Collaborative Sciences Center for ROAD SAFETY

**Safe Systems Summit**

Redefining Transportation Safety

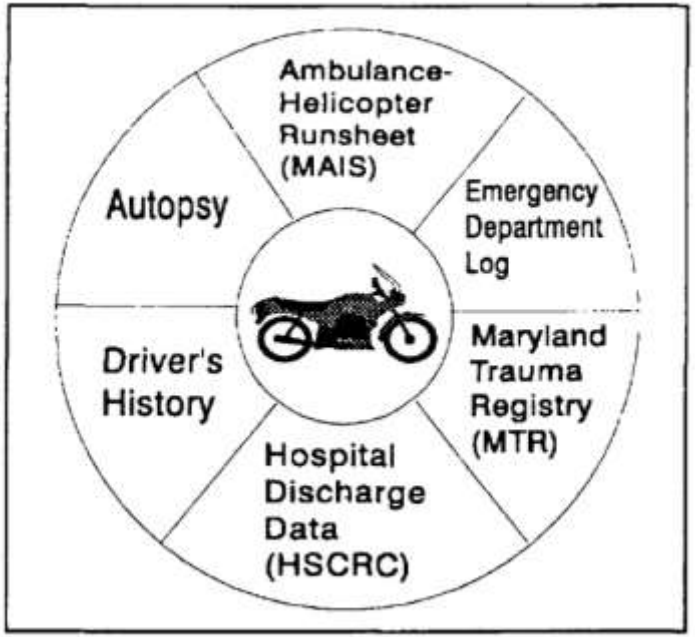

# A History Lesson in Data Linkage

## The Maryland Experience

April 23, 2019

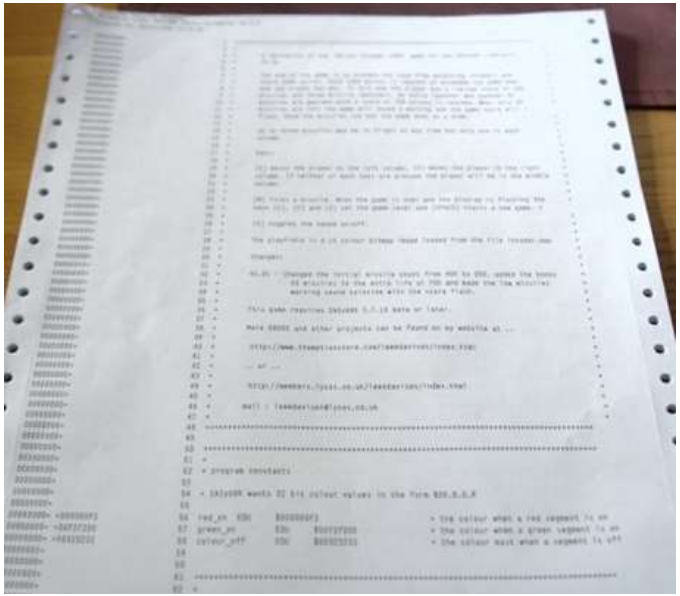
# 1990

Figure 1 - Motorcycle Study Linked Database




Papers presented at the International Symposium on Injury Statistics, May 18-24, 1994, Bethesda, Maryland. March 1995. 329 pp.

