Roadway Departure Crashes in Kansas

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With Appreciation

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  - Akshay Patel

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Kansas

Department of Transportation

Roadway Departures in Kansas

- A crash which occurs after a vehicle crosses an edge line or a center line, or otherwise leaves the traveled way

Roadway Departure Crashes

- The FHWA states an <u>average</u> of 18,275 fatalities per year (2013 - 2015) resulted from roadway departure
  - 54% of all fatal crashes during that time period
- From the NMVCCS, we've learned the following about roadway departure crashes
  - 64 percent of all single vehicle crashes
  - Police narrative often assigns critical pre-crash critical factors on driver error
    - Driver performance errors (27% of passenger car roadway departures)
    - Driver decision errors (25%)

Roadway Departure Crashes

- From the NMVCCS study, other critical reasons included:
  - Internal distractions
  - Overcompensation
  - Poor directional control
  - Too fast for conditions
  - Sleeping/actually asleep
- Today I want to discuss our ongoing efforts to better understand these crashes that occur in Kansas

Source: http://highway.umwblogs.org/invention/

Source: Lawrence Journal World

Not All Routes are Interstates Though…

- Of the state's 10,600 mile network
  - Class A - Interstates

Class A: 873 miles
Average ADT 21,700 vpd

Not All Routes are Interstates Though…

- Of the state's 10,600 mile network
  - Class B - Non-Interstate routes with limited access and high-speeds

Class B: 2,176 miles
Average ADT 5,100 vpd

Not All Routes are Interstates Though…

- Of the state's 10,600 mile network
  - Class C - Regional travel

Class C: 2,452 miles
Average ADT 3,800 vpd

Not All Routes are Interstates Though…

- Of the state's 10,600 mile network
  - Class D - Inter-county transport - may have speed restrictions

Class D: 3,233 miles
Average ADT 1,800 vpd

Not All Routes are Interstates Though…

- Of the state's 10,600 mile network
  - Class E - Routes for short trips

Class E: 1,723 miles
Average ADT 800 vpd

What We Did...

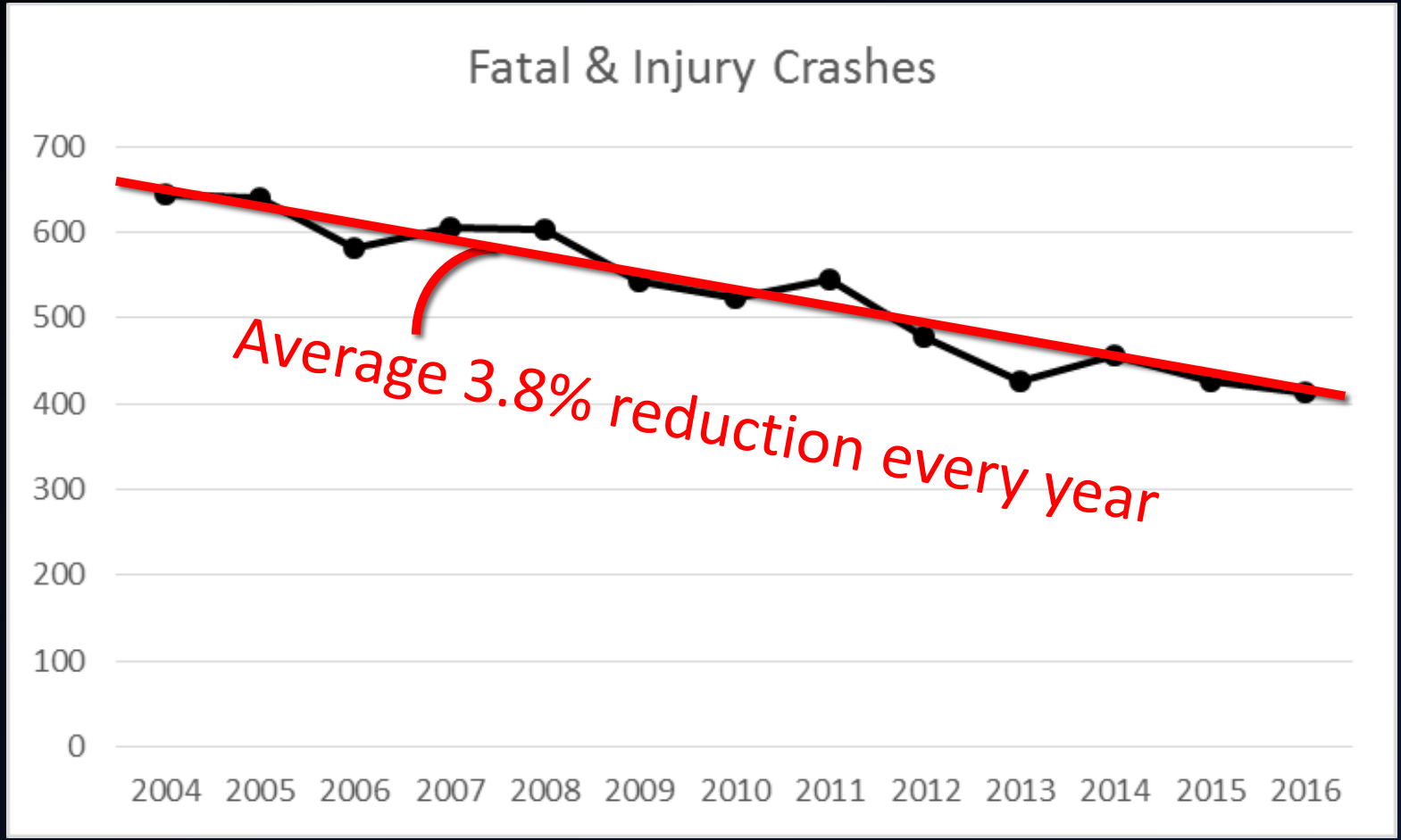
- Examined data from the statewide crash database, looking for only roadway departure crashes
  - 2004 - 2016
  - Only looked at two-lane roadways
    - So All Class A routes and some Class B routes were not considered
  - 6,881 fatal and injury crashes

