CARE Wet Pavement Interstate Hotspot Analysis 2014-2018 Data

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Introduction

Wet Pavement Hotspots are determined to help law enforcement officers know where crashes are more likely to occur during and shortly after wet weather. This will enable them to prevent crashes by law enforcement presence, which tends to slow the traffic and make the drivers more attentive. It will also be useful to positions law enforcement as first responders to areas during heavy or extended rainfall that have had a history of more than expected wet pavement crashes.

This document is in three parts:

- A preliminary mileposted analysis that walks the reader through the methods used in determining the wet pavement hotspots,
- The hotspot analysis itself, and
- A CARE IMPACT analysis to provide insight into how collectively the wet pavement hotspot subset compares to Interstate crashes in general.

It is expected that this third section will be useful in training law enforcement and engineers on what to look for to remediate the problems of high wet pavement crash areas.

Preliminary Mileposted Analysis

This section will walk those interested through the logical steps applied to find wet pavement hotspots on the Interstates.



C028 Wet vs Dry IMPACT Reduced: 50+ Crashes

A first reduction, which is given above, was performed using IMPACT to eliminate all routes with less than 50 crashes over the five years. The IMPACT comparison is between wet pavement and non-wet-pavement crashes restricted to Interstate roadways. The display above is sorted by highest number of wet pavement crashes first. Red bars are wet pavement proportions; blue bars are dry pavement proportions.

The display below is for these same mileposted, but it retains only those roadways that had significantly higher than expected wet pavement crashes.

C028 Wet vs Dry IMPACT Reduced to Only Significantly Over-Represented Wet

🖡 CA	CARE 10.2.0.8 - [IMPACT Results - 2014-2018 Alabama Integrated Crash Data - Wet Pavement AND Not Mileposted Route = 55 OR 145 O											
🖡 Ei	le <u>D</u> ashboard <u>F</u> ilters	<u>A</u> nalysis <u>I</u>	mpact <u>L</u> oc	ations <u>T</u> oo	ls <u>W</u> indow	<u>H</u> elp					- 8 ×	
6 2	2014-2018 Alabama Integrated	d Crash Data		\sim	Wet Pavement			~	/ 💡 🎇	1/ 1/2014	~ 12/31/2	
Order:	Subset Frequency V	escending	∠ s	uppress Zero-	Valued Rows	Si	gnificance: 0)ver Representa	ition V Th	reshold:	2.0 🜲	
C028	Mileposted Route	Subset	Subset	Other	Other	Odde	May	A C028 M	/ileposted Rou	te		
	Value	Frequency	Percent	Frequency	Percent	Ratio	Gain					
•	IN0065	7602	48.71	23576	48.82	0.998	-16.972					
	IN0010	1851	11.86	5120	10.60	1.119*	196.388					
	IN0085	1814	11.62	6550	13.56	0.857*	-302.740					
	IN0020	1669	10.69	4194	8.68	1.231*	313.640					
	IN0459	1264	8.10	4077	8.44	0.959	-53.550					
	IN0565	647	4.15	2419	5.01	0.828*	-134.740					
	IN0022	276	1.77	745	1.54	1.146	35.241					
	IN0359	132	0.85	470	0.97	0.869	-19.888					
	AL0152	107	0.69	361	0.75	0.917	-9.663					
	AL0040	96	0.62	209	0.43	1.421*	28.458					
	AL0117	93	0.60	283	0.59	1.01/	1.544					
	AL0070	56	0.36	196	0.41	0.884	-/.341		y Sum of Max Ga	IN		
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					C028: Milepos	ted Route						

Odds Ratios, etc. for the above listing are not meaningful because they are calculated only within this subset. Ordering is by Subset Frequency (i.e., Wet Pavement Crashes). All of these road-ways were significantly over-represent in wet pavement crashes in the previous subset above. These roadways were used to create the "Wet Pavement O-R 50+" subset used below.

C028 Wet vs Dry IMPACT Reduced: Eliminated all Dry Crashes (ANDed with wet filter)

🔋 CA	CARE 10.2.0.8 - [IMPACT Results - 2014-2018 Alabama Integrated Crash Data - Wet Pavement O-R 50+ vs. Not Wet Pavement O-R 50+] - 🗆 🗙											
🔋 Ei	ile <u>D</u> ashboard <u>F</u> ilters	<u>A</u> nalysis <u>I</u> mp	act <u>L</u> ocatio	ns <u>T</u> ools	<u>W</u> indow <u>H</u> e	elp				- 1	ð ×	
۴	2014-2018 Alabama Integrated C	Crash Data	~	Wet	Pavement O-R 5	0+		~ 💡 🏆	1/ 1/2014	~ 12/31	1/2018	
Order:	: Subset Frequency 🗸 Desc	cending	Suppr	ess Zero-Value	ed Rows	Sign	nificance: Over F	Representation	✓ Threshol	d: 2.0	-	
C028:	Mileposted Route	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain	C028: Milepost	ed Route			
•	IN0065	7602	48.71	23576	6.87	7.094*	6530.361					
	IN0010	1851	11.86	5120	1.49	7.953*	1618.272					
	IN0085	1814	11.62	6550	1.91	6.093*	1516.272					
	IN0020	1669	10.69	4194	1.22	8.755*	1478.363					
	IN0459	1264	8.10	4077	1.19	6.821*	1078.681					
	IN0565	647	4.15	2419	0.70	5.884*	537.045					
	IN0022	2/6	1.77	745	0.22	8.150*	242.136					
	IN0359	132	0.85	4/0	0.14	6.1/9*	110.636					
	AL0152	107	0.69	361	0.11	6.521	90.591					
	AL0040	36	0.62	209	0.06	10.105	86.500					
	AL0117	56	0.60	283	80.0	6 286*	47 091					
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This shows for each route the wet locations that were retained (red bars) compared to crashes on dry pavement on the rest of the route. The filter used here will be applied to finding hotspots. The display above is for validation of the filter only; the Other Percent and Odds Ratio are not valid because the Other Percent came from the original source subset. This accounts for the height of the blue bars, which can be ignored. The red bars indicate the relative frequency of wet pavement crashes in the test subset. The displays below give the wet pavement hotspots (at least 100 wet pavement crashes per locaiton) on these roadways.

Mileposted Locations with 100+ Wet Pavement Crashes in One Mile

I-65, 18 Wet Pavement Hotspots

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M C Ho 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 5	inimum trashes 100 tspot <	Hotspot Length 1 mi. Fat Crs 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 Rout I-6! Inj Crs 32 26 25 44 33 22 24 35 69 9 23 23 23 25 13 27 18 26 23 25 13 27 18 26	2 3 3 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	s Tot Crs 135 110 115 173 132 109 114 229 115 203 141 134 139 157 144	4 Hotspots 18 Deaths 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 1 1 1 0 0 0 1 1 0 0 0 1	Hotspot Crashes 2510 Injuriez 44 35 40 59 48 39 48 108 12 28 28 28 28 39 19 31 26	Fatal Crashes 37 Crs/MV 0.86 0.70 0.73 1.08 0.77 0.76 0.84 1.97 0.76 0.84 1.97 0.76 0.62 0.62 0.62 0.62 0.67 0.59	Injury Crashes 1350 M Sev/Crs 3.63 3.65 3.65 3.58 3.26 4.04 4.56 3.97 1.22 1.77 2.62 3.13 1.58 2.42 2.22	PDO Crashes 6091 County Mobile	Total Crashes 7478 City Mobile Mobile Mobile Mobile Prichard Montgom Pelham Hoover Vestavia Homewo Birmingh Birmingh	Beg MP 0.10 1.10 2.10 3.9 Beg MP 0.10 1.10 2.10 3.10 4.10 5.10 7.30 167.10 245.10 252.10 255.20 257.10 258.10 257.10 258.10	Image: Constraint of the second sec	
M Ho 1 2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16	inimum trashes 100 tspot <	Hotspot Length 1 mi. Fat Crs 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0	2 Rout I-6! Inj Crs 32 26 25 44 33 24 35 69 9 23 23 23 23 23 25 13 27 18 29	2 3 3 5 0 103 84 89 129 99 83 79 160 106 180 117 109 126 130 125 117	s Tot Crs 135 110 115 173 132 109 114 229 115 203 141 134 139 157 144 146	4 Hotspots 18 Deaths 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 1 1 0 0 0 1 1 0 0 0 0 1 1 0 0 0 1	Hotspot Crashes 2510 Injurie: 44 35 40 59 48 108 12 28 26 39 19 31 26 34	Fatal Crashes 37 Crs/MV 0.86 0.70 0.73 1.08 0.77 0.76 0.84 1.97 0.76 0.84 1.97 0.76 0.62 0.62 0.62 0.67 0.59 0.59	Injury Crashes 1350 M Sev/Crs 3.63 4.09 3.65 3.58 3.26 4.04 4.56 3.97 1.22 1.77 2.62 3.13 1.58 2.42 2.22 2.60	PDO Crashes 6091 County Mobile	Total Crashes 7478 City Mobile Mobile Mobile Mobile Prichard Montgom Pelham Hoover Vestavia Homewo Birmingh Birmingh Birmingh	Beg MP 0.10 1.10 2.10 3.10 7.30 167.10 245.10 255.20 255.20 255.10 258.10 258.10 259.10 259.10 259.10	Persons Injured 1858 End MP 1.10 2.10 3.10 4.10 5.10 6.10 8.30 168.10 246.10 252.10 253.10 255.20 256.20 258.10 259.10 260.10	
M C Ho 1 2 3 4 5 6 7 8 9 100 111 12 13 144 15 16 16 177	inimum trashes 100 tspot <	Hotspot Length 1 mi. Fat Crs 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 Rout I-6! Inj Crs 32 26 25 44 33 24 35 69 9 23 23 23 23 23 23 23 23 23 23 23 23 23	2 3 3 5 0 103 84 89 129 99 83 79 160 106 180 117 109 126 130 125 117 96	s Tot Crs 135 110 115 173 132 109 114 229 115 203 141 134 139 157 144 146 112	4 Hotspots 18 Deaths 0 0 1 0 0 1 0 0 0 1 1 0 0 0 1 1 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 1 0 0 0 0 1 0	Hotspot Crashes 2510 Injurie: 44 35 40 59 48 39 48 108 12 28 26 39 19 31 26 34 17 20	Fatal Crashes 37 Crs/MV 0.86 0.70 0.73 1.08 0.77 0.76 0.84 1.97 0.76 0.96 0.67 0.62 0.62 0.62 0.67 0.59 0.59 0.59 0.59	Injury Crashes 1350 M Sev/Crs 3.63 4.09 3.65 3.58 3.26 4.04 4.56 3.97 1.22 1.77 2.62 3.13 1.58 2.42 2.22 2.60 2.50 2.50	PDO Crashes 6091 County Mobile	Total Crashes 7478 City Mobile Mobile Mobile Mobile Mobile Prichard Montgom Pelham Hoover Vestavia Homewo Birmingh Birmingh Birmingh Birmingh Card	Beg MP 0.10 1.10 2.10 3.10 7.30 167.10 251.10 255.20 255.20 257.10 258.10 259.10 255.20 257.10 258.10 259.10 255.40	Persons Injured 1858 End MP 1.10 2.10 3.10 4.10 5.10 6.10 246.10 252.10 253.10 255.20 256.20 258.10 259.10 259.10 260.10 260.10 266.40 271 20	
M C 1 2 3 4 5 6 7 7 8 9 10 111 12 13 14 15 16 17 7 18	inimum Trashes 100 tspot <	Hotspot Length 1 mi. Fat Crs 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 Rout I-6: Inj Crs 32 26 25 44 33 25 43 25 43 23 23 23 23 23 23 23 23 23 23 23 23 23	23 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	s Tot Crs 135 110 115 173 132 109 114 229 115 203 141 134 139 157 144 146 112 102	4 Hotspots 18 Deaths 0 0 1 1 0 0 0 2 0 0 0 0 1 1 1 0 0 0 1 1 0 0 0 1 1 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 1	Hotspot Crashes 2510 Injurie: 44 35 40 59 48 39 48 108 12 28 26 39 19 31 26 34 17 26 34	Fatal Crashes 37 Crs/MV 0.86 0.70 0.73 1.08 0.77 0.76 0.84 1.97 0.76 0.84 1.97 0.76 0.96 0.67 0.62 0.62 0.62 0.62 0.62 0.62 0.67 0.59 0.59 0.94 0.95	Injury Crashes 1350 M Sev/Crs 3.63 4.09 3.65 3.58 3.26 4.04 4.56 3.97 1.22 1.77 2.62 3.13 1.58 2.42 2.22 2.60 2.50 3.33	PDO Crashes 6091 County Mobile M		Beg MP 0.10 1.10 2.10 3.10 5.10 7.30 167.10 251.10 255.20 255.20 257.10 255.40 255.40 257.10 255.40 270.20	Implication Implication Persons 9 Injured 9 Its58 1858 End MP 1.10 2.10 3.10 4.10 5.10 6.10 8.30 168.10 246.10 252.10 253.10 255.20 256.20 258.10 259.10 260.10 266.40 271.20 271.20	