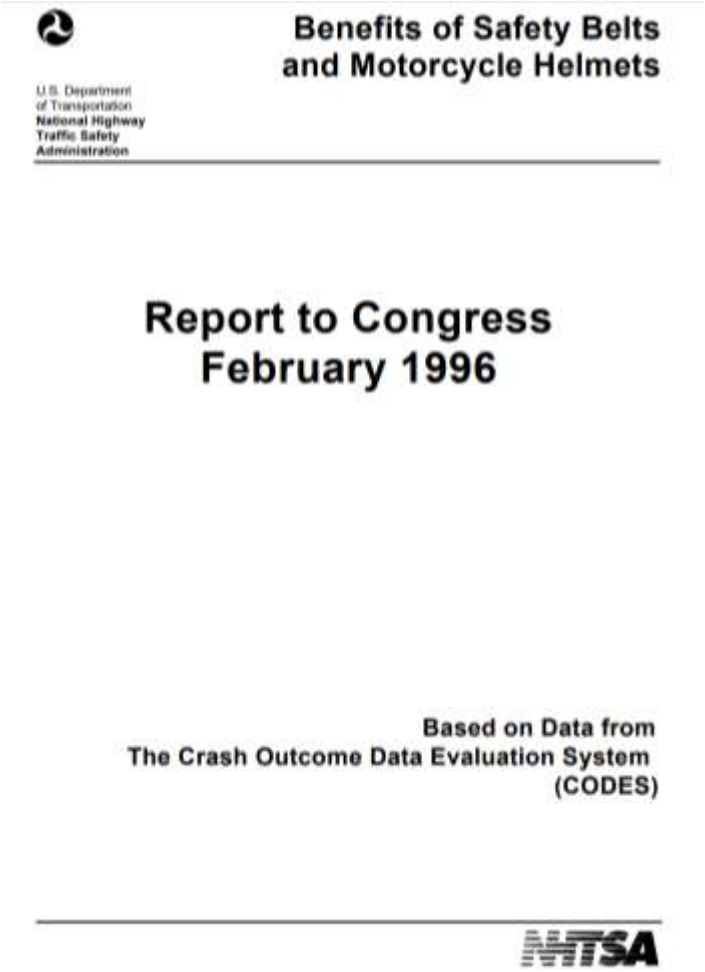
# 1992

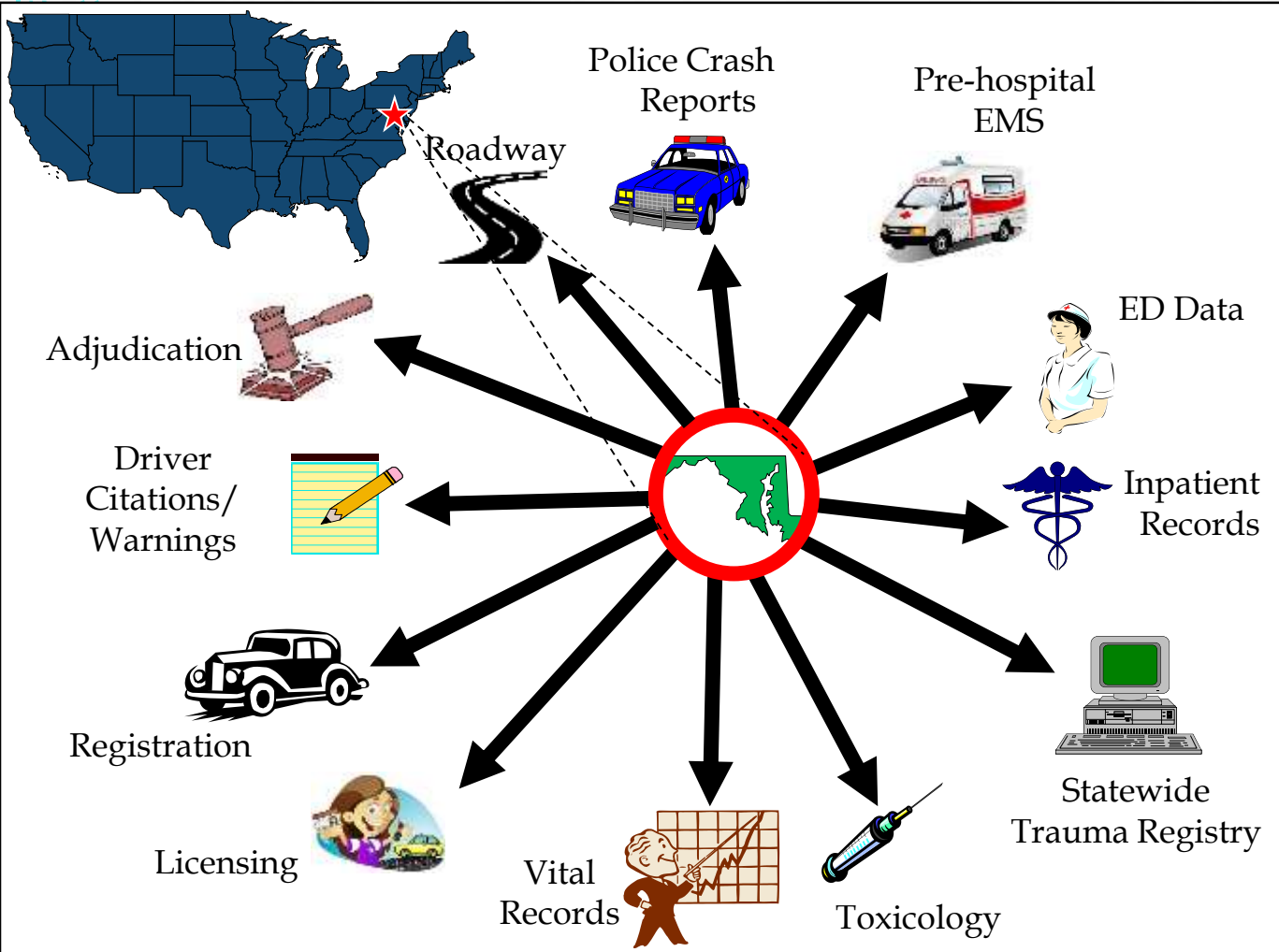


In 1992 NHTSA funded seven states.

- Hawaii
- Utah
- Maine
- Missouri
- New York
- Pennsylvania
- Wisconsin

Linkage between crash-EMS-hospital






