

CARE Weather-Fatality Relationship Update

2018 Data

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Introduction and Executive Summary of Results

The purpose of this report is to update the quantitative relationships between wet weather (and resulting wet pavement) on crash frequency and severity that were originally reported in a Power Point presentation in 2014:

<http://www.safehomealabama.gov/wp-content/uploads/2018/12/Weather-9Jan2014-TRCC-v06-WComp-v04-v07.pdf>

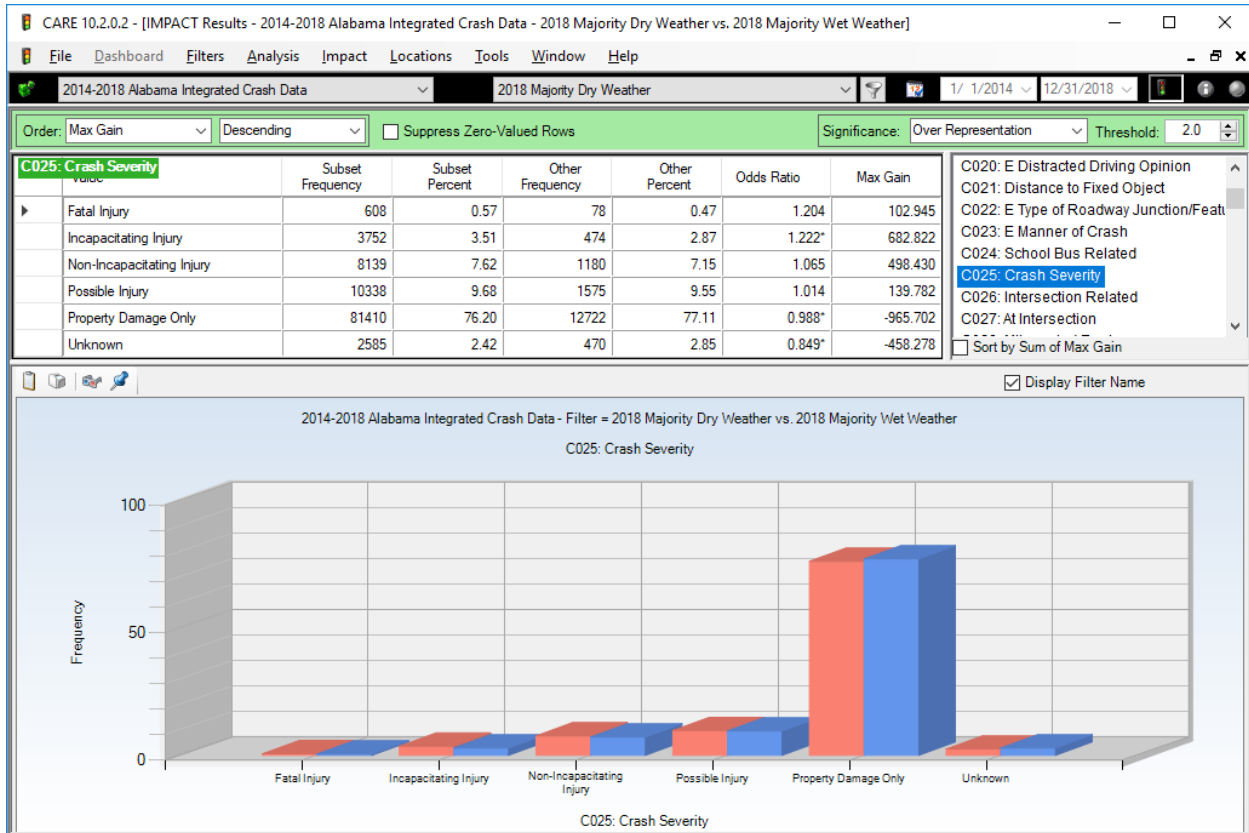
This was done by subdividing 2018 days into those that were primarily dry and those primarily wet. This was done by creating two cross-tabulations of daily (month by day of the month) for exclusively wet crashes and for exclusively dry crashes. The average numbers of all crashes (wet and dry) was calculated to be 437 crashes per day. Half of this number rounded up was 219, and this number was used to determine if any particular day was majority wet or majority dry, or just wet or dry for shorter terminology.

A filter was created of the wet and dry days that enabled a comparison to be made between them in terms of total crashes and crashes by severity, including fatal crashes per day. The following are some summary statistics:

- Overall number of crashes per day: 437.
- Number of crashes to qualify for a majority dry or wet: 219.
- Number of wet and dry days in 2018:
 - 41 wet days
 - 293 dry days
- Average number of crashes per day:
 - Wet days: 402.4
 - Dry days: 364.6
 - Increase number of crashes on wet days = 10.4%
- Total number of fatal crashes in 2018
 - Wet days: 78
 - Dry days: 608
- Average number of fatal crashes per day:
 - Wet days: 1.902
 - Dry days: 2.075
 - Decrease number of crashes on wet days = 9.1%
- Estimate of the 608 dry day crashes that would be saved if those were wet days = 55 fatal crashes = 9.1% of the 608 fatal crashes.

The general practical conclusions are that while crashes generally increase by over 10% in wet weather, fatal crashes are reduced by a little over 9%. In 2018 this accounted for about 55 of the 608 crashes that occurred in majority dry weather. This update will continue by presenting the direct severity comparison using IMPACT for the dry and wet crash days in 2018. Two further analyses will pinpoint the problem as one of speed: (1) An IMPACT comparison of wet and dry crash day Primary Contributing Circumstances, and (2) An IMPACT comparison of Speeds of Impact for the wet and dry days.

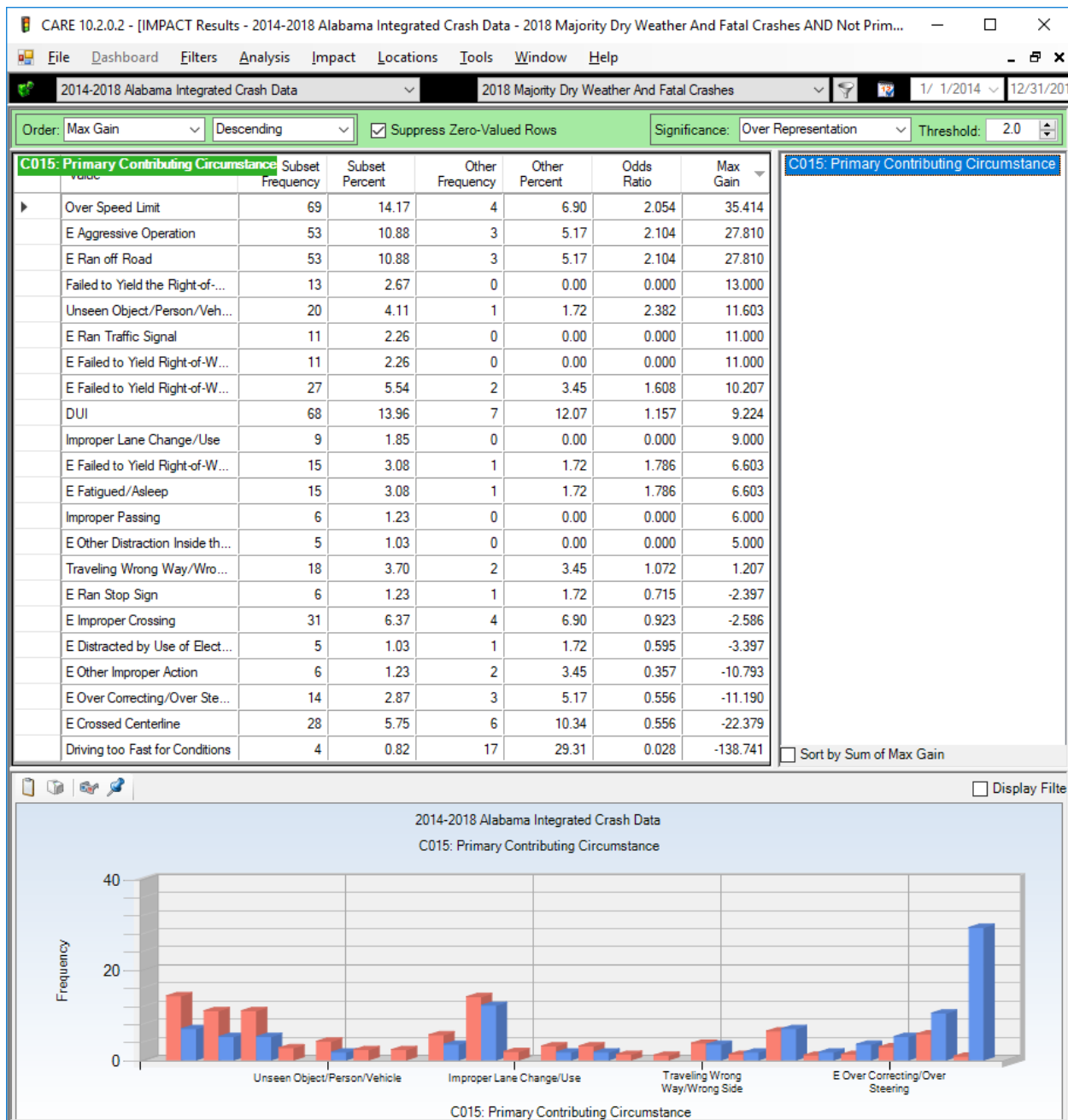
Severity Comparison: Majority Dry vs. Majority Wet Pavement



Odds ratios show that the increase in the proportion in wet weather of both Fatal and Incapacitating Injury crashes was over 20% above what would be expected if the dry weather proportion were in effect.

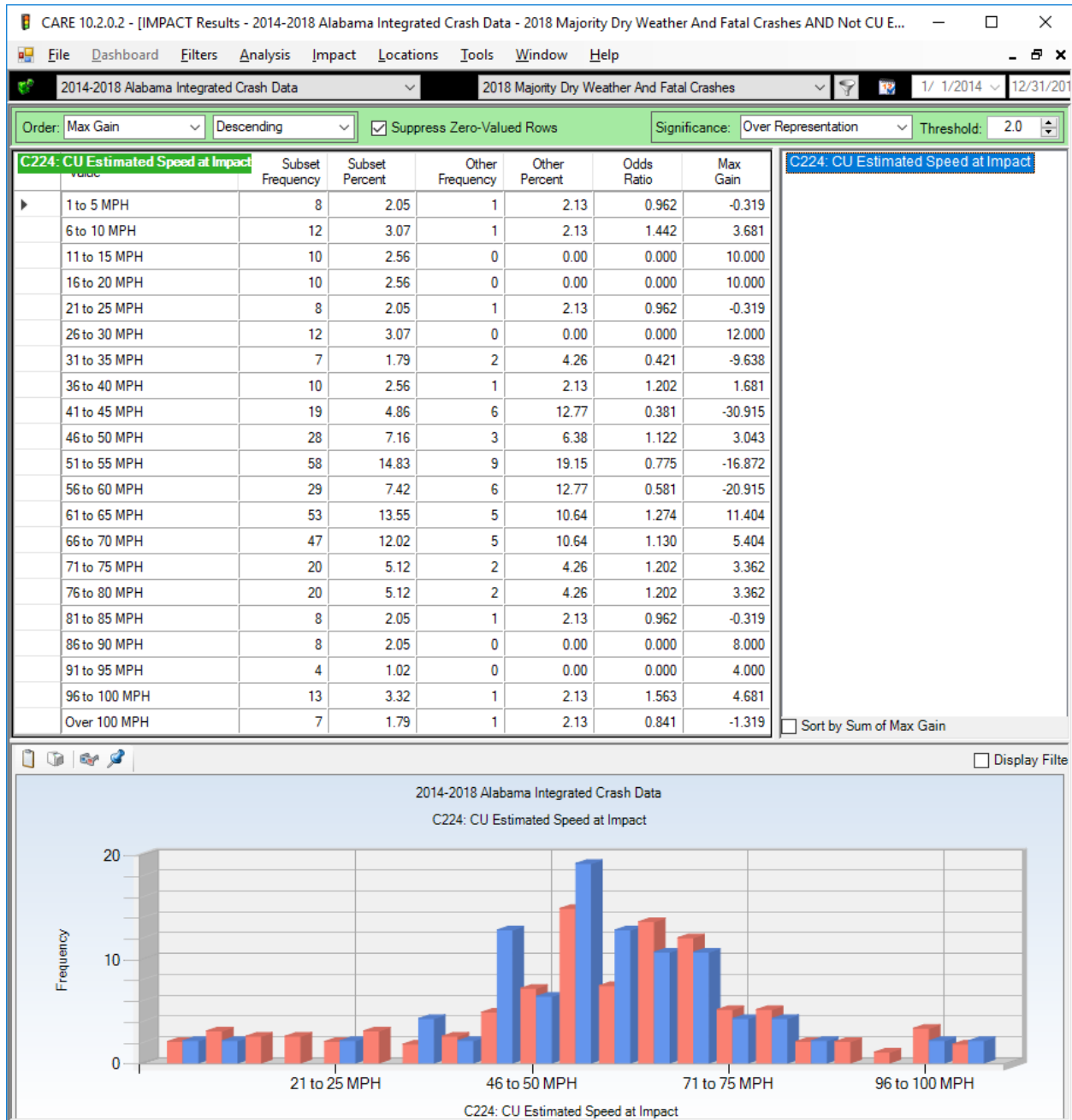
Fatal Crashes:		Days	Fatal Crashes/Day
Wet	78	41	1.902
Dry	608	293	2.075
Increase/day = about 9%			1.091
Dry Reduction if Wet			55.2 fatal crashes
Total Per Day Crash Comparison (all severities):			
1.104	Equals about 10% more crashes on wet majority days (all severities)		
364.6	Dry Majority Crashes per day average		
402.4	Wet Majority Crashes per day average		

Primary Contributing Circumstance for Dry vs Wet; Fatal Crashes



Compare Over the Speed Limit at the top for dry weather crashes, with Driving Too Fast for Conditions at the bottom for wet weather crashes. Speed is always a factor in fatal crashes.

Estimated Speed at Impact Dry vs Wet for Fatal Crashes



Note especially the extreme speeding categories (above 70 MPH). Dry days had 80 (20.4%) fatal crashes in those categories, while wet days has only 7 (15.0%). The probability of a crash being fatal doubles (approximately) for every 10 MPH increase in impact speeds.



Effect of Weather on Traffic Safety

(Alabama 2012 Crash Data)

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For more information on weather and traffic safety, see
<http://www.safehomealabama.gov/tag/weather/>

January 10, 2014

Question:

Overall Weather Effects

Multiple Choice

What proportion of crashes in Alabama occur in **rainy weather**?

- a. 10%
- b. 20%
- c. 30%

C032: Weather

C032: Weather

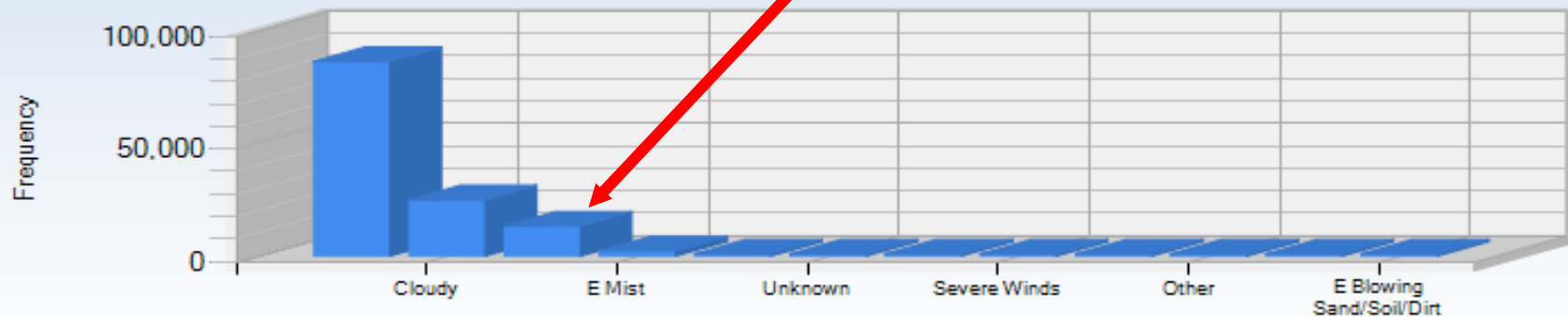
	Value	Frequency	Cum. Frequency	Percentage	Cum. Percent
▶	Clear	86480	86480	67.44	67.44
	Cloudy	24980	111460	19.48	86.92
	Rain	13310	124770	10.38	97.30
	E Mist	2247	127017	1.75	99.05
	Fog	845	127862	0.66	99.71
	Unknown	209	128071	0.16	99.87
	Sleet/Hail/Freezing Rain	57	128128	0.04	99.92
	Severe Winds	43	128171	0.03	99.95
	Snow	34	128205	0.03	99.98
	Other	24	128229	0.02	99.99

