WORK ZONE ANALYSIS

For questions of comments, contact:
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General Extent of the Problem
Five-Year Trend

TRUE or FALSE:

Over the past five years (2008-2012) the number of work zone crashes increase by 50%.
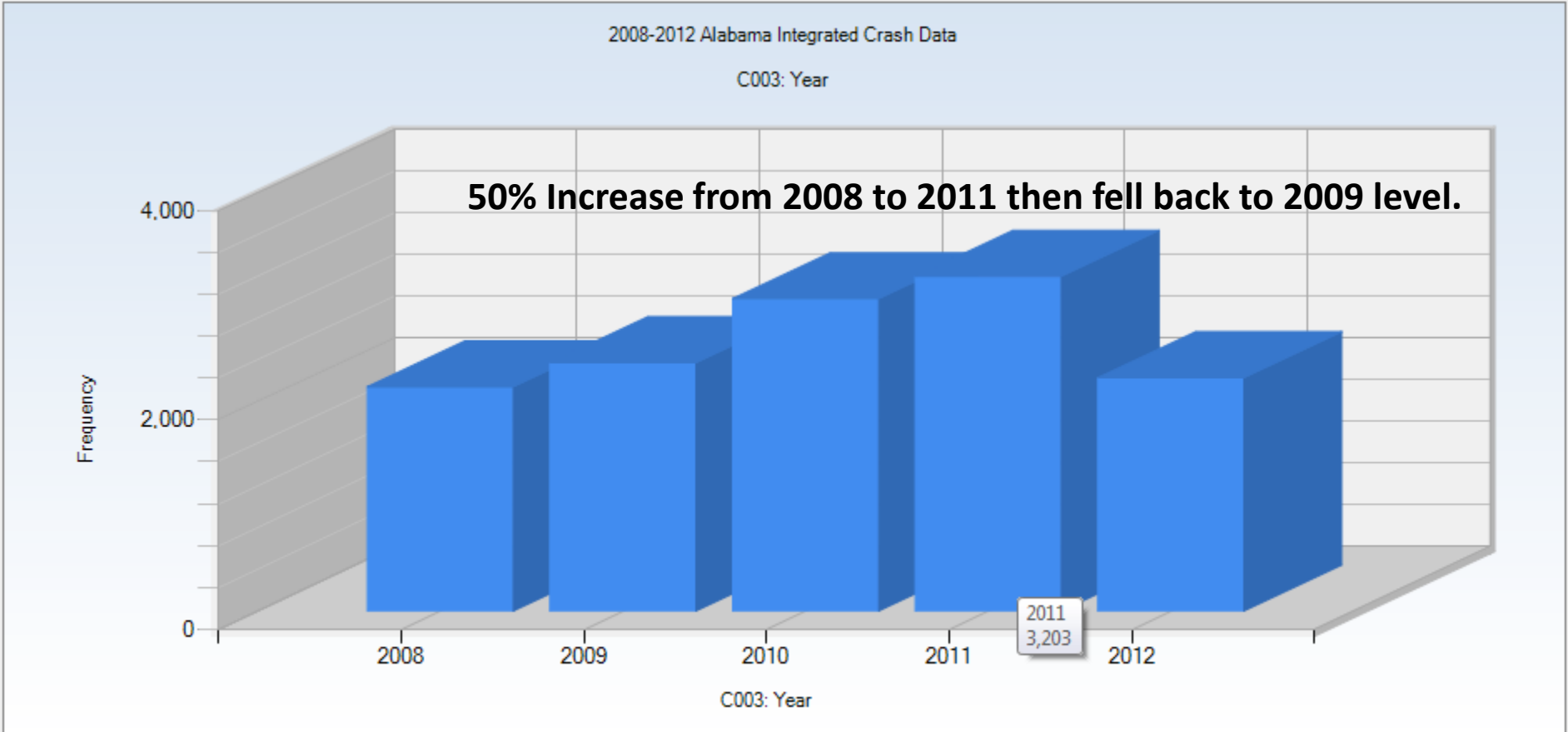
The overall number of crashes has remained relative stable.

Data Source: 2008-2012 Alabama Integrated Crash Data   Filter: Workzone Related   1/ 1/2008   12/31/2012

Order: Natural Order   Ascending   ☑ Suppress Zero-Valued Frequencies

C003: Year

Value	Frequency	Cum. Frequency	Percentage	Cum. Percent
2008	2145	2145	16.57	16.57
2009	2376	4521	18.36	34.93
2010	2988	7509	23.08	58.01
2011	3203	10712	24.75	82.76
2012	2232	12944	17.24	100.00

C003: Year

☐ Display Average   ☐ Display Filter Name

2008-2012 Alabama Integrated Crash Data

C003: Year

50% Increase from 2008 to 2011 then fell back to 2009 level.

