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OFFICER-INVOLVED TRAFFIC COLLISIONS IN SOUTH CAROLINA: EXPLORING THE ISSUE THROUGH OFFICIAL RECORDS (2001-2010) AND SURVEY RESPONSES OF LAW ENFORCEMENT EXECUTIVES

South Carolina Law Enforcement Census 2014

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Executive Summary

Official data analysis

- There were 9,532 officer-involved collisions (OICs) in South Carolina from 2001-2010. The frequency of OICs remained relatively stable across this decade.
- A majority of OICs are non-injurious, although over 25% of OICs result in some type of injury. Less than 1% of OICs result in an officer or civilian fatality.
- The primary contributing factor in most OICs is driver-related, such as driving too fast for conditions or failure to yield the right of way.
- Nearly all OICs that occurred between 2001 and 2010 involved only one police vehicle, while approximately 3% of OICs involved more than one police vehicle.
- Occupants of both officer and civilian vehicles involved in OICs were most often white males. However, there were more African American occupants in civilian units than in police units.

Survey data analysis

- Respondents believed that OICs were the most likely harmful driving-related incident to happen to an officer.
- Driving during regular patrol was perceived as "not at all dangerous" by 25% of respondents.
- Over one-quarter of respondents indicated their agency had experienced an OIC in the past three years that resulted in an officer being admitted to the hospital.
- Almost 80% of agencies have a policy that prohibits texting while driving.
- Most agencies restrict vehicle pursuits to particular criteria, but less than 2% prohibit all pursuits.
- Almost all respondents believed at least some OICs could be prevented.
- Many respondents believed that the visibility of police vehicles (e.g., ability to see out windows, presence of blind spots) was not adequately engineered for officer safety.
- The majority of respondents did not believe that insufficient officer driver training contributed to OICs (i.e., driver training is perceived as sufficient).
- For the majority of respondents, computers and cell phones were thought to be contributors to OICs but radios were not.

Introduction

For decades, one the greatest threats to law enforcement officers across the country has been traffic fatalities (Vila & Gustafson, 2011, Gustafson & Cappitelli, 2015). The persistence of this trend warrants deeper exploration into the factors related to officer-involved collisions (OICs) and the perceptions of law enforcement executives who confront the challenges of protecting their officers. The current study will specifically look at the problems of OICs in the state of South Carolina and how it has impacted law enforcement agencies throughout the state. In order to do so, this study relies upon two sources: (1) official records of collisions in South Carolina from 2001-2010 and (2) self-report data gathered from the survey responses of a sample of South Carolina law enforcement executives.

Official Data on South Carolina OICs

Official data was gathered from completed South Carolina Traffic Collision Report Forms (TR-310) that were filed from January 2001 to December 2010 (SC Dept. of Public Safety Office of Highway Safety, 2013). These data contain information on *all* traffic collisions in the state. The research team was given three types of datasets for each year: ten "location" files, ten "unit" files, and ten "occupant" files. The location file details characteristics of the collision and the location at which it occurred, the unit file provides information about the units (i.e., automobile, motorcycle, pedestrian, etc.) involved in the collision, and the occupant file includes data describing the individuals within the units involved in the collision (i.e., driver, passenger, etc.). These thirty datasets were then compiled into three comprehensive datasets such that there was one location file, one unit file, and one

occupant file, each of which included information regarding every collision that occurred from 2001 to 2010. Then, a dummy variable was created which indicated whether or not the incident involved one or more law enforcement units. Those collisions that did not involve one or more police units were then removed such that the resulting location file provides information regarding only those collisions that involved law enforcement. There were 9532 OICs that occurred in South Carolina between 2001 and 2010. However, the resulting unit file provides characteristics of all units involved in OICs and, thus, includes both law enforcement and civilian vehicles (i.e., for those collisions that involved *at least one* law enforcement vehicle). Likewise, the "occupant" file provides characteristics of the law enforcement and civilian occupants within each unit involved in the OICs.