I-85, 5 Wet Pavement Hotspots



I-10, 3 Wet Pavement Hotspots











To summarize the above results, the roads that were found to have 100 or more wet pavement crashes over the five years (2014-2018) of the data and the number of hotspots on each, as given above, were:

I-65	18
I-85	5
I-10	3
I-459	2
I-565	1

IMPACT Comparisons "Wet Pavement O-R 50+" vs All Interstates

The purpose of this section is to provide an overall view of the crashes in the test (wet surface) areas against those on the rest of the Interstate. Knowing the attributes of the wet surface hotspot locations will assist law enforcement and engineers in mitigating the negative effects caused by them.

2014-2018 Alabama Integrated Crash Data Wet Pavement O-R 50+ 12 1/ 1/2014 ~ 12/31/2018 ~ 9 Max Gain Descending Suppress Zero-Valued Row Significance: Over Representation Threshold: 2.0 ÷ Order \sim C001: County Subset Subset Other Other Odds Max Gain -Frequency Frequency Percent Percent Ratio C002: City 918,741 C003: Year Mobile 2765 17,72 9638 11.83 1.498* C004: Month Montgomery 1594 10.21 6020 7.39 1.382* 440.806 C005: Day of Month 449 2.88 1240 1.52 1.890* 211.465 Butler C006: Day of the Week Shelby 1010 6.47 4323 5.31 1.220 181.884 C007: Week of the Year Baldwin 718 4.60 2867 3.52 1.307* 168.796 C008: Time of Dav C009: Data Source 307 1.97 733 0.90 2.186* Chambers 166.586 C010: Rural or Urban St Clair 604 3.87 2581 3.17 1.222 109.583 C011: Highway Classifications 108 0.69 0.00 563,791 107.808 Jackson 1 C012: Controlled Access 229 1.47 653 0.80 1.831* 103.911 Calhoun C013: E Highway Side 274 1.76 1070 1.31 1.337* 69.030 C015: Primary Contributing Circumstance Talladega C016: Primary Contributing Unit Number 530 3.40 2408 2.96 1.149* 68.723 Madison C017: First Harmful Event 1.23 1.549* 192 647 0.79 68.060 Escambia C018: Location First Harmful Event Rel t 173 1.11 568 0.70 1.590* 64.194 Lowndes C019: E Most Harmful Event 302 1.94 1348 1.65 1.170* 43.777 Limestone C020: E Distracted Driving Opinion C021: Distance to Fixed Object 0.67 0.40 Marion 104 327 1.660* 41,360 C022: E Type of Roadway Junction/Featu Morgan 200 1.28 870 1.07 1.200* 33.342 C023: E Manner of Crash 0.78 Walker 121 495 0.61 1.276* 26.178 C024: School Bus Related Elmore 99 0.63 430 0.53 1.202 16.629 C025: Crash Severity 177 1.13 897 1.10 1.030 5.170 C026: Intersection Related Cleburne C027: At Intersection Sort by Sum of Max Gain 0.35 348 0.43 0.810 Blount 54 -12.663 📋 🕼 | 🗞 🖉 Display Filter Name 2014-2018 Alabama Integrated Crash Data - Filter = Wet Pavement O-R 50+ vs. Interstates C001: County 40 Frequency 20 Talladega Marion Blount Autauga Baldwin C001: County

C001 County

Significantly over-represented counties are listed. Note that 38 counties did not have a qualifying roadway.

C003 Year



This depends heavily on the rainfall in the given year. This is validated by the cross-tabulation for all Interstate roadways of Year by Roadway Condition, given next.

CARE 10.2.0.8 - [Crosstab Results - 2014-2018 Alabama Integrated Crash Data - Filter = Interstates] - 🗆 🗙												
🚦 <u>F</u> ile <u>D</u> ashł	board <u>Filters</u>	<u>A</u> nalysis <u>C</u> rosstal	b <u>L</u> ocations	<u>T</u> ools <u>W</u> indow	<u>H</u> elp		_ 8 ×					
2014-2018	Alabama Integrated (Crash Data	~	Interstates		~	•					
Suppress Zero Va	Suppress Zero Values: Rows and Columns 🗸 Select Cells: 🛋 🗸 🐼 🛜 Column: Year ; Row: CU Roadway Condition 👰											
	2014	2015	2016	2017	2018	TOTAL						
Dry	9973 75.52%	10907 69.72%	12624 77.76%	12563 70.71%	12793 68.71%	58860 72.25%						
Wet	2383 18.05%	3994 25.53%	3002 18.49%	4170 23.47%	4811 25.84%	18360 22.54%						
lce	317 2.40%	181 1.16%	21 0.13%	281 1.58%	254 1.36%	1054 1.29%	-					
E Snow	64 0.48%	26 0.17%	9 0.06%	57 0.32%	11 0.06%	167 0.20%	-					
E Slush	19 0.14%	12 0.08%	0	39 0.22%	4 0.02%	74 0.09%	-					
Muddy Sand/Dirt/Gravel	4 0.03%	3 0.02%	0 0.00%	4 0.02%	0	11 0.01%	-					
E Water Buildup	23 0.17%	34 0.22%	29 0.18%	36 0.20%	28 0.15%	150 0.18%	-					
Other	2 0.02%	5 0.03%	7 0.04%	4 0.02%	2 0.01%	20 0.02%						
Unknown	10 0.08%	9 0.06%	19 0.12%	15 0.08%	19 0.10%	72 0.09%						
Not Applicable	4 0.03%	4 0.03%	9 0.06%	9 0.05%	15 0.08%	41 0.05%						
CU is Unknown	406 3.07%	470 3.00%	514 3.17%	590 3.32%	683 3.67%	2663 3.27%	-					
TOTAL	13205 16.21%	15645 19.20%	16234 19.93%	17768 21.81%	18620 22.85%	81472 100.00%						

Cross-tabulation Interstates Year (C003) by Roadway Condition (C403)

C004 Month

	ARE 10.2.0.8 - [IMP	ACT Resul	ts - 2014-2018	Alabama Inte	grated Crash	Data - Wet Pav	vement O-R 50)+ vs. Interstat	tes]	-		×
	2014-2018 Alabam		<u>A</u> naiysis <u>i</u> d Crash Data	impact <u>L</u> oc	ations <u>l</u> oo	Wet Pavement	0-R 50+		~ '	9 1 /	1/2014 ~	12/
Order	: Max Gain	∼ De	escending	~ 🗆 s	uppress Zero-	Valued Rows	Signifi	cance: Over I	Representation	✓ Threshold	d: 2.0	÷
C004	: Month		Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain	C001: County C002: City			^
•	January		1189	7.62	6208	7.62	1.000	-0.207	C003: Year			
	February		1203	7.71	5717	7.02	1.098*	107.849	C004: Month			
	March		1445	9.26	6741	8.27	1.119*	153.691	C005: Day of I	Month the Week		
	April		1312	8.41	6688	8.21	1.024	30.844	C000: Day on C007: Week o	of the Year		
	May		1232	7.89	7080	8.69	0.908*	-124.248	C008: Time of	f Day		
	June		1505	9.64	7070	8.68	1.111*	150.668	C009: Data Se	ource		
	July		1188	7.61	6965	8.55	0.890*	-146.218	C010: Rural o	or Urban Olaasifisatisa		
	August		1486	9.52	6979	8.57	1.112*	149.100	C012: Control	lled Access	IS	
	September		935	5.99	6258	7.68	0.780*	-263.785	C013: E High	way Side		
	October		790	5.06	6921	8.49	0.596*	-535.789	C015: Primary	y Contributing C	ircumstan	n
	November		1197	7.67	7311	8.97	0.855*	-203.498	C016: Priman	y Contributing U	Init Numbe	e j
	December		2125	13.62	7535	9.25	1.472*	681.592	Sort by Sum (armful Event of Max Gain		*
) 🗞 🖉								,		D	ispla
					2014-2018 Ala	bama Integrate	d Crash Data					
					2011 2010/10	C004: Month						
	15											
	10											
	8 - 3											
	dneu											
	E La											
	5											
	0						A		Outshare	Description		
			rebruary	Apri	1	June	Augus	st	October	December		
						C004: Mor	nth					

The drought months and the rain-relief months are quite clear from this chart.