2011
3,203

C003: Year

Order: Natural Order | Ascending | ☑ Suppress Zero-Valued Frequencies

C003: Year

Value	Frequency	Cum. Frequency	Percentage	Cum. Percent
2008	123992	123992	19.55	19.55
2009	123975	247967	19.54	39.09
2010	129529	377496	20.42	59.51
2011	128501	505997	20.26	79.77
2012	128318	634315	20.23	100.00

C003: Year

☐ Display Average   ☐ Display Filter Name

2008-2012 Alabama Integrated Crash Data

C003: Year
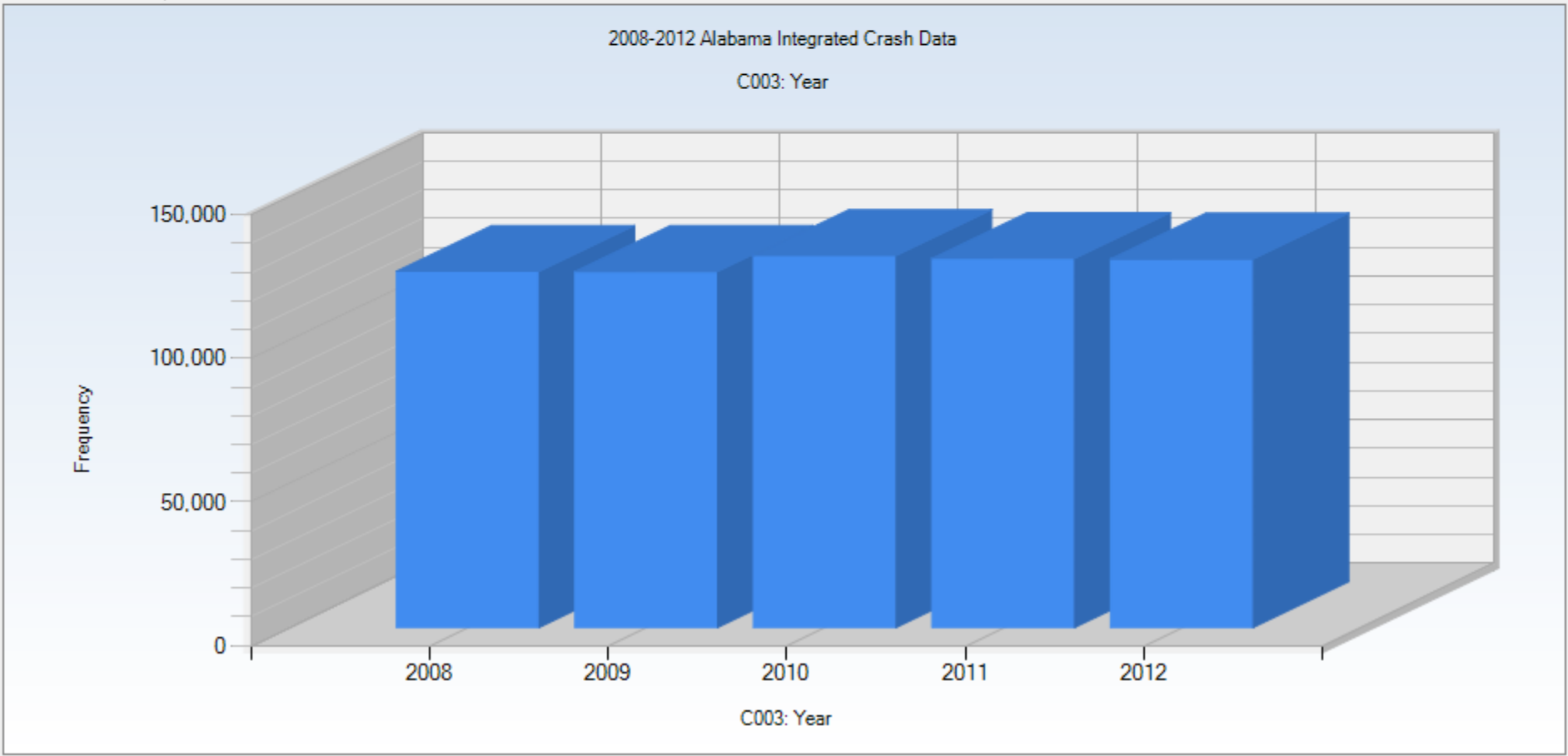
"OVER-REPRESENTATED"

<u>Over-represented</u> means that the probability of the attribute value is significantly higher than expected when compared (in this case) to crashes not related to WZs.