C032 = Rain

 Display Average Display Filter Name

2012 Alabama Integrated Crash Data

C032: Weather



C032: Weather

C403: CU Roadway Condition

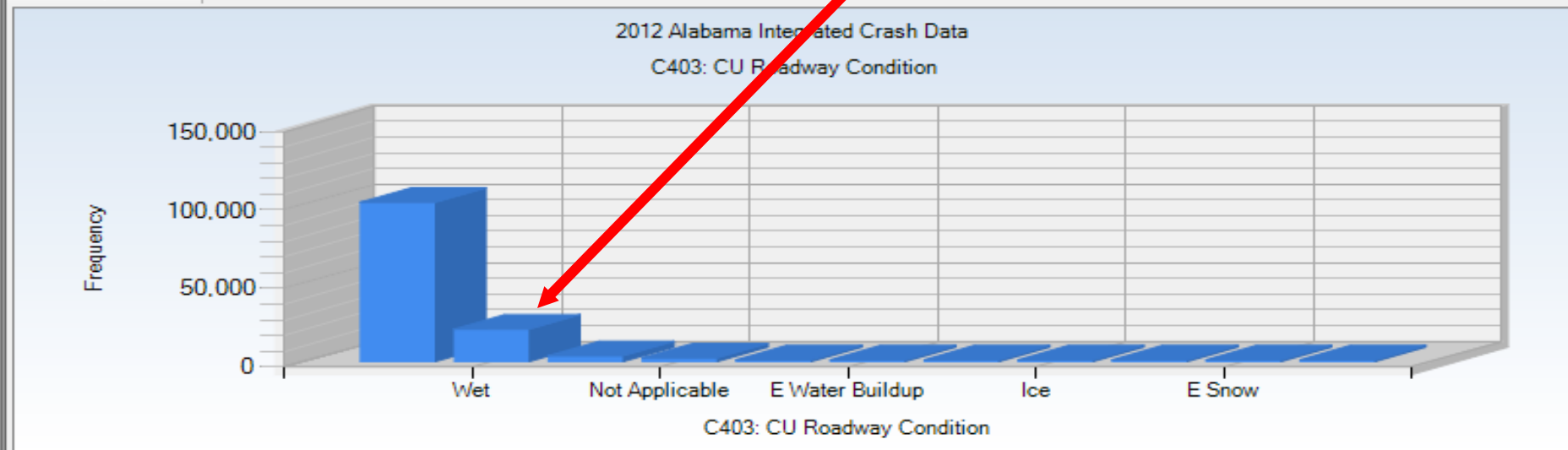
C403: CU Roadway Condition

Value	Frequency	Cum. Frequency	Percentage	Cum. Percent
Dry	101348	101348	79.01	79.01
Wet	20601	121949	16.06	95.07
CU is Unknown	3605	125554	2.81	97.88
Not Applicable	2255	127809	1.76	99.64
Unknown	142	127951	0.11	99.75
E Water Buildup	139	128090	0.11	99.86
Muddy Sand/Dirt/Gravel	80	128170	0.06	99.92
Ice	67	128237	0.05	99.97
Other	26	128263	0.02	99.99
E Snow	8	128271	0.01	100.00
E Slush	3	128274	0.00	100.00

C403 = Wet Pavement



Display Average Display Filter Name



Question:

Weather Crash Increase Effects

Does knowing that wet weather is involved in 16% of all crashes tell us anything about how much wet weather (including wet pavement) increases crash frequency?

What is the crash frequency increase correlated to **wet pavement?**

Definitions for the Comparison

- **Wet Pavement (WP)** – from C403 and C583
- **Wet Day (WD) == 200 or More “WP” Crashes**
 - Daily average for all crashes is 352
 - $200/352 = 57\%$ minimum to be a wet day
- **Dry Day == Zero WP Crashes Occurred**
- **Comparison is on a Crash-Per-Day Basis**



Question:

Specific Weather Effects

Multiple Choice

What is the **crash frequency increase** correlated to **wet days** as defined above?

- a. 20%
- b. 40%
- c. 60%

Comparison of Wet and Dry Days

(Overall: 352 crashes per day)

- **Wet: 13,423 Crashes in 29 Days (463 C/Day)**
- **Dry: 14,869 Crashes in 46 Days (323 C/Day)**
- **Increase of $463 - 323 = 140$ Crashes per Day**
- **Over 40% (43.2%) More Crashes per Day**
- **Conclusion: Rain is a Major Factor**
 - In crash causation
 - What about severity?



Question: Wet weather Crash Severity?

True or False:

The severity of wet crashes is about the same as that for dry weather crashes.

C025: Crash Severity

	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
	Fatal Injury	113	0.55	699	0.65	0.845	-20.683
	Incapacitating Injury	1046	5.08	5882	5.46	0.930	-78.929
	Non-Incapacitating Injury	1659	8.05	8611	7.99	1.007	12.152
	Possible Injury	1660	8.06	8672	8.05	1.001	1.485
	Property Damage Only	15642	75.93	81208	75.39	1.007	111.021
▶	Unknown	481	2.33	2646	2.46	0.951	-25.046

C015: Primary Contributing Circumstan
 C016: Primary Contributing Unit Numbe
 C017: First Harmful Event
 C018: Location First Harmful Event Rel
 C019: E Most Harmful Event
 C020: E Distracted Driving
 C021: Distance to Fixed Object
 C022: E Type of Roadway Junction/Fea

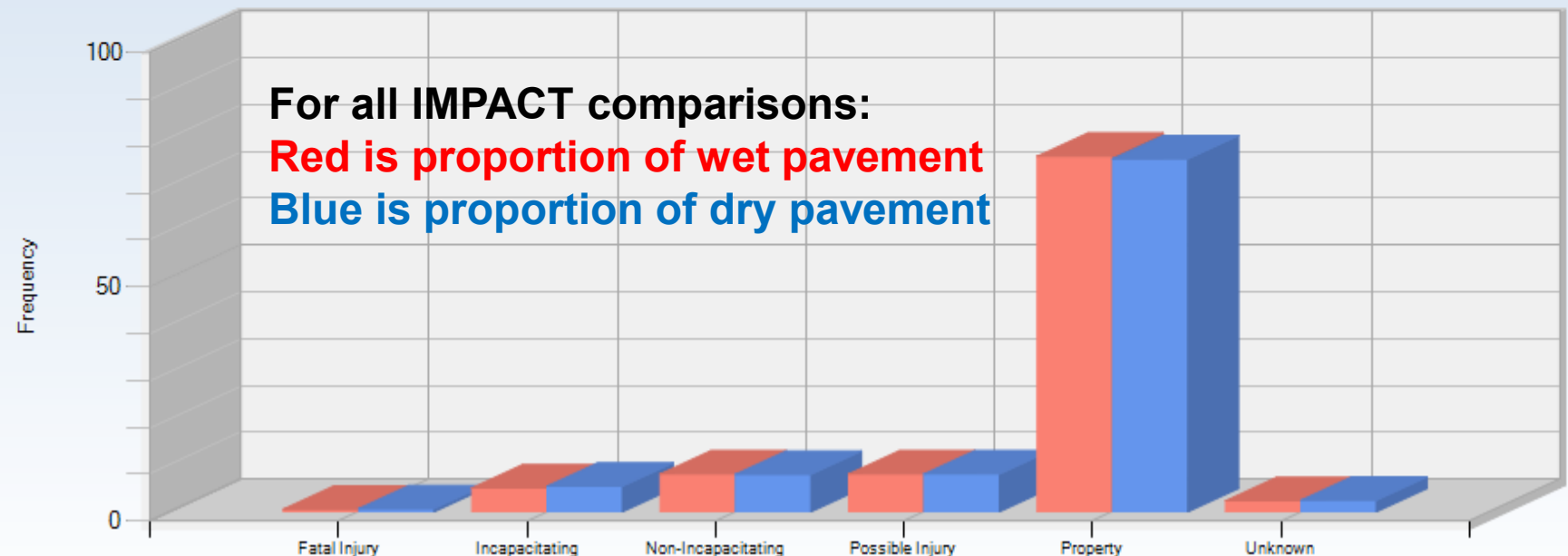
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Sort by Sum of Max Gain



Display Filter Name

2012 Alabama Integrated Crash Data
 C025: Crash Severity



Question: EMS Response Time

Multiple Choice:

**Average response time for wet weather
injury EMS crash increases by ...**

- a. Less than a Minute
- b. 1-5 Minutes
- c. 5-10 Minutes

C601: Adjusted EMS Arrival Delay

C601: Adjusted EMS Arrival Delay

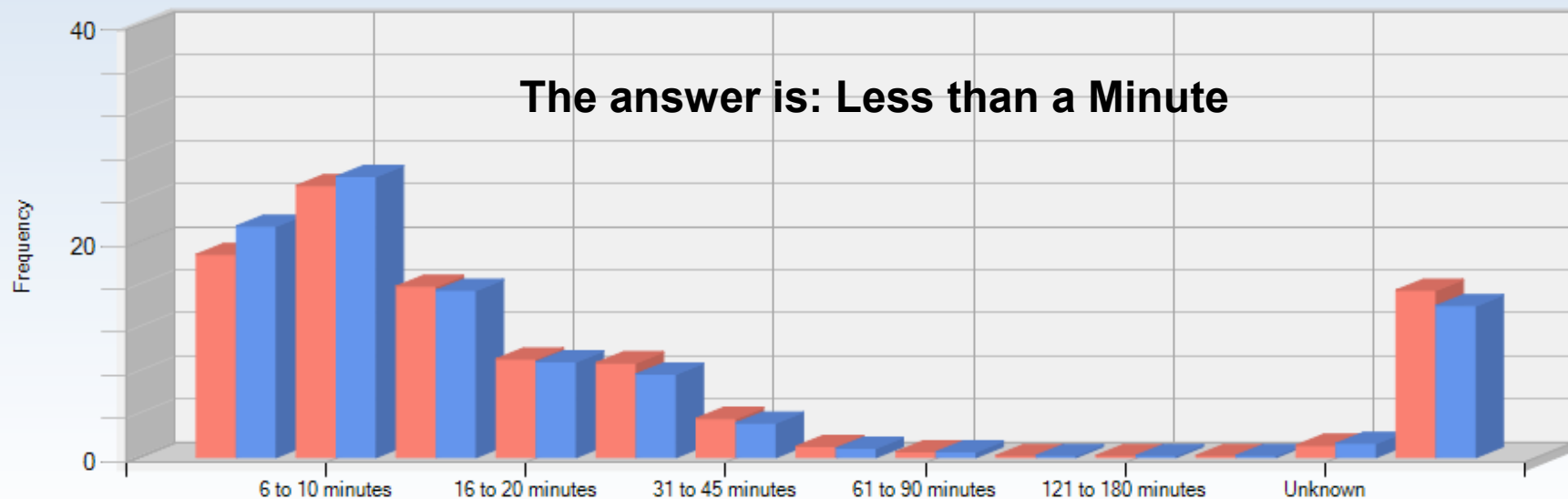
Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
0 to 5 minutes	822	18.84	4777	21.47	0.877*	-114.848
6 to 10 minutes	1101	25.23	5803	26.08	0.967	-37.063
11 to 15 minutes	693	15.88	3451	15.51	1.024	16.203
16 to 20 minutes	399	9.15	1977	8.89	1.029	11.278
21 to 30 minutes	383	8.78	1721	7.74	1.135*	45.484
31 to 45 minutes	158	3.62	713	3.20	1.130	18.169

Sort by Sum of Max Gain

Display Filter Name

2012 Alabama Integrated Crash Data

C601: Adjusted EMS Arrival Delay



The answer is: Less than a Minute

C601: Adjusted EMS Arrival Delay

Question: Wettest Months?

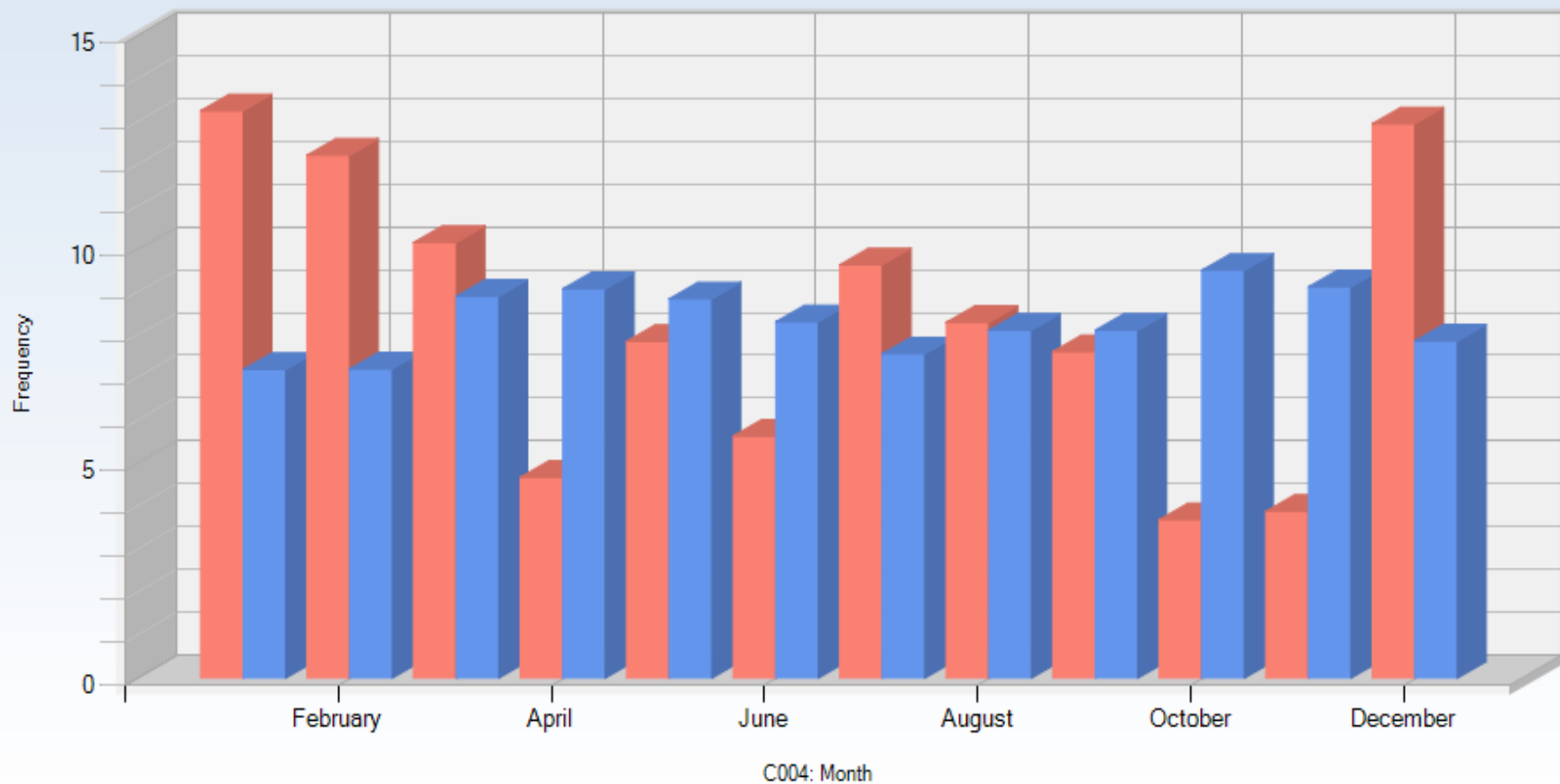
True or False:

**October and November are among some of
Alabama's wettest months.**



2012 Alabama Integrated Crash Data

C004: Month



Question: Time of Day

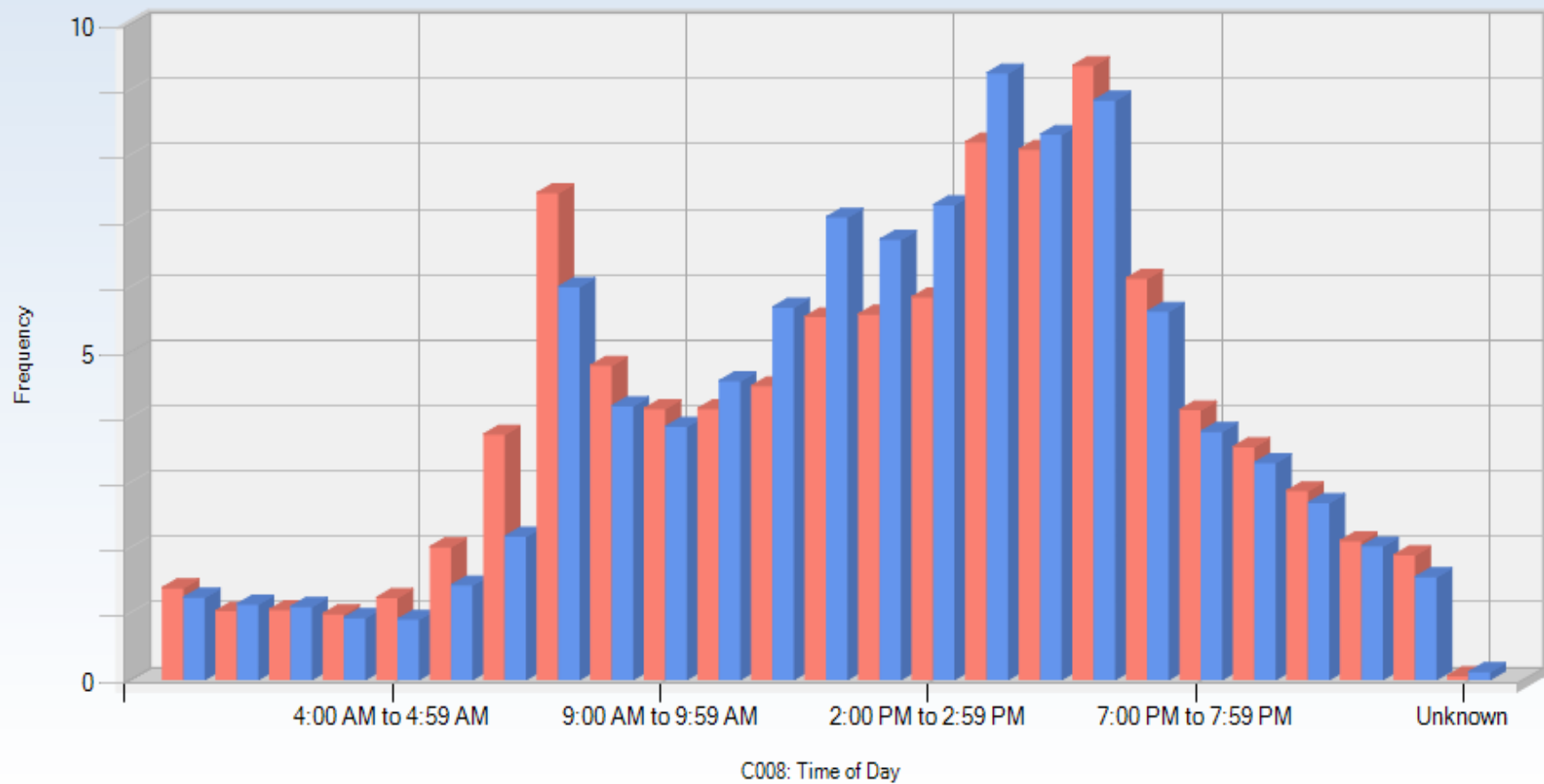
True or False:

Wet weather crashes tend to be most over-represented during rush hours as opposed to night-time.



