

NC VISION ZERO

DATA VISUALIZATION: Bringing awareness to action

Burke Foley

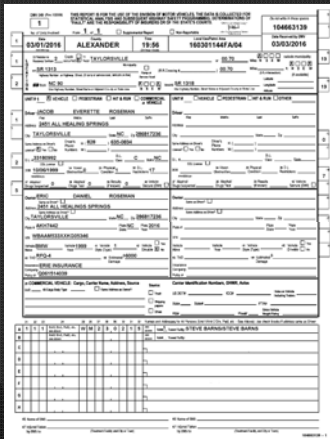
5/24/2017, Urban Street Symposium, Raleigh, NC



Outline

- What is data visualization?
- Why do we need data visualization tools?
- What makes a data visualization good (and what makes one bad)?
- Data Tools for NC Vision Zero
 - Vision Zero Analytics
 - Safety Dashboard
 - Crash Query Tool
 - Vision Zero Maps

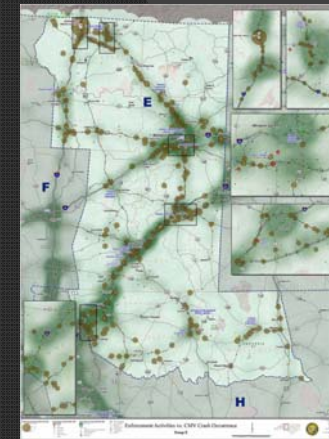
Types of data visualization



REPORTS



CHARTS / GRAPHS



MAPS

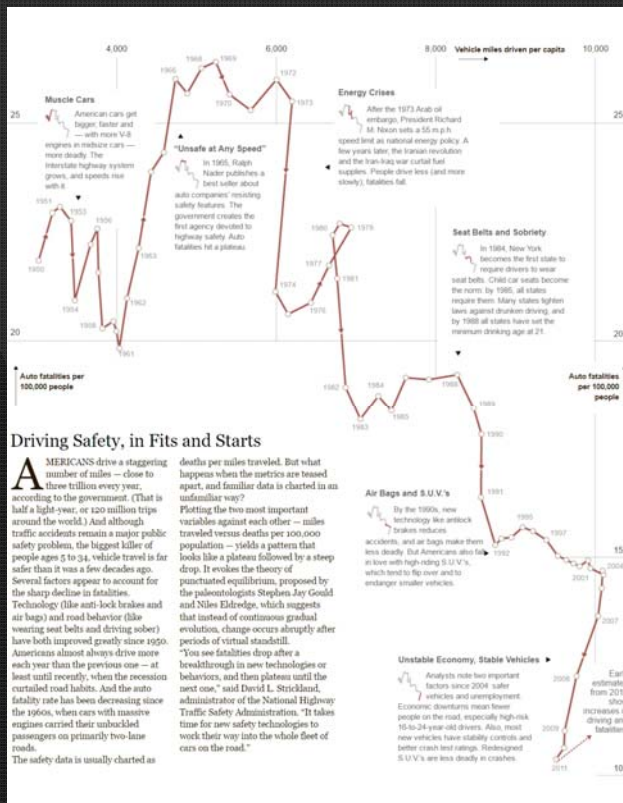


INFOGRAPHICS

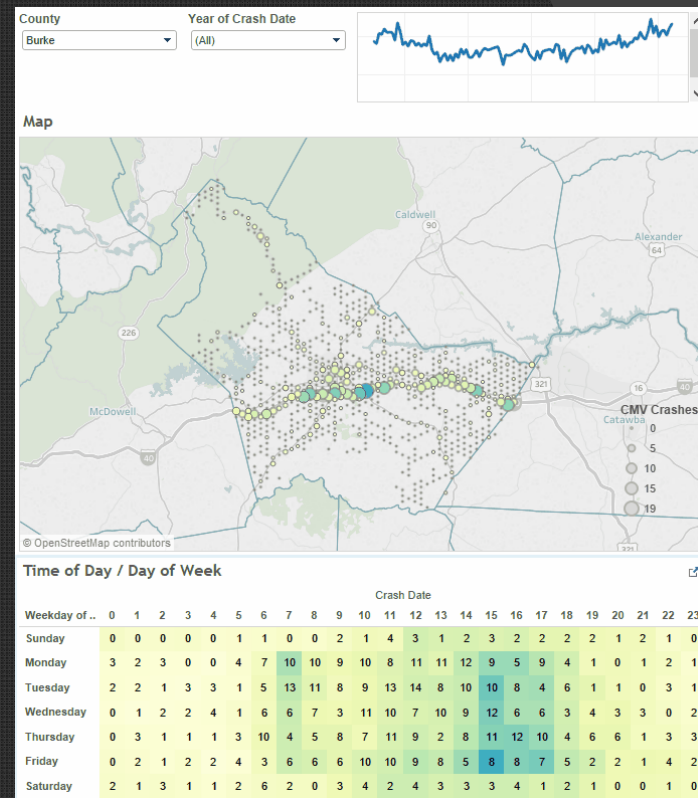
Role	Name	Year of the...	Debut	Thousands of Fans	Takedown Rate
Face (The Hero)	The Ultimate Warrior	Tiger	May-2011	97.3	86.2
	Hulk Hogan	Oxen	Jan-2008	988.6	62.0
	Macho Man Randy Savage	Monkey	Feb-2008	157.6	59.3
	Hacksaw Jim Duggan	Pig	Mar-2008	30.3	53.4
	Superfly Jimmy Snuka	Dragon	Mar-2008	12.3	52.7
Heel (The Bad Guy)	Rowdy Roddy Piper	Rooster	Jun-1968	71.6	45.4
	The Million Dollar Man Ted DiBiase	Rat	Apr-1975	449.3	43.8
	Mr. Perfect Curt Hennig	Rat	May-1980	13.8	38.0
	Jake the Snake Roberts	Snake	Jul-1975	5.6	38.0
Jobber (The Unknown)	Brad Smith	Sheep	Aug-2008	1.1	36.3
	Ted Duncan	Sheep	Aug-2008	0.2	33.6
	Joey the Uber Nerd Cherdarchuk	Snake	Aug-2008	0.0	21.0