In the following graph, year 2011 is over-represented in WZ crashes (by about 15%).
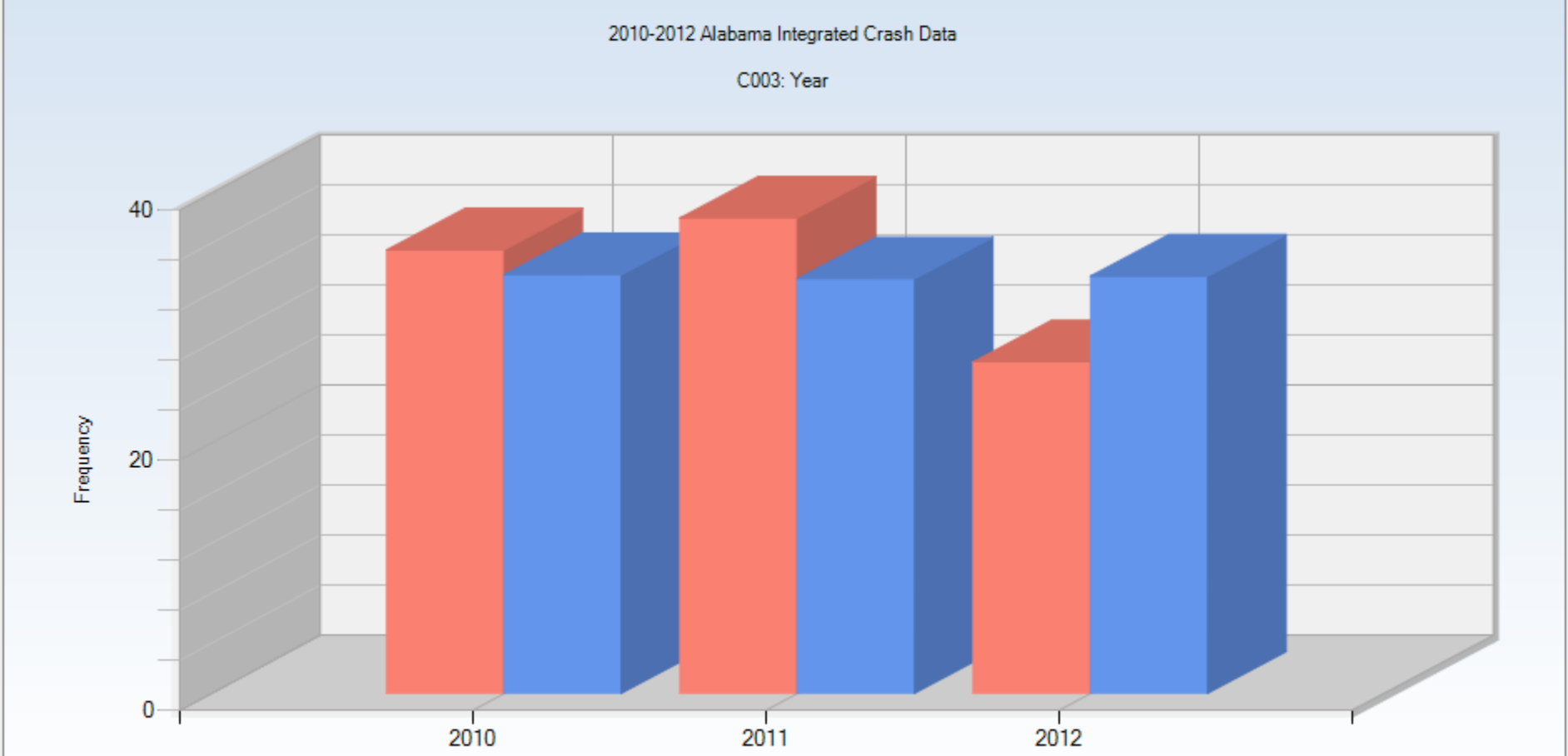
Red = WZ Involved Crashes
Blue = Crashes that Did Not Involve WZ

Data Source: | 2010-2012 Alabama Integrated Crash Data   Filter: | Workzone Related   1/ 1/2010 ▾   12/31/2012 ▾

Order: | Max Gain ▾ | Descending ▾   ☑ Suppress Zero-Valued Rows   Significance: | Over Representation ▾   Threshold: | 2.0 ⬍

C003: Year

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
2010	2988	35.47	126546	33.48	1.059*	167.683
2011	3203	38.02	125307	33.15	1.147*	410.296
2012	2233	26.51	126127	33.37	0.794*	-577.979

C001: County
C002: City
C003: Year
C004: Month
C005: Day of Month

☐ Sort by Sum of Max Gain

Remaining Comparison Use Data from These Three Years

☐ Display Filter Name

2010-2012 Alabama Integrated Crash Data

C003: Year

General Extent of the Problem
Severity

TRUE or FALSE

WZ involved crashes produce about 15% more fatal crashes than those non-WZ.

- Red = WZ Involved Crashes
- Blue = Crashes that Did Not Involve WZ

Data Source: 2010-2012 Alabama Integrated Crash Data   **Filter:** Workzone Related   1/ 1/2010   12/31/2012

Order: Max Gain   Descending   ☑ Suppress Zero-Valued Rows   **Significance:** Over Representation   **Threshold:** 2.0

C025: Crash Severity

	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
▶	Fatal Injury	61	0.72	2366	0.63	1.157	8.269
	Incapacitating Injury	449	5.33	21703	5.74	0.928	-34.692
	Non-Incapacitating Injury	645	7.66	31714	8.39	0.913*	-61.807
	Possible Injury	595	7.06	28835	7.63	0.926	-47.643
	Property Damage Only	6532	77.54	283474	75.00	1.034*	214.245
	Unknown	142	1.69	9888	2.62	0.644*	-78.373