2012 Alabama Integrated Crash Data

C008: Time of Day



Question: Rural or Urban

True or False:

Rural crashes seem to be more sensitive to increases caused by wet weather than those in the urban areas.

C010: Rural or Urban

C001: County

C002: City

C003: Year

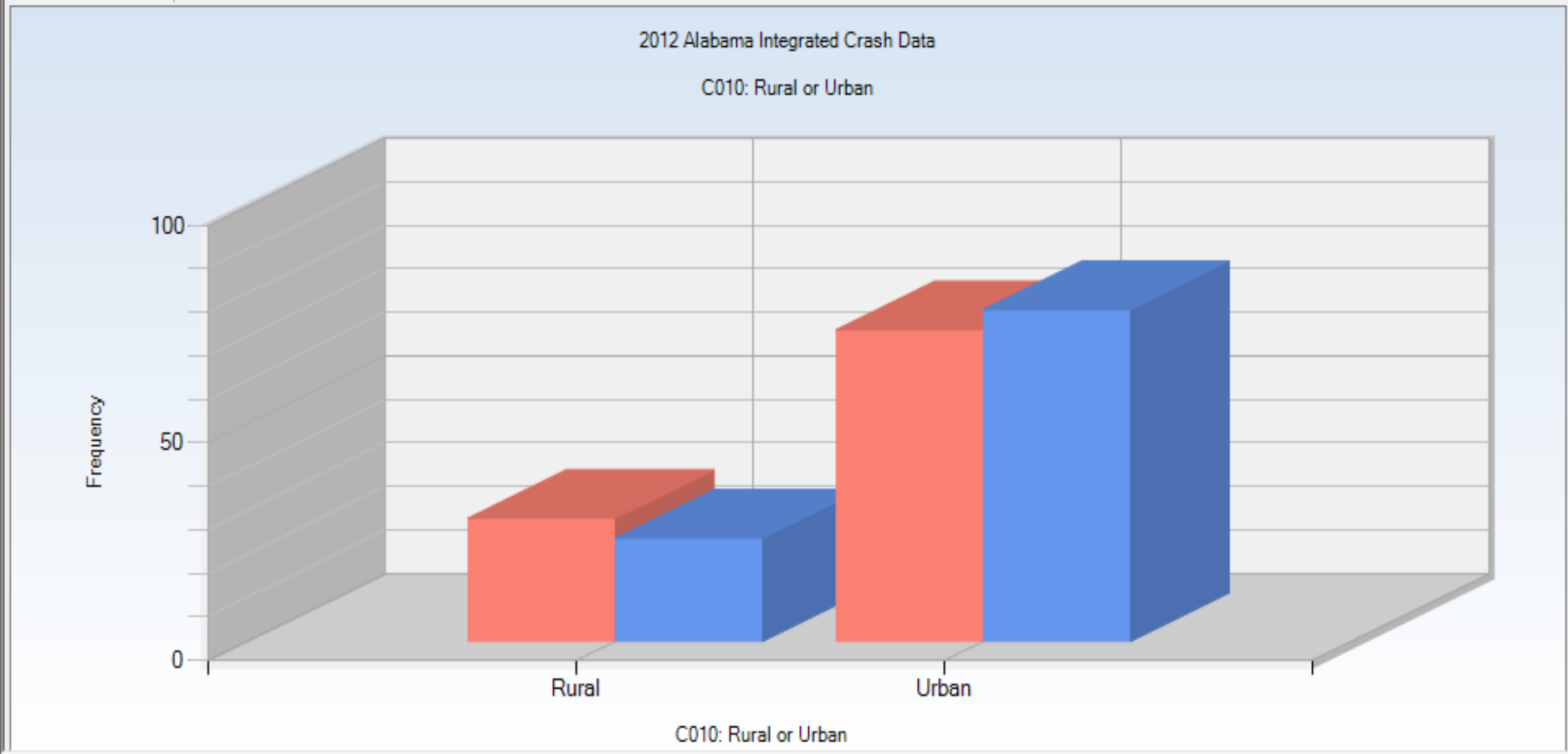
	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
▶	Rural	5838	28.34	25527	23.70	1.196*	955.977
	Urban	14763	71.66	82191	76.30	0.939*	-955.977

◀ [Filter Name] ▶

Sort by Sum of Max Gain



Display Filter Name



Question:

Highway Classification

True or False:

Interstate highways have higher sensitivity to wet weather than state routes.

C011: Highway Classifications

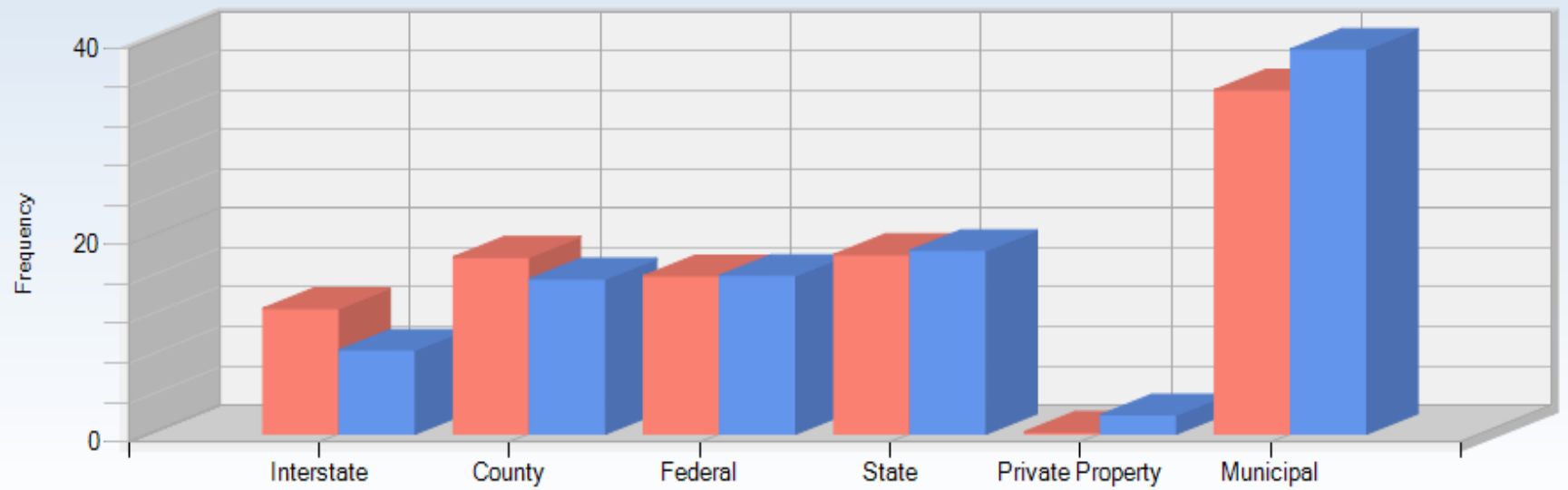
- C008: Time of Day
 - C009: Data Source
 - C010: Rural or Urban
 - C011: Highway Classifications**
 - C012: Controlled Access
 - C013: E Highway Side
 - C014: Distance from Node 1
 - C015: Primary Contributing Circumstan
- Sort by Sum of Max Gain

	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
▶	Interstate	2626	12.75	9180	8.52	1.496*	870.331
	County	3700	17.96	16954	15.74	1.141*	457.558
	Federal	3305	16.04	17330	16.09	0.997	-9.352
	State	3754	18.22	20066	18.63	0.978	-83.610
	Private Property	21	0.10	2079	1.93	0.053*	-376.607
	Municipal	7195	34.93	42094	39.08	0.894*	-855.451



Display Filter Name

2012 Alabama Integrated Crash Data
C011: Highway Classifications



C011: Highway Classifications

Question:

Contributing Circumstances

True or False:

Following too closely is reported to be more of a problem in causing wet weather crashes than dry weather crashes.

C015: Primary Contributing Circumstance

	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
	Driving too Fast for Conditions	3624	17.59	793	0.74	23.895*	3472.339
▶	Misjudge Stopping Distance	2252	10.93	10164	9.44	1.159*	308.141
	P Driver Not in Control	400	1.94	1138	1.06	1.838*	182.358
	E Ran off Road	601	2.92	2303	2.14	1.365*	160.553
	E Over Correcting/Over Steering	274	1.33	749	0.70	1.913*	130.754
	E Other - No Improper Driving	303	1.47	1103	1.02	1.436*	92.052
	E Swerved to Avoid Vehicle	543	2.64	2537	2.36	1.119*	57.800

- C009: Data Source
- C010: Rural or Urban
- C011: Highway Classifications
- C012: Controlled Access
- C013: E Highway Side
- C014: Distance from Node 1
- C015: Primary Contributing Circumstance
- C016: Primary Contributing Unit Number
- C017: First Harmful Event

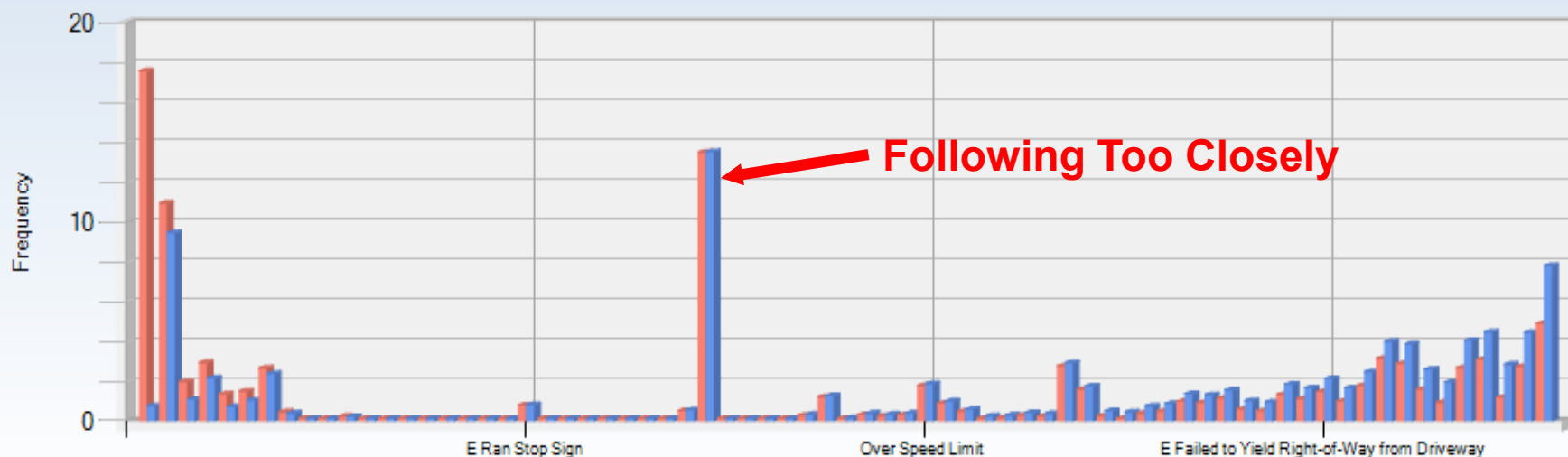
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Sort by Sum of Max Gain



Display Filter Name

2012 Alabama Integrated Crash Data
C015: Primary Contributing Circumstance



C015: Primary Contributing Circumstance

Question: First Harmful Event

True or False:

While “collisions with other vehicles” account for the majority of wet weather harmful events, it is under-represented compared to dry-weather crashes.

C017: First Harmful Event

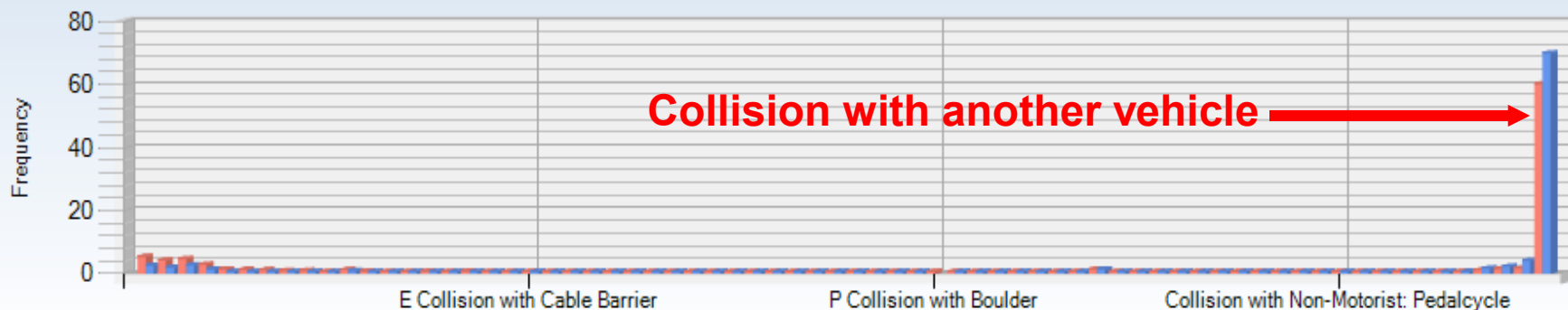
	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
	Collision with Ditch	1104	5.36	2838	2.64	2.033*	560.920
	Collision with Tree	876	4.25	2125	1.97	2.154*	469.359
	E Ran Off Road Right	962	4.67	2890	2.69	1.740*	408.969
	E Ran Off Road Left	597	2.90	1480	1.38	2.108*	313.787
	E Collision with Concrete Barrier	300	1.46	304	0.28	5.157*	241.826
	E Collision with Guardrail Face	271	1.32	519	0.48	2.729*	171.684
▶	E Evasive Action (Swerve/Bra...	239	1.16	690	0.64	1.810*	106.961
	E Collision with Embankment	190	0.92	574	0.53	1.730*	80.159
	Collision with Sign Post	206	1.00	661	0.61	1.629*	79.511
	Collision with Bridge Abutment/...	115	0.56	234	0.22	2.568*	70.222
	Collision with Utility Pole	252	1.22	959	0.89	1.373*	68.486

- C010: Rural or Urban
- C011: Highway Classifications
- C012: Controlled Access
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- C014: Distance from Node 1
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- C021: Distance to Fixed Object
- C022: E Type of Roadway Junction/Fea
- C023: E Manner of Crash

Sort by Sum of Max Gain

Display Filter Name

2012 Alabama Integrated Crash Data
C017: First Harmful Event



C017: First Harmful Event

C051: Number of Vehicles

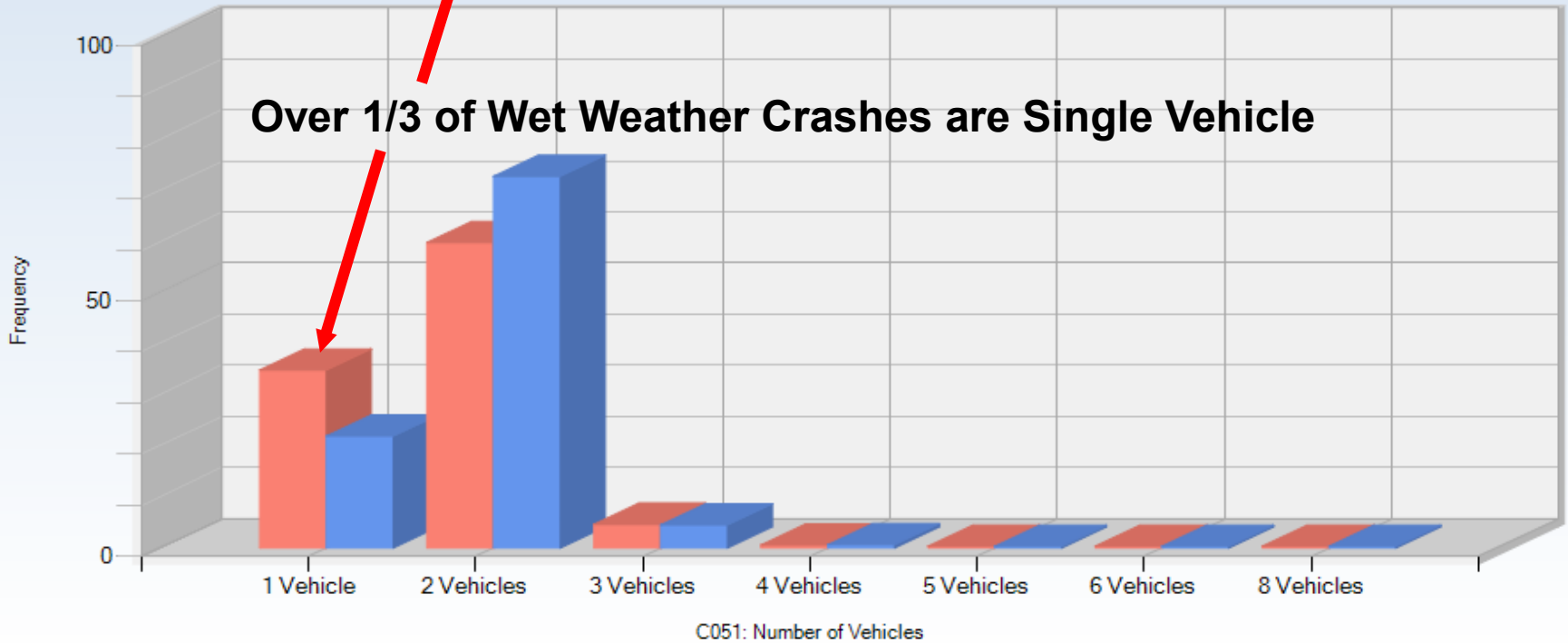
Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
1 Vehicle	7180	34.85	23608	21.92	1.590*	2664.985
2 Vehicles	12326	59.83	78450	72.83	0.822*	-2677.513
3 Vehicles	953	4.63	4856	4.51	1.026	24.293
4 Vehicles	119	0.58	680	0.63	0.915	-11.050