UNIVERSITY of MARYLAND SCHOOL OF MEDICINE

National Study Center for Trauma & EMS

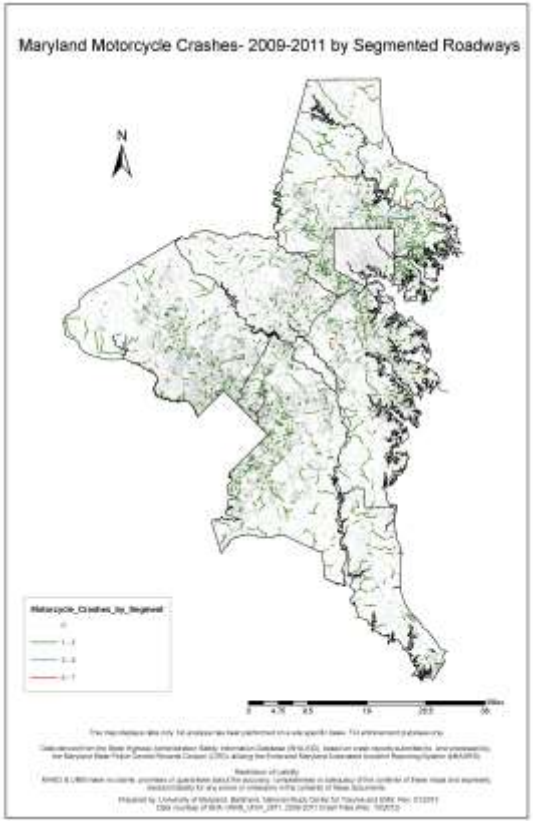
Supplemental data:
- Ignition interlock
- Motorcycle training
- Seatbelt observations
- Crash reconstructions

