



CENTER *for* ADVANCED
PUBLIC SAFETY

ROADWAY LIGHTING STUDY

2009-2013 Alabama Crash Data

University of Alabama

Center for Advanced Public Safety (CAPS)

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November 26, 2014

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ALABAMA

Introduction

This study consisted of two comparisons:

- **Lighted Road Crashes vs. Unlighted Road Crashes**
 - In rural areas
 - In urban areas
- **Reason for necessity for two separate comparison**
 - Urban areas have far higher proportion of areas lighted
 - Thus, comparing lighted against unlighted in general would be little more than an urban-rural comparison
 - It would not surface differences caused by lighting

Lighted vs. Not Lighted Rural and Urban



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Results will be given for Rural then Urban in each of the following areas:

- C023 – Manner of Crash
- C051 – Number of Vehicles
- C019 – Most Harmful Event
- C413 – Turn Lanes
- C011 – Highway Classification

Red bars represent proportion for unlighted roadways.

Blue bars represent proportion for lighted roadways.

The results for each follow for rural then urban to facilitate comparisons.

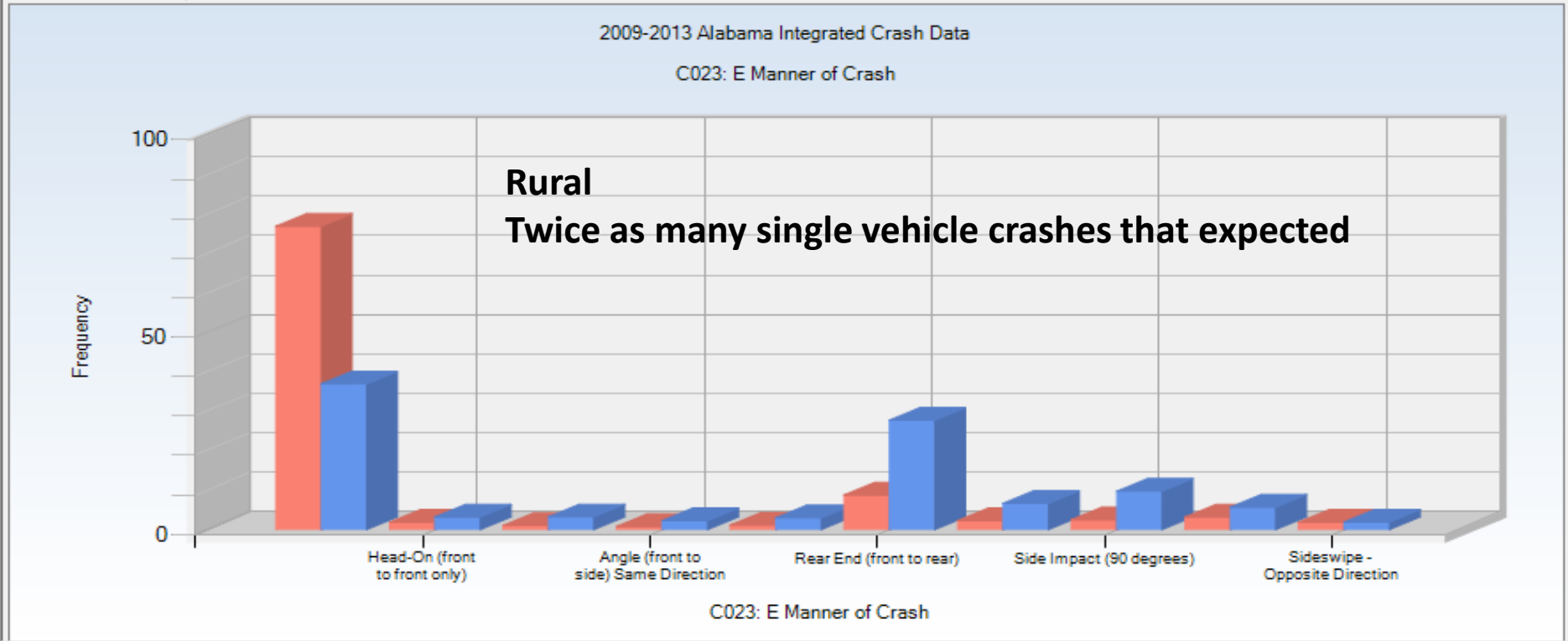
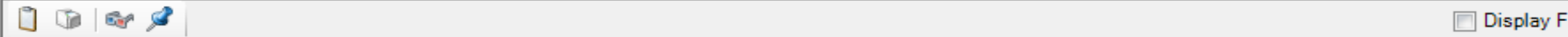
Order: Max Gain Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

