Pre-Solicitation Webinar for Conducting Innovative, Applied Research to Gain New Roadway Safety Insights and Tools

Office of the Under Secretary of Transportation for Policy

Office of the Secretary of Transportation

U.S. Department of Transportation

Webinar Agenda

- Safety Data Initiative and Analytic Agenda
- Anticipated Solicitation
- Questions & Answers

If a formal solicitation is released requesting a formal proposal, it shall be done so by a USDOT Contracting Officer who has authority to bind the Government on behalf of the Department.

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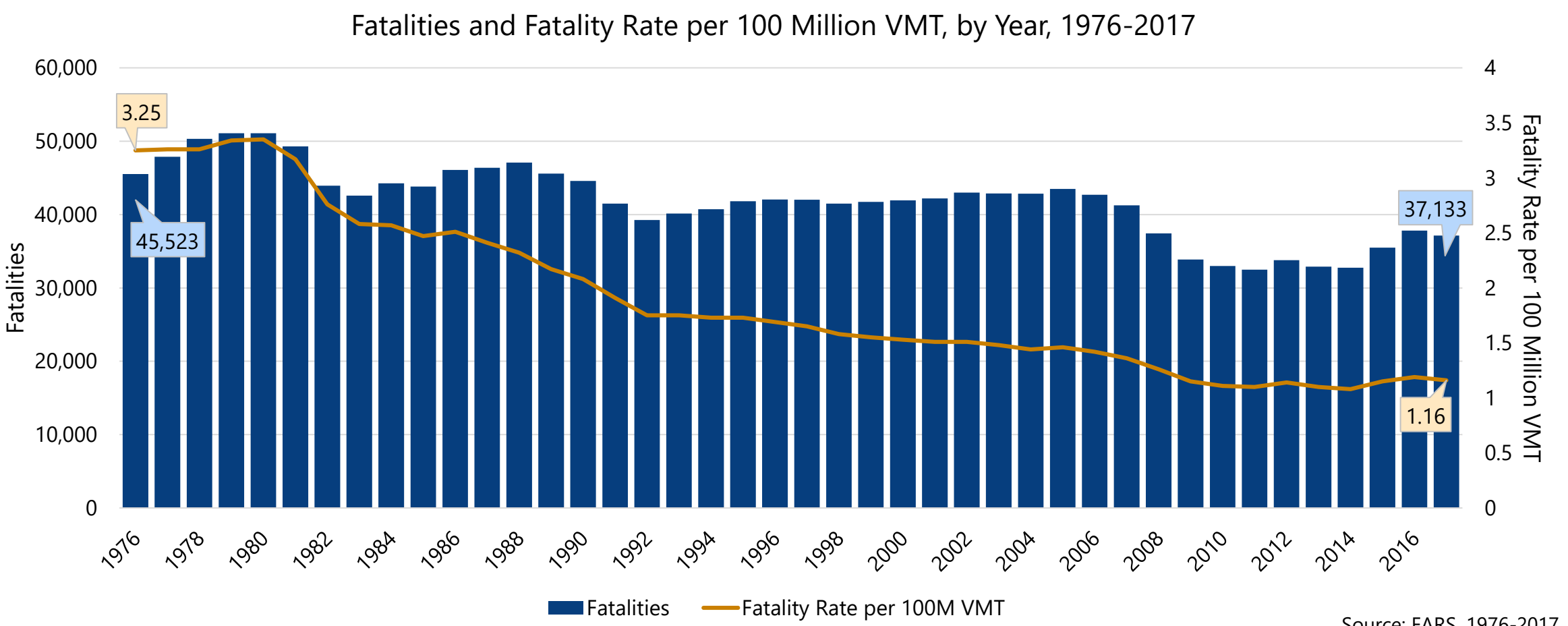
Systemic Safety Approach: Strategies

Improve the collection, management, and integration of **data**

Identify risks that contribute to fatalities and serious injuries

Collaborate with stakeholders to foster changes to the transportation ecosystem

The Problem



Source: FARS, 1976-2017

Safety Data Initiative (SDI)

- Launched in 2018
- Surface transportation focused
- Intended to build upon and enhance current safety efforts related to data, analysis, and policymaking

- Cross-cutting, collaborative effort:
  - Office of the Secretary of Transportation (OST)
    - Policy Office
    - Office of the Chief Information Officer
    - Bureau of Transportation Statistics
  - Federal Highway Administration (FHWA)
  - National Highway Traffic Safety Administration (NHTSA)
  - Other surface operating administrations (OAs)

Focus Areas

Integrate existing DOT data and new "big data" sources

Use advanced data analytics to provide **predictive insights** into safety risks

Create **data visualizations** to help policymakers arrive at solutions

Pilot Projects

- Since launch, the SDI has conducted pilot projects to:
  - Identify **safety challenges**
  - Experiment with solutions that can **save lives**
  - Improve the way information is conveyed for use by **safety practitioners**
  - Leverage the latest **advancements in data science**, as well as **new and emerging data** coming from the private sector

