Data-Driven Safety Training

Freeway Segment Safety Analysis

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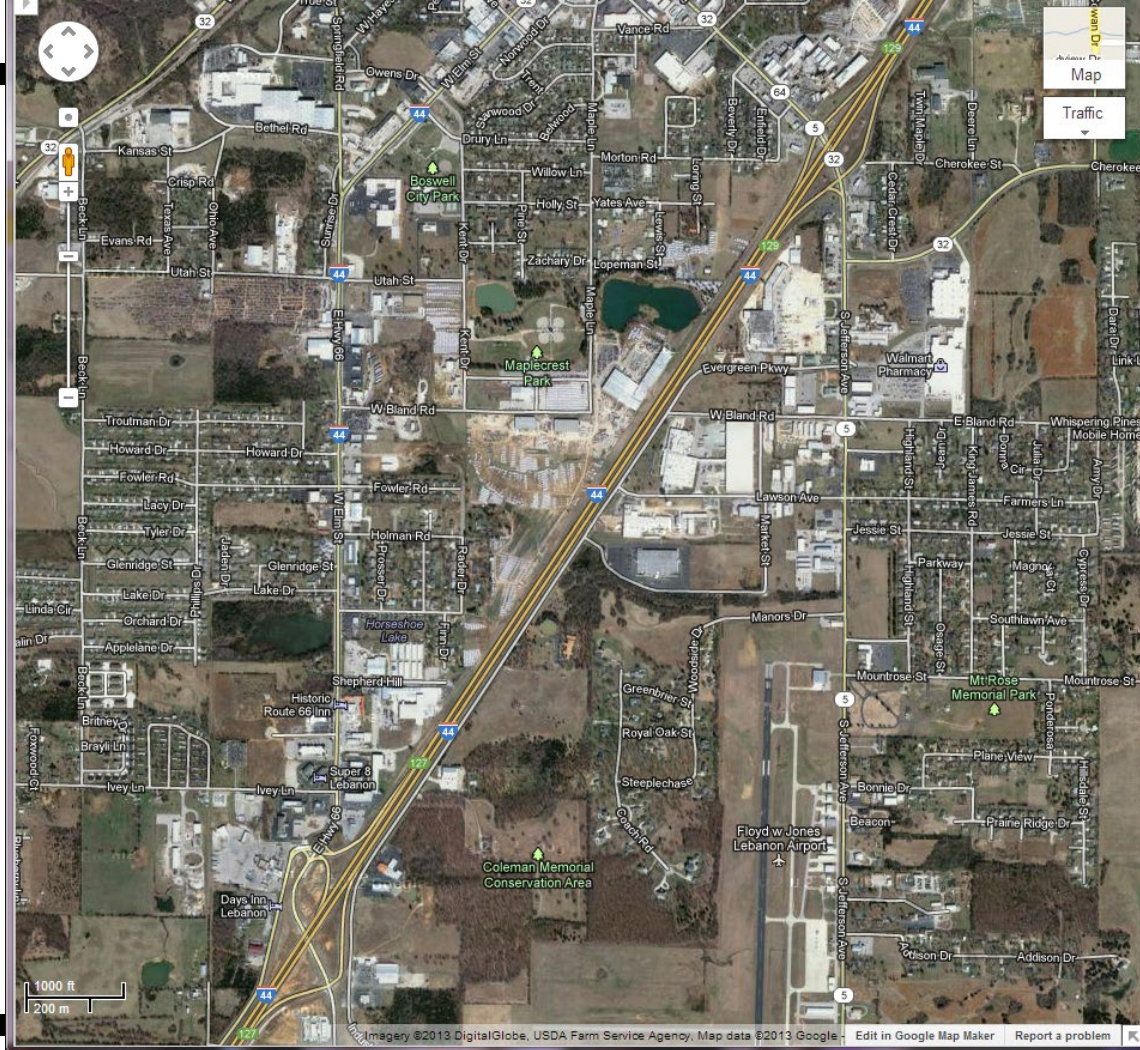# Outline

1 Safety analysis methodology and segmentation

2 Data requirements

3 Laclede I-44 example

4 Laclede I-44 solution

Laclede I-44 Exercise

- City of Lebanon, Laclede County

- I-44 (EB increasing MM, WB decreasing MM)

- Mile marker (MM) 127.71 to 128.82

- Length = 1.1 mile

- Analyze fatal+injury (FI) crashes only

Crash Period vs. Study Period

- Study period is the period of interest

- Crash data could be from a different period

Laclede I-44 Exercise Data

- No Horizontal curves

- Lane width 12 ft

- Outside shoulder width 8 ft

- Inside shoulder width 4 ft

- Median width 40 ft

- Rumble strip on both inside and outside shoulders
  - outside - full length both directions
  - inside – full EB, 1 mi WB

Laclede I-44 Exercise Data

- Median barrier
  - full length of segment
  - average distance to median from edge of travelway 19.25 ft
  - width 1.5 ft

- Clear zone width 20 ft

- Some roadside barrier
  - 0.11 of 1.1 mi = 0.121

Laclede I-44 Exercise Data
Ramps

- EB/increasing MM
  - 0.329 to upstream entrance
  - 0.049 to downstream exit

- WB/decreasing MM
  - 0.123 to upstream entrance
  - 0.133 to downstream exit

Laclede I-44 Exercise Data
Traffic

- Freeways mainline
  - 2012 32,930
  - 2013 27,497
  - 2014 29,221

Laclede I-44 Exercise Data
Traffic EB/increasing

- Entrance ramp
  - 2012 1456
  - 2013 1455
  - 2014 1482

- Exit ramp
  - 2012 3060
  - 2013 3060
  - 2014 3107

Laclede I-44 Exercise Data
Traffic WB/decreasing

- Entrance ramp
  - 2012 3325
  - 2013 2645
  - 2014 2009

- Exit ramp
  - 2012 1518
  - 2013 1518
  - 2014 1544

Laclede I-44 Exercise Data

- Observed FI crashes

- 2012-2014

- MV 1

- SV 1

ISATe

- Enhanced Interchange Safety Analysis Tool

- Spreadsheet for all freeway facilities
  - appropriate for segments, speed change lanes, ramps, and terminals

Laclede I-44 Exercise

Learning recommendation

- Given data collected for Laclede I-44 site, attempt the modeling on your own first with ISATe
  - Fill in cyan/light blue cells in "Input Freeway Segments"
  - Click "Perform Calculations" in "Main"
- Review the modeling performed by the instructor
- Compare and note any differences