C022: E Type of Roadway Junction/Feat
C023: E Manner of Crash
C024: School Bus Related
C025: Crash Severity
C026: Intersection Related
C027: At Intersection
C028: Mileposted Route
C031: Lighting Conditions

☐ Sort by Sum of Max Gain

☐ Display Filter Name

2010-2012 Alabama Integrated Crash Data

C025: Crash Severity

Bar chart — x-axis: C025: Crash Severity (Fatal Injury, Incapacitating Injury, Non-Incapacitating Injury, Possible Injury, Property Damage Only, Unknown); y-axis: Frequency (0–100)
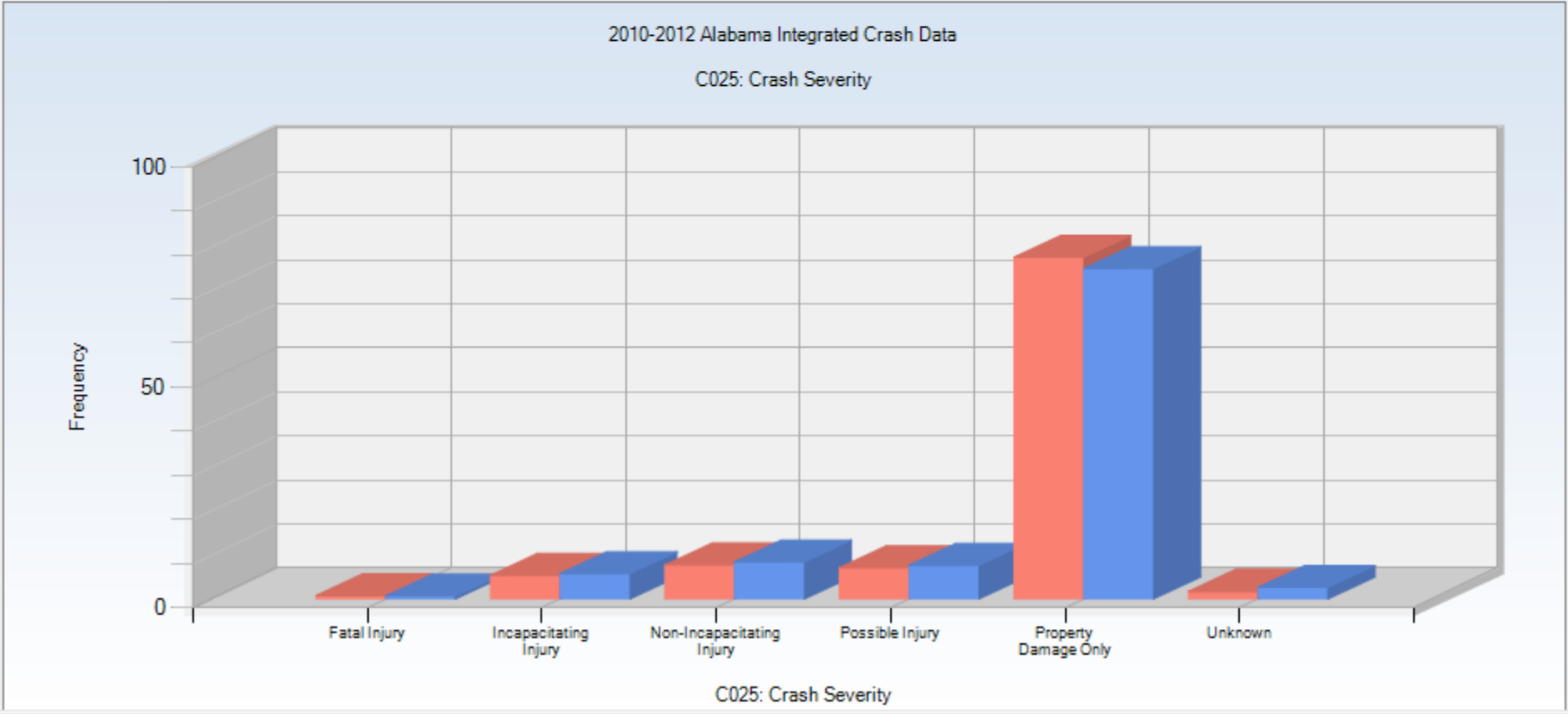
Work Zone Type
Activity in Workzone

TRUE or FALSE

The vast majority of WZ crashes involve major construction projects.