The following analysis will describe the trends observed in OICs that occurred in South Carolina from 2001 to 2010. First, the frequency and lethality of OICs will be presented, followed by a discussion of the collision characteristics (i.e., junction type, weather, and primary contributing factor). Next, the types of units involved in OICs will be explored, as well as the characteristics of the drivers of these units. Finally, the analysis will describe the individuals occupying the units involved in OICs, including demographics and types of restraints in use when the collision occurred.

Descriptive Analysis of Official OIC Records

Collision Frequencies

Figure 1 presents the characteristics of the 9532 OICs that occurred from 2001 to 2010 in South Carolina. On average, approximately 950 OICs occurred each

year, with the greatest number of OICs occurring in 2008 (*N*=1062, 11.1%) and the fewest OICs occurring in 2006 (*N*=880, 9.2%). Although there was a slight decrease in OICs from 2004 to 2006 (0.6%), the following two years saw an increase in OICs of nearly 2%. Nonetheless, Figure 1 indicates that the frequency of OICs in South Carolina remained relatively stable from 2001 to 2010, with only a slight increase (0.8%) over these ten years.

Figure 1. Number of OICs that occurred each year from 2001 to 2010.

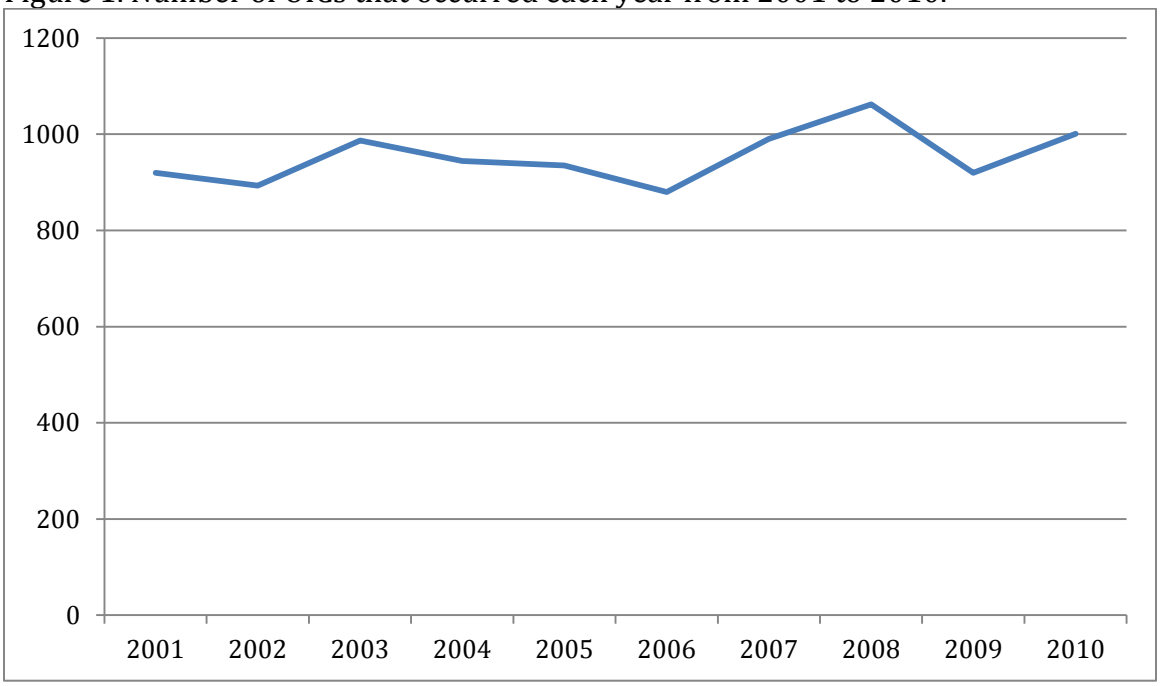

Figure 2 presents the number of OICs that occurred during each month, regardless of year. From 2001 to 2010, the greatest number of OICs occurred during the month of October (*N*=924, 9.7%), followed by December (*N*=903, 9.5%), and November (*N*=890, 9.3%). Indeed, over 28% of OICs occurred during the last three months of the year (*N*=2717). By contrast, the fewest OICs occurred between April and June (*N*=2239, 23.5%), with the lowest numbers of OICs during the month of June (*N*=710, 7.4%). According to Figure 2, OICs occur more frequently during the