SDI Beta Safety Tools Developed

Pedestrian Fatality Risk Map

Solving for Safety Visualization Challenge Tools

Safety Applications of Waze Data

- Highway patrol context
- Local Vision Zero planning context

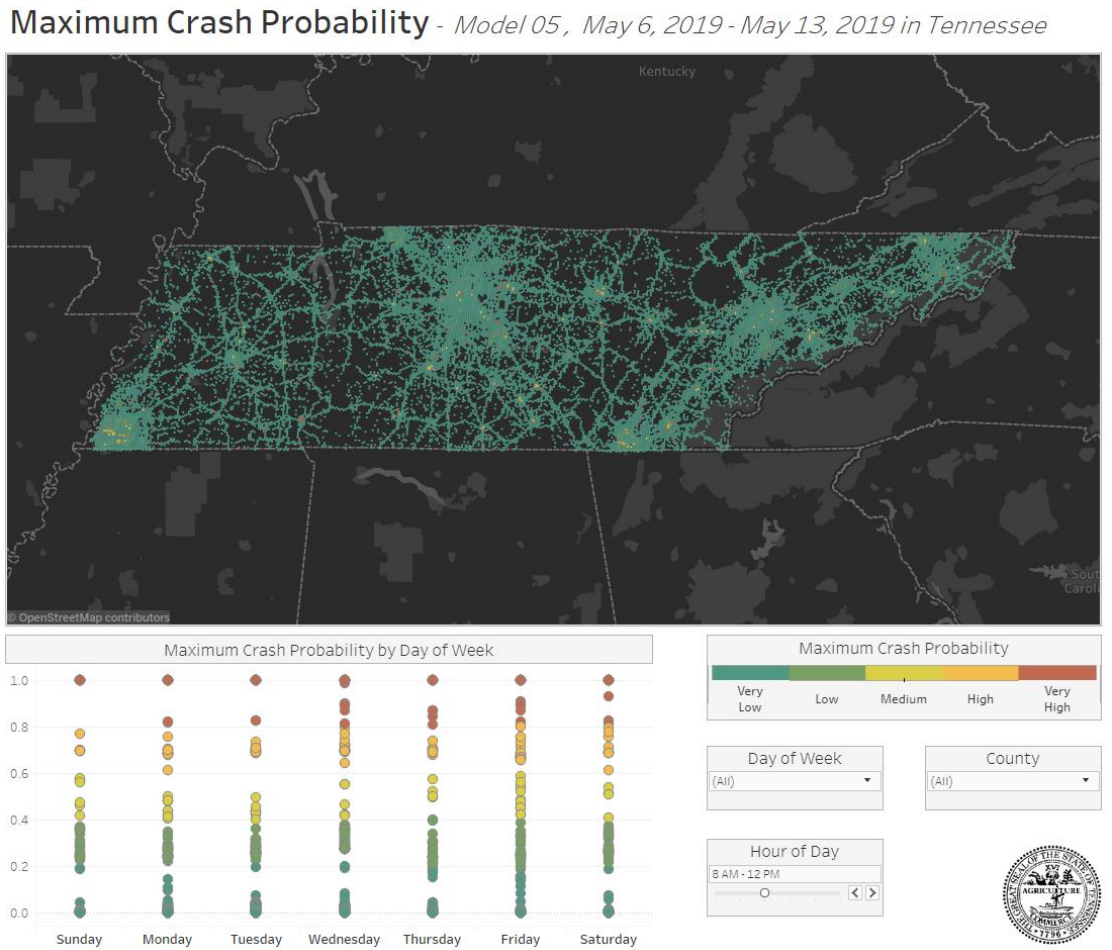
Fatality Analysis Reporting System (FARS) Visualizations