- Red = WZ Involved Crashes
- Blue = Crashes that Did Not Involve WZ

Data Source: 2010-2012 Alabama Integrated Crash Data   Filter: Workzone Related   1/ 1/2010   12/31/2012

Order: Subset Frequency   Descending   ☑ Suppress Zero-Valued Rows   Significance: Over Representation   Threshold: 2.0

C416: E CU Workzone Type

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Major Construction Project	5769	68.48	0	0.00	0.000	5769.000
Routine Maintenance	682	8.10	0	0.00	0.000	682.000
Work on Shoulder or Median	639	7.59	0	0.00	0.000	639.000
Lane Closure	528	6.27	0	0.00	0.000	528.000
Record from Paper System	376	4.46	46626	12.34	0.362*	-663.149
Other Type of Workzone	219	2.60	0	0.00	0.000	219.000
Lane Shift/Crossover	143	1.70	0	0.00	0.000	143.000
Intermittent or Moving Vehicle	50	0.59	0	0.00	0.000	50.000
Not Applicable (Not a Workzone)	18	0.21	322593	85.35	0.003	-7171.596

C415: CU Workzone Related
C416: E CU Workzone Type
C417: E CU Workers Present
C418: E CU Law Enforcement Present
C028: Mileposted Route
C011: Highway Classifications
C046: HasRTMP
C411: CU Opposing Lane Separation
C002: City
C043: Agency ORI
C012: Controlled Access
C045: HasGPS

☑ Sort by Sum of Max Gain

☐ Display Filter Name

2010-2012 Alabama Integrated Crash Data

C416: E CU Workzone Type

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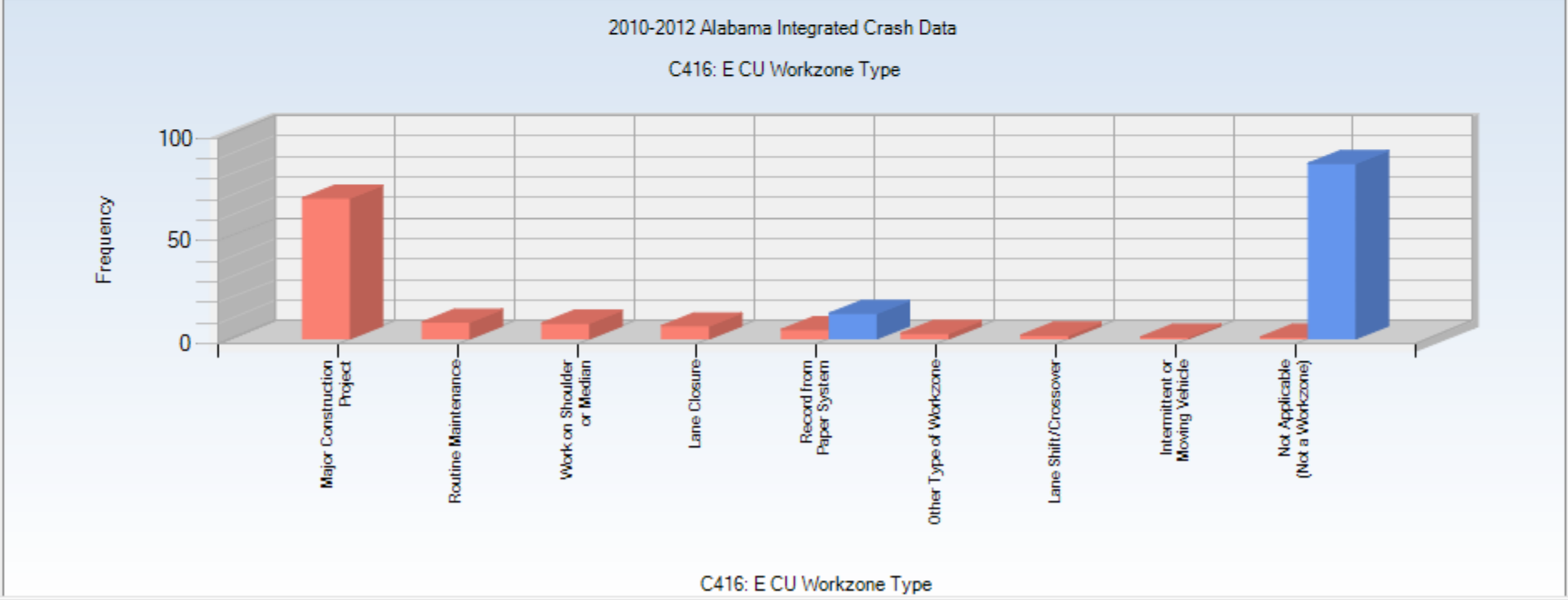
Workers Present
Activity in Workzone

TRUE or FALSE

Workers were not present in about 50% of the WZ crashes.

- Red = WZ Involved Crashes
- Blue = Crashes that Did Not Involve WZ

Order: Max Gain | Descending | ☑ Suppress Zero-Valued Rows   Significance: Over Representation   Threshold: 2.0

C417: E CU Workers Present

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
No - Workers Not Present	4306	51.12	177	0.05	1091.569*	4302.055
Yes - Workers Present in Work...	3326	39.48	1	0.00	149235.693	3325.978
Unknown	246	2.92	2	0.00	5518.939	245.955
Record from Paper System	376	4.46	46626	12.34	0.362*	-663.149
Not Applicable (Not a Workzone)	170	2.02	322413	85.30	0.024*	-7015.584