C006 Day of the Week

C/	CARE 10.2.0.8 - [IMPACT Results - 2014-2018 Alabama Integrated Crash Data - Wet Pavement O-R 50+ vs. Interstates] - D X												
E E	ile <u>D</u> ashboard	<u>F</u> ilters	<u>A</u> nalysis <u>I</u> m	pact <u>L</u> ocation	ns <u>T</u> ools	<u>W</u> indow <u>H</u> e	lp					-	. 8 ×
6 2	2014-2018 Alabama	Integrated C	Crash Data	~	Wet F	avement O-R 50)+			~ 💡 🏆	1/ 1/201	4 ~ 12/	31/2018
Order	: Max Gain	 ✓ Desc 	cending	- Suppr	ess Zero-Value	d Rows	:	Significand	e: Over	Representation	Thresh	iold: 2	.0 🜲
C006	Day of the Week		Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max (Sain	C001: County C002: City			^
•	Sunday		2215	i 14.19	9320	11.44	1.2	41*	429.657	C003: Year			
	Monday		2554	16.36	11372	13.96	1.1	72*	375.575	C004: Month			
	Tuesday		2256	14.46	11782	14.46	1.0	000	-0.965	C005: Day of Mor	nth Wook		
	Wednesday		1992	12.76	11517	14.14	0.9	03* ·	214.201	C007: Week of th	e Year		
	Thursday		2186	5 14.01	12430	15.26	0.9	18 * ·	195.096	C008: Time of Da	ау		
	Friday		2406	5 15.42	14644	17.97	0.8	58* ·	399.210	C009: Data Sour	ce		~
	Saturday		1998	12.80	10408	12.77	1.0	002	4.239	Sort by Sum of M	lax Gain		
) 🗞 🖉									,	[Displa	y Filter N
					2014-2018 Alah	ama Integrated	Crash Data						
					C006:	Day of the Wee	k						
													_
	20												
	_	_					_		_				
	_												
	8												
	퉡 10												
	E -												
	-												
	0											-	
		Su	unday	Monday	Tuesday	Wednesday	Thurs	sday	Friday	/ Saturday			
					C0	06: Day of the W	/eek						

We expect that it is just a freak occurrence that there was more wet pavement crashes on Sundays and Mondays, and this is confirmed by the crosstab below. Weather tends to occur in cycles, and there are time when these cycles are fairly uniform.

CARE 10.2.0.8	- [Crosstab Results	- 2014-2018 Alabai	ma Integrated Cras	h Data - Filter = Int	erstates]			- 🗆 X			
File Dashb	ooard <u>F</u> ilters <u>/</u>	<u>A</u> nalysis <u>C</u> rossta	b <u>L</u> ocations <u>1</u>	ools <u>W</u> indow	<u>H</u> elp			- 8			
2014-2018	Alabama Integrated C	ìrash Data	\sim	Interstates		~	9 1/1	/2014 ~ 12/31/201			
Suppress Zero Va	Suppress Zero Values: Rows and Columns 🗸 Select Cells: 🖘 🔣 🌱 Column: Day of the Week ; Row: CU Roadway Condition 👰										
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	TOTAL			
Dry	6394	7885	8343	8580	9215	10996	7447	58860			
Wet	2581	3033	2674	2308	2574	2821	2369	18360			
lce	45	23	256	159	137	239	195	1054			
E Snow	0	0	57	35	15	49	11	167			
E Slush	1	0	11	10	13	24	15	74			
Muddy Sand/Dirt/Gravel	0	0	3	1	4	1	2	11			
E Water Buildup	25	34	16	17	13	20	25	150			
Other	2	5	3	4	3	3	0	20			
Unknown	8	11	8	9	14	14	8	72			
Not Applicable	2	7	4	7	7	8	6	41			
CU is Unknown	262	373	407	387	435	469	330	2663			
TOTAL	9320	11371	11782	11517	12430	14644	10408	81472			

Crosstab of Day of the Week (C006) by Roadway Condition (C403)

Both Sunday and Monday, for no valid reason, had more wet pavement than the other days of the week in the five-year period under consideration.

C008 Time of Day

🖡 CA	RE 10.2.0.8 - [IMPACT Results	- 2014-2018 Ala	bama Integrate	d Crash Data	- Wet Pavement	O-R 50+ AND	Not Time of D	ay = Unknown vs. I	- 🗆	×
🔋 <u>F</u> il	le <u>D</u> ashboard <u>F</u> ilters <u>/</u>	<u>A</u> nalysis <u>I</u> mp	act <u>L</u> ocatior	is <u>T</u> ools	<u>W</u> indow <u>H</u> elp	þ			-	ъ×
6	2014-2018 Alabama Integrated C	ìrash Data	~	Wet F	avement O-R 50+	÷			/2014 ~ 12/3	1/2018
Order:	Max Gain 🗸 Desc	cending	Suppre	ess Zero-Value	d Rows	Sign	ificance: Over	Representation V	hreshold: 2.0	-
C008:	Time of Day	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain	C008: Time of Day		
•	12:00 Midnight to 12:59 AM	236	1.51	1305	1.60	0.944	-13.968			
	1:00 AM to 1:59 AM	217	1.39	1150	1.41	0.985	-3.278			
	2:00 AM to 2:59 AM	184	1.18	1132	1.39	0.849	-32.830			
	3:00 AM to 3:59 AM	232	1.49	1170	1.44	1.035	7.891			
	4:00 AM to 4:59 AM	264	1.69	1312	1.61	1.051	12.692			
	5:00 AM to 5:59 AM	472	3.03	2138	2.63	1.153*	62.474			
	6:00 AM to 6:59 AM	681	4.37	3099	3.81	1.147*	87.399			
	7:00 AM to 7:59 AM	1047	6.71	5782	7.10	0.945	-60.519			
	8:00 AM to 8:59 AM	804	5.16	4501	5.53	0.933	-58.149			
	9:00 AM to 9:59 AM	574	3.68	3160	3.88	0.948	-31.286			
	10:00 AM to 10:59 AM	570	3.66	3275	4.02	0.909	-57.313			
	11:00 AM to 11:59 AM	607	3.89	3538	4.35	0.896*	-70.690			
	12:00 Noon to 12:59 PM	712	4.57	4049	4.97	0.918	-63.570			
	1:00 PM to 1:59 PM	808	5.18	4448	5.46	0.948	-43.997			
	2:00 PM to 2:59 PM	998	6.40	5277	6.48	0.987	-12.789			
	3:00 PM to 3:59 PM	1182	7.58	6174	7.58	0.999	-0.605			
	4:00 PM to 4:59 PM	1317	8.45	6803	8.36	1.011	13.912			
	5:00 PM to 5:59 PM	1408	9.03	7616	9.36	0.965	-50.815			
	6:00 PM to 6:59 PM	981	6.29	4483	5.51	1.142*	122.299			
	7:00 PM to 7:59 PM	640	4.10	2845	3.49	1.174*	95.051			
	8:00 PM to 8:59 PM	491	3.15	2448	3.01	1.047	22.095			
	9:00 PM to 9:59 PM	451	2.89	2273	2.79	1.036	15.616			
	10:00 PM to 10:59 PM	386	2.48	1875	2.30	1.075	26.851			
	11:00 PM to 11:59 PM	331	2.12	1553	1.91	1.113	33.529	Sort by Sum of Max G	ain	
0	i 🞯 🖉								🗌 Display	Filter N
			2	2014-2018 Alab	ama Integrated C	rash Data				
				C00	8: Time of Day					
	10							_		
	<u>م</u>					_				
	5 5				-					
			- 1					I F		
	0	4:00 414 - 4	-E0 AM	0.00 444-0	EQ AM	00 04 - 2.5	0 DM 7	00 PM to 7:50 PM		
		4.00 AIVI (04	.55 AIVI	5.00 Alvi (0 9.	C008: Time of	.00 Fivi to 2.5 Dav	3FIVI 7.	UU FIVI (U 7.55 FIVI		

Interesting that the times of day that are significantly over-represented are the two hours before the morning rush hours and two hours after the afternoon rush hours (symmetry). We have not

Crosstab of Time of Day by Roadway Condition

While some of the other timing attributes may be due purely to chance, this one probably shows the more typical times when rain might occur. It shows over-representations both before and after the rush hour peaks, which confirms the above results.