DATA TABLES

Data viz is a form of communication



<http://www.nytimes.com/interactive/2012/09/17/science/driving-safety-in-fits-and-starts.html>



What makes
data
visualization
bad

- Information overload
- Too many colors
- Inaccurate/Misrepresentation of data
- Use of non-traditional shapes
- “Chart Junk”

What makes data
visualization good?

- Accurate
- Appropriate
- Accessible
- Actionable

Why do we need data visualization tools?

- ① **Correct** for biases
- ② **Broaden** traffic safety knowledge
- ③ **Democratize** Data

NC Vision Zero Data Tools

Data & Maps

[DATA & MAPS](#) [SAFETY DASHBOARD](#) [VISION ZERO ANALYTICS](#)

- Safety Dashboard** [Check It Out](#)
Explore fatal and serious injury crash trends.
- Vision Zero Analytics (Login Required)** [Learn More](#)
Track safety goals and identify data-driven strategies for reducing traffic fatalities.
- Crash Query Tool** [Coming Soon](#)
Ask detailed questions about crash data and visualize the results.
- Crash Maps** [Coming Soon](#)
Visualizing geographic patterns of fatal and serious injury crashes.

Vision Zero Analytics

- **Track GHSP Highway Safety Plan performance goals** by geographic areas
- **Visualize patterns and trends** by jurisdictional responsibility
- **Identify effective data-driven strategies** for preventing crashes

- **Users**
 - NC State Highway Patrol
 - 8 troop users
 - 55 troop district users
 - Law Enforcement Liaisons
 - 11 users

Vision Zero Analytics

Year: **Calendar 2015** | Location: **C** | Reporting Agency: **Shp**

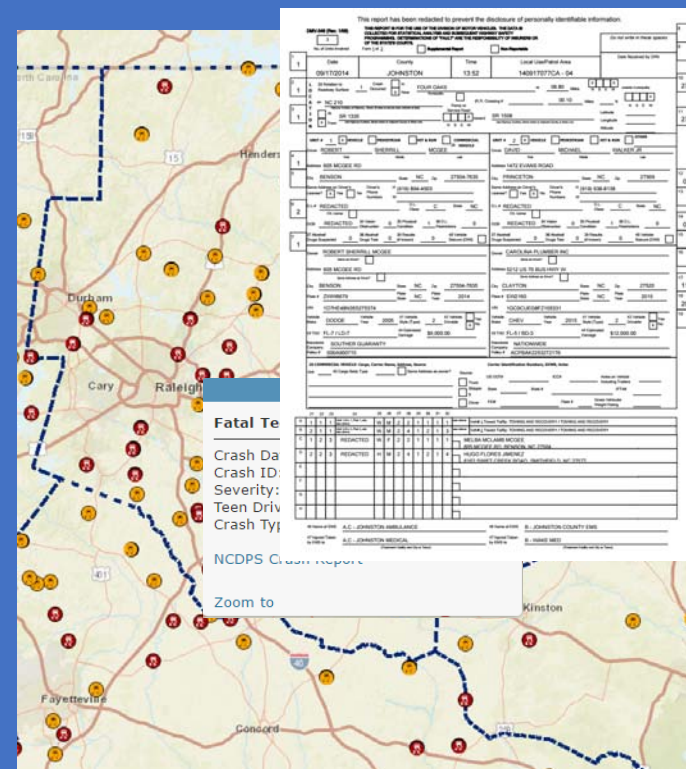
GHSP Scorecard

	Year to Date	Year to Date
	Year-to-Date Fatalities	Year-to-Date Target and Status
Fatalities	165	134.56 ◆ 23%
Alcohol-impaired Fatalities	45	44.64 ▲ 1%
Unrestrained Fatalities	49	46.8 ▲ 5%
Speed-related Fatalities	31	29.7 ▲ 4%
Young Drivers (16-20) Involved in Fatal Crashes	27	18.9 ◆ 43%
Motorcycle Fatalities	18	15.36 ◆ 17%
Older Drivers (65+) Involved in Fatal Crashes	32	19.36 ◆ 65%
Pedestrian Fatalities	22	12.32 ◆ 79%
Pedalcyclist Fatalities	1	1.12 ● -11%