- C046: HasRTMP
 - C049: ALDOT Division
 - C050: ADECA CTSP Region
 - C051: Number of Vehicles
 - C052: Number of Drivers Recorded
- Sort by Sum of Max Gain

Display Filter Name

2012 Alabama Integrated Crash Data

C051: Number of Vehicles



Question: Intersection Involvement

True or False:

**Relatively fewer wet (than dry) weather
crashes occur at intersections.**

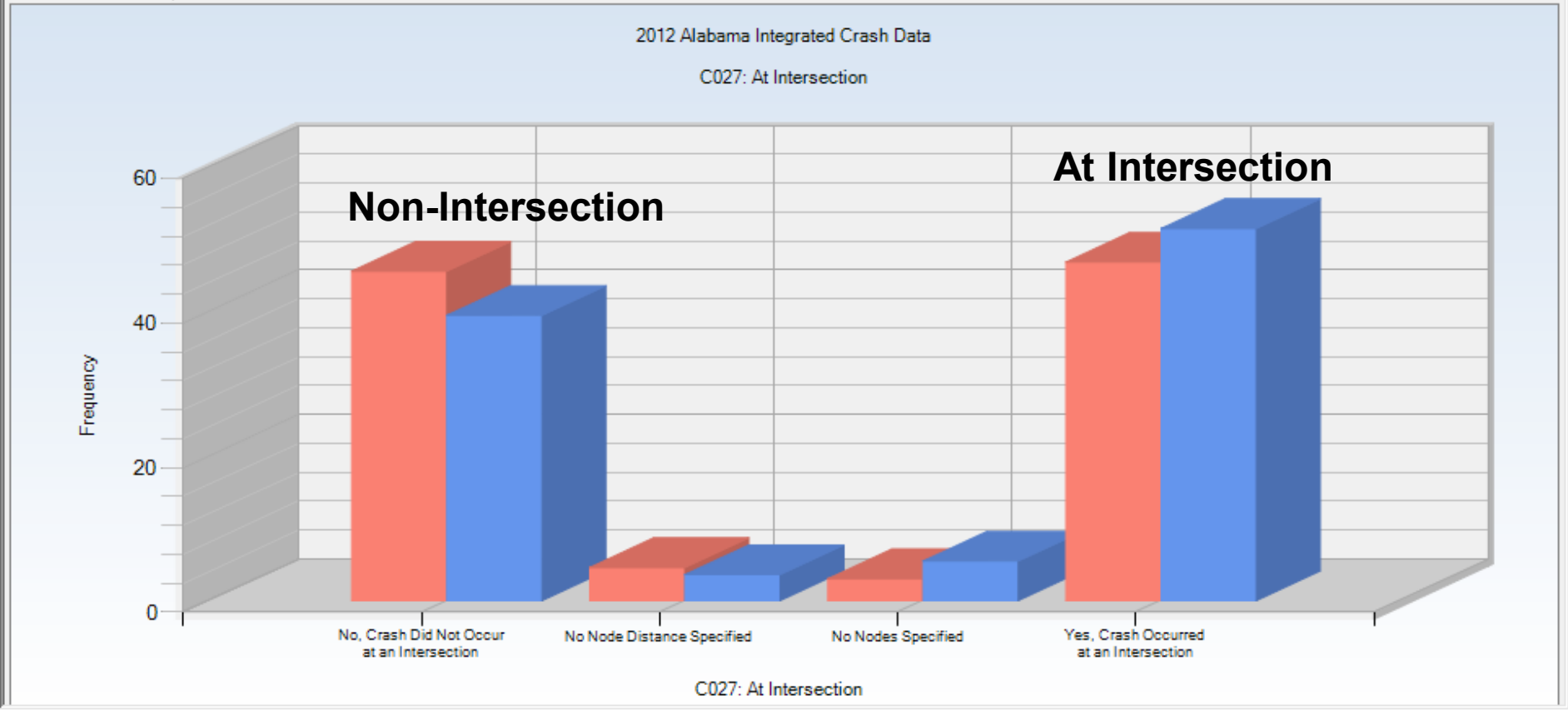
C027: At Intersection

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
No, Crash Did Not Occur at an I...	9389	45.58	42512	39.47	1.155*	1258.607
No Node Distance Specified	943	4.58	3869	3.59	1.274*	203.056
No Nodes Specified	621	3.01	5882	5.46	0.552*	-503.929
Yes, Crash Occurred at an Inter...	9648	46.83	55455	51.48	0.910*	-957.734

- 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



Question:

Commercial Motor Vehicles (CMV)

True or False:

Commercial Motor Vehicles (CMVs) are involved in about the same proportion of wet weather crashes as private vehicles.

C450: CU CMV Indicator

C450: CU CMV Indicator

	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
▶	No - CU is Not CMV	20020	97.18	99941	92.79	1.047*	905.282
	CU is Not a Vehicle	33	0.16	424	0.39	0.407*	-48.094
	Yes - CU is a CMV	548	2.66	3742	3.47	0.766*	-167.695

Sort by Sum of Max Gain

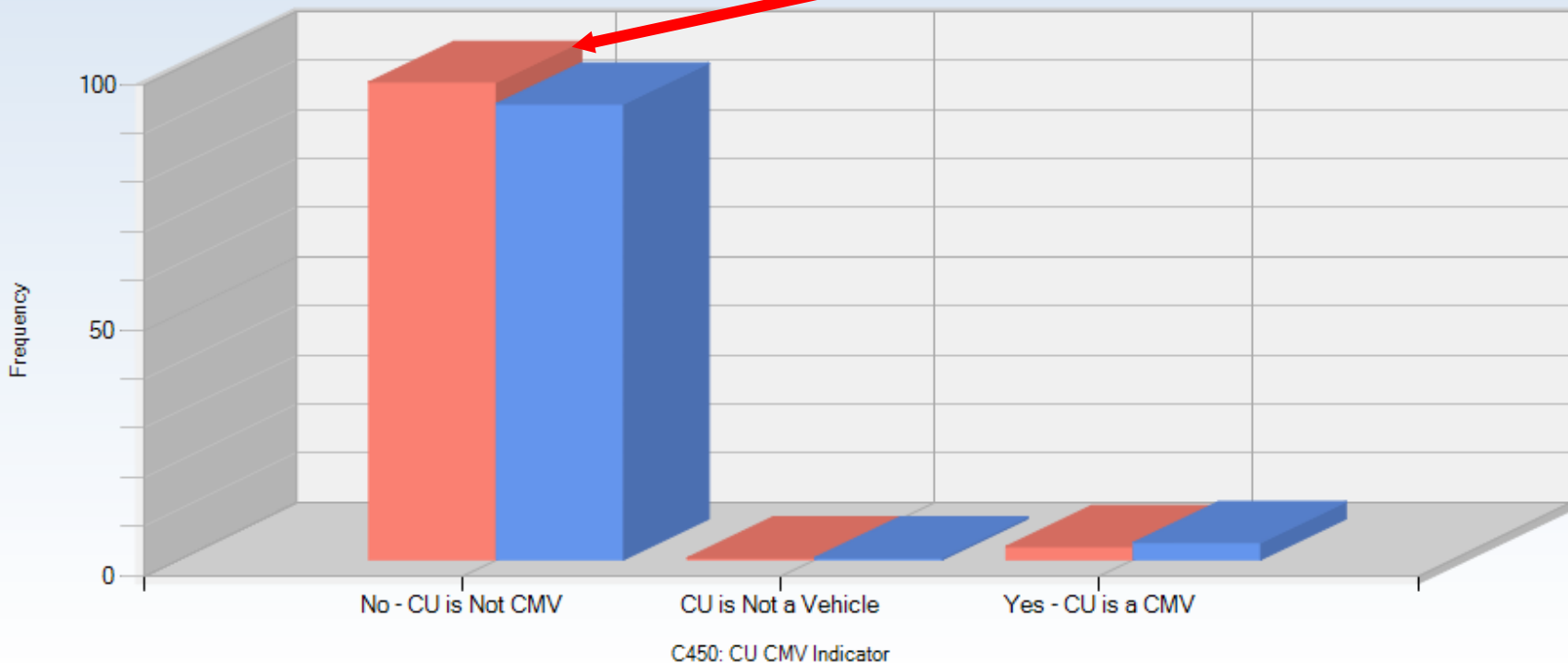
Display Filter Name



2012 Alabama Integrated Crash Data

C450: CU CMV Indicator

Small but Significantly Higher for NON-CMV



Question: Motorcycles

True or False:

Motorcycles cause more than their share of wet weather crashes.

C101: Causal Unit (CU) Type

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
E 4-Wheel Off Road ATV	5	0.02	99	0.09	0.264	-13.934
E Other Heavy Truck (Cannot ...	12	0.06	150	0.14	0.418	-16.688
E Single-Unit Truck (3 Axles or ...	34	0.17	293	0.27	0.607*	-22.037
Pedestrian	20	0.10	275	0.26	0.380*	-32.594
E Single-Unit Truck (2-Axle/6-T...	103	0.50	789	0.73	0.683*	-47.898
E Unknown Type of Motorized ...	68	0.33	677	0.63	0.525*	-61.477
E Tractor/Semi-Trailer	295	1.43	1864	1.73	0.828*	-61.493
E Van or Mini-Van	572	2.78	3625	3.37	0.825*	-121.287
Motorcycle	100	0.49	1207	1.12	0.433*	-130.841

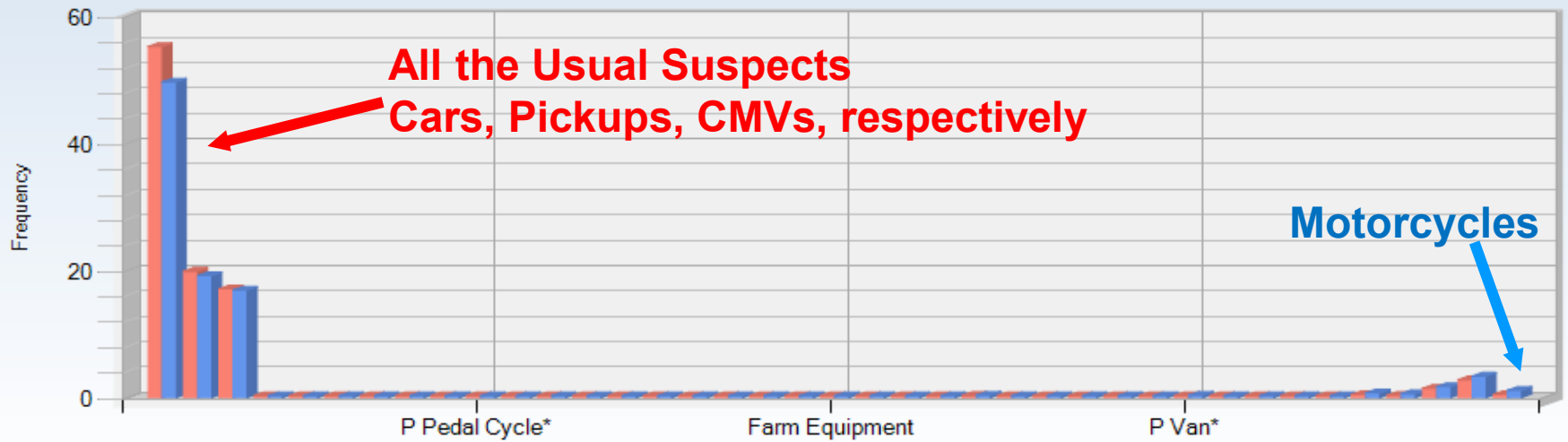
- C060: Number Killed
 - C080: CMV Involved
 - C101: Causal Unit (CU) Type
 - C102: CU Non-Motorist Indicator
 - C103: CU Commercial Motor Vehicle In
 - C105: CU Left Scene
 - C106: CU Driver Age
 - C107: CU Driver Raw Age
 - C108: CU Driver Race
 - C109: CU Driver Gender
 - C110: CU Driver Residence Distance
 - C111: CU Driver License State
- Sort by Sum of Max Gain



Display Filter Name

2012 Alabama Integrated Crash Data
C101: Causal Unit (CU) Type

Less than Half of Expected



**All the Usual Suspects
Cars, Pickups, CMVs, respectively**

Motorcycles

C101: Causal Unit (CU) Type

Question: Causal Driver

True or False:

**Compared to younger drivers, older drivers
have greater problems in wet weather.**

C107: CU Driver Raw Age

C107: CU Driver Raw Age

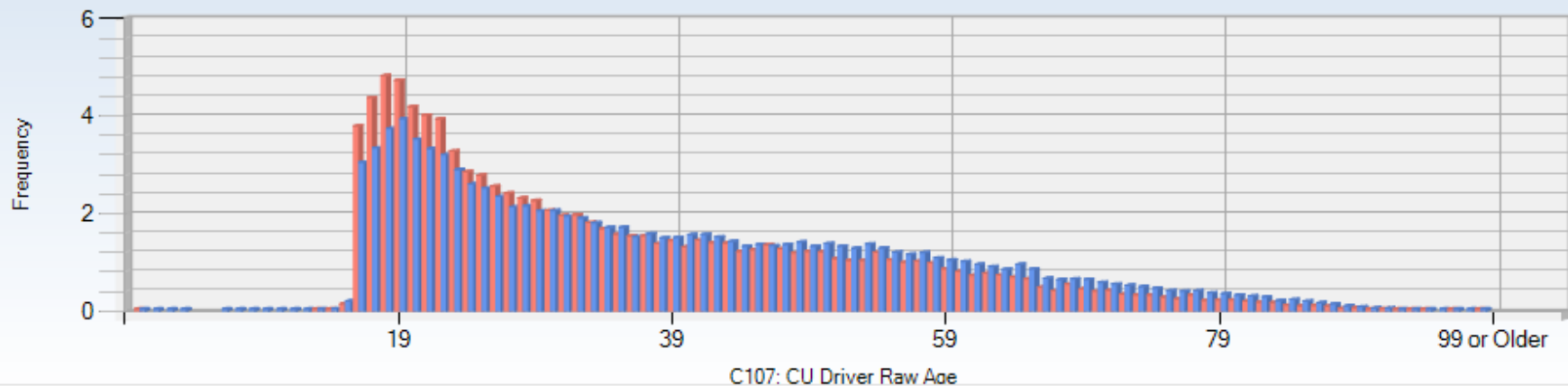
	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
	16	739	3.80	2886	3.05	1.245*	145.304
	17	852	4.38	3164	3.35	1.309*	201.115
	18	940	4.83	3542	3.75	1.290*	211.354
	19	921	4.73	3731	3.94	1.200*	153.474
	20	816	4.19	3334	3.53	1.190*	130.143
	21	782	4.02	3153	3.33	1.206*	133.378
	22	767	3.94	3032	3.21	1.230*	143.269
	23	639	3.28	2746	2.90	1.131*	74.104
	24	556	2.86	2463	2.60	1.097	49.322
	25	542	2.79	2384	2.52	1.105	51.573
	26	498	2.56	2222	2.35	1.089	40.899

 Sort by Sum of Max Gain

 Display Filter Name

2012 Alabama Integrated Crash Data

C107: CU Driver Raw Age



Question: Driver Gender

True or False:

**Men have more of a problem with wet weather
than women do.**

C109: CU Driver Gender

C109: CU Driver Gender

	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
▶	Male	11039	56.25	52820	55.20	1.019*	206.746
	Female	8586	43.75	42875	44.80	0.976*	-206.746

