

Transportation Data Sources and Opportunities

October/November 2015

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Data for Transportation Safety

- **Crash Data** (state crash datasets, EMS datasets, injury outcome datasets, EDR datasets, NASS, FARS)
- **Travel and Driving Data** (IVBSS, Safety Pilot, simulator data, NTS)
- **GIS/Roadway Data** (state and local levels, combined with crash through geo-location information in crash databases)
- **Exposure Data** (licensing data, travel behavior, census, NOPUS, NSUBS)
- **Vehicle Characteristics** (sales, ownership)

Key Crash Data and Sources

Dataset	Source	Contents	Size
National Automotive Sampling System—Crashworthiness Data System	NHTSA	National sample of investigated crashes including EDR; UMTRI has EDR in numeric format (as opposed to PDF)	Small
National Automotive Sampling System—General Estimates System	NHTSA	National sample of police-reported crashes	Small
Fatality Analysis Reporting System	NHTSA	Census of fatal crashes in US	Small
State crash datasets	UMTRI	Police-reported crashes from 10-15 states	Small (bigger than above)

Key Driving Data and Sources

Dataset	Source	Contents	Size
Integrated Vehicle-Based Safety Systems and other Field Operational Test data	UMTRI	150+ car and truck drivers @ 6 weeks 804K km	Medium (<10Tb)
Safety Pilot	UMTRI	3000 vehicles @ 1 yr with varying levels of data acquisition; driving and message data	Medium (20-40 Tb)
Second Strategic Highway Research Program (SHRP2)	Virginia Tech Transportation Institute	6 locations, ~3000 drivers, ~5M trips, ~50M miles, ~750 crashes of mostly low severity	Large (2Pb) Expensive to access

Other Key Data and Sources

Dataset	Source	Contents	Size
National Household Travel Survey	DOE/Oak Ridge	Travel survey conducted every ~7 years; last one 2009 and underway now	Small (<Tb)?
Research Data Exchange	FHWA; https://www.its-rde.net/home	Various datasets	Generally small
Data.gov	http://www.data.gov/	Various general datasets on transportation and safety—very broad	Generally small
NHTSA Complaints and Recalls Data	NHTSA http://www-odi.nhtsa.dot.gov/downloads/	Free text complaints from individuals who choose to file complaint w NHTSA on web	Small

Thanks for your attention.



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Some Key Questions

- What will safety data systems look like in the automated/connected vehicle world of the future?
- How can we enhance the value of existing video data (combined with kinematics) while still maintaining privacy?
- Data linkage—all methods that might enhance the usefulness of existing (federated) datasets
- Driver Behavior—how can we characterize it? How does it feed into vehicle automation?

U.S. DOT Field Operational Tests Conducted by UMTRI

Light Vehicles – ACC

ICC FOT

130K mi, 108 drivers

Heavy Trucks - Rollover

RSA

480K mi, 23 drivers

Light Vehicles – Forward Crash/ACC

ACAS FOT

137K mi, 96 drivers

Light Vehicles– Lane Departure/Curve Speed

RDCW FOT

110K mi, 78 drivers

Light Vehicles & Heavy Trucks – Multiple Systems

IVBSS

804K km
150+ drivers



RDCW FOT (UMTRI/Visteon)



ACAS FOT (GM/Delphi/UMTRI)

1990

2010