SDI: Looking to the Future

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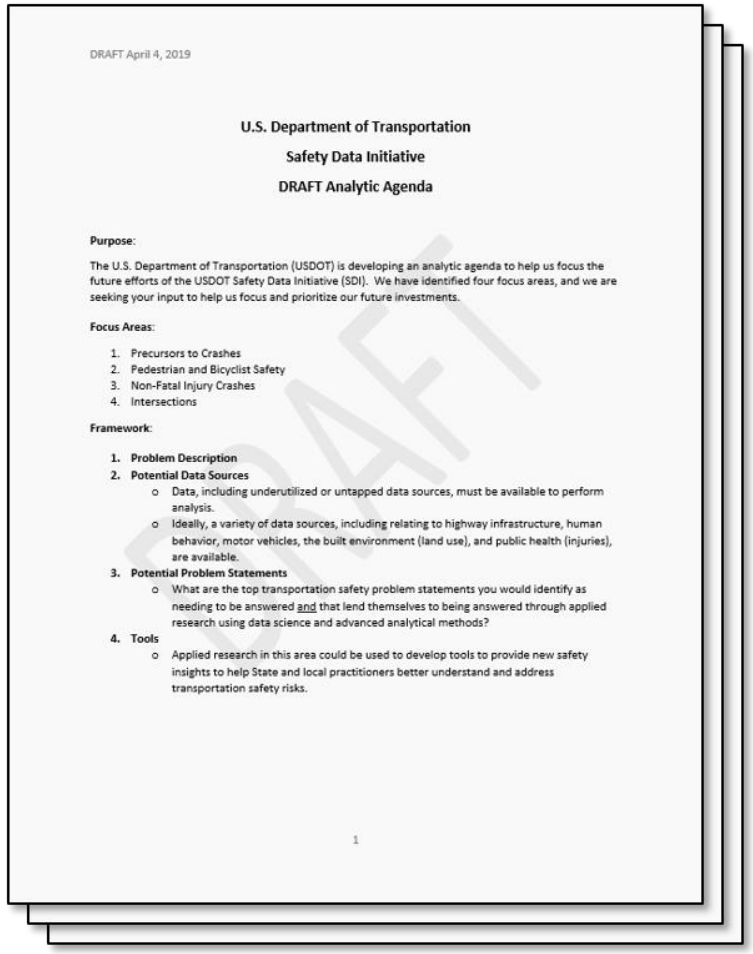
Analytic Agenda Setting

- DOT is developing an analytic agenda to focus the future of the Safety Data Initiative
- Seeking your individual input to help prioritize our investments
- Four focus areas each with a common framework to inform our decisions



DRAFT April 4, 2019

U.S. Department of Transportation

Safety Data Initiative

DRAFT Analytic Agenda

Purpose:

The U.S. Department of Transportation (USDOT) is developing an analytic agenda to help us focus the future efforts of the USDOT Safety Data Initiative (SDI). We have identified four focus areas, and we are seeking your input to help us focus and prioritize our future investments.

Focus Areas:

1. Precursors to Crashes
2. Pedestrian and Bicyclist Safety
3. Non-Fatal Injury Crashes
4. Intersections

Framework:

1. **Problem Description**
2. **Potential Data Sources**
   - Data, including underutilized or untapped data sources, must be available to perform analysis.
   - Ideally, a variety of data sources, including relating to highway infrastructure, human behavior, motor vehicles, the built environment (land use), and public health (injuries), are available.
3. **Potential Problem Statements**
   - What are the top transportation safety problem statements you would identify as needing to be answered and that lend themselves to being answered through applied research using data science and advanced analytical methods?
4. **Tools**
   - Applied research in this area could be used to develop tools to provide new safety insights to help State and local practitioners better understand and address transportation safety risks.

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Framework

Problem Description

Potential Data Sources

- Data sources: underutilized or untapped with analytic potential
- Variety: infrastructure, behavior, vehicles, built environment, public health

