

# Safety and ITS: A Perfect Partnership

Brian Chandler, PE, PTOE, PMP

**DKS**





“ITS America advances  
the research and  
deployment of  
intelligent  
transportation  
technologies to  
**save lives...**”

**Using existing  
data & tools in  
innovative ways**



**Look!  
Shiny!**



**Existing Data**

## Data Quality 6-Pack

Timely

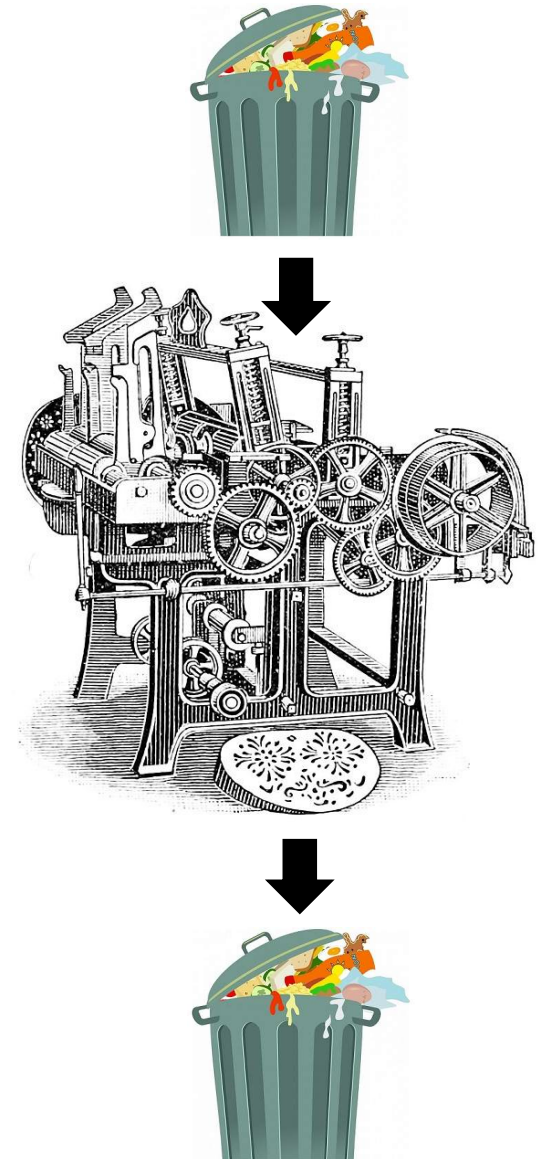
Accurate

Complete

Consistent

Integrated

Accessible



# Data Collection



Close Up of Collision Report

Page 1

Inserted Collision Diagram using SmartRoads

Page 2

# Accessible Analysis Tools

Search Reset

\* Asterisk denotes a required field

## Collision Date

\* Start Date/Time:   12:00 AM   \* End Date/Time:   12:00 AM    
Day of Week: Sunday  Monday  Tuesday  Wednesday  Thursday  Friday  Saturday    
Time of Day From:    Time of Day To:

## Collision Location

Roadway Type:    Agency Type:

\* You must select a County or City or check Statewide.

County:    City:    Statewide:

Primary Trafficway:   Secondary Trafficway:

This field supports the use of [wildcard characters](#).

This field supports the use of [wildcard characters](#).

Block/Milepost Begin:   Block/Milepost End:    Block / Milepost

School Zone:   Intersection Related:

<http://www.wsp.wa.gov/driver/collision-records>



# New Data Sources





# CREATING SAFER ROADS FOR EVERYONE



**Snapshot Csv**

| event_timestamp | vehicle_id | vehicle_location_longitude | vehicle_location_latitude | state  | city     | system | signMessage             |
|-----------------|------------|----------------------------|---------------------------|--------|----------|--------|-------------------------|
| 1471893808      | 2201       | -122.62343                 | 45.53584                  | oregon | portland | Isnet  | 12 To Tilamoc TC        |
| 1471893808      | 3230       | -122.34669                 | 45.53012                  | oregon | portland | Isnet  | 46 To Hillsboro TC      |
| 1471893808      | 3152       | -122.6829                  | 45.49881                  | oregon | portland | Isnet  | 68 Marquam Hill         |
| 1471893808      | 3253       | -122.8012                  | 45.4809                   | oregon | portland | Isnet  |                         |
| 1471893808      | 103        | -122.88574                 | 45.60351                  | oregon | portland | Isnet  | Yellow Line to Expo Ctr |
| 1471893808      | 110        | -122.59956                 | 45.52872                  | oregon | portland | Isnet  | Blue Line to Hillsboro  |
| 1471893808      | 2036       | -122.53798                 | 45.48277                  | oregon | portland | Isnet  | 71 To 84th-Foster       |
| 1471893808      | 3016       | -122.80147                 | 45.49102                  | oregon | portland | Isnet  | 54 To Portland          |
| 1471893808      | 3219       | -122.87479                 | 45.53432                  | oregon | portland | Isnet  | 48 To Stacki Ave        |
| 1471893808      | 3258       | -122.96281                 | 45.51909                  | oregon | portland | Isnet  | 47 To PCC Rock Creek    |
| 1471893808      | 2235       | -122.42804                 | 45.50374                  | oregon | portland | Isnet  | 20 Gresham TC           |

Showing 1 to 802 of 802 entries

**newTrip** 08/22/2016 12:23:28

**type** 08/22/2016 12:23:28

**inCongestion** 08/22/2016 12:23:28

**Time range:** 08/16/2016 12:06:40 - 12/22/2016 14:46:04

**bearing:** 08/22/2016 11:48:28

**Vehicle Counts**  
Total: 802  
ViewPort: 159

**Widgets**

- Snapshot Csv**  
Columns: nextStopSeq, lastStopSeq, loadPercentage, direction
- Pie Chart**  
Columns: newTrip, inCongestion, offRoute, type
- Line Chart**  
Columns: device\_id, bearing, nextStopSeq, lastStopSeq
- Bar Chart**  
Columns: device\_id, bearing, nextStopSeq, lastStopSeq

**Map Views**

- Markers**  
Marker Limit: 1700
- Warning! Increasing might degrade browser performance.
- Color By: routeNumber

**Moonshadow**

Time Interval (Seconds): 30 | Dot Size: 4

# Integrating Other Datasets

by StreetLight Data

**STREETLIGHTDATA**

Map of California showing Superdistricts. Legend: 12788 - 40189 (12 - 3.6%), 40190 - 92223 (9.8 - 8.2%), 92224 - 312641 (8.3 - 28.2%)

**Visualization Options**

Select a Project

- Bay Area Counties GO
- Bay Area Zip GO - July 2015
- Bay Area Zip via Bridges
- MTC Super Districts O-D - June 2015
- New England Ski Travel
- SF to GG Bridge
- SF to MTC Super Districts - July 2015

Select Zone Type

Origin Destination

Include Origin + Destination

Select a Origin Zone

- County - 1 Superdistrict - 4
- County - 2 Superdistrict - 5
- County - 2 Superdistrict - 8
- County - 2 Superdistrict - 7
- County - 3 Superdistrict - 10
- County - 3 Superdistrict - 11
- County - 3 Superdistrict - 12
- County - 3 Superdistrict - 13
- County - 3 Superdistrict - 14