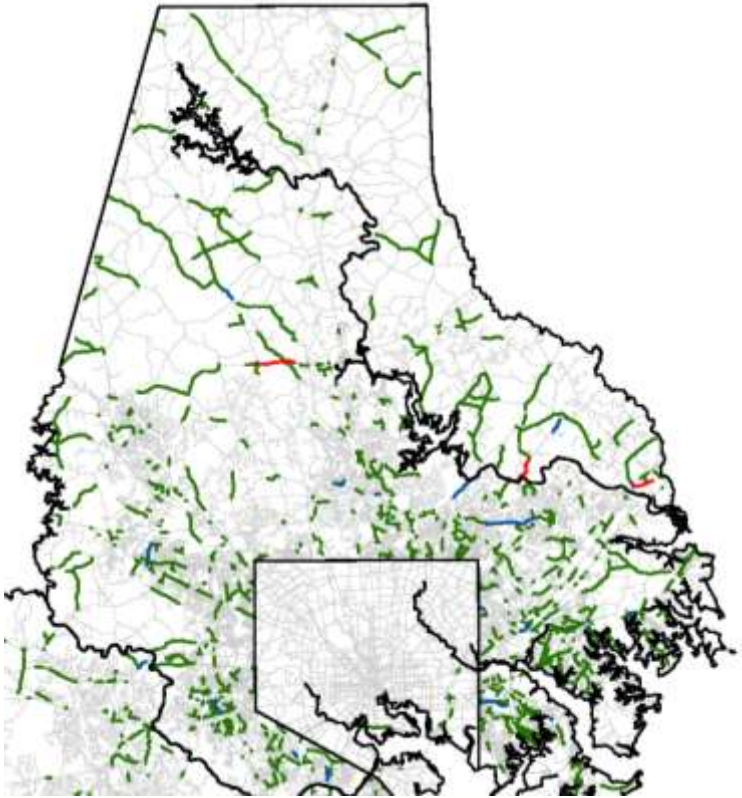
Maryland joined CODES in Round 2 - 1996

# Integration

High crash locations - roadway/intersection improvements

# GIS Data

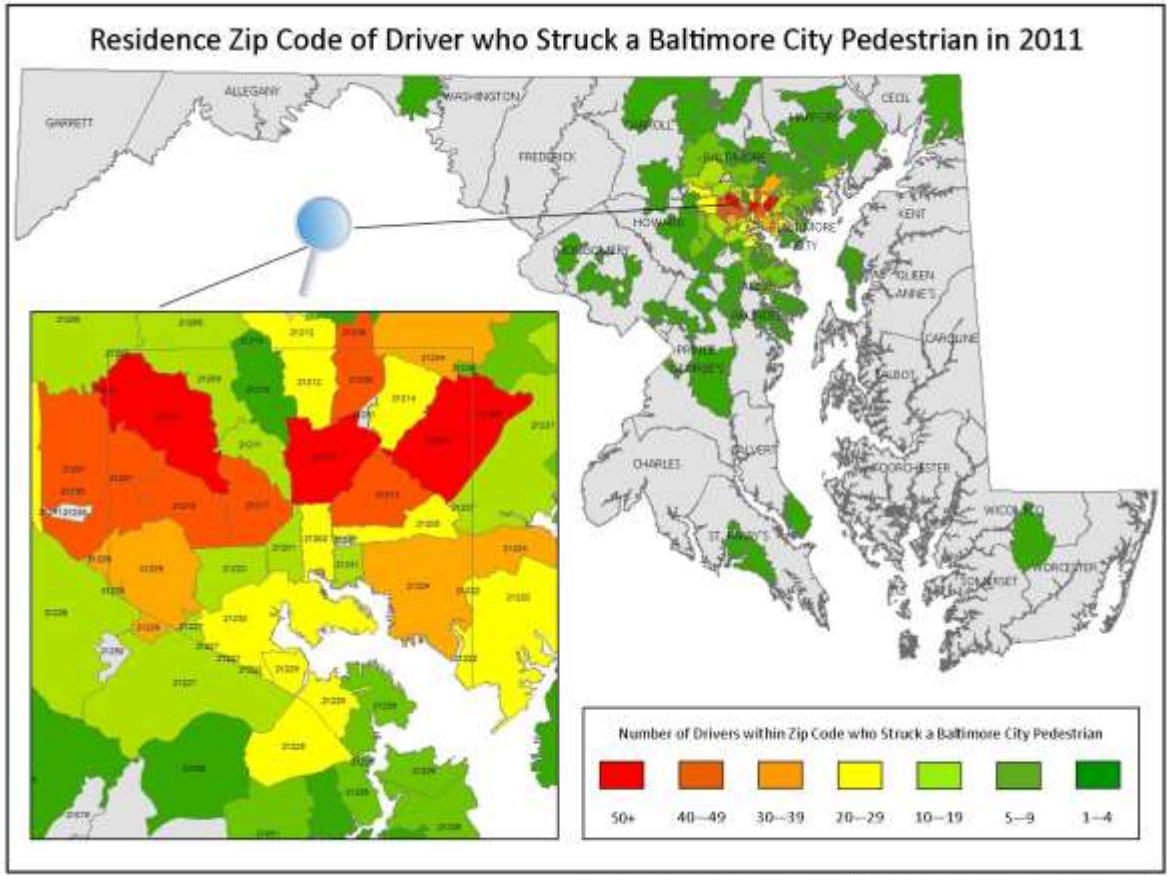

Maryland Motorcycle Crashes- 2009-2011 by Segmented Roadways
N



# Integration

High crash locations - roadway/intersection improvements

Driver zip codes – increased awareness and education




Prepared By: University of Maryland, Baltimore, National Study Center for Trauma & EMS, Pg. 1 of 1, Updated: 10/23/2012