Sort by Sum of Max Gain

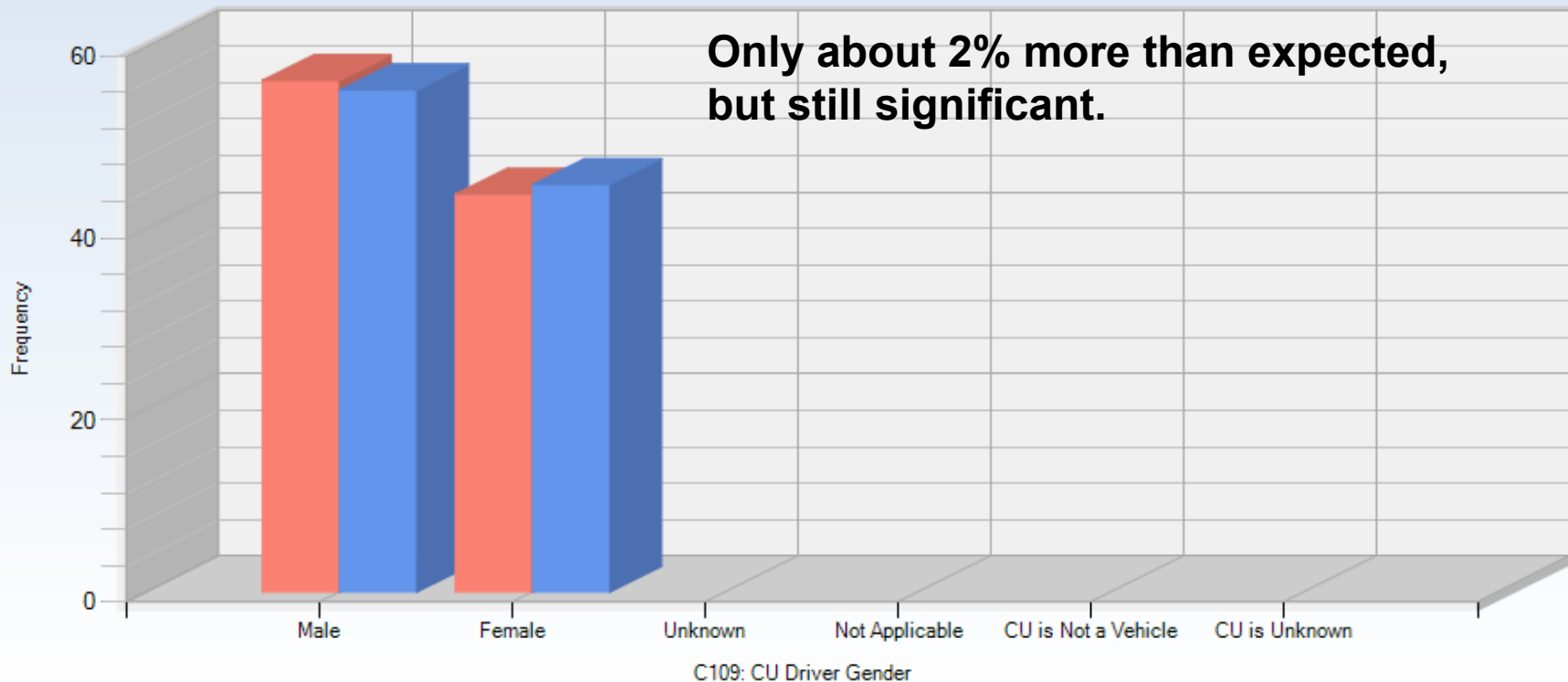


Display Filter Name

2012 Alabama Integrated Crash Data

C109: CU Driver Gender

Only about 2% more than expected, but still significant.



Question: Model Year

True or False:

**Newer vehicles have fewer
problems with wet weather.**

C208: CU Model Year

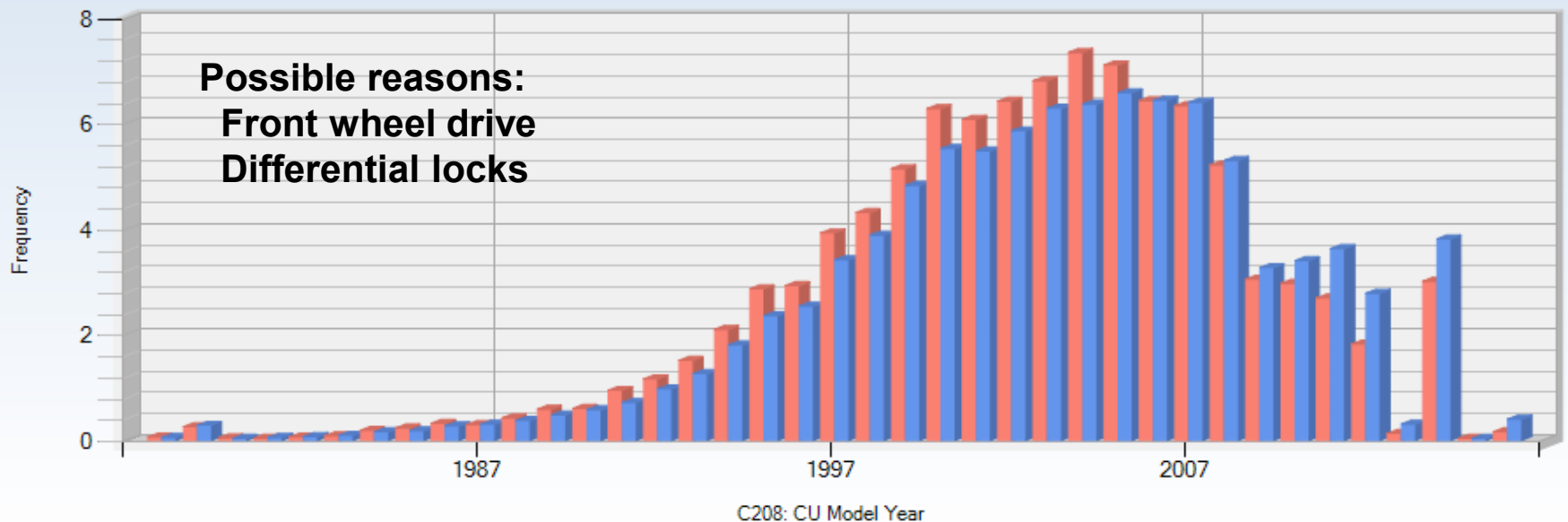
Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
2002	1312	6.42	6236	5.86	1.096*	114.650
2003	1391	6.81	6689	6.29	1.083*	106.671
2004	1501	7.35	6773	6.37	1.154*	200.543
2005	1452	7.11	7000	6.58	1.080*	107.957
2006	1314	6.43	6851	6.44	0.999	-1.434
2007	1294	6.34	6811	6.40	0.989	-13.753
2008	1065	5.22	5639	5.30	0.984	-17.722
2009	633	3.05	3477	3.27	0.933	44.695

- C130: E CU Non-Motorist Maneuvers
 - C201: CU Vehicle Most Harmful Event
 - C202: CU Contributing Circumstance
 - C203: CU First Harmful Event Location
 - C204: E CU Sequence of Events #1
 - C205: E CU Sequence of Events #2
 - C206: E CU Sequence of Events #3
 - C207: E CU Sequence of Events #4
 - C208: CU Model Year
 - C209: CU Make
- Sort by Sum of Max Gain



Display Filter Name

2012 Alabama Integrated Crash Data
C208: CU Model Year



Question:

Grade and Curvature

True or False:

Grade and curvature do not have much of an impact on wet weather crashes.

C407: CU Roadway Curvature and Grade

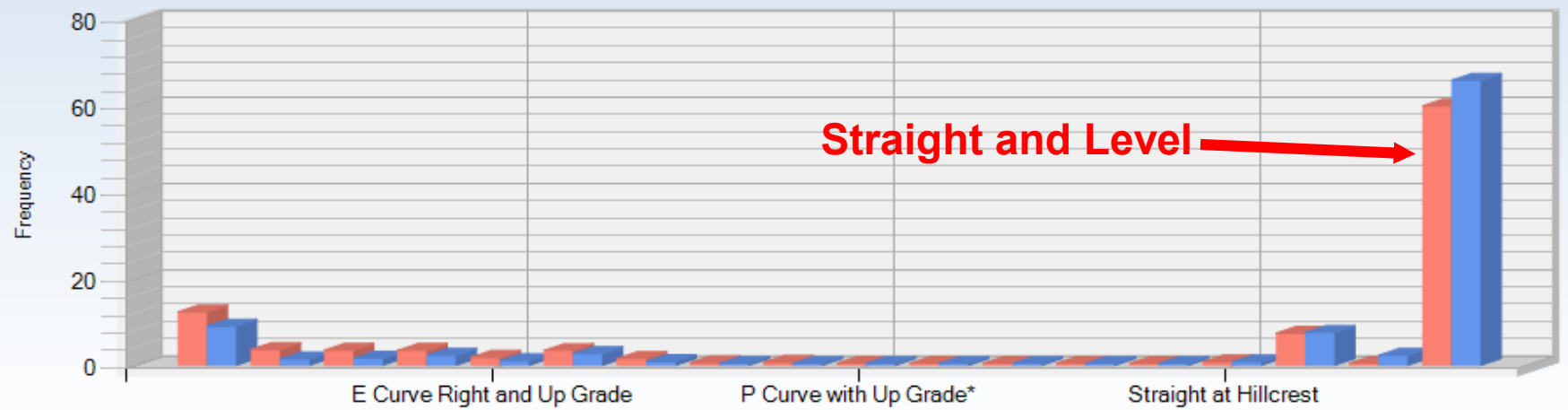
	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
▶	Straight with Down Grade	2542	12.34	9756	9.07	1.361*	674.096
	E Curve Right and Down Grade	749	3.64	1551	1.44	2.522*	452.042
	E Curve Left and Down Grade	712	3.46	1697	1.58	2.191*	387.089
	E Curve Left and Level	702	3.41	2433	2.26	1.507*	236.173
	E Curve Right and Up Grade	370	1.80	1128	1.05	1.713*	154.031
	E Curve Right and Level	700	3.40	2871	2.67	1.273*	150.312
	E Curve Left and Up Grade	316	1.53	943	0.88	1.750*	135.451
	P Curve with Down Grade*	116	0.56	216	0.20	2.805*	74.644
	P Curve and Level*	128	0.62	383	0.36	1.746*	54.670
	P Curve with Up Grade*	59	0.29	150	0.14	2.054*	30.281

- C330: CU Driver/Non-Motorist Transpor
 - C331: E CU Driver/Non-Motorist Transp
 - C401: E CU Involved Road/Bridge
 - C402: E CU Road Surface Type
 - C403: CU Roadway Condition
 - C404: E CU Environmental Contributing
 - C405: CU Contributing Material in Roac
 - C406: CU Contributing Material Source
 - C407: CU Roadway Curvature and Grad
 - C408: CU Vision Obscured By
 - C409: CU Traffic Control
 - C410: CU Traffic Control Functioning
 - C411: CU Opposing Lane Separation
- Sort by Sum of Max Gain



Display Filter Name

2012 Alabama Integrated Crash Data
C407: CU Roadway Curvature and Grade



C407: CU Roadway Curvature and Grade

Question: Workzone Effects

True or False:

**Workzone related crashes are reduced
when the weather is wet.**

C415: CU Workzone Related

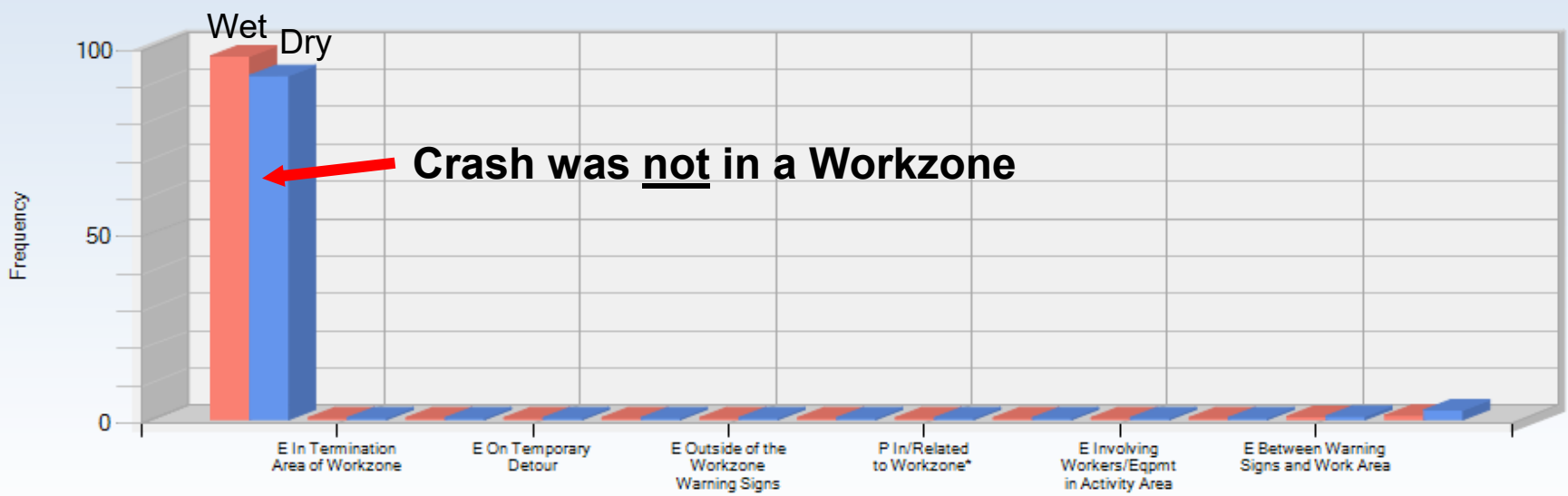
	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
▶	Not In/Related to Workzone	20073	97.44	99316	92.24	1.056*	1070.939
	E In Termination Area of Workz...	17	0.08	64	0.06	1.388	4.755
	E Involving Roadway Condition...	10	0.05	44	0.04	1.188	1.582
	E On Temporary Detour	2	0.01	15	0.01	0.697	-0.870
	E Not Involving Workers/Condi...	63	0.31	347	0.32	0.949	-3.391
	E Outside of the Workzone Wa...	16	0.08	114	0.11	0.734	-5.812
	E Other Workzone Area	2	0.01	45	0.04	0.232	-6.610
	P In/Related to Workzone*	6	0.03	75	0.07	0.418	-8.350

- C413: E CU Turn Lanes
 - C414: CU One-Way Street
 - C415: CU Workzone Related
 - C416: E CU Workzone Type
 - C417: E CU Workers Present
 - C418: E CU Law Enforcement Present
 - C450: CU CMV Indicator
 - C451: E CU CMV Weight
 - C452: CU CMV Hazard Materials Involve
 - C453: E CU CMV Hazard Materials Rele
- Sort by Sum of Max Gain



Display Filter Name

2012 Alabama Integrated Crash Data
C415: CU Workzone Related



C415: CU Workzone Related



Roundtable Input and Questions Thank You!





Weather Analyses Bad Weather Crash Comparison

(Alabama 2013 vs. 2012 Crash Data)

David B. Brown

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February 11, 2014

For more information on weather and traffic safety, see

<http://www.safehomealabama.gov/tag/weather/>

Introduction

This study was conducted because a large disparity in weather related crashes occurred in 2013 as opposed to 2012. The comparison is between what is defined in Slide 3 to be “bad” weather for 2013 (red bars) vs. 2012 (blue bars).

Unfortunately, a large portion of the weather occurred at the late-night weekend hours, which is concurrent with the heavy drinking hours. These effects tended to mask each other – that is, it is impossible to tell whether the effects were due to DUI or the bad weather. A further analysis determined that the bad weather non-DUI crashes had the same basic characteristics as the entire population. Thus, the results obtained for the entire comparison are valid.

There was little new over previous studies revealed in the comparison. See:

http://www.technolytix.com/uploads/2/2/7/6/22761914/weather_impacts_trcc_feb_11_2014-v01.pdf

and it is not recommended that further work be done to publish these results. It is recommended that an IMPACT be done the snow-sleet-icy weather of 2013 to determine if there are any surprises to be found in that comparison.