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☑ Sort by Sum of Max Gain

☐ Display Filter Name

2010-2012 Alabama Integrated Crash Data

C417: E CU Workers Present

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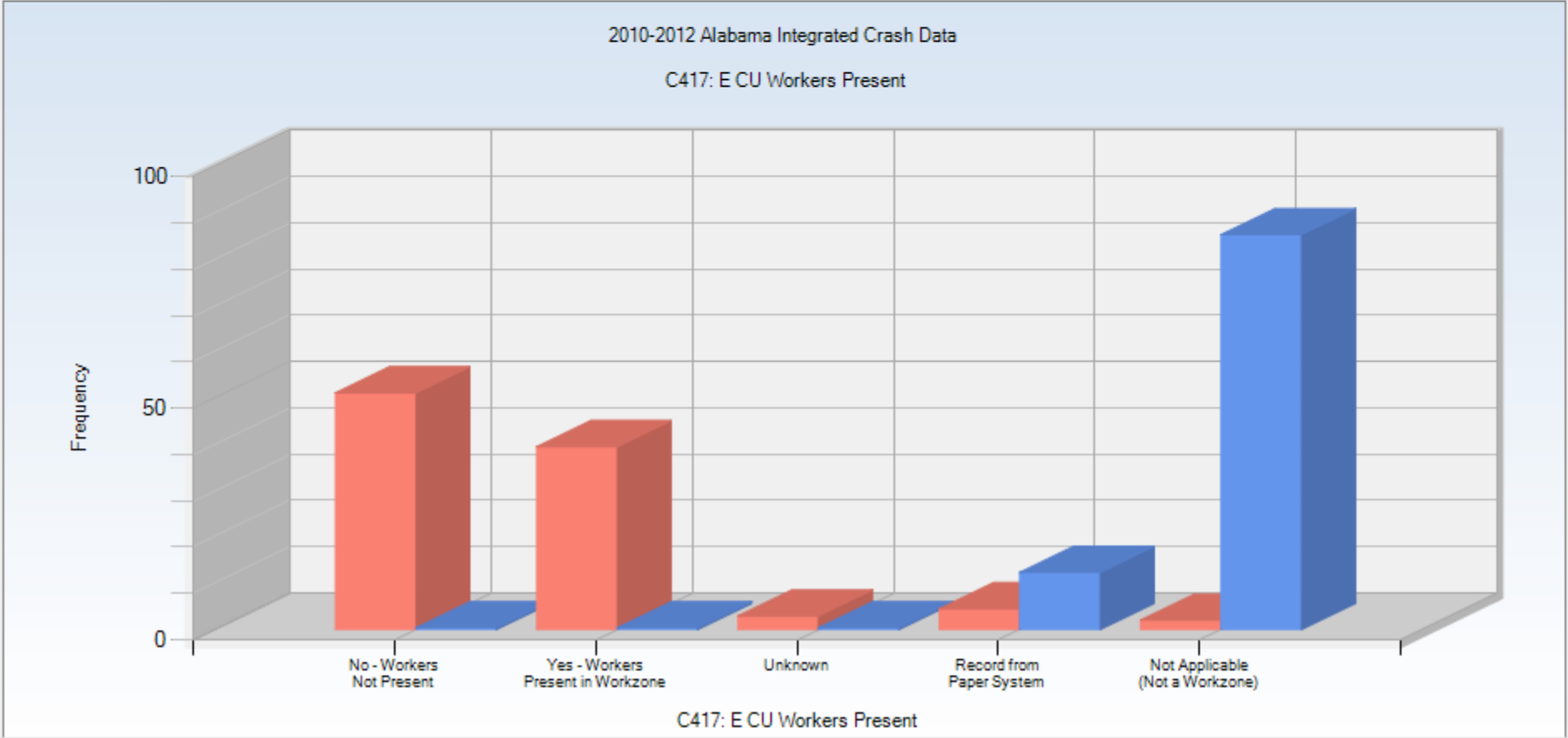
Location
Highway Classification

TRUE or FALSE

Less that 20% of WZ crashes involved Interstate highways.

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- Blue = Crashes that Did Not Involve WZ

Data Source: 2010-2012 Alabama Integrated Crash Data   Filter: Workzone Related   1/ 1/2010   12/31/2012

Order: Max Gain | Descending   ☑ Suppress Zero-Valued Rows   Significance: Over Representation   Threshold: 2.0

C011: Highway Classifications

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Interstate	3833	45.50	32483	8.59	5.295*	3109.055
Federal	1730	20.54	61844	16.36	1.255*	351.689
Other	1	0.01	48	0.01	0.935	-0.070
Private Property	4	0.05	5741	1.52	0.031	-123.949
State	1394	16.55	70225	18.58	0.891*	-171.097
County	413	4.90	62382	16.50	0.297*	-977.301
Municipal	1049	12.45	145257	38.43	0.324*	-2188.327

C415: CU Workzone Related
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C028: Mileposted Route
C011: Highway Classifications
C046: HasRTMP
C411: CU Opposing Lane Separation
C002: City

☑ Sort by Sum of Max Gain

☐ Display Filter Name

2010-2012 Alabama Integrated Crash Data

C011: Highway Classifications

45%

Crash Type
Manner of Crash

TRUE or FALSE

The largest proportion of WZ crashes are rear-ends caused by following too close.