Potential Problem Statements

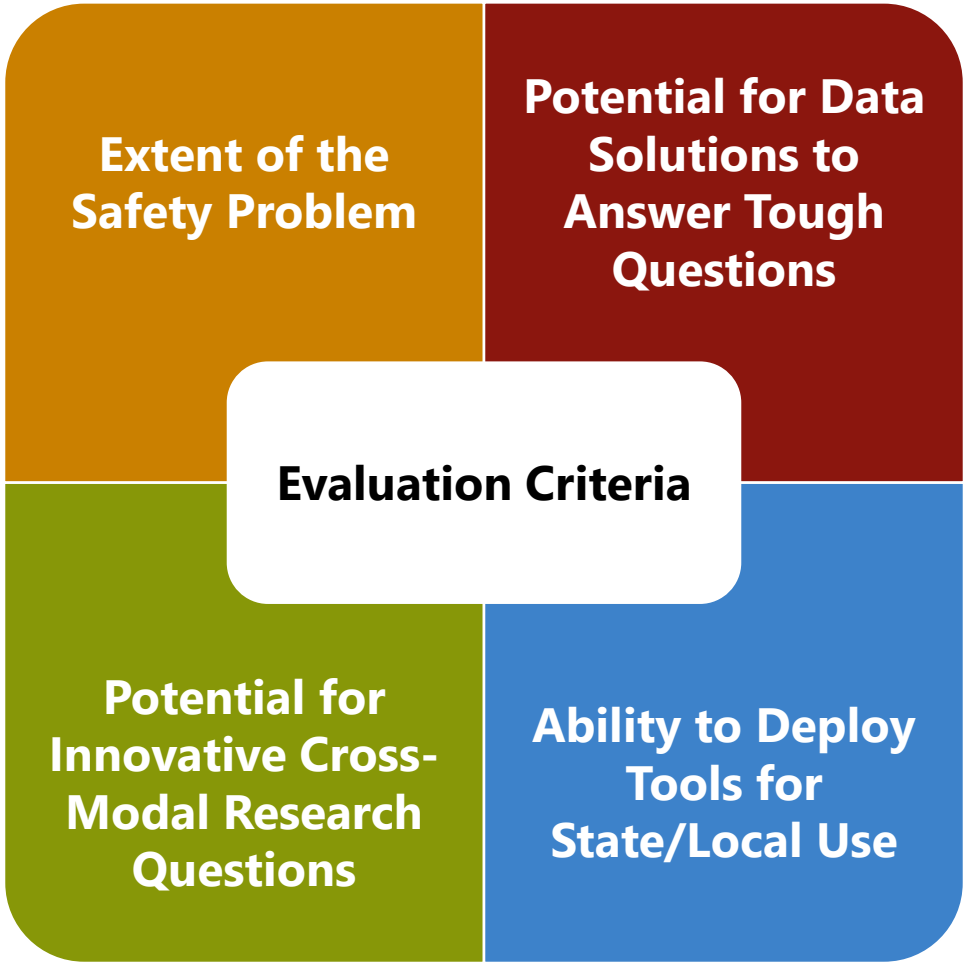
- Top transportation safety problems
- Problems answerable through data science and advanced analytics

Tools

- Research could develop tools to produce insights
- Tools transferrable to state/local partners to understand and address risk

Focus Areas

- Literature review identified list of 20+ potential topics
- Focused topics with feedback from cross-modal safety experts in DOT
- Considered evaluation criteria and selected four:
  - Precursors to Crashes
  - Pedestrian and Bicyclist Safety
  - Non-Fatal Injury Crashes
  - Intersections



Precursors to Crashes

- Precursors potentially correlated with motor vehicle crashes
  - Alcohol and speed are well understood
- We lack clear understanding of other precursor contribution to crashes
  - Distraction
  - Drug-impaired driving
- Untapped data could serve as risk signals to answer questions and target interventions