# Existing Tools

# Intersection Conflict Warning System

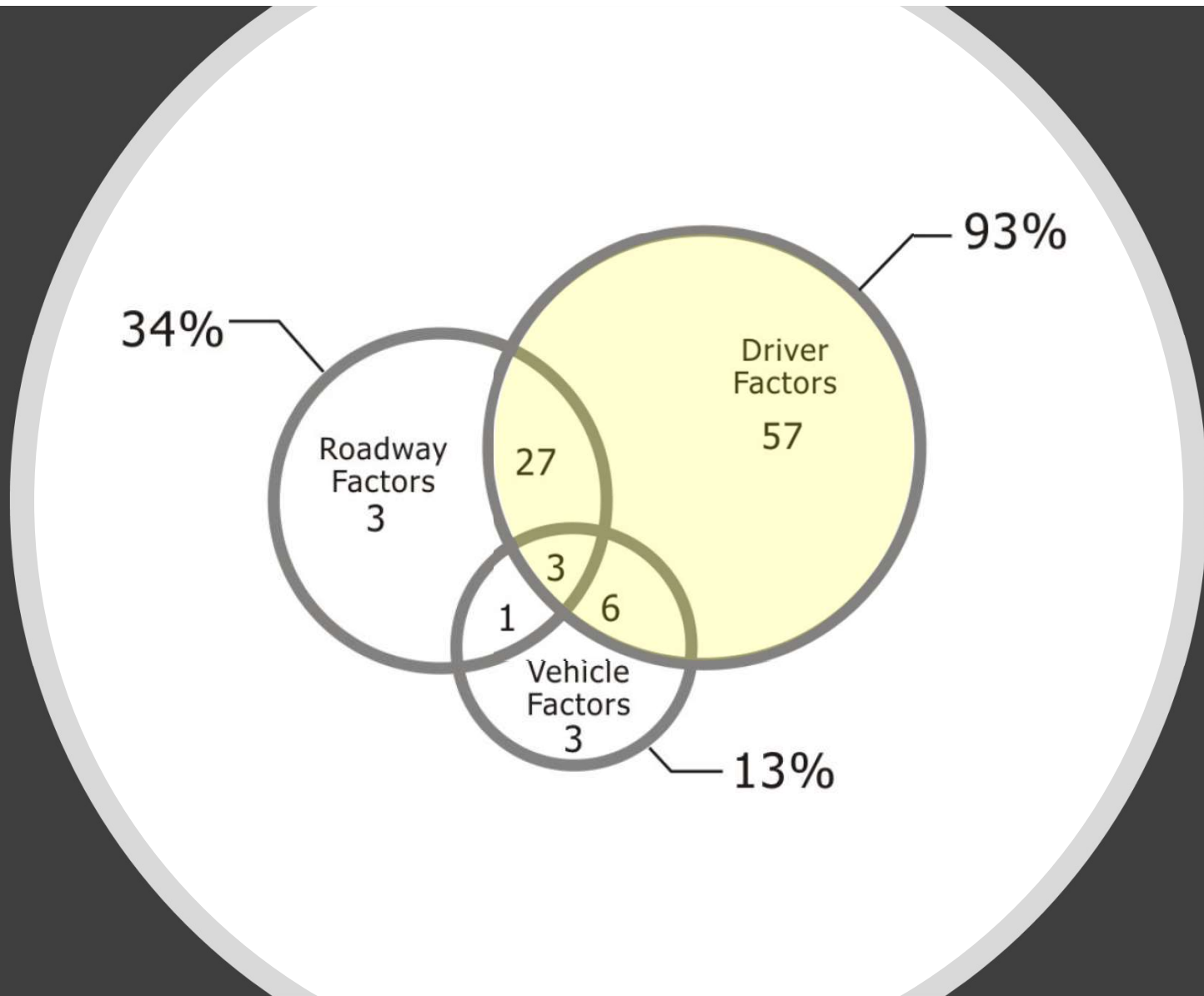


| ICWS RESULT     | Severe Crashes<br>CMF (% reduction) | Angle Crashes<br>CMF (%<br>reduction) | All Crashes<br>CMF (%<br>reduction) | Night Crashes<br>CMF (%<br>reduction) | Average B/C<br>(Hi/Lo Range) |
|-----------------|-------------------------------------|---------------------------------------|-------------------------------------|---------------------------------------|------------------------------|
| 2-lane x 2-lane | 0.70 (30%)                          | 0.80 (20%)                            | 0.73 (17%)                          | 0.90 (10%)                            | 27:1 (16:1-39:1)             |
| 4-lane x 2-lane | 0.80 (20%)                          | 0.85 (15%)                            | 0.83 (17%)                          | 0.97 (3%)                             | 10:1 (6:1-14:1)              |