Data Source: 2012-2014 Alabama Integrated Crash Data Filter: Weather Issues And 2013

1/ 1/2012

7/27/2014

Order: Odds Ratio Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

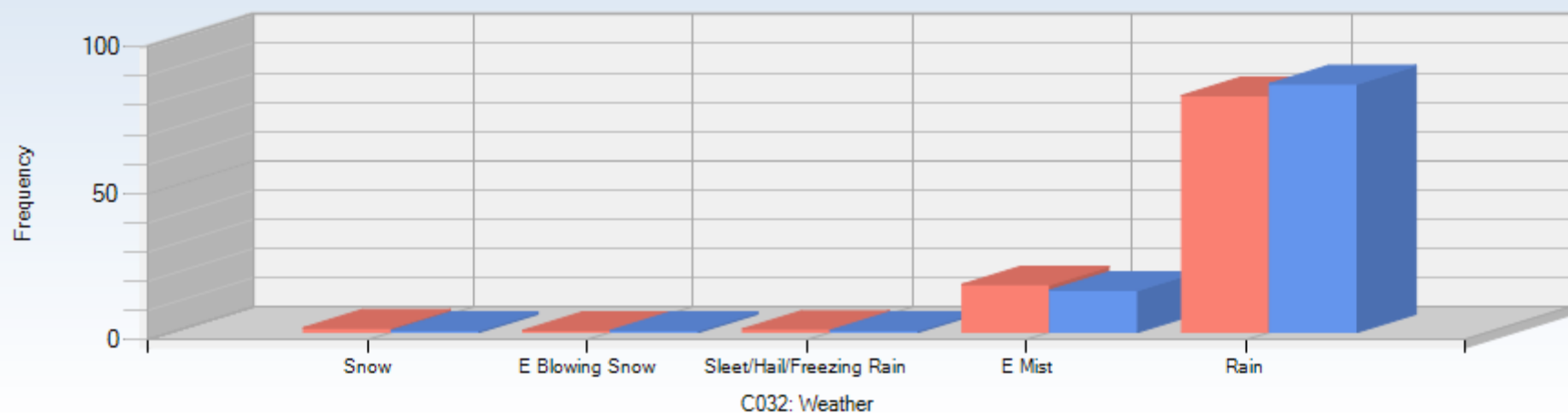
C032: Weather	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Snow	301	1.51	34	0.22	6.960*	257.750
E Blowing Snow	26	0.13	6	0.04	3.407	18.368
Sleet/Hail/Freezing Rain	211	1.06	57	0.36	2.910*	138.493
E Mist	3251	16.32	2247	14.35	1.137*	392.682
Rain	16134	80.98	13318	85.03	0.952*	-807.292

C001: County
 C031: Lighting Conditions
 C028: Mileposted Route
 C032: Weather
 C008: Time of Day
 C015: Primary Contributing Circumstance
 C204: E CU Sequence of Events #1
 Sort by Sum of Max Gain

 Display Filter Name

2012-2014 Alabama Integrated Crash Data

C032: Weather



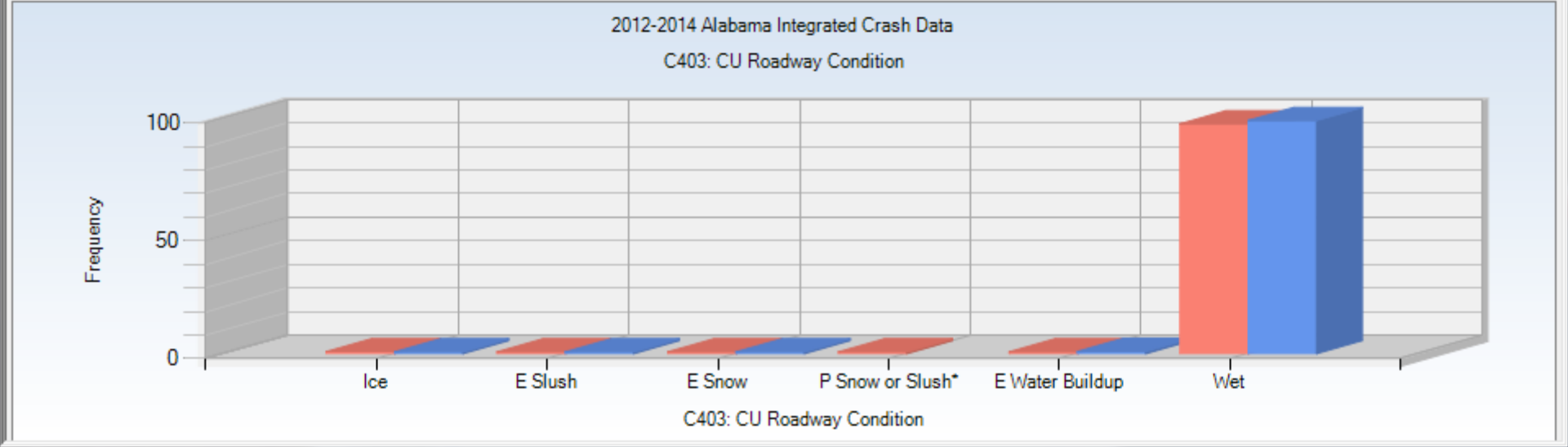
Order: Max Gain Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

C403: CU Roadway Condition	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Ice	155	0.83	29	0.20	4.223*	118.293
E Slush	82	0.44	2	0.01	32.392	79.469
E Snow	83	0.44	7	0.05	9.368	74.140
P Snow or Slush*	33	0.18	0	0.00	0.000	33.000
E Water Buildup	133	0.71	130	0.88	0.808	-31.547
Wet	18242	97.40	14627	98.86	0.985*	-272.089

C403: CU Roadway Condition

Sort by Sum of Max Gain

Display Filter Name



	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
1	181	1	48	13	99	46	23	42	12	0	99	4	568
	5.59%	0.05%	3.79%	0.87%	7.78%	4.12%	1.11%	3.11%	1.41%	0.00%	5.27%	0.17%	2.85%
2	24	102	61	1	59	21	5	0	41	22	0	188	524
	0.74%	4.75%	4.82%	0.07%	4.64%	1.88%	0.24%	0.00%	4.81%	2.46%	0.00%	8.05%	2.63%
3	29	6	10	266	253	20	171	17	57	7	0	147	983
	0.90%	0.28%	0.79%	17.85%	19.89%	1.79%	8.23%	1.26%	6.68%	0.78%	0.00%	6.29%	4.93%
4	1	17	1	289	199	13	219	10	5	5	2	70	831
	0.03%	0.79%	0.08%	19.40%	15.64%	1.16%	10.54%	0.74%	0.59%	0.56%	0.11%	3.00%	4.17%
5	85	58	61	26	78	146	223	37	6	0	0	136	856
	2.63%	2.70%	4.82%	1.74%	6.13%	13.07%	10.74%	2.74%	0.70%	0.00%	0.00%	5.82%	4.30%
6	33	6	0	0	145	26	326	112	0	186	18	271	1123
	1.02%	0.28%	0.00%	0.00%	11.40%	2.33%	15.70%	8.29%	0.00%	20.76%	0.96%	11.60%	5.64%
7	1	165	0	0	5	144	106	66	1	10	73	34	605
	0.03%	7.68%	0.00%	0.00%	0.39%	12.89%	5.10%	4.89%	0.12%	1.12%	3.88%	1.46%	3.04%
8	0	78	0	0	1	8	72	44	0	0	0	226	429
	0.00%	3.63%	0.00%	0.00%	0.08%	0.72%	3.47%	3.26%	0.00%	0.00%	0.00%	9.67%	2.15%
9	207	0	0	0	0	95	26	42	14	0	10	139	533
	6.40%	0.00%	0.00%	0.00%	0.00%	8.50%	1.25%	3.11%	1.64%	0.00%	0.53%	5.95%	2.68%
10	208	193	1	0	74	113	80	47	6	0	1	34	757
	6.43%	8.98%	0.08%	0.00%	5.82%	10.12%	3.85%	3.48%	0.70%	0.00%	0.05%	1.46%	3.80%
11	254	330	278	151	36	0	67	27	1	0	0	0	1144
	7.85%	15.36%	21.96%	10.13%	2.83%	0.00%	3.23%	2.00%	0.12%	0.00%	0.00%	0.00%	5.74%
12	47	335	2	6	0	0	21	48	24	0	0	1	484
	1.45%	15.59%	0.16%	0.40%	0.00%	0.00%	1.01%	3.55%	2.81%	0.00%	0.00%	0.04%	2.43%
13	144	82	0	3	0	13	28	95	6	0	0	1	372
	4.45%	3.82%	0.00%	0.20%	0.00%	1.16%	1.35%	7.03%	0.70%	0.00%	0.00%	0.04%	1.87%
14	329	0	1	141	0	4	39	116	0	0	0	204	834
	10.17%	0.00%	0.08%	9.46%	0.00%	0.36%	1.88%	8.59%	0.00%	0.00%	0.00%	8.73%	4.19%
15	353	4	0	3	1	2	30	50	1	0	491	4	939
	10.91%	0.19%	0.00%	0.20%	0.08%	0.18%	1.44%	3.70%	0.12%	0.00%	26.12%	0.17%	4.71%
16	347	2	0	2	3	21	1	34	9	133	34	0	586
	10.72%	0.09%	0.00%	0.13%	0.24%	1.88%	0.05%	2.52%	1.06%	14.84%	1.81%	0.00%	2.94%
17	444	0	0	6	204	115	5	141	4	184	184	0	1287
	13.72%	0.00%	0.00%	0.40%	16.04%	10.30%	0.24%	10.44%	0.47%	20.54%	9.79%	0.00%	6.46%
18	36	6	126	0	70	90	17	178	2	7	37	0	569
	1.11%	0.28%	9.95%	0.00%	5.50%	8.06%	0.82%	13.18%	0.23%	0.78%	1.97%	0.00%	2.86%
19	1	43	3	218	17	16	19	52	0	79	0	0	448
	0.03%	2.00%	0.24%	14.63%	1.34%	1.43%	0.91%	3.85%	0.00%	8.82%	0.00%	0.00%	2.25%
20	0	9	0	0	1	9	50	29	51	0	1	21	171
	0.00%	0.42%	0.00%	0.00%	0.08%	0.81%	2.41%	2.15%	5.98%	0.00%	0.05%	0.90%	0.86%
21	0	121	1	0	0	11	75	23	309	3	7	170	720
	0.00%	5.63%	0.08%	0.00%	0.00%	0.98%	3.61%	1.70%	36.23%	0.33%	0.37%	7.28%	3.61%
22	0	263	179	0	17	0	102	47	15	6	215	257	1101
	0.00%	12.34%	14.14%	0.00%	1.34%	0.00%	4.61%	2.46%	1.76%	0.67%	11.44%	11.00%	5.52%

	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
11	234	350	270	191	30	0	07	27	1	0	0	0	1144
	7.85%	15.36%	21.96%	10.13%	2.83%	0.00%	3.23%	2.00%	0.12%	0.00%	0.00%	0.00%	5.74%
12	47	335	2	6	0	0	21	48	24	0	0	1	484
	1.45%	15.59%	0.16%	0.40%	0.00%	0.00%	1.01%	3.55%	2.81%	0.00%	0.00%	0.04%	2.43%
13	144	82	0	3	0	13	28	95	6	0	0	1	372
	4.45%	3.82%	0.00%	0.20%	0.00%	1.16%	1.35%	7.03%	0.70%	0.00%	0.00%	0.04%	1.87%
14	329	0	1	141	0	4	39	116	0	0	0	204	834
	10.17%	0.00%	0.08%	9.46%	0.00%	0.36%	1.88%	8.59%	0.00%	0.00%	0.00%	8.73%	4.19%
15	353	4	0	3	1	2	30	50	1	0	491	4	939
	10.91%	0.19%	0.00%	0.20%	0.08%	0.18%	1.44%	3.70%	0.12%	0.00%	26.12%	0.17%	4.71%
16	347	2	0	2	3	21	1	34	9	133	34	0	586
	10.72%	0.09%	0.00%	0.13%	0.24%	1.88%	0.05%	2.52%	1.06%	14.84%	1.81%	0.00%	2.94%
17	444	0	0	6	204	115	5	141	4	184	184	0	1287
	13.72%	0.00%	0.00%	0.40%	16.04%	10.30%	0.24%	10.44%	0.47%	20.54%	9.79%	0.00%	6.46%
18	36	6	126	0	70	90	17	178	2	7	37	0	569
	1.11%	0.28%	9.95%	0.00%	5.50%	8.06%	0.82%	13.18%	0.23%	0.78%	1.97%	0.00%	2.86%
19	1	43	3	218	17	16	19	52	0	79	0	0	448
	0.03%	2.00%	0.24%	14.63%	1.34%	1.43%	0.91%	3.85%	0.00%	8.82%	0.00%	0.00%	2.25%
20	0	9	0	0	1	9	50	29	51	0	1	21	171
	0.00%	0.42%	0.00%	0.00%	0.08%	0.81%	2.41%	2.15%	5.98%	0.00%	0.05%	0.90%	0.86%
21	0	121	1	0	0	11	75	23	309	3	7	170	720
	0.00%	5.63%	0.08%	0.00%	0.00%	0.98%	3.61%	1.70%	36.23%	0.33%	0.37%	7.28%	3.61%
22	0	263	179	0	17	0	102	47	15	6	215	257	1101
	0.00%	12.24%	14.14%	0.00%	1.34%	0.00%	4.91%	3.48%	1.76%	0.67%	11.44%	11.00%	5.53%
23	1	91	171	2	0	21	178	18	39	0	34	38	593
	0.03%	4.23%	13.51%	0.13%	0.00%	1.88%	8.57%	1.33%	4.57%	0.00%	1.81%	1.63%	2.98%
24	1	7	65	140	0	54	55	20	143	0	1	1	487
	0.03%	0.33%	5.13%	9.40%	0.00%	4.83%	2.65%	1.48%	16.76%	0.00%	0.05%	0.04%	2.44%
25	117	168	2	2	0	11	3	3	53	0	156	1	516
	3.62%	7.82%	0.16%	0.13%	0.00%	0.98%	0.14%	0.22%	6.21%	0.00%	8.30%	0.04%	2.59%
26	8	60	6	12	0	5	0	1	1	0	504	0	597
	0.25%	2.79%	0.47%	0.81%	0.00%	0.45%	0.00%	0.07%	0.12%	0.00%	26.81%	0.00%	3.00%
27	2	2	0	37	0	19	22	0	0	24	13	1	120
	0.06%	0.09%	0.00%	2.48%	0.00%	1.70%	1.06%	0.00%	0.00%	2.68%	0.69%	0.04%	0.60%
28	7	0	0	135	1	63	11	0	0	79	0	308	604
	0.22%	0.00%	0.00%	9.06%	0.08%	5.64%	0.53%	0.00%	0.00%	8.82%	0.00%	13.18%	3.03%
29	41	0	0	18	6	21	3	0	2	0	0	40	131
	1.27%	0.00%	0.00%	1.21%	0.47%	1.88%	0.14%	0.00%	0.23%	0.00%	0.00%	1.71%	0.66%
30	334	0	138	19	0	10	20	26	51	0	0	17	615
	10.32%	0.00%	10.90%	1.28%	0.00%	0.90%	0.96%	1.92%	5.98%	0.00%	0.00%	0.73%	3.09%
31	1	0	112	0	3	0	80	26	0	151	0	23	396
	0.03%	0.00%	8.85%	0.00%	0.24%	0.00%	3.85%	1.92%	0.00%	16.85%	0.00%	0.98%	1.99%
TOTAL	3236	2149	1266	1490	1272	1117	2077	1351	853	896	1880	2336	19923
	16.24%	10.79%	6.35%	7.48%	6.38%	5.61%	10.43%	6.78%	4.28%	4.50%	9.44%	11.73%	100.00%

C007: Week of the Year	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
44	353	1.77	8	0.05	34.688	342.824
45	103	0.52	175	1.12	0.463*	-119.610
46	526	2.64	222	1.42	1.863*	243.603
47	478	2.40	0	0.00	0.000	478.000
48	674	3.38	227	1.45	2.334*	385.242
49	850	4.27	364	2.32	1.836*	386.970

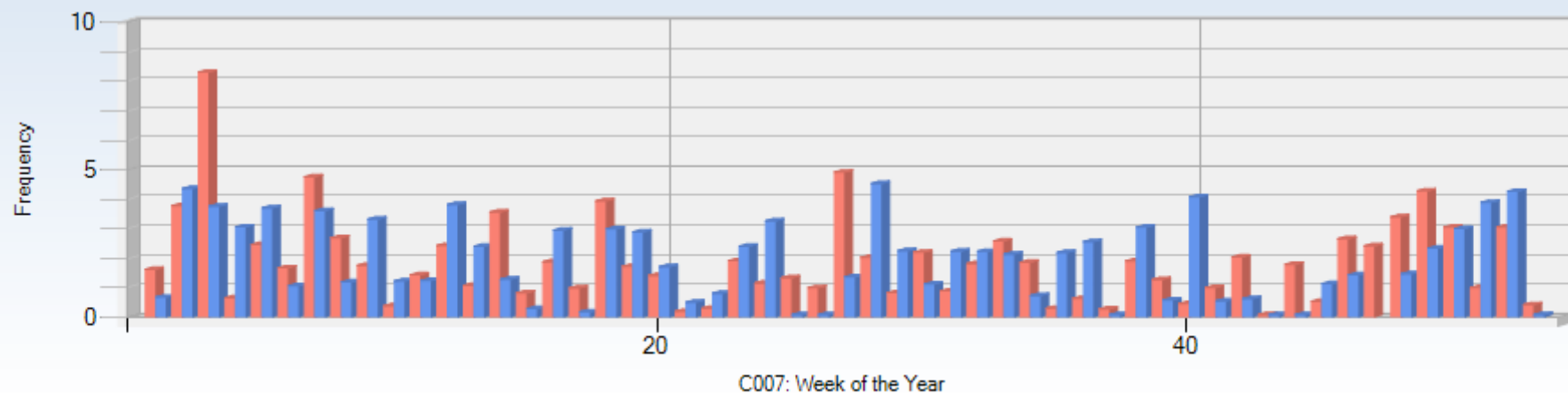
C003: Year
C020: E Distracted Driving
C007: Week of the Year
C005: Day of Month
C004: Month
C006: Day of the Week
C125: E CU Driver Drug Test Type Given
C127: E CU Driver Drug Test Results

Sort by Sum of Max Gain

 Display Filter Name

2012-2014 Alabama Integrated Crash Data

C007: Week of the Year



Data Source: 2012-2014 Alabama Integrated Crash Data Filter: Weather Issues And 2013