Source: Alexandre Boucher/Unsplash

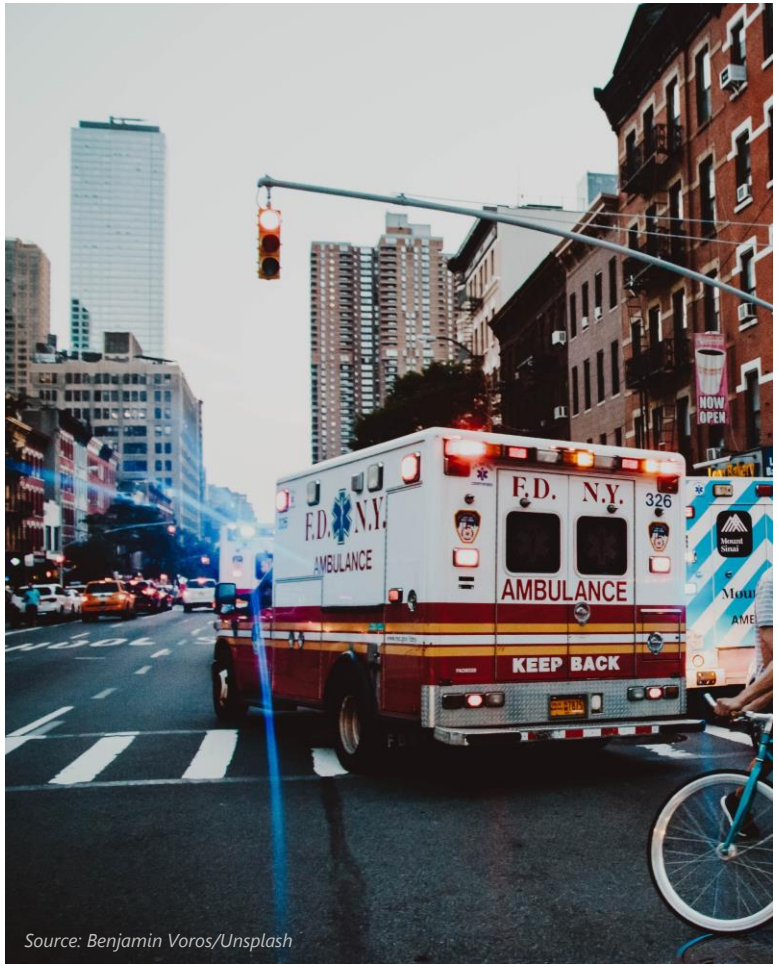
Pedestrian and Bicyclist Safety

- Fatalities have risen over the past decade
  - 5,977 pedestrian fatalities in 2017
  - 783 cyclist fatalities in 2017
- Fatalities disproportionate to trips in 2017
  - Pedestrians: 16% of fatalities, 11% of all trips
  - Cyclists: 2% of fatalities, 1% of trips
- We lack good exposure data
- New data sources may present opportunity for new insights

Source: Jorge Alcala/Unsplash

Non-Fatal Injury Crashes

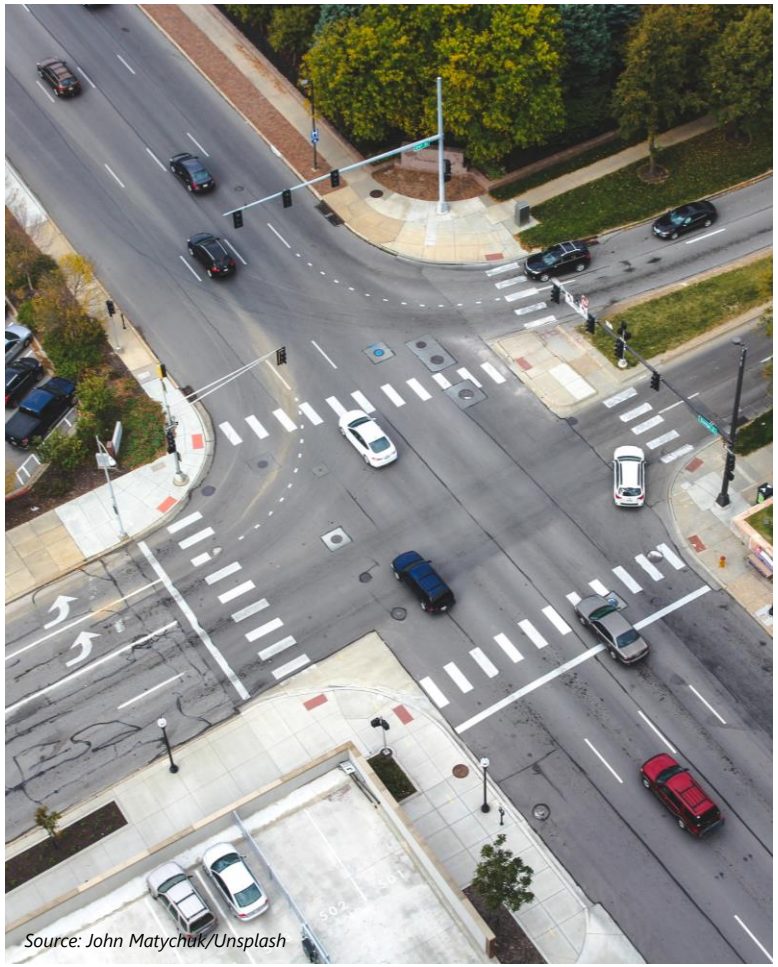
- 6.5 million police reported crashes in 2017
  - 1% fatal crashes
  - 30% non-fatal injury crashes
  - Estimated 2.7 million people non-fatally injured
- NHTSA currently samples police reports for non-fatal injuries
- Advance analytics could develop better understanding from large injury datasets



Source: Benjamin Voros/Unsplash

Intersections

- Estimated 40% of crashes occur at intersections
- Many factors may contribute to crashes
  - Infrastructure design
  - Driver characteristics
  - Weather
- Disparate data sources could be integrated to gain new network, factor, and countermeasure insights



Source: John Matychuk/Unsplash

Your Input

- What data sources can we use or should be using better to learn more about this problem?
- What questions need to be answered **and** lend themselves to being answered through data science?
- What tools would help you better address this transportation safety risk?