Year	F+I Crashes
2004	645
2005	639
2006	582
2007	606
2008	602
2009	542
2010	523
2011	544
2012	478
2013	425
2014	456
2015	427
2016	412
Total	6,881

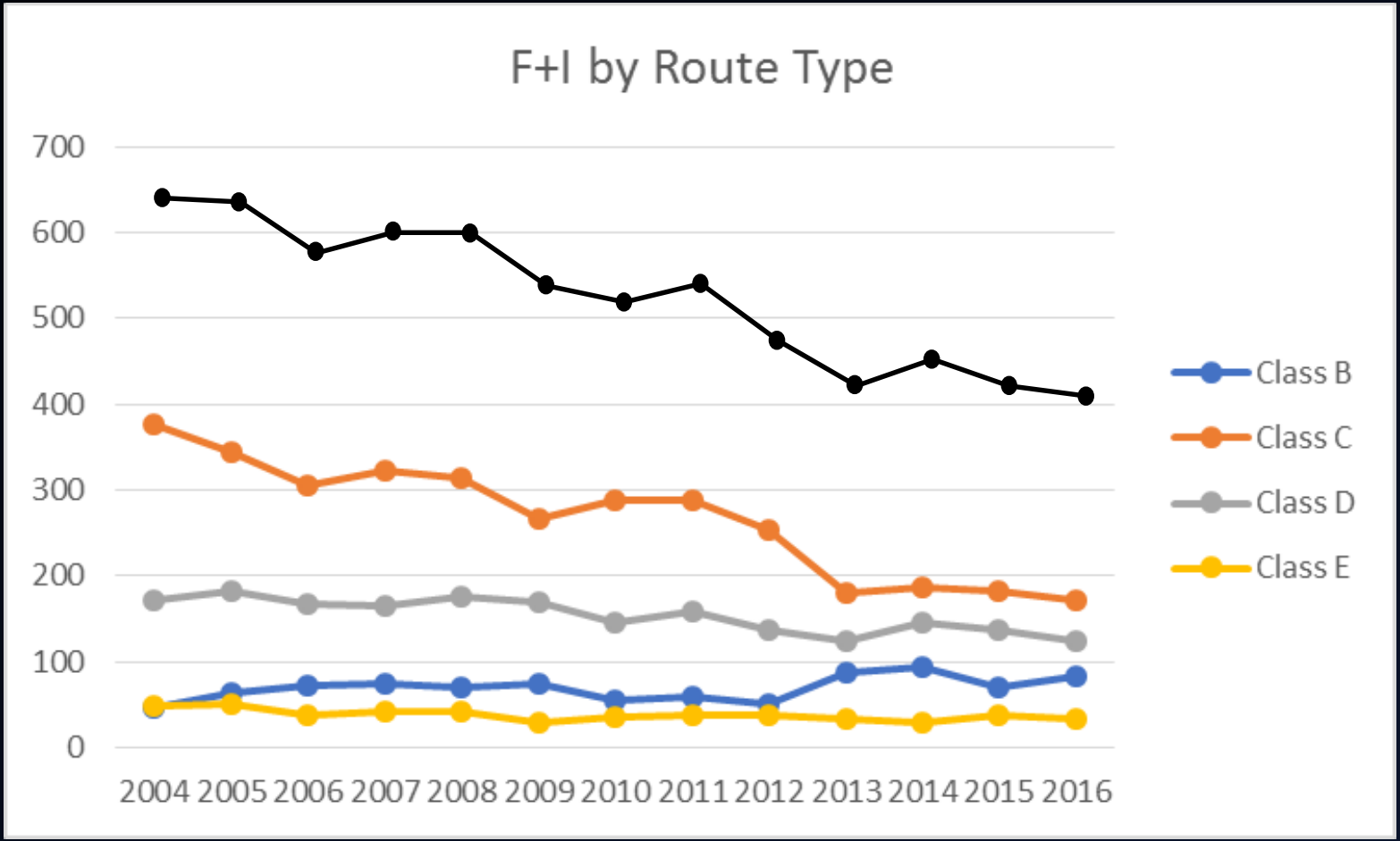
Summary Data

- 75 percent of the vehicles were cars/pickups/SUVs/vans