C023: E Manner of Crash		Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
▶	Single Vehicle Crash (all typ...	31361	76.88	1620	36.92	2.082*	16301.424
	Head-On (front to front only)	740	1.81	139	3.17	0.573*	-552.149
	Angle Oncoming (frontal)	411	1.01	140	3.19	0.316*	-890.445
	Angle (front to side) Same ...	317	0.78	98	2.23	0.348*	-594.011
	Angle (front to side) Opposit...	451	1.11	129	2.94	0.376*	-748.188
	Rear End (front to rear)	3565	8.74	1216	27.71	0.315*	-7738.978
	Side Impact (angled)	919	2.25	291	6.63	0.340*	-1786.146
	Side Impact (90 degrees)	1009	2.47	425	9.69	0.255*	-2941.815
	Sideswipe - Same Direction	1267	3.11	248	5.65	0.550*	-1038.417
	Sideswipe - Opposite Direct...	751	1.84	82	1.87	0.985	-11.275

C023: E Manner of Crash

Sort by Sum of Max Gain

Display F

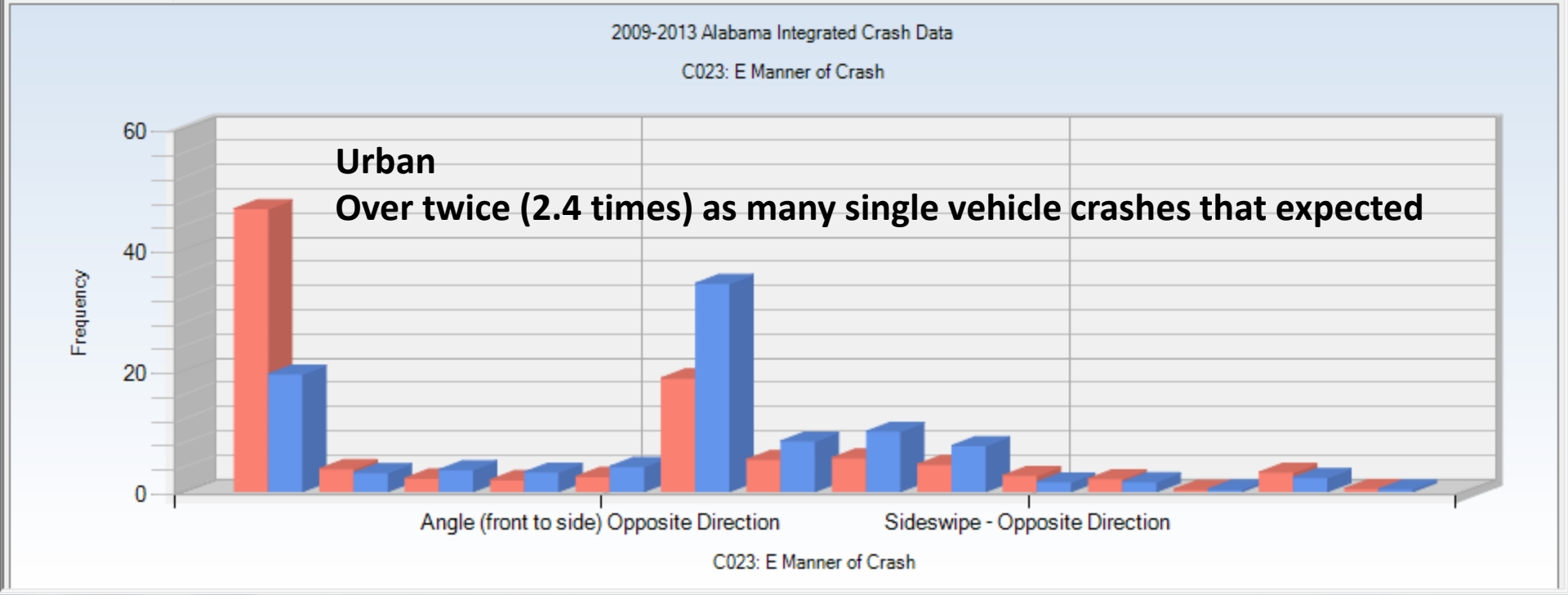


Order: Max Gain Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Single Vehicle Crash (all types)	8026	46.78	10253	19.43	2.408*	4692.269
Head-On (front to front only)	644	3.75	1637	3.10	1.210*	111.735
Angle Oncoming (frontal)	378	2.20	1906	3.61	0.610*	-241.730
Angle (front to side) Same Dire...	331	1.93	1694	3.21	0.601*	-219.799
Angle (front to side) Opposite ...	424	2.47	2191	4.15	0.595*	-288.397
Rear End (front to rear)	3220	18.77	18163	34.42	0.545*	-2685.642
Side Impact (angled)	905	5.27	4398	8.33	0.633*	-524.996
Side Impact (90 degrees)	956	5.57	5239	9.93	0.561*	-747.444