CARE 10.2.0.8	- [Crosstab Results	s - 2014-2018 Alaba	ma Integrated Cras	h Data - Filter = Int	erstates]			_	
🖡 <u>F</u> ile <u>D</u> ashl	board <u>F</u> ilters	<u>A</u> nalysis <u>C</u> rossta	b <u>L</u> ocations]	<u>T</u> ools <u>W</u> indow	<u>H</u> elp				_ 8 ×
2014-2018	Alabama Integrated C	Crash Data	~	Interstates		~	💡 頨 1/ 1	/2014 ~ 12/31/20	18 🗸 🕜 🕘
Suppress Zero Va	lues: None	~ Select	Cells: 🔳 🔹 %	9			Column: CU Roadw	ay Condition ; Row:	Time of Day 👔
	Dry	Wet	lce	E Snow	E Slush	Muddy Sand/Dirt/Gravel	E Water Buildup	Other	Unknown
12:00 Midnight to 12:59 AM	944	298	13	0	1	0	5	0	3
1:00 AM to 1:59 AM	831	268	15	4	2	1	1	1	1
2:00 AM to 2:59 AM	834	241	14	2	1	0	3	1	3
3:00 AM to 3:59 AM	834	275	24	0	1	0	4	0	3
4:00 AM to 4:59 AM	892	326	53	3	2	0	6	0	1
5:00 AM to 5:59 AM	1360	584	100	7	1	0	7	1	2
6:00 AM to 6:59 AM	2036	845	99	9	4	2	4	1	4
7:00 AM to 7:59 AM	4230	1262	115	10	2	1	7	3	3
8:00 AM to 8:59 AM	3249	996	83	13	4	0	5	0	2
9:00 AM to 9:59 AM	2279	669	71	14	8	0	1	1	6
10:00 AM to 10:59 AM	2406	649	58	26	6	0	5	1	3
11:00 AM to 11:59 AM	2665	688	38	18	3	1	3	1	2
12:00 Noon to 12:59 PM	3052	831	26	1	1	0	4	1	3
1:00 PM to 1:59 PM	3291	972	25	6	3	2	8	0	4
2:00 PM to 2:59 PM	3883	1154	51	6	1	0	8	1	3
3:00 PM to 3:59 PM	4560	1351	37	3	3	0	10	0	2
4:00 PM to 4:59 PM	5037	1487	25	0	5	1	5	0	1
5:00 PM to 5:59 PM	5724	1575	26	11	4	0	19	0	5
6:00 PM to 6:59 PM	3123	1140	33	4	5	3	12	0	3
7:00 PM to 7:59 PM	1926	745	40	9	7	0	10	1	1
8:00 PM to 8:59 PM	1701	588	40	9	4	0	8	2	1
9:00 PM to 9:59 PM	1606	537	24	4	4	0	3	3	0
10:00 PM to 10:59 PM	1295	469	21	4	0	0	4	0	3
11:00 PM to 11:59 PM	1068	392	22	3	2	0	8	2	4
Unknown	34	18	1	1	0	0	0	0	9
TOTAL	58860	18360	1054	167	74	11	150	20	72
<									>

C013 Highway Side



It is clear that the roadways that have the largest *relative* problem with wet pavement are those which run east and west (as opposed to north and south). We expect this is because of where those roads run in the state. I-10 is east-west right along the coast, and would be expected to have a lot more wet pavement. Odd numbers run north-south; even numbers run east-west.

🔋 CA	RE 10.2.0.8 - [IMPACT Results - 20	14-2018 Alabama	a Integrated Cras	h Data - Wet Pav	ement O-R 50+ A	ND Not Primary	Contributing Cir	cumstance = 62	OR —	
Ei	le <u>D</u> ashboard <u>F</u> ilters <u>A</u> nal	lysis <u>I</u> mpact	Locations To	ools <u>W</u> indow	<u>H</u> elp					- 8
6	2014-2018 Alabama Integrated Crash	Data	\sim	Wet Pavement C)-R 50+		~ Ş	1/ 1/2014	~ 12/31/2018	~ 0 (
Order:	Max Gain V Descend	ing ~	Suppress Zer	o-Valued Rows		Si	gnificance: Over	Representation	✓ Threshol	d: 2.0 韋
C015:	Primary Contributing Circumstance	Contract Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻	C015: Prima	ry Contributing (Circumstance
•	Driving too Fast for Conditions	5296	37.69	7422	10.35	3.642*	3841.964			
	E Over Correcting/Over Steering	463	3.30	1449	2.02	1.631*	179.128			
	E Ran off Road	499	3.55	2001	2.79	1.273*	106.986			
	E Other - No Improper Driving	348	2.48	1518	2.12	1.170*	50.610			
	E Swerved to Avoid Animal	54	0.38	313	0.44	0.881	-7.319			
	E Swerved to Avoid Object	72	0.51	552	0.77	0.666*	-36.142			
	E Crossed Centerline	78	0.56	586	0.82	0.679*	-36.803			
	E Other Failed to Yield	67	0.48	556	0.78	0.615*	-41.925			
	Over Speed Limit	103	0.73	780	1.09	0.674*	-49.809			
	E Distracted by Use of Electronic	46	0.33	542	0.76	0.433*	-60.183			
	E Other Improper Action	121	0.86	975	1.36	0.633*	-70.011			
	E Aggressive Operation	192	1.37	1374	1.92	0.713*	-77.179			
	E Swerved to Avoid Vehicle	878	6.25	4972	6.93	0.901*	-96.059			
	DUI	259	1.84	1823	2.54	0.725*	-98.142			
	Cargo Fell or Load Shift	60	0.43	997	1.39	0.307*	-135.321			
	E Other Distraction Outside the V	144	1.02	1464	2.04	0.502*	-142.811			
	E Other Distraction Inside the Ve	152	1.08	1513	2.11	0.513*	-144.410			
	Misjudge Stopping Distance	1082	7.70	6889	9.61	0.802*	-267.617			
	Defective Equipment	380	2.70	3543	4.94	0.547*	-314.105			
	E Fatigued/Asleep	232	1.65	2889	4.03	0.410*	-333.981			
	Unseen Object/Person/Vehicle	443	3.15	4745	6.62	0.477*	-486.588			
	Improper Lane Change/Use	843	6.00	8817	12.29	0.488*	-884.329			
	Followed too Close	2238	15.93	15948	22.24	0.716*	-886.355	Sort by Sum	of Max Gain	
00) 😪 🖉] Display Filter N	ame
				2014-2018 Alabar	na Integrated Cras	h Data				
				C015: Primary Co	ontributing Circum	stance				
	40									
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	2									
	b 20									
	ē									
					-					
	0						0.0			
	-	E Swerved to Avoid	d Animal El	E Distracted by U: ectronic Communicat	se of ion Device	Cargo Fell or Load S	Shift	E Fatigued/Aslee	ep	
			-	C015: Prima	rv Contributina Ci	rcumstance				

C015 Primary Contributing Circumstance

The above was generated with all attributes that had less than 40 occurrences removed. Most of the attributes are over-shadowed by Driving Too Fast for Conditions, an item that requires that the "conditions" be present, in this and most cases, rain or wet pavement.

Repeat of the above with "Driving Too Fast for Conditions" removed.

Removing the overshadowing item enables the relative frequencies of other attributes to be more clearly seen.

🚦 CA	RE 10.2.0.8 - [IMPACT Results - 20	14-2018 Alabama	Integrated Crasl	h Data - Wet Pave	ement O-R 50+ A	ND Not Primary	Contributing Cire	cumstance = 62 (DR —	
🛃 Fi	le Dashboard Filters Anal	ysis Impact	Locations To	ols Window	Help					- 8 ×
6 °	2014-2018 Alabama Integrated Crash	Data	\sim	Wet Pavement C)-R 50+		~ Y	2 1/ 1/2014	~ 12/31/2018 \	- 🕒 🕘
Order:	Max Gain V Descend	ing ~	Suppress Zero	o-Valued Rows		Sig	gnificance: Over	Representation	✓ Threshold	: 2.0 🚔
C015:	Primary Contributing Circumstance	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 📼	C015: Primary	/ Contributing C	ircumstance
•	E Over Correcting/Over Steering	463	5.29	1449	2.25	2.347*	265.713			
	E Ran off Road	499	5.70	2001	3.11	1.832*	226.557			
	E Swerved to Avoid Vehicle	878	10.03	4972	7.73	1.297*	201.044			
	Misjudge Stopping Distance	1082	12.36	6889	10.71	1.154*	144.037			
	E Other - No Improper Driving	348	3.98	1518	2.36	1.684*	141.319			
	Followed too Close	2238	25.57	15948	24.80	1.031	66.621			
	E Swerved to Avoid Animal	54	0.62	313	0.49	1.267	11.384			
	DUI	259	2.96	1823	2.84	1.043	10.792			
	E Aggressive Operation	192	2.19	1374	2.14	1.026	4.925			
	E Crossed Centerline	78	0.89	586	0.91	0.978	-1.786			
	E Swerved to Avoid Object	72	0.82	552	0.86	0.958	-3.157			
	Over Speed Limit	103	1.18	780	1.21	0.970	-3.200			
	E Other Failed to Yield	67	0.77	556	0.86	0.885	-8.701			
	E Other Improper Action	121	1.38	975	1.52	0.911	-11.750			
	E Distracted by Use of Electronic	46	0.53	542	0.84	0.623*	-27.795			
	E Other Distraction Inside the Ve	152	1.74	1513	2.35	0.738*	-54.000			
	E Other Distraction Outside the V	144	1.64	1464	2.28	0.722*	-55.329			
	Cargo Fell or Load Shift	60	0.69	997	1.55	0.442*	-75.745			
	Defective Equipment	380	4.34	3543	5.51	0.788*	-102.392			
	E Fatigued/Asleep	232	2.65	2889	4.49	0.590*	-161.348			
	Unseen Object/Person/Vehicle	443	5.06	4745	7.38	0.686*	-203.049			
	Improper Lane Change/Use	843	9.63	8817	13.71	0.702*	-357.467	Sort by Sum	of Max Gain	
ព្រៃច	i 🔤 🖉							· <u> </u>	Display Filter Na	ime
				2014 2010 41 1		1.5.				
				2014-2018 Alaban	na integrated Cras	in Data				
				COID: Primary Co	numbuting Circum	stance				
	40									
	2									
	20									_
	- L									
	0	E Other - No Improv	ner Driving	E Crossed Co	nterline	E Distracted b	w Use of	E Estimud	/Asleen	
		2 other - No Improj	par of ming	E Crossed Ce		Electronic Commun	ication Device	c raugued	- Aleep	
				C015: Prima	ry Contributing Cir	rcumstance				