- 70 percent of roadway departure crashes happened during daylight
- 27 percent of crashes had first identifiable cause as “Collision with motor vehicle”

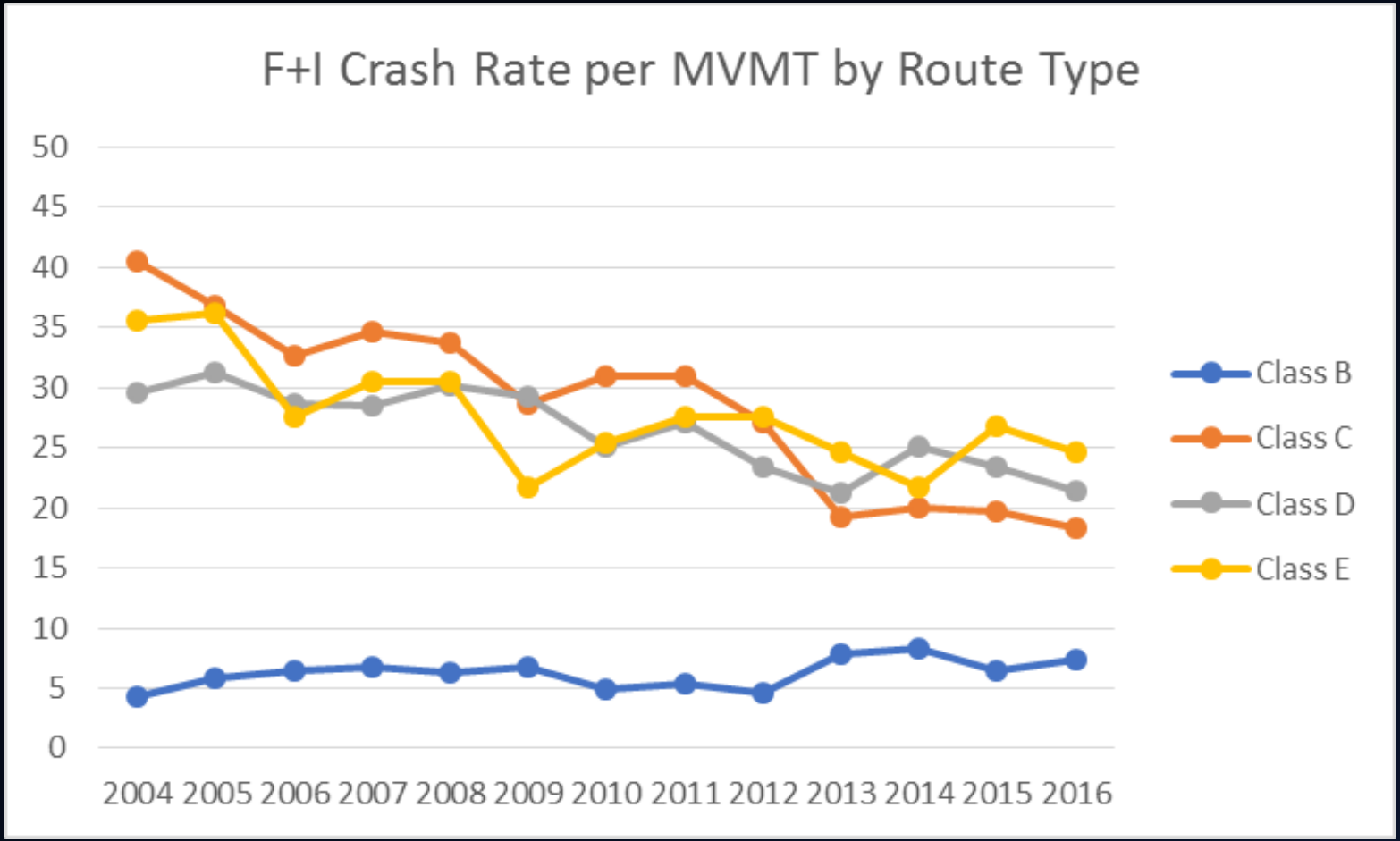
Fatal and Injury Roadway Departure Crashes over Time