C023: E Manner of Crash

Sort by Sum of Max Gain

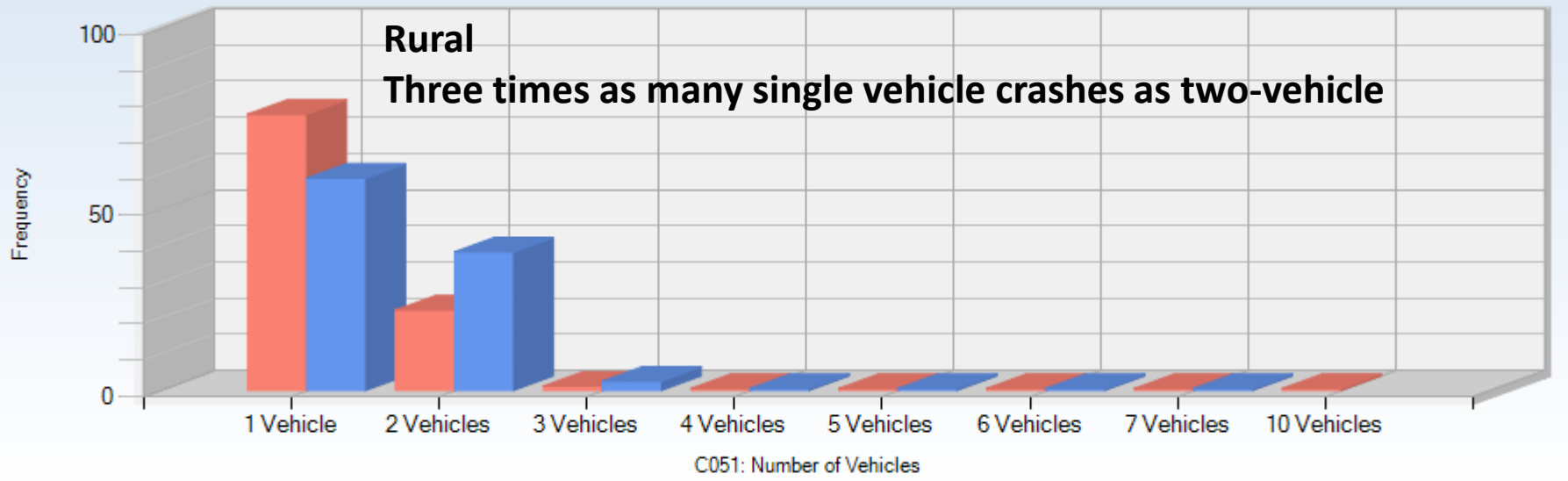


C051: Number of Vehicles	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
1 Vehicle	32798	76.45	5790	58.75	1.301*	7594.229
2 Vehicles	9527	22.21	3778	38.33	0.579*	-6918.570
3 Vehicles	489	1.14	248	2.52	0.453*	-590.540
4 Vehicles	72	0.17	33	0.33	0.501*	-71.648
5 Vehicles	10	0.02	3	0.03	0.766	-3.059
6 Vehicles	1	0.00	2	0.02	0.115	-7.706
7 Vehicles	4	0.01	1	0.01	0.919	-0.353
10 Vehicles	2	0.00	0	0.00	0.000	2.000

- C048: Regional Planning Organization
 - C049: ALDOT Division
 - C050: ADECA CTSP Region
 - C051: Number of Vehicles
 - C052: Number of Drivers Recorded
 - C053: Number of Persons Recorded
 - C054: Number of Motorists Recorded
 - C055: Number of Non-Motorists Record
 - C056: Number of Pedestrians
 - C057: Number of Pedacyclists
 - C058: Number Injured (Non-Fatal)
- Sort by Sum of Max Gain

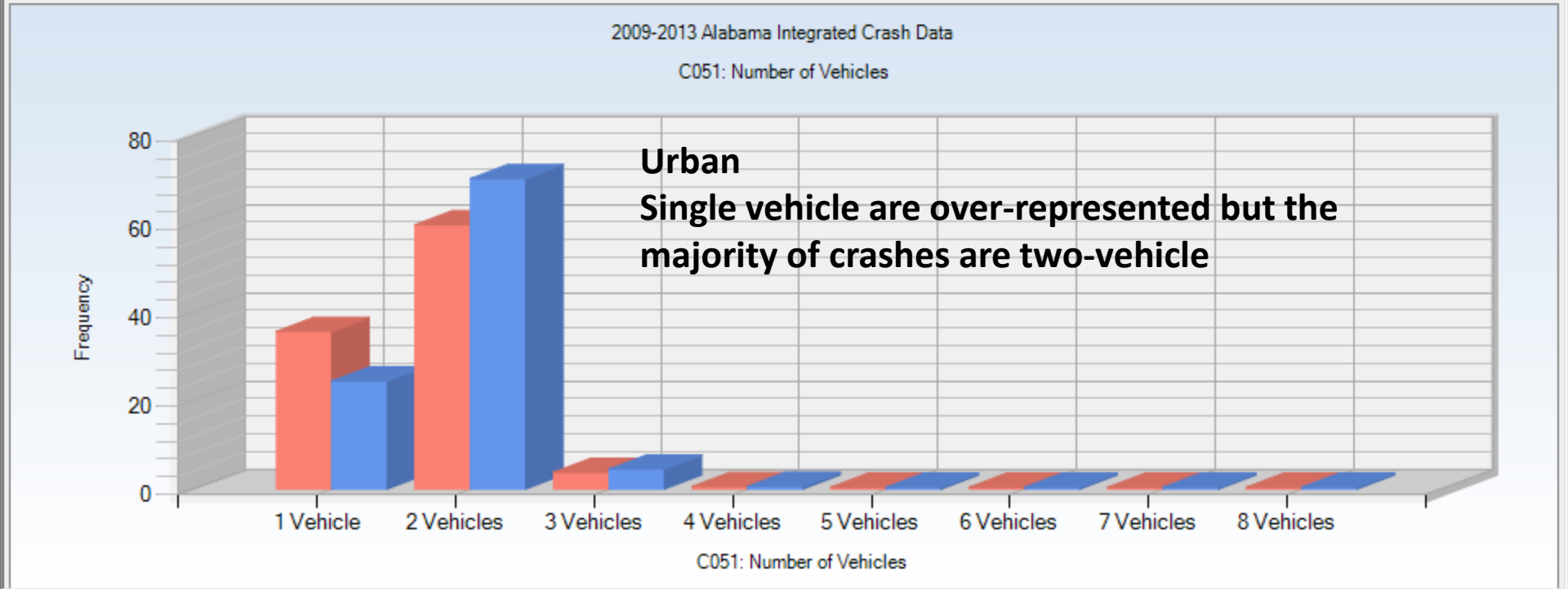
2009-2013 Alabama Integrated Crash Data - Filter = Dark - Roadway No Lit And Rural vs. Dark - Roadway Lighted And Rural