winter months (October to March) (*N*=5030, 52.8%) as opposed to between April and September (*N*=4502, 47.2%).

Figure 2. Number of OICs that occurred per month from 2001-2010

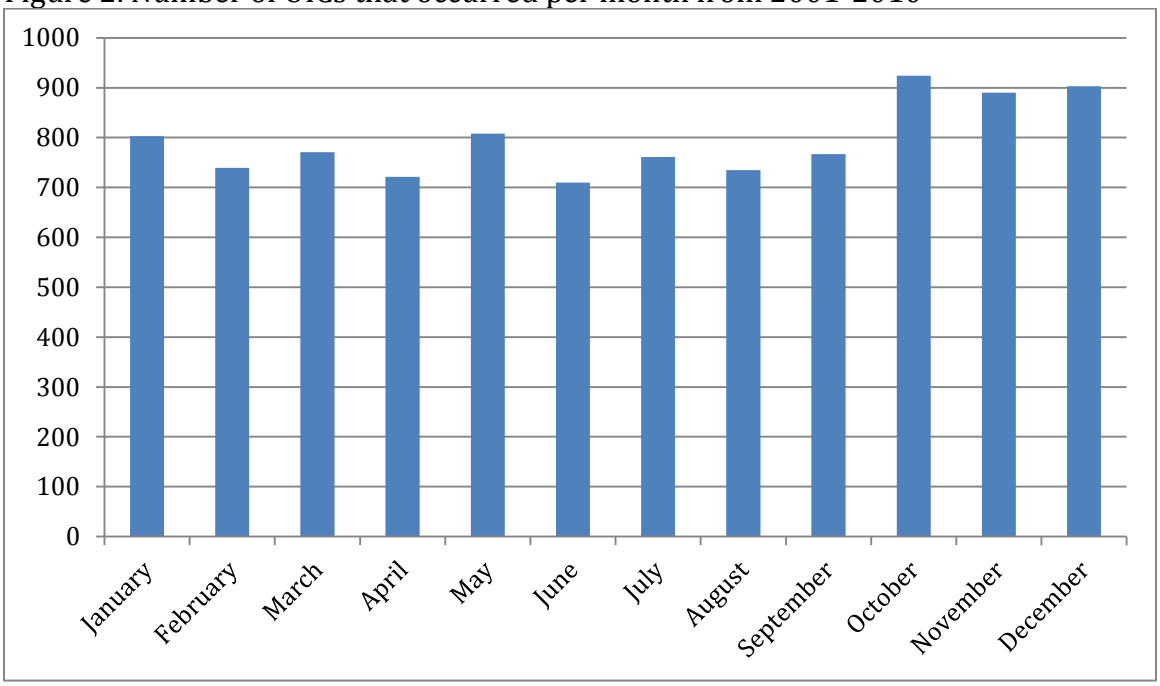

Table 1 presents the frequency of OICs by the time of day the incident occurred. Although incidents were relatively evenly distributed throughout the day, a majority of OICs occurred between 12:01pm and 6:00pm (*N*=3038, 31.9%), while the fewest number of OICs occurred between 12:01am and 6:00am. In general, OICs were more frequent in the afternoon and evening hours (12:01pm-12:00am) than during the morning hours (12:01am-12:00pm), consistent with the busiest times of the day for traffic.

Table 1. Time of day during which OICs occurred, 2001-2010.