- Pedestrians
- Speeding-related crashes

Visit www.transportation.gov/SafetyDataInitiative for more details

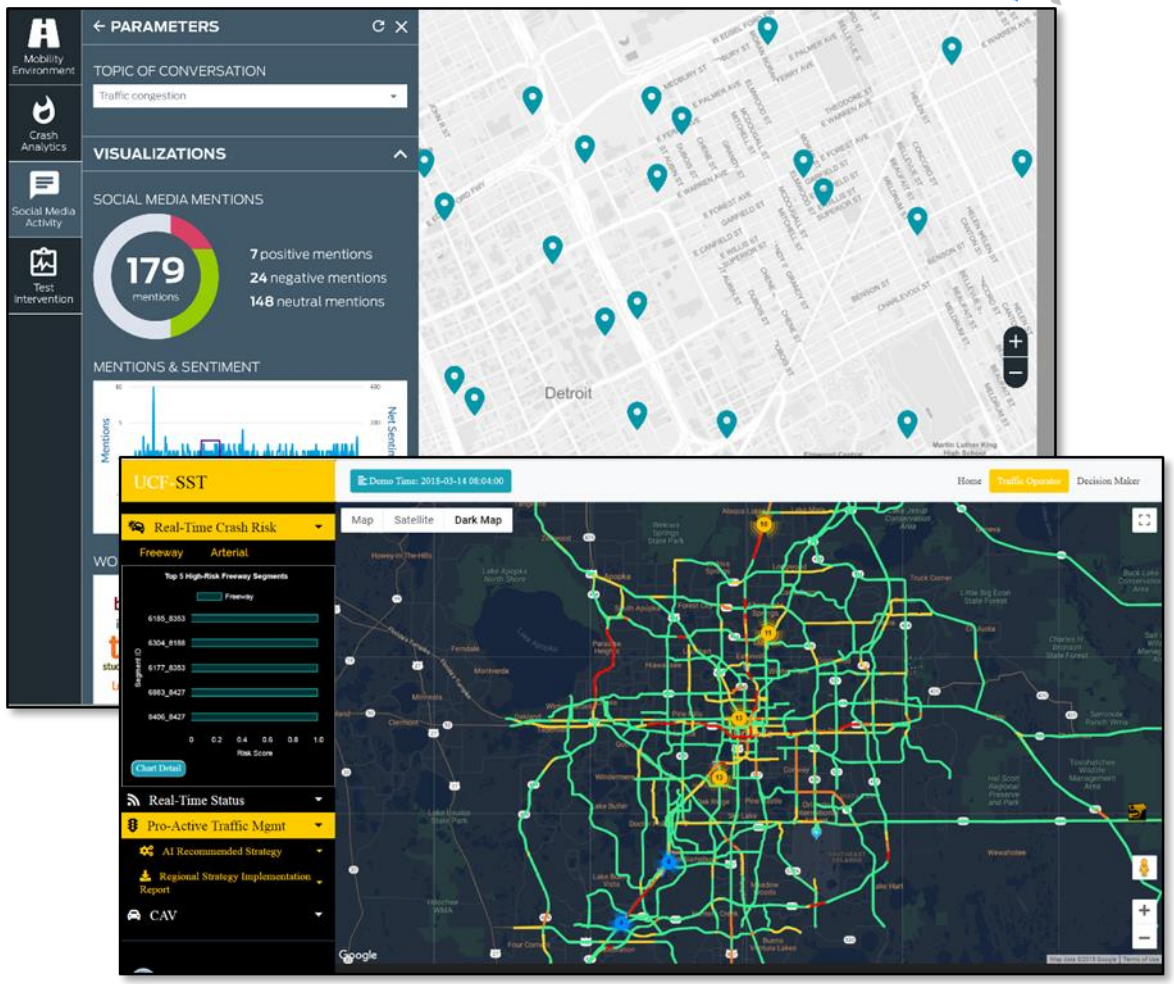
Safety Applications of Waze Data

- First phase developed a rapid indicator of police-reportable traffic crashes
- Second phase consists of two case studies to develop Waze safety applications using Waze data:
  - Tennessee State Highway Patrol
  - City of Bellevue, Washington



Solving for Safety Visualization Challenge

Multistage, **$350,000 competition** to develop visualization-powered analytical tools to reduce serious crashes to address specific focus areas



Lessons Learned

- There is a **wealth of data outside of the federal government** that are not fully leveraged
- Private sector data could **help the Department understand** what is happening on the nation's roadways
- Persistent safety issues can be further illuminated through **new data to contextualize** safety risk

Analytic Agenda

Analytic Agenda Overview

- The Department deliberated internally over four topic areas that presented opportunities to **enhance our understanding** of ongoing safety issues **with data**:
  - Pedestrian and Bicyclist Safety
  - Non-Fatal Injury Crashes
  - Intersections
  - Precursors to Crashes
- The Department convened stakeholders to help identify the **most pressing and persistent** safety research questions across these topics
- The input informed the SDI's **analytic agenda**