- Red = WZ Involved Crashes
- Blue = Crashes that Did Not Involve WZ

Data Source: 2010-2012 Alabama Integrated Crash Data   **Filter:** Workzone Related   1/ 1/2010   12/31/2012

Order: Max Gain   Descending   ☑ Suppress Zero-Valued Rows   **Significance:** Over Representation   **Threshold:** 2.0

C023: E Manner of Crash

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Rear End (front to rear)	3762	44.66	116715	30.88	1.446*	1160.785
Sideswipe - Same Direction	962	11.42	21977	5.81	1.964*	472.201
Other	218	2.59	7021	1.86	1.393*	61.524
Single Vehicle Crash (all types)	1715	20.36	76971	20.36	1.000	-0.444
Non-Collision	57	0.68	3006	0.80	0.851	-9.994
Unknown	8	0.09	1120	0.30	0.320	-16.961
Causal Veh Backing: Rear to R...	5	0.06	1476	0.39	0.152	-27.895
Angle (front to side) Same Direc...	167	1.98	9315	2.46	0.804*	-40.602
Sideswipe - Opposite Direction	69	0.82	5372	1.42	0.576*	-50.725
Head-On (front to front only)	71	0.84	6764	1.79	0.471*	-79.749
Causal Veh Backing: Rear to Si...	37	0.44	5626	1.49	0.295*	-88.386
Angle Oncoming (frontal)	66	0.78	7682	2.03	0.385*	-105.208
Angle (front to side) Opposite Di...	137	1.63	11524	3.05	0.533*	-119.834
Side Impact (angled)	400	4.75	26002	6.88	0.690*	-179.504
Side Impact (90 degrees)	374	4.44	30783	8.14	0.545*	-312.057
Record from Paper System	376	4.46	46626	12.34	0.362*	-663.149

C012: Controlled Access
C045: HasGPS
C412: CU Trafficway Lanes
C223: CU Speed Limit
C033: Locale
C409: CU Traffic Control
C001: County
C562: V2 Speed Limit
C023: E Manner of Crash
C015: Primary Contributing Circumstan
C592: V2 Trafficway Lanes
C413: E CU Turn Lanes
C019: E Most Harmful Event
C204: E CU Sequence of Events #1
C205: E CU Sequence of Events #2
C027: At Intersection
C202: CU Contributing Circumstance
C129: CU Vehicle Maneuvers

☑ Sort by Sum of Max Gain

☐ Display Filter Name

2010-2012 Alabama Integrated Crash Data
C023: E Manner of Crash

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Data Source: 2010-2012 Alabama Integrated Crash Data   Filter: Workzone Related   1/ 1/2010   12/31/2012

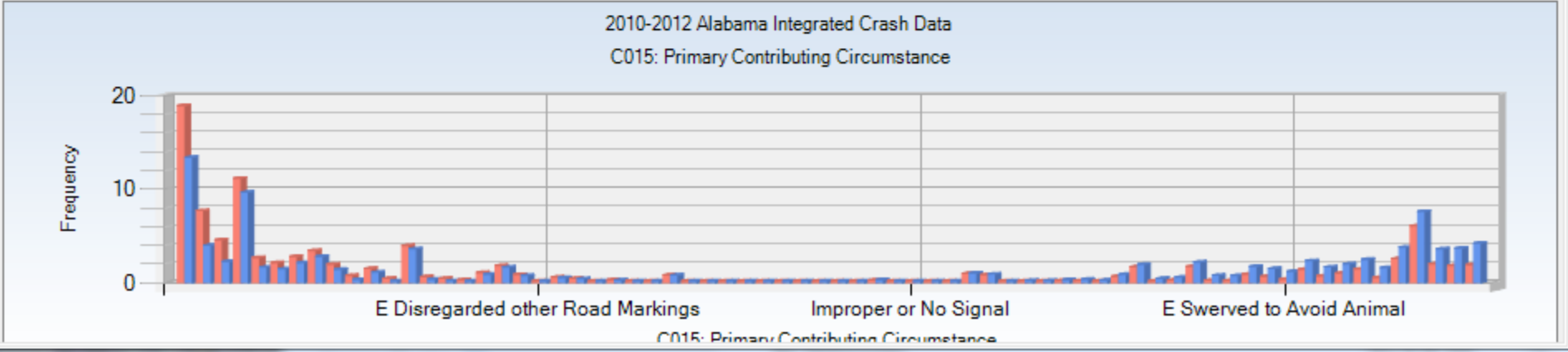Order: Max Gain   Descending   ☑ Suppress Zero-Valued Rows   Significance: Over Representation   Threshold: 2.0