1/ 1/2012

7/27/2014

 Order: Natural Order Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

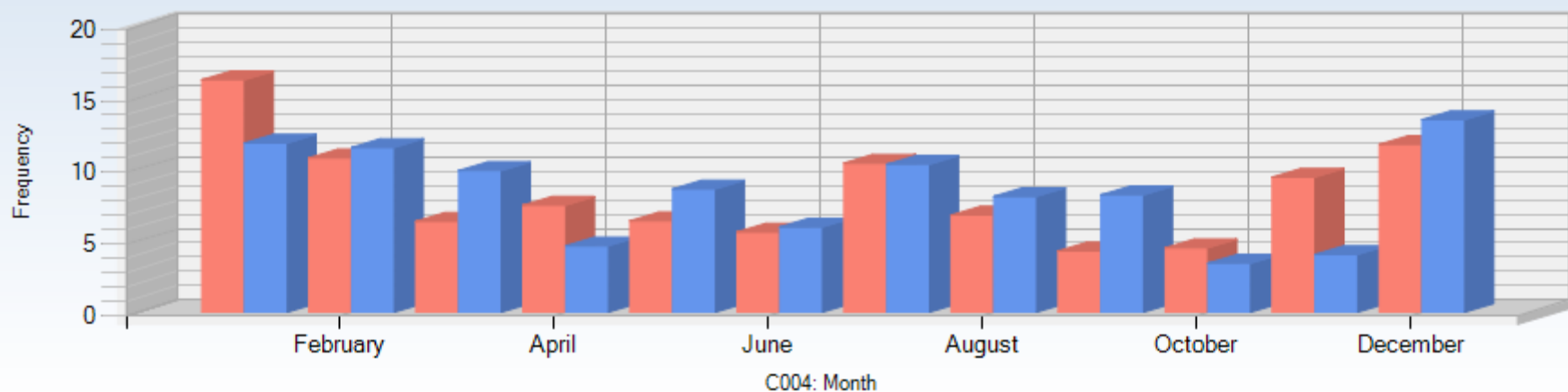
C004: Month	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
January	3236	16.24	1852	11.82	1.374*	880.145
February	2149	10.79	1804	11.52	0.936	-145.796
March	1266	6.35	1550	9.90	0.642*	-705.693
April	1490	7.48	726	4.64	1.613*	566.485
May	1272	6.38	1349	8.61	0.741*	-444.009
June	1117	5.61	933	5.96	0.941	-69.832

 C003: Year
 C020: E Distracted Driving
 C007: Week of the Year
 C005: Day of Month
 C004: Month
 C006: Day of the Week
 C125: E CU Driver Drug Test Type Giver
 C127: E CU Driver Drug Test Results
 Sort by Sum of Max Gain

 Display Filter Name

2012-2014 Alabama Integrated Crash Data

C004: Month



C002: City	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Homewood	298	1.50	186	1.19	1.260*	61.414
Montgomery	1093	5.49	815	5.20	1.054	56.347
Opelika	256	1.29	158	1.01	1.274*	55.029
Anniston	243	1.22	149	0.95	1.282*	53.477
Tuscaloosa	617	3.10	445	2.84	1.090	50.975
Gadsden	241	1.21	154	0.98	1.230	45.117
Mountain Brook	100	0.50	50	0.32	1.572*	36.402
Prattville	138	0.69	80	0.51	1.356	36.243
Gardendale	64	0.32	22	0.14	2.287*	36.017
Oxford	149	0.75	90	0.57	1.302	34.523
Rural Etowah	128	0.64	79	0.50	1.274	27.515
Boaz	64	0.32	30	0.19	1.677*	25.841
Auburn	201	1.01	138	0.88	1.145	25.469
Rural Marshall	95	0.48	55	0.35	1.358	25.042
Vestavia Hills	185	0.93	127	0.81	1.145	23.460
Trussville	139	0.70	92	0.59	1.188	21.979
Chelsea	33	0.17	9	0.06	2.883	21.552
Rural Houston	67	0.34	36	0.23	1.463	21.209

- C005: Day of Month
- C004: Month
- C006: Day of the Week
- C125: E CU Driver Drug Test Type Given
- C127: E CU Driver Drug Test Results
- C043: Agency ORI
- C002: City**
- C124: CU Driver Alcohol Test Type Given
- [C126: CU Driver Alcohol Test Results](#)
- C112: CU Driver First License Class
- C113: CU Driver Second License Class
- C208: CU Model Year
- C001: County
- C031: Lighting Conditions
- C028: Mileposted Route
- C032: Weather
- C008: Time of Day
- C015: Primary Contributing Circumstance
- C204: E CU Sequence of Events #1
- C224: CU Estimated Speed at Impact
- C107: CU Driver Raw Age
- C404: E CU Environmental Contributing
- C511: V2 Driver License State
- C009: CU Contributing Circumstances

Sort by Sum of Max Gain

C002: City	Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
	Decatur	263	1.32	220	1.40	0.940	-16.833
	Moody	25	0.13	33	0.21	0.596	-16.975
	Dothan	405	2.03	336	2.15	0.948	-22.381
	Irondale	17	0.09	31	0.20	0.431	-22.431
	Rural St. Clair	146	0.73	133	0.85	0.863	-23.172
	Rural Limestone	123	0.62	116	0.74	0.834	-24.548
	Hoover	472	2.37	393	2.51	0.944	-27.883
	Troy	75	0.38	83	0.53	0.710	-30.573
	Fort Payne	45	0.23	61	0.39	0.580*	-32.590
	Phenix City	247	1.24	220	1.40	0.883	-32.833
	Madison	187	0.94	173	1.10	0.850	-33.050
	Saraland	58	0.29	73	0.47	0.625*	-34.854
	Rural Morgan	138	0.69	136	0.87	0.798	-34.987
	Rural Tuscaloosa	180	0.90	181	1.16	0.782*	-50.226
	Rural Mobile	253	1.27	248	1.58	0.802*	-62.448
	Rural Jefferson	504	2.53	452	2.89	0.877	-70.929
	Birmingham	1375	6.90	1247	7.96	0.867*	-211.143
	Mobile	1441	7.23	1304	8.33	0.869*	-217.645

- C005: Day of Month
- C004: Month
- C006: Day of the Week
- C125: E CU Driver Drug Test Type Given
- C127: E CU Driver Drug Test Results
- C043: Agency ORI
- C002: City**
- C124: CU Driver Alcohol Test Type Given
- C126: CU Driver Alcohol Test Results
- C112: CU Driver First License Class
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- C208: CU Model Year
- C001: County
- [C031: Lighting Conditions](#)
- C028: Mileposted Route
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- C009: CU Contributing Circumstances

Sort by Sum of Max Gain

Data Source: 2012-2014 Alabama Integrated Crash Data Filter: Weather Issues And 2013

1/ 1/2012 7/27/2014

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

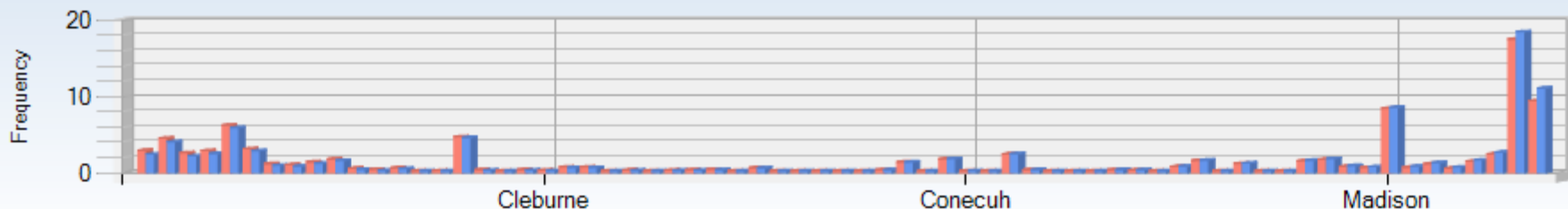
C001: County	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Calhoun	583	2.93	379	2.42	1.209*	100.889
Shelby	900	4.52	633	4.04	1.118	94.786
Etowah	519	2.61	345	2.20	1.183*	80.139
Lee	575	2.89	394	2.52	1.147	73.808
Montgomery	1239	6.22	922	5.89	1.056	66.161
Baldwin	625	3.14	449	2.87	1.094	53.845
Colbert	236	1.18	150	0.96	1.237	45.191
Autauga	210	1.05	134	0.86	1.232	39.544
Elmore	281	1.41	191	1.22	1.157	38.037
Marshall	357	1.79	252	1.61	1.114	36.441

C043: Agency ORI
 C002: City
 C124: CU Driver Alcohol Test Type Giver
 C126: CU Driver Alcohol Test Results
 C112: CU Driver First License Class
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 C208: CU Model Year
C001: County
 C031: Lighting Conditions
 C028: Mileposted Route
 C032: Weather
 C008: Time of Day
 C015: Primary Contributing Circumstance
 Sort by Sum of Max Gain


 Display Filter Name

2012-2014 Alabama Integrated Crash Data

C001: County



Data Source: 2012-2014 Alabama Integrated Crash Data

Filter: Weather Issues And 2013

1/ 1/2012

7/27/2014

Order: Max Gain

Descending

 Suppress Zero-Valued Rows

Significance: Over Representation

Threshold: 2.0



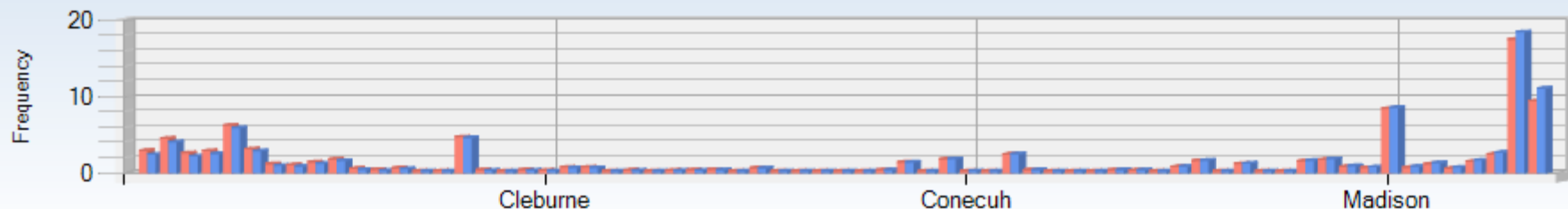
C001: County	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Coffee	165	0.83	145	0.93	0.895	-19.449
Chambers	136	0.68	124	0.79	0.862	-21.735
Madison	1681	8.44	1342	8.57	0.985	-26.104
Blount	141	0.71	132	0.84	0.840	-26.912
Limestone	232	1.16	205	1.31	0.890	-28.772
Pike	120	0.60	117	0.75	0.806	-28.831
St Clair	299	1.50	260	1.66	0.904	-31.736
Morgan	490	2.46	421	2.69	0.915	-45.537
Jefferson	3484	17.49	2889	18.45	0.948*	-190.981
Mobile	1878	9.43	1735	11.08	0.851*	-329.024

C043: Agency ORI
 C002: City
 C124: CU Driver Alcohol Test Type Giver
 C126: CU Driver Alcohol Test Results
 C112: CU Driver First License Class
 C113: CU Driver Second License Class
 C208: CU Model Year
C001: County
 C031: Lighting Conditions
 C028: Mileposted Route
 C032: Weather
 C008: Time of Day
 C015: Primary Contributing Circumstance
 Sort by Sum of Max Gain

 Display Filter Name

2012-2014 Alabama Integrated Crash Data

C001: County



C001: County

Data Source: 2012-2014 Alabama Integrated Crash Data Filter: Weather Issues And 2013

1/ 1/2012

7/27/2014

Order: Max Gain

Descending

 Suppress Zero-Valued Rows

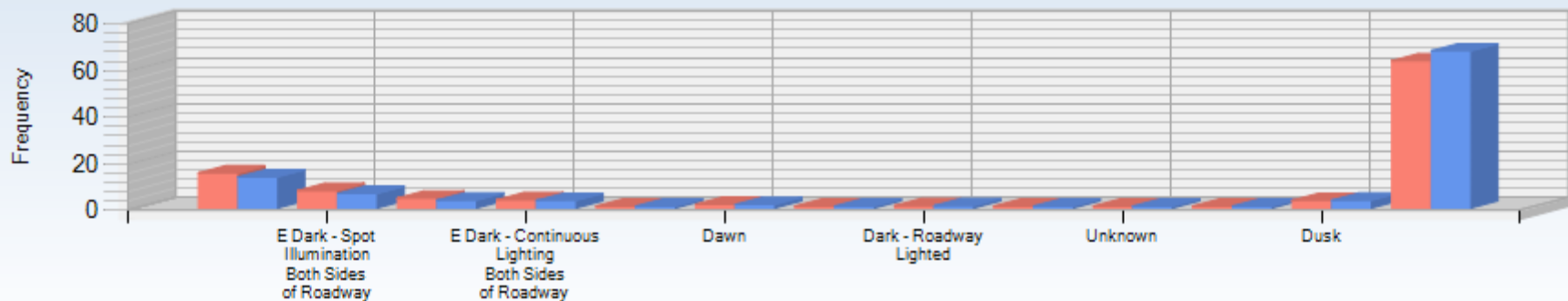
Significance: Over Representation

Threshold: 2.0

C031: Lighting Conditions

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Dark - Roadway Not Lighted	2985	14.99	2084	13.31	1.126*	334.052
E Dark - Spot Illumination Bot...	1485	7.46	972	6.21	1.201*	248.569
E Dark - Spot Illumination One...	833	4.18	520	3.32	1.259*	171.535
E Dark - Continuous Lighting ...	690	3.46	500	3.19	1.085	53.976
E Dark - Continuous Lighting ...	111	0.56	63	0.40	1.385	30.861
Dawn	316	1.59	233	1.49	1.066	19.613
E Dark - Unknown Roadway ...	69	0.35	44	0.28	1.233	13.030

C112: CU Driver First License Class
 C113: CU Driver Second License Class
 C208: CU Model Year
 C001: County
C031: Lighting Conditions
 C028: Mileposted Route
 C032: Weather
 C008: Time of Day
 C015: Primary Contributing Circumstance
 C204: E CU Sequence of Events #1
 Sort by Sum of Max Gain

 Display Filter Name
 2012-2014 Alabama Integrated Crash Data
 C031: Lighting Conditions


C031: Lighting Conditions

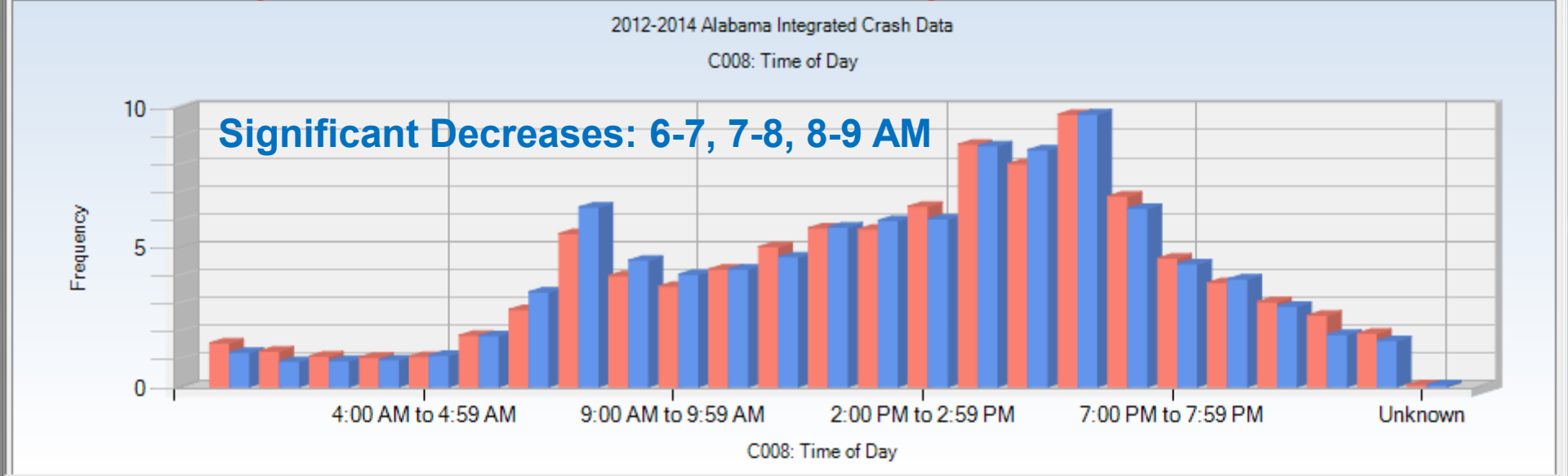
Order: Natural Order Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

C008: Time of Day	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
12:00 Midnight to 12:59 AM	311	1.56	191	1.22	1.280*	68.037
1:00 AM to 1:59 AM	254	1.27	141	0.90	1.416*	74.640
2:00 AM to 2:59 AM	218	1.09	146	0.93	1.174	32.279
3:00 AM to 3:59 AM	210	1.05	151	0.96	1.093	17.919
4:00 AM to 4:59 AM	215	1.08	175	1.12	0.966	-7.610

- C001: County
 - C031: Lighting Conditions
 - C028: Mileposted Route
 - C032: Weather
 - C008: Time of Day**
 - C015: Primary Contributing Circumstance
 - C204: E CU Sequence of Events #1
- Sort by Sum of Max Gain

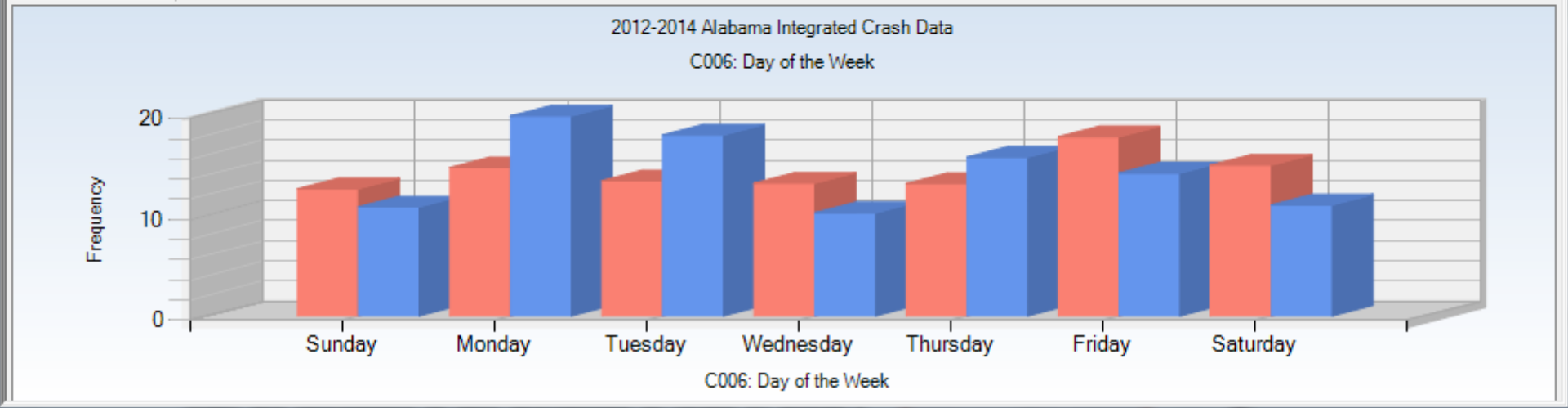
Significant Increases: 10-11 PM, Midnight-1 AM, 1-2 AM