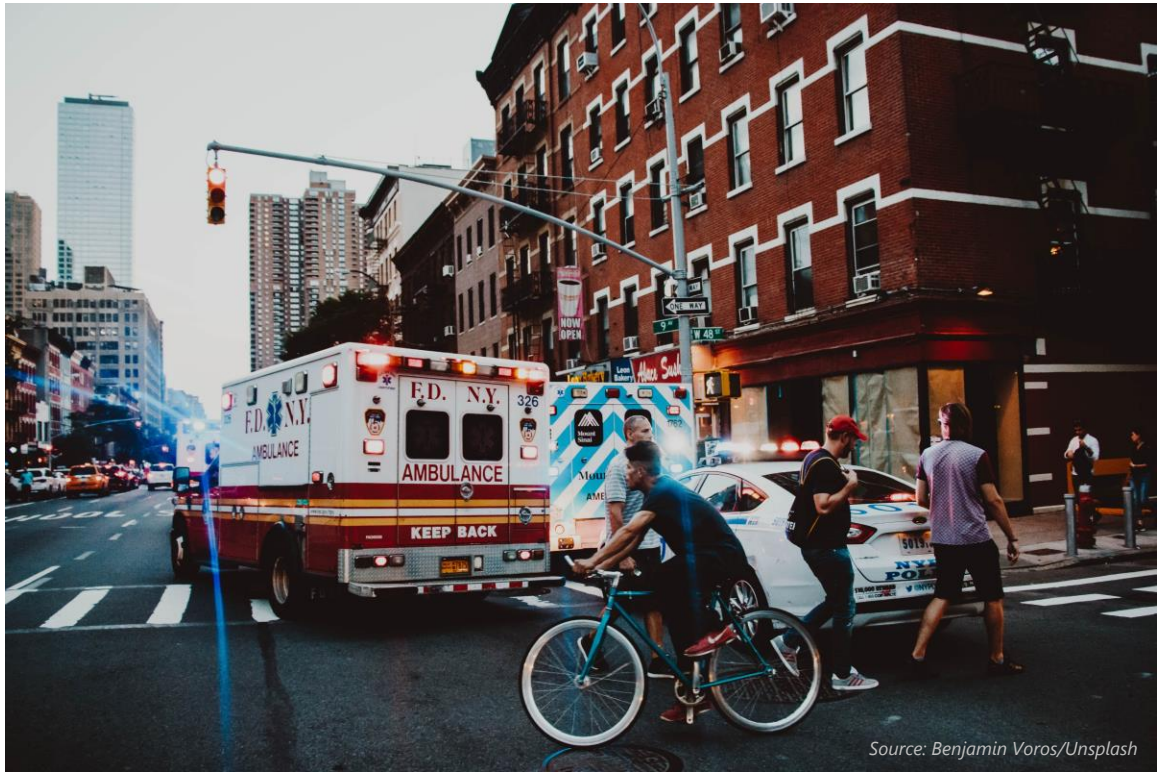
Pedestrian and Bicyclist Safety

- Fatality and serious injury locations
- Crash causes
- Modeling pedestrian and bicyclist exposure
- Risk identification

Source: Jorge Alcala/Unsplash

Non-Fatal Injury Crashes

- Data linkages to identify risk factors and patterns of risk
- Non-fatal injuries locations as a potential predictive indicator of fatal crashes



Source: Benjamin Voros/Unsplash

Intersections

- Intersection design features
- Safety conflict reduction
- Data linkages to inform countermeasures and safety insights

Precursors to Crashes

- Crash precursor risk signals
- Crash scenario characteristics and related patterns
- Understand baseline, normal-state-of-driving
- New data sources

Anticipated Solicitation

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Anticipated Approach

The Department is interested in soliciting demonstration projects that explicitly use and incorporate **new data sources to answer the SDI analytic agenda problem statements**

Intend to assess the **utility, fitness for purpose, and limitations** of new data to address the problem statements

Flexibility in addressing the problem statements

Goals

- Gain novel, useable, and **actionable insights** into transportation safety
- Replicate or scale data sources across the country and to gain insights that will **improve safety outcomes**
- Support **discovery and application** of data sets that are not currently available to the Department
- Help the Department and the transportation safety industry **bridge knowledge gaps** to address at least one of the problem statements

Anticipated Awards

- OST anticipates making multiple awards from a pool of **up to $1 million**
- Award amounts are expected to be in the hundreds of thousands
- Number of awards and value may vary depending on merit of proposals received and their potential to achieve the research objectives
- OST intends the period of performance duration to be around a year long

Data Expectations

- Open-data or data available for purchase
- Suitable for **national-scale** problems
  - National-level insights, or generally transferable to other locations throughout the country
- **Transparent** on methodology and data
  - Be able to assess and defend fitness for purpose, and delineate limitations

Case Study Example: Waze

- Assessed the potential of crowd-sourced Waze data for safety applications
- Findings:
    - Since it is crowd-sourced data the signal varied:
        - Stronger in urban than rural areas
        - Stronger during day vs. night
        - Stronger on higher functional classification roads (interstates) vs. local roads
    - The Waze data complemented other data sets such as weather to understand crashes over space and time
- Report from the first phase: rosap.ntl.bts.gov/view/dot/37256

Announcement Timeline

- OST anticipates issuing the anticipated solicitation **later this summer**

Questions & Answers

Feedback and Further Questions

www.transportation.gov/SafetyDataInitiative

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