C017 First Harmful Event

CARE 10.2.0.8 - [IMPACT Results - 2014-2018 Alabama Integrated Crash Data - Wet Pavement O-R 50+ AND Not First Harmful Event = 49 OR 53 OR 44 OR 7 O											
🔢 Eile Dashboard Eilters Analysis I	mpact <u>L</u> ocatio	ons <u>T</u> ools	<u>W</u> indow <u>H</u> e	lp			_ 8 :				
2014-2018 Alabama Integrated Crash Data	~	Wet f	Pavement O-R 50)+		~ Y	▼ 1/ 1/2014 ~ 12/31/2018 ~				
Order: Max Gain V Descending	V Supp	ress Zero-Value	d Rows		Sign	ificance: Over	Representation V Threshold: 2.0				
C017: First Harmful Event	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻	C017: First Harmful Event				
E Collision with Concrete Barrier	1776	11.74	4027	5.17	2.271*	994.045					
E Ran Off Road Right	926	6.12	2360	3.03	2.021*	467.740					
E Collision with Guardrail Face	884	5.84	2524	3.24	1.804*	393.894					
Collision with Ditch	832	5.50	2344	3.01	1.828*	376.846					
E Ran Off Road Left	787	5.20	2279	2.93	1.778*	344.468					
Collision with Tree	449	2.97	1167	1.50	1.981*	222.394					
Collision with Bridge Abutment/Rail	268	1.77	793	1.02	1.740*	114.017					
Collision with Sign Post	182	1.20	581	0.75	1.613*	69.183					
E Evasive Action (Swerve/Brake)	261	1.73	1068	1.37	1.259*	53.618					
E Collision with Cable Barrier	405	2.68	1872	2.40	1.114	41.499					
E Collision with Curb/Island/Raised Median	61	0.40	138	0.18	2.276*	34.203					
Jackknife	65	0.43	178	0.23	1.881*	30.436					
E Collision with Embankment	99	0.65	367	0.47	1.389*	27.737					
E Other Non-Collision	111	0.73	433	0.56	1.320*	26.921					
E Collision with Guardrail End	135	0.89	617	0.79	1.127	15.192					
Collision with Other Fixed Object	43	0.28	220	0.28	1.007	0.281					
Collision with Parked Motor Vehicle	115	0.76	764	0.98	0.775*	-33.352					
Overtum/Rollover	162	1.07	1159	1.49	0.720*	-63.052					
E Collision with Animal: Deer	63	0.42	677	0.87	0.479*	-68.459					
E Vehicle Defect/Component Failure	82	0.54	1194	1.53	0.354*	-149.849					
E Collision with Other Non-Fixed Object	180	1.19	2282	2.93	0.406*	-263.114					
Collision with Vehicle in Traffic	7243	47.87	50865	65.28	0.733*	-2633.870	Sort by Sum of Max Gain				
] () (* ¢							Display Filter Name				
		2014-2	018 Alahama Int	egrated Crash D	ata						
		2014-2	C017: First Ha	mful Event							
80											
60											
2 <u>5</u>											
a 40											
Ľ –											
20											
0	an Off Road Left	E Cr	lision with Cable P	arrier	E Collision with Gu	ardrail End	E Vehicle Defect/Component Failure				
		200	C017: Firs	t Harmful Event							

Probably this most impressive result here is the degree to which Collision with Vehicle in Traffic is under-represented. This could help to explain why wet pavement tends to reduce the proportion of fatalities, and it is an indication of an over-representation in single vehicle crashes.

C018 Location	of First	Harmful	Event with	Respect to	the Roadway
				1	•

File Dashi Zoll4-2018 Zoll4-2018 Order: Max Gain Coll3: Location Coll3: Location	hboard <u>F</u> ilters <u>A</u> nal	lysis <u>I</u> mpact	Locations To	ols Window	Lista			
2014-2018 Order: Max Gain Colls: Location E Roadsid E Shoulder Median E Off Road E Outside - Off Roadw E Separate Other E Other Ne E Non-Inte Not Applic				<u></u>	Help			- 8
Order: Max Gain Colls: Location E Roadsid E Shoulder Median E Off Road Off Roadw C Separate Other E Other Ne E Non-Inte Not Applic	8 Alabama Integrated Crash	Data	\sim	Wet Pavement O	-R 50+		~ Y	1/ 1/2014 ~ 12/31/2018 ~
Colla: Location Volation E Roadsid E Shoulder Median E Off Roac E Outside · Off Roadw E Separato Other E Other Nc E Non-Inte Not Applic	n v Descend	ing ~	Suppress Zero	-Valued Rows		Sig	nificance: Over	Representation V Threshold: 2.0
E Roadsid E Shoulder Median E Off Roace E Outside Off Roadw E Separate Other E Other Ne E Non-Inte Not Applic	n First Harmful Event Rel	to Roadway Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻	C010: Rural or Urban C011: Highway Classifications
E Shouldei Median E Off Road Off Roadw E Separate Other E Other Ne E Non-Inte Not Applic	ide	2070	13.26	6189	7.60	1.746*	884.433	C012: Controlled Access
Median E Off Road Off Roadw E Separate Other E Other Ne E Non-Inte Not Applic	ler	1737	11.13	5467	6.71	1.659*	689.739	C013: E Highway Side
E Off Road E Outside (Off Roadw E Separato Other E Other No E Non-Inte Not Applic		1499	9.60	4983	6.12	1.570*	544.455	C016: Primary Contributing Unit Number
E Outside Off Roadw E Separato Other E Other No E Non-Inte Not Applic	adway - Location Unkno	172	1.10	499	0.61	1.799*	76.411	C017: First Harmful Event
Off Roadw E Separato Other E Other No E Non-Inte Not Applic	e of Right-of-Way	128	0.82	375	0.46	1.782*	56.165	C018: Location First Harmful Event Rel t
E Separato Other E Other No E Non-Inte Not Applic	lway	139	0.89	512	0.63	1.417*	40.921	C019: E Most Harmful Event
Other E Other No E Non-Inte Not Applica	ator	26	0.17	70	0.09	1.939*	12.591	C020: E Distracted Driving Opinion
E Other No E Non-Inte Not Applic		15	0.10	56	0.07	1.398	4.273	C022: E Type of Roadway Junction/Feat
E Non-Inte Not Applica	Non-Intersection	6	0.04	13	0.02	2.409	3.510	C023: E Manner of Crash
Not Applic	tersection Crosswalk	2	0.01	4	0.00	2.610	1.234	C024: School Bus Related
	icable	9	0.06	48	0.06	0.979	-0.195	C025: Crash Severity C026: Intersection Related
E Intersect	ction with Crosswalk an	1	0.01	12	0.01	0.435	-1.299	C027: At Intersection
Unknown	n	4	0.03	36	0.04	0.580	-2.896	C028: Mileposted Route
E Gore		4	0.03	41	0.05	0.509	-3.854	C029: National Highway System
E At Inters	rsection no Crosswalk	48	0.31	316	0.39	0.793	-12.533	C030: Functional Class
On Roadw	lway	9747	62.45	62806	77.09	0.810*	-2284.142	Sort by Sum of Max Gain
📋 🕼 🕼 🖉	3							🗹 Display Filter Name
		2014-2	018 Alabama Inte C018	grated Crash Data : Location First Ha	- Filter = Wet Par armful Event Rel	vement O-R 50+ vs to Roadway	. Interstates	
10 5- Leanna 5-	50							

The first 7 items are all off roadway – their combined percentage is 36.97%, which is quite significantly higher than the control items. It is reasonable that wet pavement will result in more crashes occurring off the roadway.

C020 Distracted Driving, Officer's Opinion

🖡 CA	RE 10.2.0.8 - [IMF	ACT Results -	2014-2018 Alabama	Integrated Crasl	n Data - Wet Pave	ement O-R 50+ v	s. Interstates]		- 🗆 X
🖡 Ei	ile <u>D</u> ashboard	<u>F</u> ilters <u>A</u>	nalysis <u>I</u> mpact	Locations <u>T</u> o	ols <u>W</u> indow	<u>H</u> elp			_ @ ×
¢°	2014-2018 Alabam	a Integrated Cra	ash Data	~	Wet Pavement C	-R 50+		~ 9	1/ 1/2014 ∨ 12/31/2018 ∨ 🚯 🥥
Order	Max Gain	~ Desce	ending ~	Suppress Zero	o-Valued Rows		S	Significance: Ov	ver Representation V Threshold: 2.0
C020	E Distracted Driv	ving Opinion	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain	C010: Rural or Urban C011: Highway Classifications
•	Not Applicable (N	ot Distracted)	9668	65.53	45957	59.07	1.109	• 953.86	1 C012: Controlled Access
	Record from Pape	er System	20	0.14	100	0.13	1.055	5 1.03	8 C013: E Highway Side
	Distracted by Inse	ct/Reptile	5	0.03	41	0.05	0.643	3 -2.77	4 C016: Primary Contributing Circumstance
	Distracted by Use	of Other Electr.	45	0.31	364	0.47	0.652	-24.02	C017: First Harmful Event
	Distracted by Pas	senger	48	0.33	405	0.52	0.625	-28.79	4 C018: Location First Harmful Event Rel t
	Distracted by Falle	en Object	17	0.12	244	0.31	0.367	7 -29.26	6 C019: E Most Harmful Event
	Distracted by Use	of Electronic C.	63	0.43	722	0.93	0.460	-73.90	2 C020: E Distracted Driving Opinion
	Unknown		4161	28.20	22646	29.11	0.969	-133.02	CO22: E Type of Roadway Junction/Featu
	Other Distraction (Outside the Ve	251	1.70	2169	2.79	0.610	-160.27	5 C023: E Manner of Crash
	Other Distraction	nside the Vehic	le 212	1.44	1967	2.53	0.568	-160.97	3 C024: School Bus Related
	Fatigued/Asleep		263	1.78	3190	4.10	0.435	• -341.87	2 Sort by Sum of Max Gain
0	a 😪 🖉								Display Filter Name
			2014-2	2018 Alabama Inte	grated Crash Data	- Filter = Wet Pa	vement O-R 50+	vs. Interstates	
					C020: E Distra	cted Driving Opin	iion		
	90	_							
	00								
	60								
	~ ~								
	u 40								
	Free								
	20								
	0								
		Red	cord from Paper System	Distracted by Other Electroni	Use of Distra c Device	cted by Fallen Object	t Unkr	nown	Uther Distraction Inside the Vehicle
					C020: E Di	stracted Driving C	pinion		

It is reasonable that during rain or wet pavement, drivers would pay more attention to their driving and not allow themselves to be distracted by other things.