Young Driver Collisions by Time of Day / Day of Week

County Location: **C**, Time Year: **Calendar 2015**, Accident Reporting Agency: **Shp**

Measures, Accident Day of...	All	00 - 01	02 - 03	04 - 05	06 - 07	08 - 09	10 - 11	12 - 13	14 - 15	16 - 17	18 - 19	20 - 21	22 - 23
Young Driver Collisions	3384	115	68	67	336	275	298	330	514	553	367	265	196
All	3384	115	68	67	336	275	298	330	514	553	367	265	196
Sunday	354	20	12	12	17	21	37	42	56	53	35	24	25
Monday	524	13	4	4	59	52	51	43	86	81	64	40	27
Tuesday	470	18	5	11	55	42	42	34	71	84	50	36	22
Wednesday	507	12	3	8	70	52	33	45	68	93	51	45	27
Thursday	501	17	13	6	56	45	30	52	72	91	60	34	25
Friday	577	6	7	10	55	34	44	63	115	96	70	43	34
Saturday	451	29	24	16	24	29	61	51	46	55	37	43	36



Vision Zero Safety Dashboard

Visualize trends of fatalities and serious injury collisions over time

View maps of crash trends by county, city, and law enforcement jurisdictions

View top contributing circumstances for filtered crashes

Visualize crash times with a time-of-day/day-of-week heat grid



Crash Query Tool

Detailed crash filtering by contributing circumstances, vehicle types, crash severity, location, roadway features, time and many other others

Download data in common formats like Excel, CSV

NC VISION ZERO Crash Query Tool 7 8 9 10 Date of Last Available Data: 12/31/2016

Select year(s) of crash: 2016 | Select Geographic Area: Statewide | Geographic Selection: Null | Show me: Crashes

Row: Contributing Circumstance Driver 1 | Column: Severity

Table

	A Type Injury (Dis..	B Type Injury (Evi..	C Type Injury (Pos..	K Killed	O No Injury	Unknown	Grand Total
Alcohol Use	211	1,186	1,389	172	2,750	80	5,788
Crossed Centerline/Going ...	192	944	1,585	169	2,993	246	6,129
Disregarded Other Traffic..	7	76	240	2	426	10	761
Disregarded Road Markin..	21	128	251	3	755	53	1,211
Disregarded Stop Sign	87	506	1,038	33	1,541	140	3,345
Disregarded Traffic Signals	65	782	2,315	20	3,044	50	6,276
Disregarded Yield Sign	2	29	114		298	2	445
Driver Distracted	5	25	79	2	239	4	354
Driver Distracted By Elect..	8	82	189	6	397	4	686
Driver Distracted By Exte..	2	21	86		192	6	307
Driver Distracted By Othe..	2	30	76		210	2	320
Driver Distracted By Othe..	7	78	241	3	530	6	865
Drug Use	43	216	316	11	467	5	1,058
Exceeded Authorized Spe..	99	505	727	133	1,000	190	2,654
Exceeded Safe Speed For ..	186	1,262	2,939	82	8,826	524	13,819
Failed To Yield Right Of W..	322	3,392	10,409	116	22,651	189	37,079
Failure To Reduce Speed	213	2,789	17,564	68	43,012	472	64,118

Map of Crashes: Year(s):2016; Statewide: Null;

© OpenStreetMap contributors

Vision Zero Maps

- Provide an easy way for the general public to see where, what, why, when, and how crash patterns are occurring in their area
- Provide insight from maps for crash patterns

The screenshot displays the NC Vision Zero Maps web application. At the top, the logo 'NC VISION ZERO' is visible on the left, and navigation icons for 'Chart', 'Basemap', 'Share', and 'Table' are on the right. The main interface is divided into several sections:

- LOCATION:** North Carolina
- DATE RANGE:** 11/29/2015 to 2/29/2016
- SHOWING:** Fatalities Only
- ADDITIONAL FILTERS:** (This section is partially obscured by a modal window)

A modal window titled "Welcome to NC Vision Zero Maps!" is overlaid on the map, containing the following interactive elements:

- 1 Pick a location:** A dropdown menu currently set to "State (NC)".
- View By:** A dropdown menu.
- Show me:** A dropdown menu.
- 2 Pick a date range:** A "Quick Date:" dropdown set to "Previous 3 Months", and "Start Date:" and "End Date:" input fields with values "11/29/2015" and "02/29/2016" respectively.
- 3 Show Me:** Radio buttons for "Fatalities Only", "Serious Injuries Only", and "Fatalities & Serious Injuries".
- 4 Additional Filters:** Checkboxes for "Intersection", "Workzone", and "Railroad".
- A prominent "Go!" button at the bottom right of the modal.

The background map shows a geographical view of North Carolina with various cities and roads labeled. A scale bar at the bottom indicates distances up to 100km. The footer text reads "Esri, HERE, Garmin, NGA, USGS, NPS".

Questions /
Comments?

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