# Integration

High crash locations - roadway/intersection improvements

Impaired driver zip codes – increased awareness and education

Crash injury outcomes/ Serious injuries

# Hospital Admission Charge Percentile

| | | | | Hospital Charges (Percentile) | | |
|---|---|---|---|---|---|---|
| Mechanism | Number | Charge ($ in 1,000s) | Percent (%) | 25th | Median | 75th |
| Driver | 3,132 | 60,945 | 45.7 | 3,923 | 5,650 | 14,996 |
| Passenger | 1,125 | 19,363 | 14.5 | 4,075 | 6,110 | 15,403 |
| Motorcyclist | 835 | 27,455 | 20.6 | 4,835 | 9,999 | 27,207 |
| Pedal Cyclist | 105 | 2,225 | 1.7 | 4,062 | 7,526 | 22,240 |
| Pedestrian | 736 | 18,171 | 13.6 | 4,588 | 9,083 | 25,455 |
| Unspecified | 247 | 5,110 | 3.8 | 4,281 | 7,066 | 18,201 |
| Total | **6,180** | **133,269** | **100.0** | **4,104** | **6,396** | **17,713** |

** Identify costly traffic safety injuries

Maryland CODES

# Integration

High crash locations - roadway/intersection improvements

Impaired driver zip codes – increased awareness and education

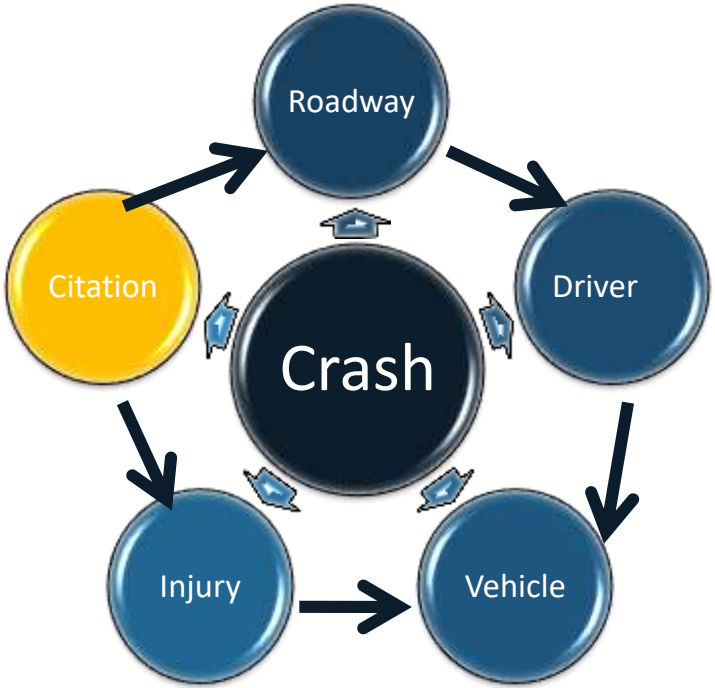
Crash injury outcomes/ Serious injuries

High risk drivers/GDL

# Experience Counts

| Rates per 100 Licensed Drivers by Age Group | | |
|---|---|---|
| | Crash Involvement | Citations Issued |
| 18-24 | | |
| Initial license | 10.1 | 28.0 |
| Renewal/transfer | 6.1 | 22.2 |
| 25+ | | |
| Initial license | 6.9 | 15.8 |
| Renewal/transfer | 3.8 | 10.8 |