Fatal and Injury Roadway Departure Crashes over Time



Fatal and Injury Roadway Departure Crashes over Time



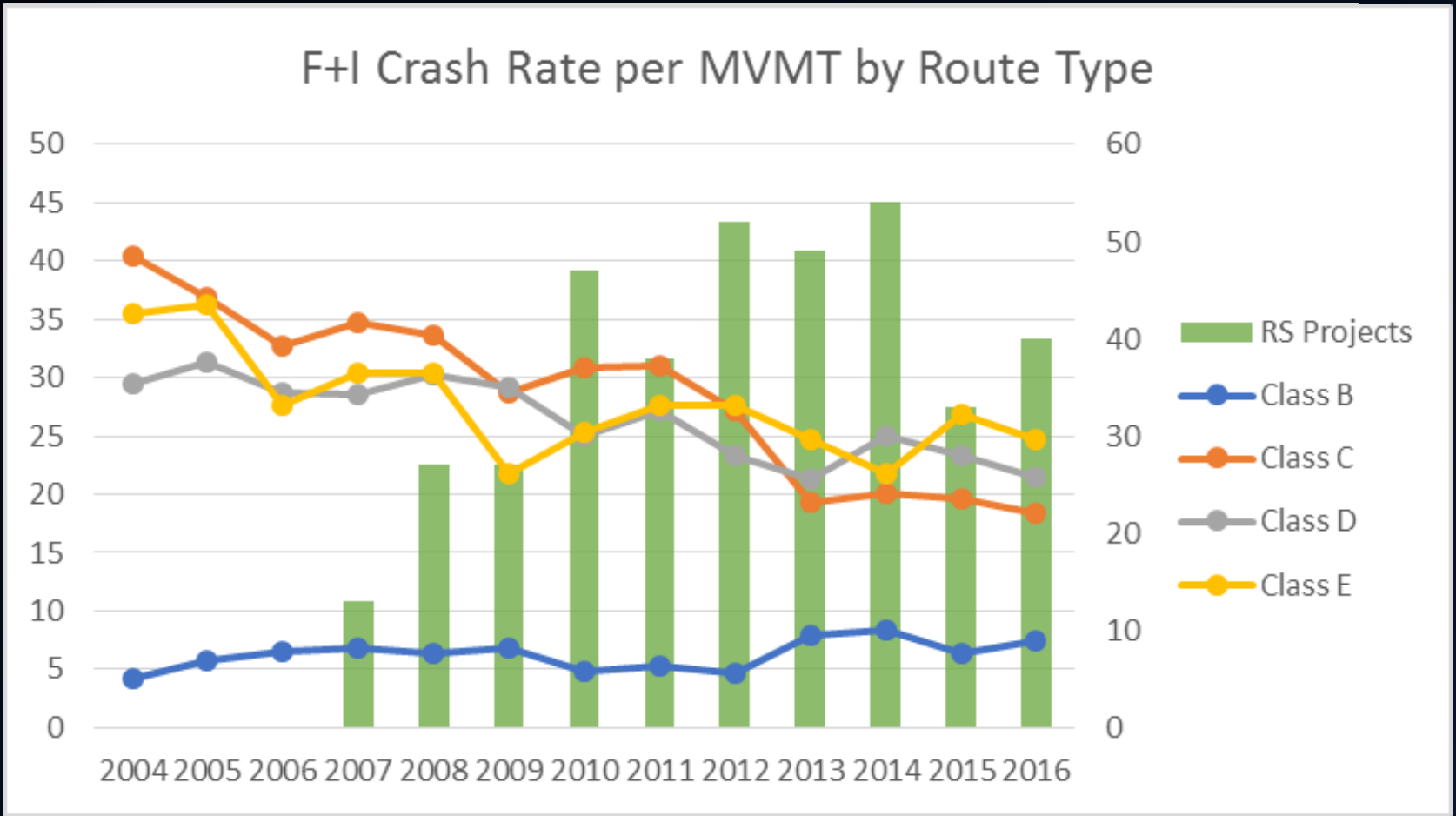
Rumble Strip Project Information

- Ultimately what we want is to understand the rate at which rumble strips were installed by route class

Route	Percentage with Rumble Strips (of any type)
Class A	100
Class B	85
Class C	41
Class D	12
Class E	1

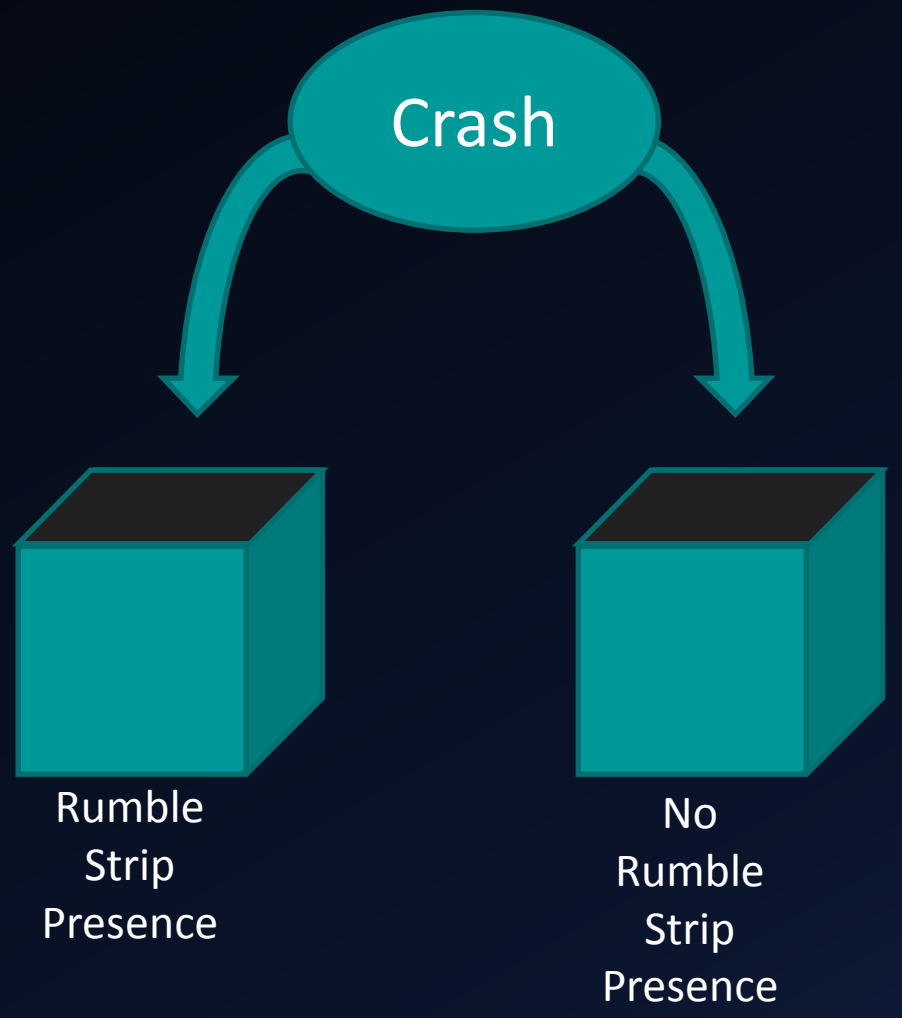
Source: kansascyclist.com

Fatal and Injury Roadway Departure Crashes over Time



Where We Go from Here

- We ultimately want to conduct an odds ratio analysis
  - Determine how rumble strip presence affects crashes
- But in order to do that we need to know when rumble strips were installed at a crash location
  - 390 installation projects to review



Other Factors We Plan to Examine

- Drug/alcohol involvement
- Gender and age
- Shoulder width and surfacing type

Questions