C051: Number of Vehicles



C051: Number of Vehicles	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
1 Vehicle	13778	35.71	14490	24.48	1.459*	4334.864
2 Vehicles	23110	59.90	41656	70.37	0.851*	-4037.223
3 Vehicles	1455	3.77	2657	4.49	0.840*	-276.567
4 Vehicles	202	0.52	331	0.56	0.936	-13.713
5 Vehicles	28	0.07	39	0.07	1.102	2.584
6 Vehicles	4	0.01	18	0.03	0.341	-7.731
7 Vehicles	1	0.00	6	0.01	0.256	-2.910
8 Vehicles	2	0.01	1	0.00	3.069	1.348

- C051: Number of Vehicles
 - C052: Number of Drivers Recorded
 - C053: Number of Persons Recorded
 - C054: Number of Motorists Recorded
 - C055: Number of Non-Motorists Record
 - C056: Number of Pedestrians
 - C057: Number of Pedacyclists
 - C058: Number Injured (Non-Fatal)
 - C059: Number Injured (Includes Fatalitie
 - C060: Number Killed
- Sort by Sum of Max Gain



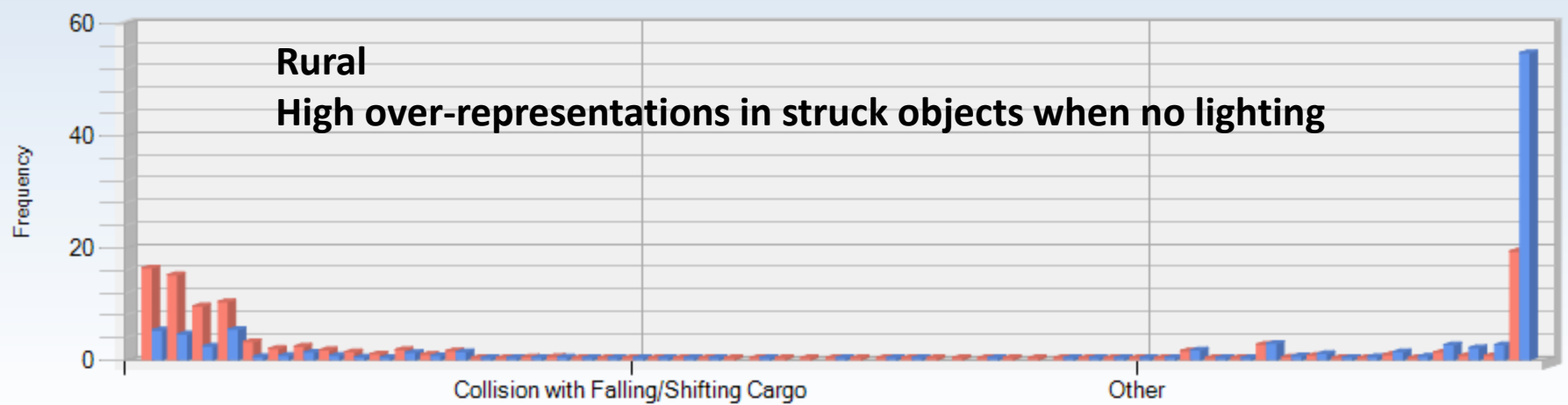
	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
C019: E Most Harmful Event						
Overtum/Rollover	6852	16.38	238	5.28	3.101*	4642.566
Collision with Tree	6337	15.15	206	4.57	3.314*	4424.633
Collision with Animal: Deer	4005	9.57	108	2.40	3.995*	3002.400
Collision with Ditch	4325	10.34	243	5.39	1.917*	2069.149
Collision with Animal: Farm/Ra...	1338	3.20	25	0.55	5.765*	1105.917
Collision with Embankment	831	1.99	33	0.73	2.713*	524.650
Collision with Other Non-Fixed...	1000	2.39	59	1.31	1.826*	452.283
Collision with Fence	730	1.74	33	0.73	2.383*	423.650
Fire/Explosion	578	1.38	20	0.44	3.113*	392.333