# Traffic Records Future Vision



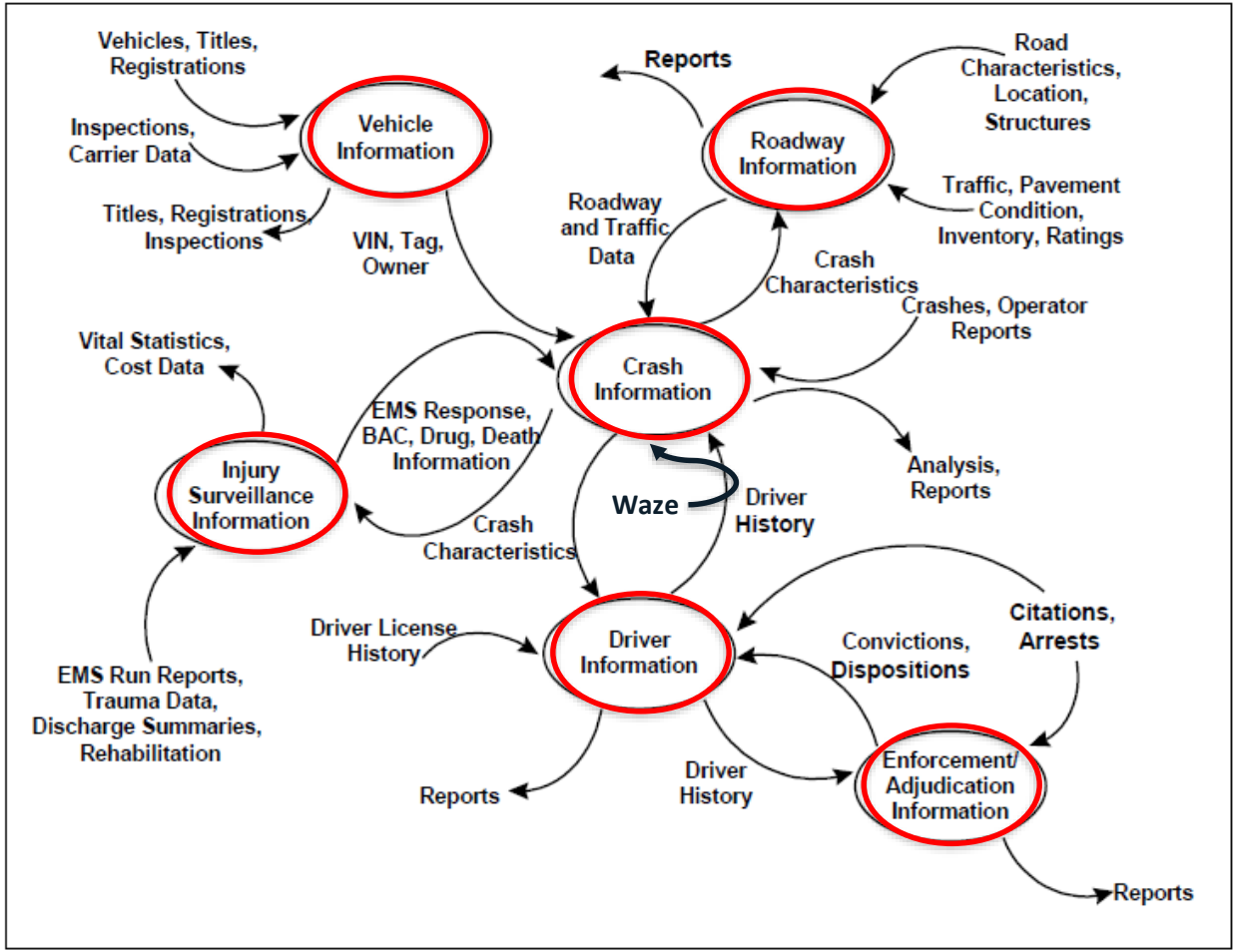

Edmunds Safety Conference May 2011
Presentation by GHSA

# Current Efforts

- Centers for Disease Control and Prevention
  - Data linkage focusing on older drivers and occupants
  - Utah, Maryland, Kentucky, Ohio

- USDOT Safety Data Initiative –
  - https://www.transportation.gov/content/safety-data-initiative

- State initiatives


Vehicles, Titles, Registrations
Inspections, Carrier Data
Titles, Registrations, Inspections
Vehicle Information
VIN, Tag, Owner
Reports
Roadway Information
Road Characteristics, Location, Structures
Traffic, Pavement Condition, Inventory, Ratings
Roadway and Traffic Data
Crash Characteristics
Crashes, Operator Reports
Crash Information
Analysis, Reports
Vital Statistics, Cost Data
EMS Response, BAC, Drug, Death Information
Injury Surveillance Information
Crash Characteristics
Waze
Driver History
EMS Run Reports, Trauma Data, Discharge Summaries, Rehabilitation
Driver License History
Driver Information
Convictions, Dispositions
Citations, Arrests
Reports
Driver History
Enforcement/ Adjudication Information
Reports

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Can data be collected and linked between crash, 911, infrastructure, hospital/EMS, motor vehicle, and human behavior sources?

# Barriers

- Insufficient funding
- Staffing turnover
- Lack of process documentation
- Long lag times in obtaining source data for linkage
- Statutory requirements for obtaining and reporting data
- Complex linkage techniques such as probabilistic linkage
- Marketing linked data so that others understand how they can be used to increase traffic safety


CRASH
CITATION
INJURY
ROADWAY
LICENSING
REGISTRATION


REGISTRATION
LICENSING