADT
• HSM predictive models
  \[ N_{predicted} = N_{SPFx} \times (CMF_{1x} \times CMF_{2x} \times \ldots \times CMF_{yx}) \times C_x \]
• Improvement Information
Requirements

- Louisiana Road Segment Identification (LRSID) Numbers
- Project cost by segment or site
- Available links to Visidata and programs such as Google Maps and Bing Maps that correspond to each location
- Intersection diagram Easy Street Draw
- Average Daily Traffic by year before and after
- Data elements required by the HSM to do all calculations
- Calculated Expected Crash Rates using Safety Performance Functions
- Actual Crash Rate
- User interface for data entry with drop boxes that constrain the user to approved data or format
- Searchable fields with exported results on selected fields
- Exportation of search results to spreadsheet
Process Flow Chart

1. Begin Process
2. Admin creates a Project
3. Admin creates Locations (100) for each Project
4. Is PE in the system?
   - Yes: Admin assigns a PE to each location until all are assigned
   - No: Admin adds a PE to the system
5. PE notified about the Location assigned (automatically by the system)
6. PE adds data and uploads pictures for each location assigned
7. Contractor adds data/uploads pictures for location assigned
8. PE reviews the data and submits it to the Database
9. Database
10. Perform calculations and analysis using data
11. Export Data/Generate Reports
System Architecture

- DOTD Server
  - SQL Database
- GPS
- Web Server
  - ASP.Net Web Application
  - Smart device Form
- User
  - Pictures Before and After
- DOTD Server(s)
  - Other Database(s)
- Easy Street 5
  - DRAW
Cost-Benefit Analysis

• Tracking of Projects, Costs, Crashes
• Summary Statistics and Trends
• Before and After Studies