C019: E Most Harmful Event

Sort by Sum of Max Gain

2009-2013 Alabama Integrated Crash Data - Filter = Dark - Roadway No Lit And Rural AND Not E Most Harmful Event = Record from Paper System vs. Dark - Roadway Lighted And Rural AND Not E Most Harmful Event = Record from Paper System

C019: E Most Harmful Event



C019: E Most Harmful Event

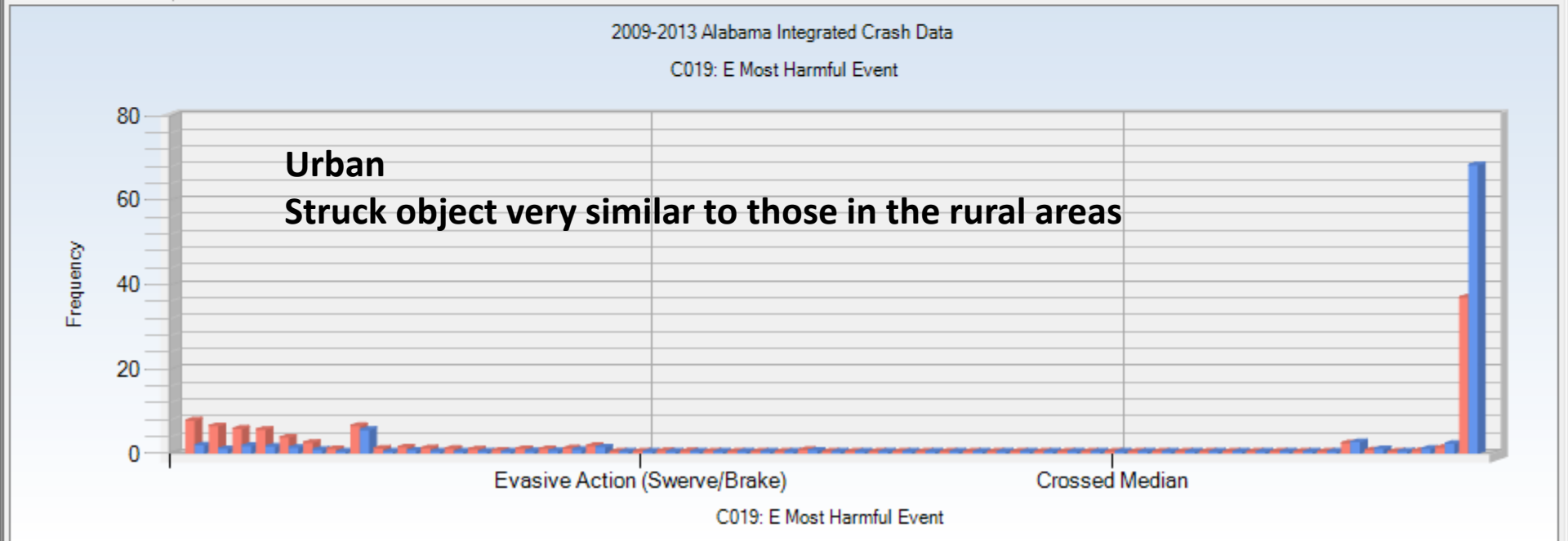
Order: Max Gain Descending Suppress Zero-Valued Rows Significance: Over Representation Threshold: 2.0

Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
Collision with Tree	1362	7.79	1035	1.95	4.005*	1021.911
Collision with Animal: Deer	1131	6.47	572	1.08	6.017*	943.047
Collision with Ditch	1019	5.83	944	1.77	3.285*	708.812
Overtum/Rollover	979	5.60	857	1.61	3.477*	697.399
Ran Off Road Right	656	3.75	734	1.38	2.720*	414.816
Ran Off Road Left	441	2.52	454	0.85	2.956*	291.821
Collision with Animal: Farm/Ra...	188	1.08	40	0.08	14.304*	174.856
Collision with Parked Motor V...	1140	6.52	2966	5.58	1.170*	165.405
Collision with Embankment	206	1.18	146	0.27	4.294*	158.026