**New Tools**

**Humans  
are bad at  
driving**



01001111 01101110 01101100 01100001  
01001110 01100101 01100011 01101011

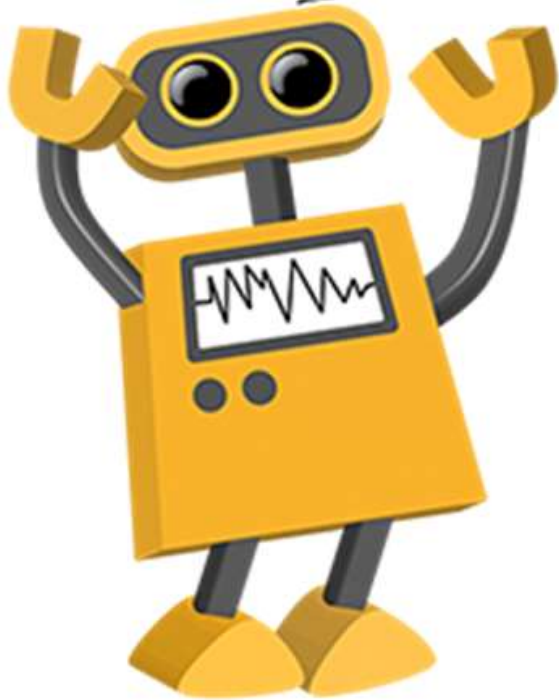
01110111 01100101  
01110010 00100000

01100101 01100001  
01110100 00001101

01100101 01100001

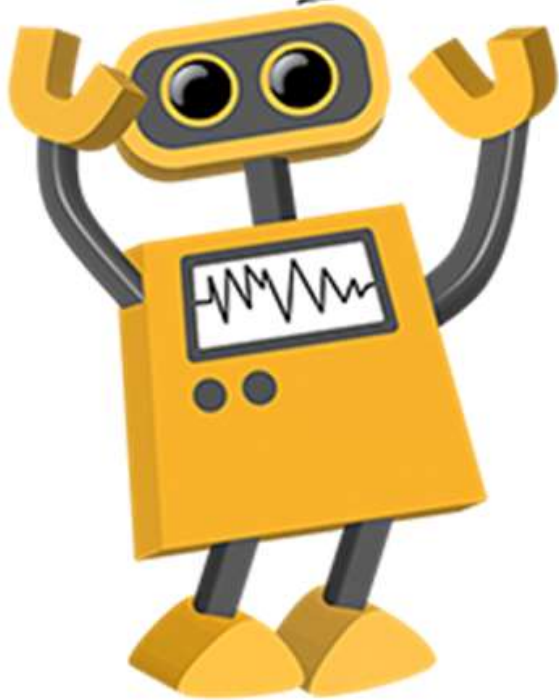
01000101 01111000  
01110000 01100101

01110100 01101111





Only two eyes, both in front  
Neck rotation is terrible



Computational power  
of meat

Require sleep

Consume substances &  
drive worse

Expensive to repair

**Think they are good  
at driving**

A nighttime photograph of a city skyline with a multi-lane highway in the foreground. The highway shows long-exposure light trails from cars, with red and white streaks in the right lanes and blue and white streaks in the left lanes. The city buildings are illuminated, and the sky is dark. A large white curved line separates the image from the text on the right.

# ACES

“ITS America advances the research and deployment of intelligent transportation technologies to **save lives...**”

The DKS logo consists of the letters 'DKS' in a bold, white, sans-serif font, centered within a solid black square. The background of the entire slide is a long-exposure photograph of a city highway at night, showing light trails from cars and illuminated buildings in the distance.

**DKS**

**Brian Chandler, PE, PTOE, PMP**  
**Director of Transportation Safety**  
**[brian.chandler@dksassociates.com](mailto:brian.chandler@dksassociates.com)**  
**206.276.2668**

 [linkedin.com/in/brianchandler](https://www.linkedin.com/in/brianchandler)

 [twitter.com/TrafficSafety](https://twitter.com/TrafficSafety)

 [amazon.com/author/brianchandler](https://www.amazon.com/author/brianchandler)