Display Filter Name



C006: Day of the Week	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Sunday	2518	12.64	1698	10.84	1.166*	358.043
Monday	2938	14.75	3113	19.88	0.742*	-1021.922
Tuesday	2678	13.44	2819	18.00	0.747*	-907.936
Wednesday	2630	13.20	1605	10.25	1.288*	588.344
Thursday	2621	13.16	2474	15.80	0.833*	-526.076
Friday	3550	17.82	2225	14.21	1.254*	719.667
Saturday	2988	15.00	1728	11.03	1.359*	789.881

- C003: Year
 - C020: E Distracted Driving
 - C007: Week of the Year
 - C005: Day of Month
 - C004: Month
 - C006: Day of the Week**
 - C125: E CU Driver Drug Test Type Giver
 - C127: E CU Driver Drug Test Results
 - C043: Agency ORI
- Sort by Sum of Max Gain



Data Source: 2012-2014 Alabama Integrated Crash Data Filter: Weather Issues And 2013

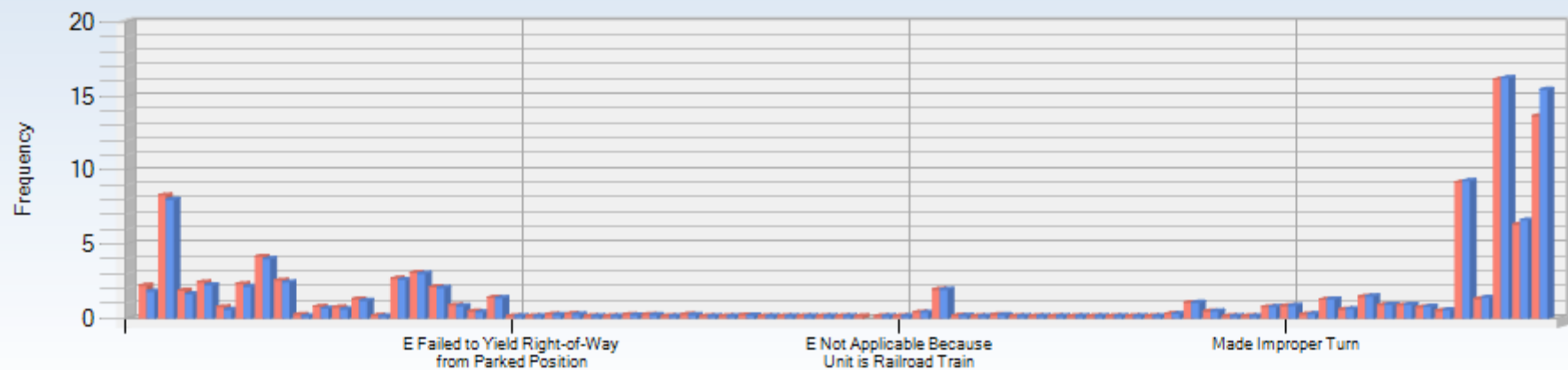
1/ 1/2012 7/27/2014

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

C202: CU Contributing Circumstance	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
DUI	439	2.20	284	1.81	1.215*	77.707
Misjudge Stopping Distance	1653	8.30	1254	8.01	1.036	57.713
Improper Lane Change/Use	373	1.87	256	1.63	1.145	47.327
CU is Unknown	482	2.42	351	2.24	1.079	35.472
E Fatigued/Asleep	149	0.75	90	0.57	1.301	34.506

 C107: CU Driver Raw Age
 C404: E CU Environmental Contributing Cir
 C511: V2 Driver License State
 C202: CU Contributing Circumstance
 C101: Causal Unit (CU) Type
 C324: CU Driver Airbag Status
 C209: CU Make
 Sort by Sum of Max Gain

 Display Filter Name

 2012-2014 Alabama Integrated Crash Data
 C202: CU Contributing Circumstance


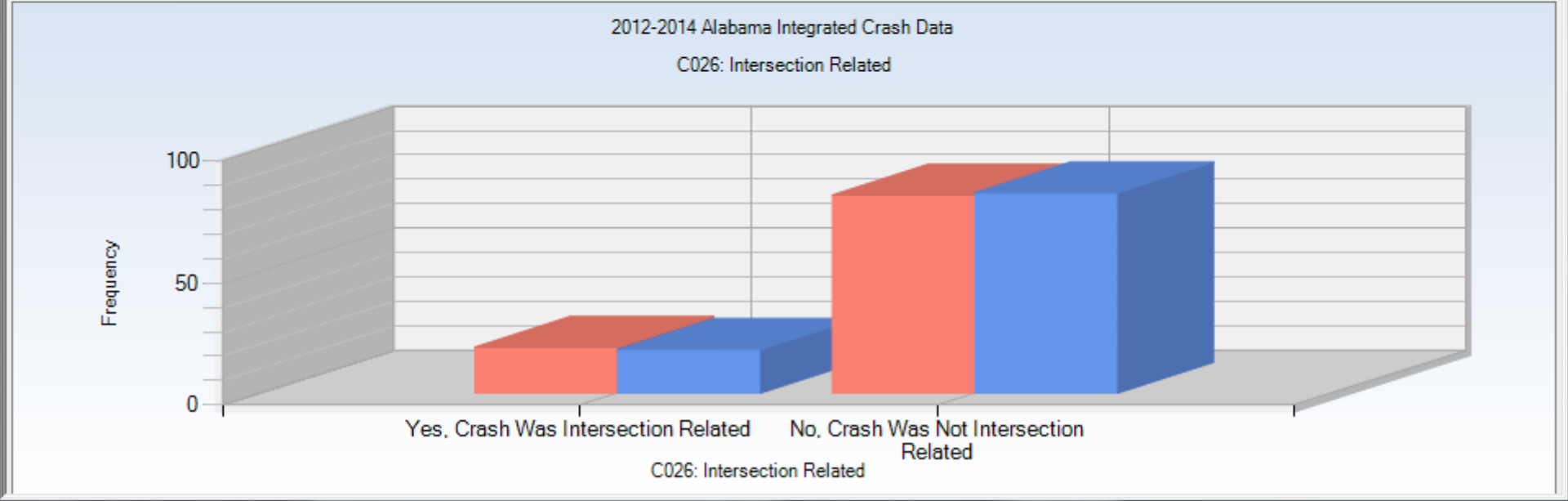
C202: CU Contributing Circumstance

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

C026: Intersection Related Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Yes, Crash Was Intersection ...	3746	18.80	2793	17.83	1.054*	193.137
No, Crash Was Not Intersecti...	16177	81.20	12869	82.17	0.988*	-193.137

- C528: V2 Vehicle Initial Travel Direction
 - C026: Intersection Related
 - C522: V2 Driver Officer Opinion Alcohol
 - C037: EMS Arrival Delay
 - C523: V2 Driver Officer Opinion Drugs
 - C510: V2 Driver Residence Distance
- Sort by Sum of Max Gain

Display Filter Name



No Significant Differences

Weather Involved 2012 vs. 2013 ...

- **Rural/Urban and Highway Classification**
- **Ambulance and Police Delay Times**
- **Location of First Harmful Event (on/off Road)**
- **Crash Severity; CMV Involvement**
- **Number of Vehicles Involved**
- **Driver Aspects – Age, Gender, etc.**



Resolving the Dilemma

- **The Question:**
 - Did DUI cause the time concentration?
 - Or, did the time concentrations cause the DUI?
- **The Solution:**
 - Remove DUI from both the subsets
 - Re-run the time analyses

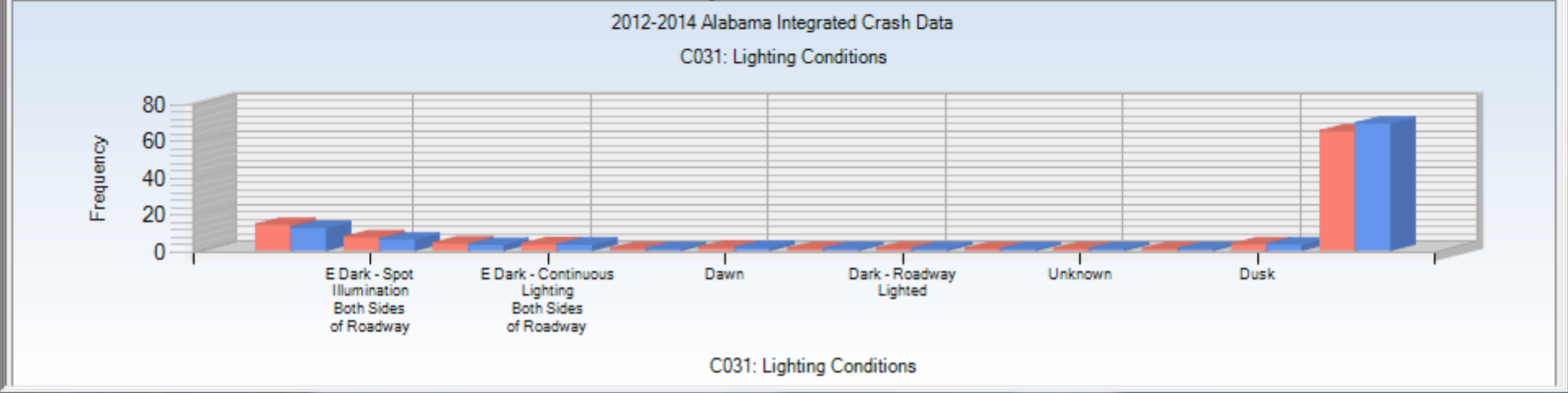


Order: Max Gain Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Dark - Roadway Not Lighted	2670	13.98	1849	12.28	1.138*	324.364
E Dark - Spot Illumination Bot...	1381	7.23	903	6.00	1.206*	235.457
E Dark - Spot Illumination One...	744	3.90	472	3.13	1.243*	145.222
E Dark - Continuous Lighting ...	650	3.40	475	3.15	1.079	47.416
E Dark - Continuous Lighting ...	98	0.51	58	0.39	1.332	24.421
Dawn	308	1.61	227	1.51	1.070	20.028
E Dark - Unknown Roadway ...	60	0.31	36	0.24	1.314	14.330

- C126: CU Driver Alcohol Test Results
 - C113: CU Driver Second License Class
 - C112: CU Driver First License Class
 - C208: CU Model Year
 - C001: County
 - C028: Mileposted Route
 - C031: Lighting Conditions**
 - C032: Weather
 - C008: Time of Day
 - C015: Primary Contributing Circumstances
- Sort by Sum of Max Gain

Dark odds ratios practically identical to when DUI included. Display Filter Name



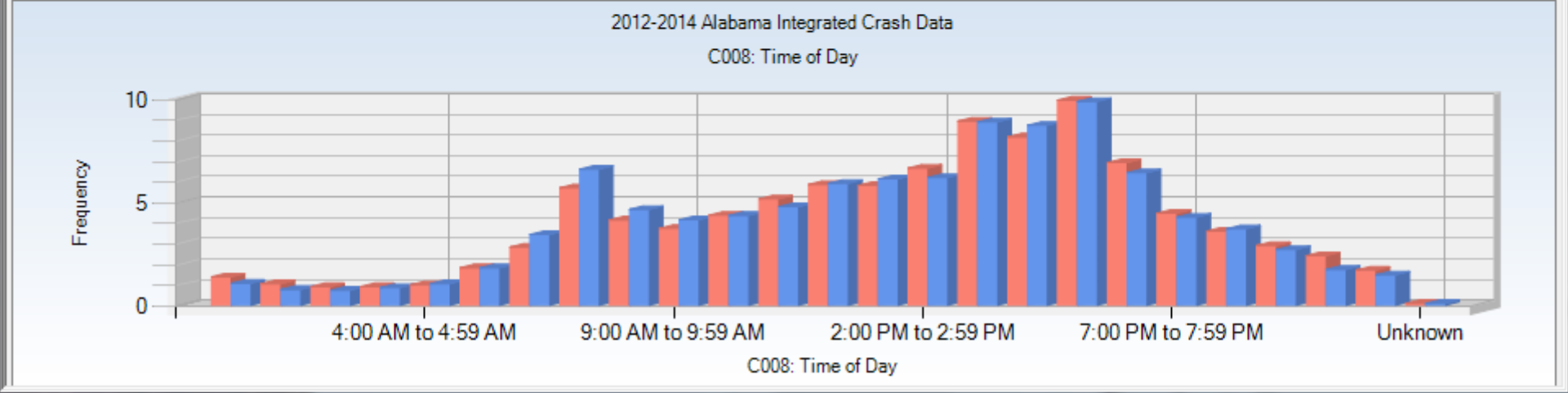
Order: Natural Order Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

C008: Time of Day	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
12:00 Midnight to 12:59 AM	261	1.37	159	1.06	1.294*	59.278
1:00 AM to 1:59 AM	198	1.04	114	0.76	1.369*	53.369
2:00 AM to 2:59 AM	171	0.90	108	0.72	1.248	33.981
3:00 AM to 3:59 AM	171	0.90	128	0.85	1.053	8.607
4:00 AM to 4:59 AM	187	0.98	156	1.04	0.945	-10.916
5:00 AM to 5:59 AM	345	1.81	272	1.81	1.000	-0.085
6:00 AM to 6:59 AM	536	2.81	514	3.41	0.822*	-116.109

- C001: County
 - C028: Mileposted Route
 - C031: Lighting Conditions
 - C032: Weather
 - C008: Time of Day**
 - C015: Primary Contributing Circumstance
 - C204: E CU Sequence of Events #1
 - C107: CU Driver Raw Age
 - C224: CU Estimated Speed at Impact
 - C511: V2 Driver License State
- Sort by Sum of Max Gain

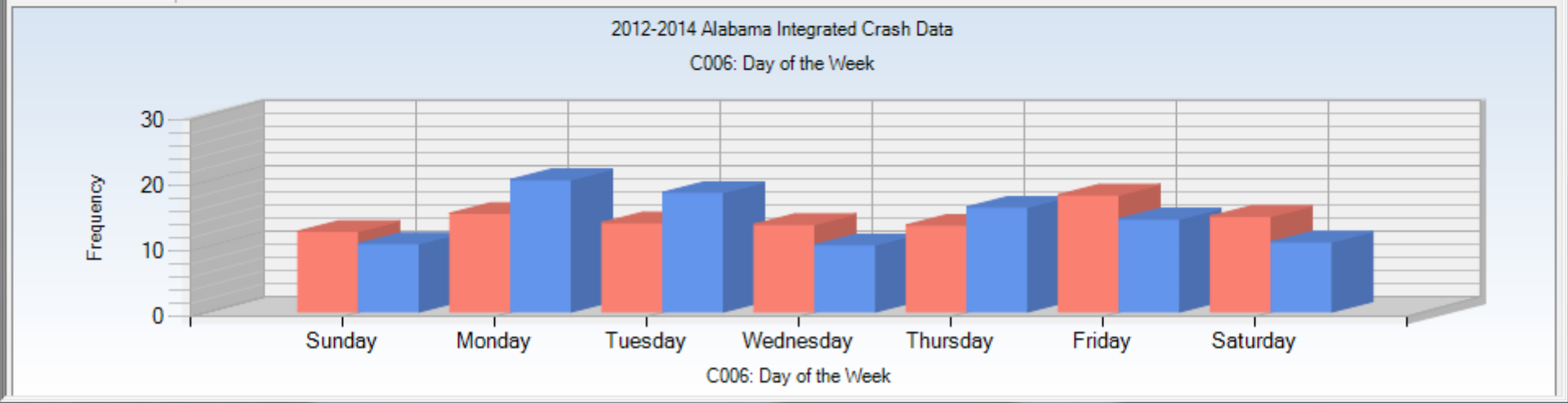
Overrepresented hours are the same.

Display Filter Name



Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Sunday	2348	12.29	1569	10.42	1.180*	357.419
Monday	2873	15.04	3042	20.20	0.744*	-986.368
Tuesday	2601	13.61	2746	18.24	0.747*	-882.835
Wednesday	2553	13.36	1544	10.25	1.303*	594.136
Thursday	2531	13.25	2410	16.00	0.828*	-526.553
Friday	3412	17.86	2139	14.21	1.257*	698.263
Saturday	2786	14.58	1608	10.68	1.366*	745.939

- C001: County
 - C002: City
 - C003: Year
 - C004: Month
 - C005: Day of Month
 - C006: Day of the Week**
 - C007: Week of the Year
 - C008: Time of Day
 - C009: Data Source
 - C010: Rural or Urban
- Sort by Sum of Max Gain



Resolving the Dilemma

- **The Question:**
 - **Did DUI cause the time concentration?**
 - **Answer: No!**
 - **Unfortunate timing of bad weather in 2013**
 - **Coincided with DUI over-represented times**
- **Conclusion: All Other Findings are Applicable**





Roundtable Input and Questions

Thank You!!!



For more information on weather and traffic safety, see
<http://www.safehomealabama.gov/tag/weather/>