C019: E Most Harmful Event

Sort by Sum of Max Gain

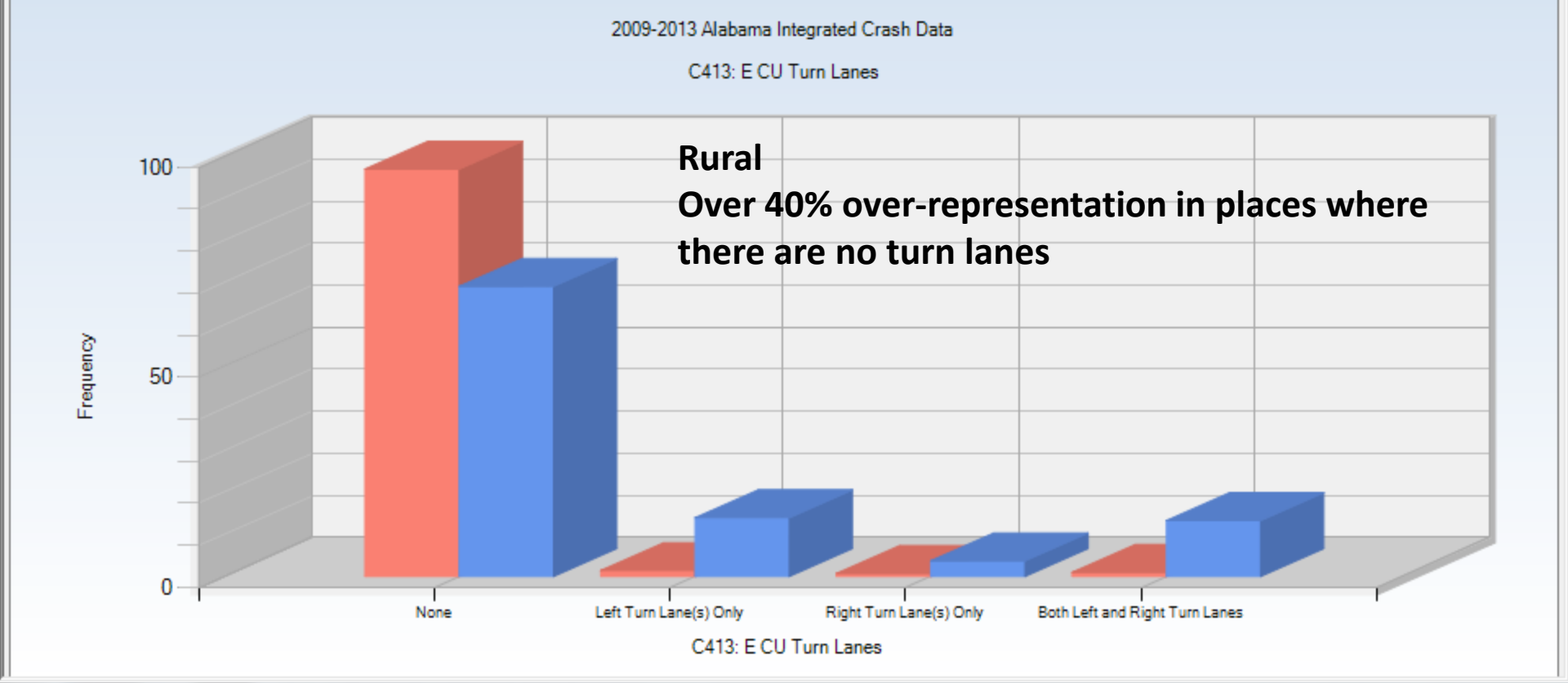
Display Filter Name



value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
None	40127	96.97	3034	69.05	1.404*	11553.266
Left Turn Lane(s) Only	576	1.39	613	13.95	0.100*	-5197.137
Right Turn Lane(s) Only	284	0.69	163	3.71	0.185*	-1251.108
Both Left and Right Turn Lanes	395	0.95	584	13.29	0.072*	-5105.020