C025 Crash Severity



As has been found in several other studies, the probability that crashes result in fatalities is reduced significantly by rain and wet pavement. This results from the speed reduction, which is a natural reaction to the perceived increased probability of a crash. In this case, if the test area had the same probability of a fatal crash as the control area, there would have been about 102 fatal crashes rather than 70, an increase of about 46%.

C031 Lighting Conditions

CA	RE 10.2.0.8 - [IMPA	CT Results - 2	2014-2018 Alabar	na Integrated C	rash Data - Wet	Pavement O-R 5	0+ vs. Interstate	es]	- 🗆 X
E E	le <u>D</u> ashboard	<u>F</u> ilters <u>A</u> r	nalysis <u>I</u> mpact	<u>L</u> ocations	<u>T</u> ools <u>W</u> indo	ow <u>H</u> elp			_ & >
6	2014-2018 Alabama	Integrated Cra	ish Data	\sim	Wet Paveme	ent O-R 50+		~ *	🖓 🏹 1/ 1/2014 🗸 12/31/2018 🗸
Order	Max Gain	~ Desce	nding ~	Suppress	Zero-Valued Row	s	Sig	nificance: Over	Representation V Threshold: 2.0
C031	Lighting Condition	s	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻	C020: E Distracted Driving Opinion
	E Dark - Spot Illumir	nation One	494	3.17	1933	2.37	1.334*	123.714	C022: E Type of Roadway Junction/Featu
	Dusk		550	3.52	2280	2.80	1.259*	113.242	C023: E Manner of Crash
	E Dark - Spot Illumir	nation Both	1002	6.42	4735	5.81	1.105*	94.962	C024: School Bus Related
	Dark - Roadway No	t Lighted	2273	14.56	11401	13.99	1.041	89.020	C026: Intersection Related
	Dawn		331	2.12	1390	1.71	1.243*	64.731	C027: At Intersection
	E Dark - Continuous	s Lighting O	84	0.54	370	0.45	1.185	13.123	C028: Mileposted Route
	E Dark - Unknown I	Roadway Li	37	0.24	167	0.20	1.157	5.009	C029: National Highway System
	Not Applicable		10	0.06	39	0.05	1.339	2.529	C030: Functional Class
•	Other			0.04	29	0.04	1.260	1.445	C032: Weather
	Dark - Roadway Lig	hted	38	0.24	237	0.29	0.837	-7.400	C033: Locale
	Unknown		13	0.08	110	0.14	0.617	-8.072	C034: E Police Present at Time of Crash
	E Dark - Continuous	s Lighting B	459	2.94	2631	3.23	0.911	-44.995	C035: Police Notification Delay
	Daylight		10309	66.05	56151	68.92	0.958*	-447.308	Sort by Sum of Max Gain
1) 🗞 🖉								Display Filter Name
			2014-20)18 Alabama Inte	grated Crash Dat C031:Lig	a - Filter = Wet Pa ghting Conditions	avement O-R 50	+ vs. Interstates	
	80 60 40 20 0		l Dusk	Dark - Roadway	E Dark - Conti	nuous Not A	1 pplicable	Dark - Roadway Linbted	E Dark - Continuous
				NOT LIGhted	One Side of Ro	adway		Lighted	Both Sides of Roadway

Although daylight is under-represented in is not by a great deal (albeit significant). But it is expected that the combination of wet pavement and darkness would combine two factors that tend to increase crash frequency.

🔋 CA	ARE 10.2.0.8 - [IMPACT Results - 20	14-2018 Alabama	Integrated Crash I	Data - Wet Paven	nent O-R 50+ vs.	nterstates]		- 🗆 X
Ei	ile <u>D</u> ashboard <u>F</u> ilters <u>A</u> nal	ysis <u>I</u> mpact	Locations Too	ls <u>W</u> indow	<u>H</u> elp			_ @ ×
6	2014-2018 Alabama Integrated Crash	Data	\sim	Wet Pavement O-F	R 50+		~ 💡 🏆	1/ 1/2014 🗸 12/31/2018 🗸 🚦 💽 🥥
Order:	: Max Gain 🗸 Descend	ing ~ [Suppress Zero-	/alued Rows			Significance: Over	Representation V Threshold: 2.0
C032:	Weather	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻	C023: E Manner of Crash C024: School Bus Related
<u>۲</u>	Rain	10705	68.59	13137	16.12	4.254	¥* 8188.409	C025: Crash Severity
	E Mist	1483	9.50	1996	2.45	3.879)* 1100.636	C026: Intersection Related
	Fog	154	0.99	472	0.58	1.703	63.581	C028: Mileposted Route
	Severe Winds	8	0.05	35	0.04	1.19	3 1.295	C029: National Highway System
	E Blowing Sand/Soil/Dirt	0	0.00	2	0.00	0.00	0 0.000	C030: Functional Class
	E Blowing Snow	1	0.01	19	0.02	0.27	5 -2.640	C031: Lighting Conditions
	Other	5	0.03	51	0.06	0.51	2 -4.770	C032: Weather
	Unknown	13	0.08	120	0.15	0.56	6 -9.988	C034: E Police Present at Time of Crash
	Sleet/Hail/Freezing Rain	34	0.22	351	0.43	0.506	5* -33.239	C035: Police Notification Delay
	Snow	8	0.05	335	0.41	0.12	5 -56.174	C036: Police Arrival Delay
	Cloudy	2641	16.92	15135	18.58	0.911	* -258.338	C037: EMS Arrival Delay
	Clear	555	3.56	49818	61.15	0.058	-8988.390	Sort by Sum of Max Gain
00) 🛯 🖉							Display Filter Name
			:	2014-2018 Alabam	a Integrated Crasi	n Data		
				C032	2: Weather			
	80							
	60							
	<u>ک</u>							
	· 40 · · · · · · · · · · · · · · · · · ·							
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	20							
	0							
		E Mist	Severe Winds	E Blowin	ng Snow	Unknown	Snow	/ Clear
				C	032: Weather			

C032 Weather and C403 Roadway Condition

This quantifies how much the weather plays in causing the wet pavement of the subset. See also Roadway Condition, below, which quantifies the difference in the test and control road segments.

\$	2014-2018 Alabama Integ	~ 💡 🦉	1/ 1/2014	/ 12/31/2018	/ 🚺 🕞 🥥									
Order:	Max Gain 🗸 🗸	Descendin	g ~ [Suppress Zero-	Valued Rows		[Significance: Over	Representation	 ✓ Thresh 	old: 2.0 😩			
C403:	CU Roadway Condition		Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻	C401: E CL C402: E CL	I Involved Road/ Road Surface	/Bridge ^ Type			
	Wet		15471	99.13	18360	22.54	4.399	* 11953.908	C403: CU F	Roadway Condit	ion			
	E Water Buildup		136	0.87	150	0.18	4.733	* 107.266	C404 [·] F Cl	I Environmental m of Max Gain	Contributina 🎽			
0	□ Soft by Suit of Max Calif □ Display Filter Name													
				:	2014-2018 Alabam	na Integrated Cras	h Data							
					C403: CU R	oadway Condition								
	100 50			1				_						
	0	EV	Vater Buildup	Ice	E	Slush	Other	Not Applic	able PS	now or Slush*				
					C403- (11 Roadway Conv	lition							

🔋 CA	CARE 10.2.0.8 - [IMPACT Results - 2014-2018 Alabama Integrated Crash Data - Wet Pavement O-R 50+ AND Not Adjusted EMS Arrival Delay = 13 OR 1 – 🛛 🖉 🗙											
E E	ile <u>D</u> ashboard <u>F</u> ilters <u>A</u>	nalysis <u>I</u> mpact	<u>L</u> ocations	<u>T</u> ools <u>W</u> ind	ow <u>H</u> elp				_ 8 ×			
6	2014-2018 Alabama Integrated Cr	ash Data	\sim	Wet Pavem	ent O-R 50+		~ *		18 🗸 🌒			
Order	: Natural Order V Desce	ending 🗸 🗸	Suppress 2	Zero-Valued Row	/S	Sig	nificance: Over	Representation V Threshold:	2.0 🜲			
C038	Adjusted EMS Arrival Delay	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain	C038: Adjusted EMS Arrival Delay				
•	0 to 5 minutes	782	20.33	3188	17.01	1.195*	127.833					
	6 to 10 minutes	1149	29.88	5469	29.18	1.024	26.780					
	11 to 15 minutes	856	22.26	4268	22.77	0.977	-19.779					
	16 to 20 minutes	439	11.41	2420	12.91	0.884*	-57.576					
	21 to 30 minutes	388	10.09	2064	11.01	0.916	-35.526					
	31 to 45 minutes	139	3.61	841	4.49	0.805*	-33.570					
	46 to 60 minutes	64	1.66	278	1.48	1.122	6.955					
	61 to 90 minutes	23	0.60	151	0.81	0.742	-7.985					
	91 to 120 minutes	3	0.08	30	0.16	0.487	-3.156					
	121 to 180 minutes	3	0.08	24	0.13	0.609	-1.925	Sort by Sum of Max Gain				
0) 🕼 🖉							Display Filte	r Name			
				2014-2018 Alaba	ma Integrated Cras	h Data						
				C038: Adjust	ed EMS Arrival Del	ay						
	40								_			
									_			
									-			
	è – j											
	en 20											
	Ĕ				_				_			
	0	6 to 10 minutes	16 to 2	20 minutes	31 to 45 min	utes	61 to 90 minute	es 121 to 180 minutes				
				C038: Adj	usted EMS Arrival	Delay						

C038 Adjusted EMS Arrival Delay

Except for the 0 to 5 minutes and 31 to 45 minutes, the other delay times do not vary significantly from what is expected. Slower responses would be expected, although this could be mitigated by fewer vehicles being on the roadway.