C015: Primary Contributing Circumstance

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Followed too Close	1595	18.93	50656	13.40	1.413*	466.035
Improper Lane Change/Use	649	7.70	15074	3.99	1.932*	313.047
E Swerved to Avoid Vehicle	387	4.59	8561	2.26	2.028*	196.202
Misjudge Stopping Distance	940	11.16	36557	9.67	1.154*	125.258
E Other Distraction Outside the...	226	2.68	6281	1.66	1.614*	86.016
E Other Improper Action	180	2.14	5541	1.47	1.458*	56.508
E Other Distraction Inside the ...	236	2.80	8091	2.14	1.309*	55.677
Other	290	3.44	10637	2.81	1.223*	52.934
E Fatigued/Asleep	166	1.97	5372	1.42	1.387*	46.275
E Failed to Yield Right-of-Way ...	66	0.78	1318	0.35	2.247*	36.626
E Other - No Improper Driving	128	1.52	4216	1.12	1.362*	34.038
E Disregarded Traffic Sign oth...	40	0.47	342	0.09	5.248*	32.378
Driving too Fast for Conditions	334	3.96	13667	3.62	1.097	29.405
Cargo Fell or Load Shift	55	0.65	1388	0.37	1.778*	24.066
E Swerved to Avoid Object	40	0.47	815	0.22	2.202*	21.836
E Roadway/Sign/Signal Defect	26	0.31	250	0.07	4.666*	20.428

Right panel list:
- C012: Controlled Access
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- C589: V2 Traffic Control
- C110: CU Driver Residence Distance
- C205: E CU Sequence of Events #2
- C027: At Intersection
- C202: CU Contributing Circumstance
- C129: CU Vehicle Maneuvers

☑ Sort by Sum of Max Gain

☐ Display Filter Name

2010-2012 Alabama Integrated Crash Data
C015: Primary Contributing Circumstance

C015: Primary Contributing Circumstance

Crash Type
Most Harmful Event

TRUE or FALSE

Most WZ crashes involve two or more vehicles and do not involve obstacles in the work zone.

- Red = WZ Involved Crashes
- Blue = Crashes that Did Not Involve WZ

C019: E Most Harmful Event

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Collision with Vehicle in Traffic	5688	67.52	221524	58.61	1.152*	750.918
Collision with Sign Post	210	2.49	1772	0.47	5.317*	170.508
Collision with Concrete Barrier	215	2.55	2035	0.54	4.741*	169.646
Collision with Work Zone/Main...	167	1.98	142	0.04	52.769*	163.835
Collision with Other Non-Fixed ...	145	1.72	2532	0.67	2.570*	88.570
Collision with Guardrail Face	94	1.12	2552	0.68	1.653*	37.124
Collision with Guardrail End	38	0.45	671	0.18	2.541*	23.045
Other Non-Collision	35	0.42	560	0.15	2.804*	22.519
Collision with Other Traffic Barrier	23	0.27	101	0.03	10.218*	20.749
Collision with Other Post/Pole/...	31	0.37	684	0.18	2.034*	15.756
Collision with Falling/Shifting C...	25	0.30	557	0.15	2.014*	12.586
Collision with Bridge Abutment/...	42	0.50	1390	0.37	1.356	11.021
Thrown or Falling Object	14	0.17	258	0.07	2.435	8.250
Collision with Impact Attenuator	8	0.09	9	0.00	39.884	7.799
Collision with Non-Motorist: Pe...	41	0.49	1491	0.39	1.234	7.770
Vehicle Defect/Component Fai...	15	0.18	377	0.10	1.785	6.598

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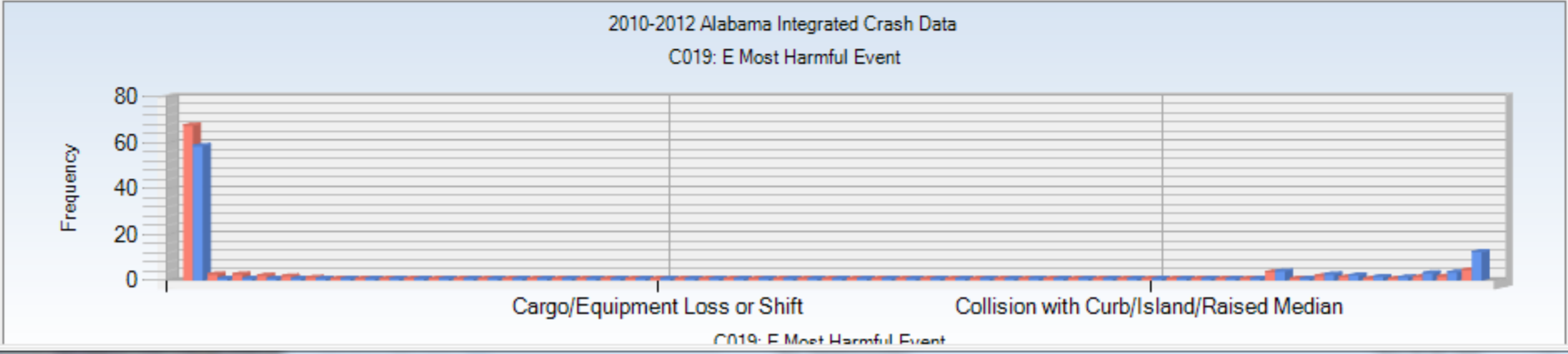
Thank you for your concern for traffic safety
and
For observing speed limits in work zones