C413: E CU Turn Lanes

Sort by Sum of Max Gain

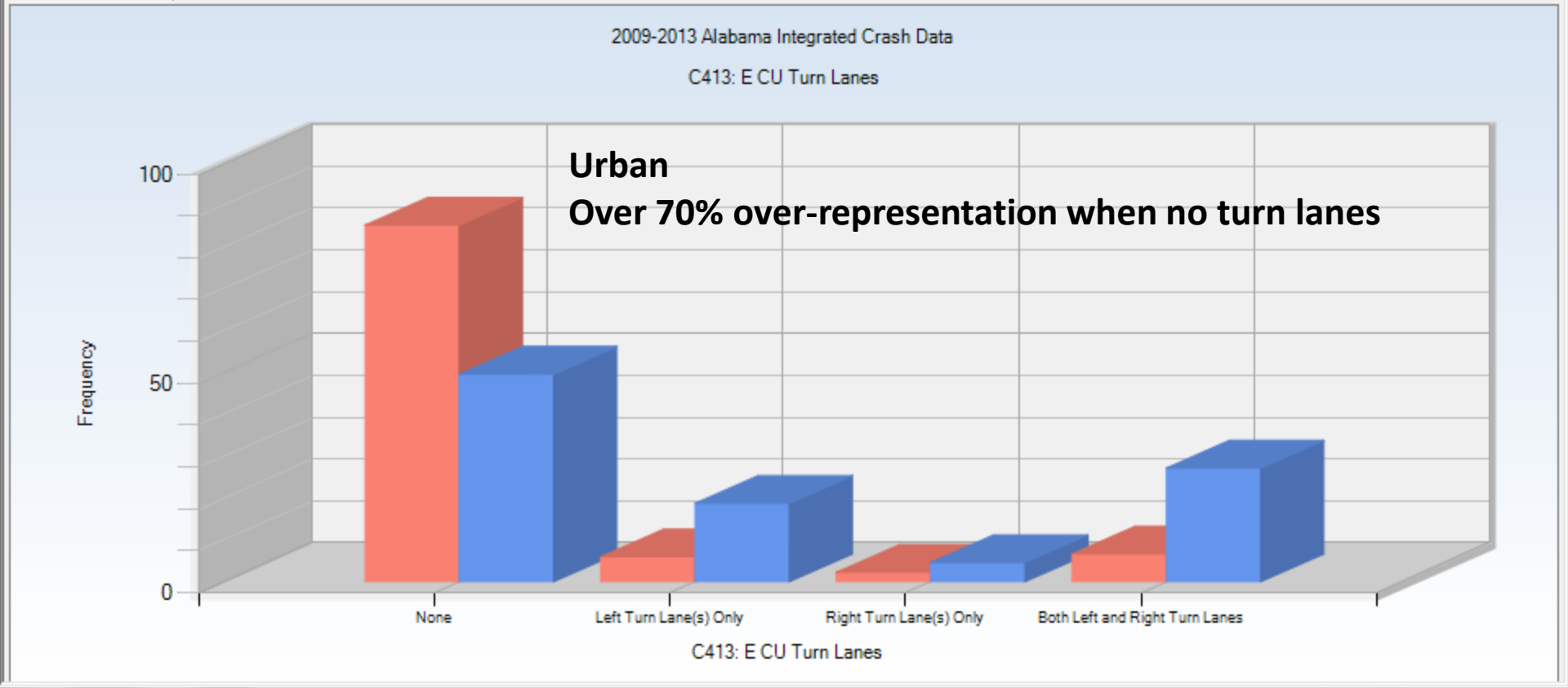


value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
None	14009	85.22	24578	49.55	1.720*	5862.749
Left Turn Lane(s) Only	976	5.94	9280	18.71	0.317*	-2099.808
Right Turn Lane(s) Only	365	2.22	2272	4.58	0.485*	-388.043
Both Left and Right Turn Lanes	1089	6.62	13468	27.15	0.244*	-3374.899