C052 Number of Vehicles

🚦 CA	RE 10.2.0.8 - [IMP/	ACT Results	- 2014-2018 Alabar	ma Integrated Cra	sh Data - Wet	Pavement O-R 5	50+ vs. Interstate	es]	– 🗆 X
🖡 Ei	ile <u>D</u> ashboard	Filters	<u>A</u> nalysis <u>I</u> mpact	Locations	Tools <u>W</u> ind	ow <u>H</u> elp			_ & ×
<u>ور</u>	2014-2018 Alabama	a Integrated (Crash Data	\sim	Wet Pavem	ent O-R 50+		~ *	💡 🔞 1/ 1/2014 🗸 12/31/2018 🗸 🥥
Order:	Natural Order	~ Des	cending 🗸 🗸	Suppress Ze	ero-Valued Row	s	Sig	nificance: Over	Representation V Threshold: 2.0
C052:	Number of Vehicl	es.	Subset Frequency	Subset Percent F	Other requency	Other Percent	Odds Ratio	Max Gain	C044: ALEA Division A C045: ALDOT Area
▶	1 Vehicle		7717	49.45	26065	31.99	1.546*	2723.978	C046: ALDOT Region
	2 Vehicles		6855	43.92	48622	59.68	0.736*	-2459.049	C047: ADECAAHSO Region
	3 Vehicles		844	5.41	5344	6.56	0.824*	-179.699	C049: MPO
	4 Vehicles		146	0.94	1060	1.30	0.719*	-57.054	C050: Has Coordinate
	5 Vehicles		30	0.19	264	0.32	0.593*	-20.572	C051: E MapClick Used
	6 Vehicles		8	0.05	71	0.09	0.588	-5.601	C052: Number of Vehicles
	7 Vehicles		3	0.02	25	0.03	0.626	-1.789	C053: Number of Drivers Recorded
	8 Vehicles		2	0.01	11	0.01	0.949	-0.107	C055: Number of Motorists Recorded
	9 Vehicles		1	0.01	6	0.01	0.870	-0.149	C056: Number of Non-Motorists Record
	11 Vehicles		1	0.01	2	0.00	2.610	0.617	Sort by Sum of Max Gain
0) 🗞 🖉								🗹 Display Filter Name
			2014-20)18 Alabama Integr	ated Crash Dat	a - Filter = Wet P	avement O-R 50	+ vs. Interstates	
					C052: Ni	umber of Vehicles	•		
				-					
	60								
	_								
	40								
	and								
	- requ								
	L 20								
	0-1		2 Vehicles	4 Ve	l hicles	6 Vehic	les	8 Vehicles	11 Vehicles
					C052:	Number of Vehic	les		

It is reasonable that wet pavement would lead to relatively more single vehicle crashes.

C061 Number Killed

Another validation of the reduction in the relative number of fatalities on wet pavement. This was discussed above with C025.



C080 CMV Involved



CMVs tend to have relatively fewer crashes on wet pavement, probably because of the experience of the drivers. If they had the same as other unit types, there would be 720 more crashes over the five-year period.

C101 Causal Unit (CU) Type

All unit types with less than 20 crashes were removed.



Consistent with the CMV results above, large trucks are least likely to be the causal vehicle. Passenger Cars are at the top of the list as having a significantly higher probability of a crash in the wet pavement areas as compared to other vehicle types.

C104 CU Left Scene



Causal unit drivers are less apt to leave the scene of crashes when the pavement is wet.

C107 CU Driver Age



Younger drivers are significantly over-represented through age 26. Those most over-represented are shown in the table. Risk-taking in this case does not seem to be greatly abated until the age of 27. Age 31 is under-represented, but most of the ages above 31 are about as expected from the control group.

C122 CU Driver Officer Opinion Alcohol

F	CAF	RE 10.2.0.8 - [IMP	ACT Result	ts - 2014-2)18 Alaban	na Integrated C	rash Data - W	et Pavemen	t O-R 50+	+ AND Not CU	Driver Officer O	pinion Alcohol = 5	–		×
B	<u>F</u> il	e <u>D</u> ashboard	<u>F</u> ilters	<u>A</u> nalysis	<u>I</u> mpact	<u>L</u> ocations	<u>T</u> ools <u>W</u> in	dow <u>H</u> e	lp						- 8 ×
¢.	2	2014-2018 Alabama	a Integrated	Crash Data	1	~	Wet Pave	ment O-R 50)+		~	7 1/ 1/20	14 ~ 12/3	1/2018	~) 🔘
0	der:	Max Gain	∼ De	scending	~	Suppress 2	Zero-Valued R	ows		Sig	nificance: Over	Representation	✓ Thresh	old: 2	.0 🜩
C	22:	CU Driver Office	r Opinion A	lcohol S Freq	ubset iency	Subset Percent	Other Frequency	Oth Perce	ner ant	Odds Ratio	Max Gain 🔻	C122: CU Driver	Officer Opi	nion Al	cohol
		No - Driver Was N	ot Under Inf	fl	14076	97.95	6781	1	93.61	1.046*	624.817				
		Yes - Driver Was I	Jnder Influe	n	294	2.05	196	9	2.72	0.753*	-96.576	Sort by Sum of I	Max Gain		
Ũ	0	📾 🖉											Display	Filter N	ame
							2014-2018 Ala	bama Integr	ated Cras	h Data					
							C122: CU Dri	ver Officer (Dpinion Al	cohol					
														_	
		100-			_										
		8			_									_	
		ju 50 -													
		L Lo													
		0-													
					No - Dri	ver Was Not Un Alcohol	der Influence o	t Yes-Di	iver Was	Under Influence	e of Alcohol				
Щ						C	122: CU Driver	Unicer Opi	110n Alcoh	101					

This is an interesting result that could lead to the conclusion that perhaps as many as 5% of those who would drive impaired are reluctant to do so in wet weather. A positive result.

C123 CU Driver Officer Opinion Drugs



Results are quite comparable to those for alcohol, probably for the same reason.

C129 CU Vehicle Maneuvers

🚦 CA	🔋 CARE 10.2.0.8 - [IMPACT Results - 2014-2018 Alabama Integrated Crash Data - Wet Pavement O-R 50+ vs. Interstates] – 🗆 🗙								
E E	le <u>D</u> ashboard <u>F</u> ilters <u>A</u> r	nalysis <u>I</u> mpact	<u>L</u> ocations	<u>T</u> ools <u>W</u> ine	dow <u>H</u> elp			_ & ×	
¢?	2014-2018 Alabama Integrated Cra	ash Data	\sim	Wet Paver	ment O-R 50+		~	💡 🔞 1/ 1/2014 ~ 12/31/2018 ~ 🥥	
Under, max Gain V Descending V Suppress Zero-Valued Rows Significance. Over Representation V Threshold: 2.0									
C129	CU Vehicle Maneuvers	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻 🖌	C118: CU Endorsement Violations #1	
•	Movement Essentially Straight	10612	68.04	51410	63.13	1.078*	766.081	C120: E CU Driver Employment Status	
	E Negotiating a Curve	1010	6.48	2506	3.08	2.104*	530.057	C121: CU Driver Condition	
	E Entering Main Road	355	2.28	1238	1.52	1.497*	117.901	C122: CU Driver Officer Opinion Alcohol	
	E Leaving Main Road	215	1.38	842	1.03	1.333*	53.742	C124: CU Driver Alcohol Test Type Given	
	Tuming Left	117	0.75	557	0.68	1.097	10.325	C125: E CU Driver Drug Test Type Given	
	P Change Lanes Right*	1	0.01	3	0.00	1.740	0.425	C126: CU Driver Alcohol Test Results	
	Illegally Parked	23	0.15	126	0.15	0.953	-1.131	C127: E CU Driver Drug Test Results	
	Legally Parked	1	0.01	16	0.02	0.326	-2.064	C128: CU vehicle Initial Travel Direction	
	Making U-Tum	5	0.03	52	0.06	0.502	-4.959	C130: E CU Non-Motorist Maneuvers	
	E Stopped for Sign/Signal	15	0.10	106	0.13	0.739	-5.301	C201: CU Vehicle Most Harmful Event	
	CU is Not a Vehicle	8	0.05	76	0.09	0.550	-6.555	C202: CU Contributing Circumstance	
	Slowing/Stopping	1207	7.74	6339	7.78	0.994	-7.030	C203: CU First Harmful Event Location	
	Backing	43	0.28	276	0.34	0.813	-9.859	C205: E CU Sequence of Events #1	
	Other	100	0.64	587	0.72	0.890	-12.421	C206: E CU Sequence of Events #3	
	Stopped in Traffic	29	0.19	252	0.31	0.601*	-19.262	C207: E CU Sequence of Events #4	
	E Overtaking/Passing	146	0.94	897	1.10	0.850	-25.791	C208: CU Model Year	
	Turning Right	250	1.60	1688	2.07	0.773*	-73.282	C209: CU Make C210: CLI Body (Passenger Cars Only)	
	Unknown	136	0.87	1120	1.38	0.634*	-78.500	C211: E CU Owners State	
	E Changing Lanes	1324	8.49	10675	13.11	0.648*	-720.450	Sort by Sum of Max Gain	
00) @ Ø							Display Filter Name	
		2014-20)18 Alahama Inte	egrated Crash D	ata - Filter = Wet	Pavement O-R	50+ vs. Interstate		
		2014 20	in the standard and	C129: CL	J Vehicle Maneuv	/ers	ee vo. morotato		
	90								
	00								
60 60 60 60 60 60 60 60 60 60 60 60 60 6									
	й 40								
	-ted								
	20								
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	0	Turn	ing Left	E St	opped for Sign	/Signal	Stopped	in Traffic	
				C129): CU Vehicle Ma	neuvers			

The wet pavement subset had over twice the expected proportion of Negotiating a Curve. Recall that both test and control crashes were on Interstates. This should be impressed in information and training programs. For more detail, see C407.

C208 CU Model Year



The model years 2002-2008 are significantly over-represented. The latest model years are significantly under-represented. This is not necessarily the fault of the vehicle. It could be younger drivers are driving older vehicles, or that owners of newer models tend to be more careful in their driving. However, this is not to discount the possibility that some of the recent safety features are not have a positive effect as well.