C413: E CU Turn Lanes

Sort by Sum of Max Gain

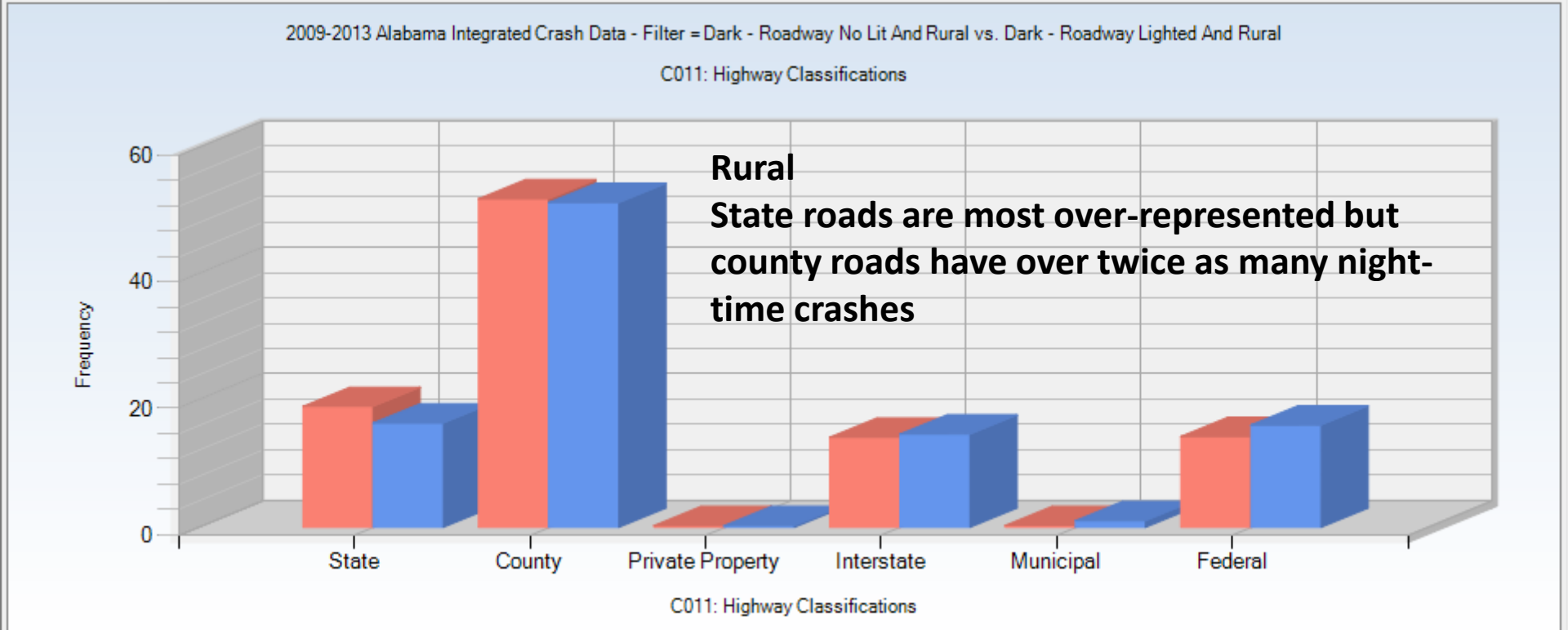
Display Filter Name



Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
State	8203	19.12	1626	16.50	1.159*	1125.050
County	22291	51.96	5062	51.36	1.012	256.200
Private Property	22	0.05	19	0.19	0.266	-60.707
Interstate	6105	14.23	1452	14.73	0.966	-215.531
Municipal	120	0.28	102	1.03	0.270*	-324.004
Federal	6162	14.36	1595	16.18	0.888*	-781.008

C008: Time of Day
 C011: Highway Classifications

Sort by Sum of Max Gain



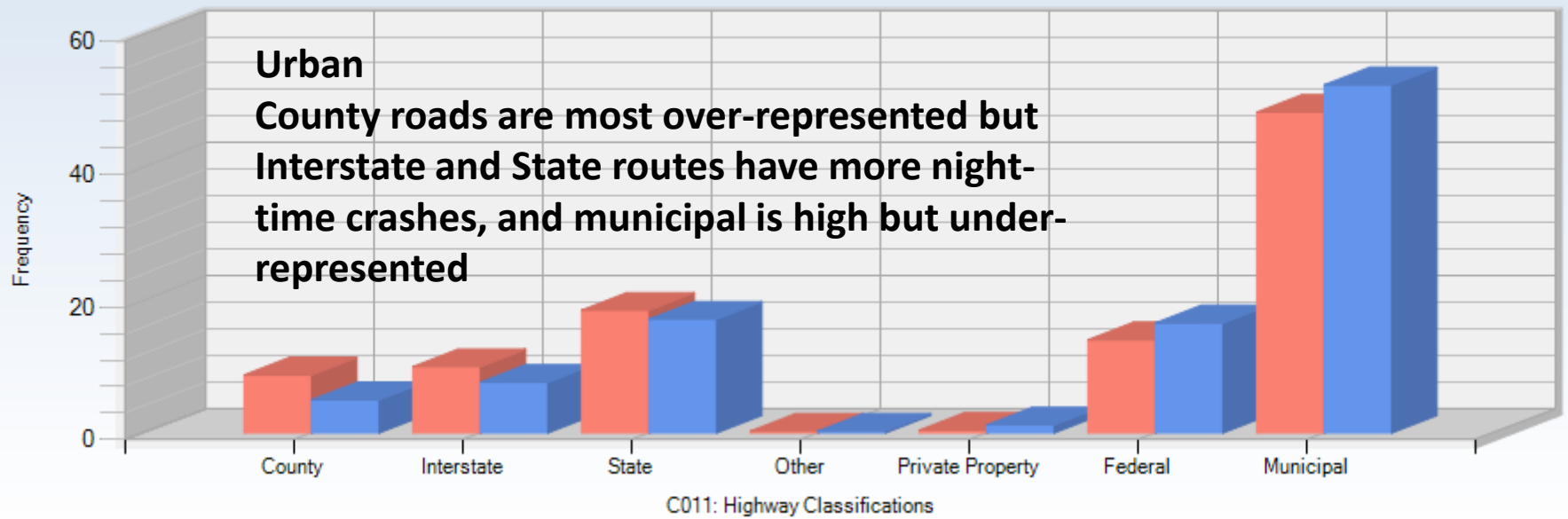
Value	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
County	3368	8.73	2954	4.99	1.749*	1442.878
Interstate	3850	9.98	4524	7.64	1.306*	901.708
State	7138	18.50	10153	17.15	1.079*	521.288
Other	11	0.03	5	0.01	3.376	7.741
Private Property	154	0.40	708	1.20	0.334*	-307.404
Federal	5412	14.03	9810	16.57	0.847*	-981.179
Municipal	18647	48.33	31045	52.44	0.922*	-1585.033

C008: Time of Day

C011: Highway Classifications

Sort by Sum of Max Gain

2009-2013 Alabama Integrated Crash Data - Filter = Dark - Roadway No Lit And Urban vs. Dark - Roadway Lighted And Urban
C011: Highway Classifications





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Questions???