C222 CU Contributing Vehicle Defect



The above had all instances less than 4 removed. Increased improper tread depth would be expected in wet pavement crashes. They are nearly four times as likely than on dry pavement.

C224 CU Estimated	Speed	at Impact
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Image: Bile Dashboard Filters Analysis Impact Locations Tools Window Help Image: Solution of the state of	_ ∂ × 1/2014 ∨ 12/31/2018 ∨ 🥥								
😵 2014-2018 Alabama Integrated Crash Data 🗸 Wet Pavement O-R 50+ 🗸 🖓 🔞 1/ 1	1/2014 ~ 12/31/2018 ~ 🥥								
Order: Max Gain 🗸 Descending 🗸 🖓 Suppress Zero-Valued Rows Significance: Over Representation 🗸 Threshold: 2.0 🔄									
C224: CU Estimated Speed at Impact Value Subset Subset Other Other Odds Frequency Percent Frequency Percent Ratio Max Gain	timated Speed at Impact								
▶ 1 to 5 MPH 214 2.31 2205 4.53 0.512* -204.373									
6 to 10 MPH 171 1.85 1691 3.47 0.533* -149.848									
11 to 15 MPH 179 1.94 1211 2.49 0.779* -50.773									
16 to 20 MPH 210 2.27 1174 2.41 0.943 -12.753									
21 to 25 MPH 152 1.64 897 1.84 0.893 -18.195									
26 to 30 MPH 260 2.81 1209 2.48 1.133 30.606									
31 to 35 MPH 277 3.00 1125 2.31 1.298* 63.544									
36 to 40 MPH 334 3.61 1600 3.28 1.100 30.419									
41 to 45 MPH 461 4.99 1974 4.05 1.231* 86.457									
46 to 50 MPH 523 5.66 2347 4.82 1.174* 77.684									
51 to 55 MPH /45 8.06 2900 5.95 1.354* 194./59									
Db to b0 MPH 300 10.33 408b 8.39 1.232 1/3.723 C1 + CE MPU 13E0 13 C1 E301 14 0C 1 3201 232 133									
b10 b3 MPH 1238 13.b1 3331 11.0b 1.230 233.121 ccup 70 MPL 2000 20.00 12020 20.40 1.024 62.701									
bb10 /U MPH 2688 23.08 1363b 26.40 1.024 62.781 71 += 75 MPH 401 5.20 2304 4.71 1.105 45.740									
76 to 80 MPH 234 2.53 1263 2.59 0.976									
81 to 85 MPH 61 0.66 439 0.90 0.732 -22.95									
86 to 90 MPH 25 0.27 260 0.53 0.507* -24 332									
91 to 95 MPH 2 0.02 44 0.09 0.240 -6.348									
96 to 100 MPH 12 0.13 85 0.17 0.744 -4.128									
Over 100 MPH 3 0.03 28 0.06 0.565 -2.313 Sort by Sum	of Max Gain								
□ Display Filter Name									
2014-2018 Alahama Internated Crash Data									
C224: CU Estimated Speed at Impact									
40									
21 to 25 MPH 46 to 50 MPH 71 to 75 MPH 94	6 to 100 MPH								
C224: CU Estimated Speed at Impact									

Significantly over-represented for wet pavement are the 31-65 impact speeds, while those that are under-represented are 76 to over 100 (86-90 was significantly under-represented. This would go a long way to account for the fewer fatalities on the wet pavement.

CARE 10.2.0.8 - [IMPACT Results - 2014-2018 Alabama Integrated Crash Data - Wet Pavement O-R 50+ vs. Interstates] -									
🖡 Ei	ile <u>D</u> ashboard <mark>Eilters <u>A</u>nalys</mark>	is <u>I</u> mpact <u>L</u> o	cations <u>T</u> ools	<u>W</u> indow <u>H</u> el	р				
6	2014-2018 Alabama Integrated Crash D	ata	∼ We	t Pavement O-R 50	+	~	r 💡 🌇 1/	1/2014 ~ 12/31/2018 ~ 🖡 🕩 🕞 🥥	
Order	Max Gain V Descending	~ V	Suppress Zero-Valu	ued Rows			Significance: Over	Representation V Threshold: 2.0	
C407:	CU Roadway Curvature and Grade	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻	C327: CU Driver Ejection Status	
•	Straight with Down Grade	1870	11.98	8291	10.18	1.177*	281.836	C329: CU Driver/Non-Motorist First Aid B	
	E Curve Right and Down Grade	668	4.28	2092	2.57	1.667*	267.271	C330: CU Driver/Non-Motorist Transport	
	E Curve Left and Down Grade	488	3.13	1238	1.52	2.058*	250.858	C331: E CU Driver/Non-Motorist Transpo	
	E Curve Left and Up Grade	435	2.79	1140	1.40	1.992*	216.630	C401. E CU Road Surface Type	
	E Curve Right and Up Grade	527	3.38	1738	2.13	1.583*	194.081	C403: CU Roadway Condition	
	Straight with Up Grade	1653	10.59	7851	9.64	1.099*	149.119	C404: E CU Environmental Contributing	
	E Curve Left and Level	357	2.29	1515	1.86	1.230*	66.797	C405: CU Contributing Material in Road	
	E Curve Left at Hillcrest	15	0.10	48	0.06	1.631	5.805	C406: CU Contributing Material Source	
	Straight at Hillcrest	90	0.58	444	0.54	1.058	4.951	C408: CU Vision Obscured By	
	E Curve Right at Hillcrest	19	0.12	85	0.10	1.167	2.718	C409: CU Traffic Control	
	P Curve with Down Grade*	4	0.03	7	0.01	2.983	2.659	C410: CU Traffic Control Functioning	
	Not Applicable	21	0.13	103	0.13	1.064	1.270	C411: CU Opposing Lane Separation	
	E Sag (Bottom)	3	0.02	12	0.01	1.305	0.701	C412: CU TrafficWay Lanes	
	P Curve with Up Grade*	1	0.01	4	0.00	1.305	0.234	C414: CU One-Way Street	
	E Curve Right and Level	474	3.04	2488	3.05	0.995	-2.583	C415: CU Workzone Related	
	Straight and Level	8981	57.55	51748	63.52	0.906*	-931.475	C416: E CLI Workzone Type	
0) @ <i>\$</i>							Display Filter Name	
			2	2014-2018 Alabama	a Integrated Crash I	Data			
				C407: CU Roadway	y Curvature and Gr	ade			
	80								
	60								
	<u>ک</u>								
	ê 40								
	20								
	U	E Curv	e Right and Up G	irade	E Curve R	ight at Hillcrest		E Curve Right and Level	
	C407: CU Roadway Curvature and Grade								

C408 CU Visions Obscured by

C.	ARE 10.2.0.8 - [IMPACT Results - 2014	-2018 Alabama Inte	grated Crash Dat	a - Wet Pavement	t O-R 50+ vs. Inter	rstates]		- 🗆 X		
l E	ile <u>D</u> ashboard <u>Filters A</u> nalys	sis <u>I</u> mpact <u>L</u> oc	ations <u>T</u> ools	<u>W</u> indow <u>H</u> el	р			_ 8		
58	2014-2018 Alabama Integrated Crash D	Jata	∼ We	t Pavement O-R 50	+	~	9 🔞 1/	1/2014 ~ 12/31/2018 ~		
Orde	r: Max Gain v Descending	, <u> </u>	Suppress Zero-Val	ued Rows		S	Significance: Over	Representation V Threshold: 2.0		
C408	CU Vision Obscured By	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain 🔻	C327: CU Driver Ejection Status C328: CU Driver/Non-Motorist Injury Type		
•	E Weather Conditions	413	2.65	515	0.63	4.186*	314.345	C329: CU Driver/Non-Motorist First Aid B		
	Not Obscured	14976	95.96	76768	94.23	1.018*	270.111	C330: CU Driver/Non-Motorist Transport		
	E Splash or Spray from Wheels	24	0.15	26	0.03	4.819*	19.019	C401: E CU Unvel/Non-Motorist Transp(
	Hillcrest	25	0.16	116	0.14	1.125	2.779	C402: E CU Road Surface Type		
	E Cargo from Other Vehicle	3	0.02	6	0.01	2.610	1.851	C403: CU Roadway Condition		
	Parked Vehicles	3	0.02	9	0.01	1.740	1.276	C404: E CU Environmental Contributing		
	Embankment	2	0.01	4	0.00	2.610	1.234	C405: CU Contributing Material in Road		
	E Frosted Windows/Windshield	3	0.02	11	0.01	1.424	0.893	C406: CU Contributing Material Source		
	P Rain on Windshield	1	0.01	1	0.00	5.220	0.808	C408: CU Vision Obscured By		
	Buildings	1	0.01	2	0.00	2.610	0.617	C409: CU Traffic Control		
	Driver Blinded by Headlights	2	0.01	9	0.01	1.160	0.276	C410: CU Traffic Control Functioning		
	Curve in Road	6	0.04	31	0.04	1.010	0.062	C411: CU Opposing Lane Separation		
	E Lights/Glare (Roadside)	5	0.03	26	0.03	1.004	0.019	C412: CU Trafficway Lanes		
	Trees/Crops	4	0.03	28	0.03	0.746	-1.364	C413: E CO Tull Lalles C414: CU One-Way Street		
	E Person/Object in or on Vehicle	3	0.02	23	0.03	0.681	-1.406	C415: CU Workzone Related		
	E Other Object in Boadway	1	0.01	19	0.02	0.275	-2.640	C416: E CU Workzone Type		
	Other	27	0.17	217	0.27	0.650	-14.569	C417: E CU Workers Present		
	Moving Vehicles	43	0.28	348	0.43	0.645*	-23 664	C418: E CU Law Enforcement Present II		
	Not Applicable	65	0.42	476	0.58	0.713*	-26 184	C450. CO CMV Indicator		
								Display Filter Name		
			:	2014-2018 Alabama	a Integrated Crash	Data				
				C408: CU Vis	ion Obscured By					
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		E Cargo from	n Other Vehicle		Buildings	E Pe	erson/Object in or	r on Vehicle		
	C408: CU Vision Obscured By									

This quantifies another expected result, with the source of the wet road conditions being from 4 to 5 times the expected as when on dry pavement.