Time of Day	*N*	%
12:01am-6:00am	1936	20.3
6:01am-12:00pm	2073	21.7
12:01pm-6:00pm	3038	31.9
6:01pm-12:00am	2485	26.1
Total	9532	100.0

Table 2 presents the frequency with which OICs resulted in no injury, one or more injuries, or a fatality. A majority of OICs that occurred from 2001 to 2010 in South Carolina were non-injurious (*N*=6890, 73.3%). While more than 25% of OICs resulted in at least one injury to either an officer or citizen (*N*=2621, 27.5%), less than 1% resulted in at least one fatality (*N*=60, 0.6%).

Table 2. Resulting injury and/or fatality from OICs, 2001-2010.*

	N	%
Non-injurious	6890	73.3
Injurious	2621	27.5
Fatal	60	0.6

* OICs could result in both injuries and fatalities or a combination of no-injuries and injuries or fatalities. Thus, percentages do not total to 100%

Table 3 presents the number of non-injurious, injurious, and fatal OICs by the time of day the collision occurred. Injuries and fatalities resulting from OICs were relatively evenly distributed throughout the day, with slightly greater numbers occurring in the afternoon hours (12:01pm-12:00am). Because OICs most frequently occurred between 12:01pm and midnight (see Table 1), it follows that the number of injuries (*N*=1640, 62.6%) and fatalities (*N*=35, 58.3%) resulting from OICs would be greater during these hours. On the one hand, the greatest number of OICs that resulted in *injuries* occurred between 12:01pm and 6:00pm (*N*=917, 35.0%), while the fewest occurred between midnight and 6:00am (*N*=410, 15.6%). On the other hand, the greatest number of OIC *fatalities* occurred between the hours of 6:01pm and 12:00am (*N*=18, 30.0%) while the fewest OICs that resulted in fatalities occurred between 6:01am and 12:00pm (*N*=8, 13.3%).

Table 3. Resulting injury and/or fatality from OICs by time of day. *N* (%)

Time of Day	Non-injurious	Injurious	Fatal
12:01am-6:00am	1526 (22.1)	410 (15.6)	17 (28.3)
6:01am-12:00pm	1502 (21.7)	571 (21.8)	8 (13.3)
12:01pm-6:00pm	2121 (30.7)	917 (35.0)	17 (28.3)
6:01pm-12:00am	1762 (25.5)	723 (27.6)	18 (30.0)
Total*	6911 (73.3)	2621 (27.5)	60 (0.6)

* OICs could result in both injuries and fatalities thus "total" percentages do not total to 100%

Collision Characteristics

Table 4 provides characteristics about the collision incident including the type of junction at which it occurred, the condition of the road surface (i.e., dry, wet, snow, ice, etc.), and the weather conditions. Over half of OICs did not occur at a junction, but rather occurred at a "non-junction," such as a straightaway, interstate, or parking lot (*N*=5831, 61.2%). Four-way intersections are the next most common locations at which OICs occurred (*N*=1505, 17.8%), followed by three-way junctions (T-intersection) (*N*=1186, 12.4%) and driveways (*N*=568, 6.0%).

According to Table 4, OICs occurred most often on dry roads (*N*=7973, 83.6%) and when in clear weather conditions (*N*=7442, 78.1%). Roughly 20% of OICs occurred on tainted road surfaces, most of which happened on wet road surfaces (*N*=1392, 14.6%) while noticeably fewer occurred when the roads were icy (*N*=93, 1.0%) or otherwise covered (i.e., snow, slush, contaminant, and standing water) (*N*=52, 0.5%). Approximately 20% of OICs occurred during adverse weather conditions (*N*=2090), the most common of which included cloudy (*N*=981, 10.3%) and rainy (*N*=932, 9.8%) weather. The remaining 1.7% occurred during fog, smog, or smoke (*N*=99, 1.0%), sleet or hail (*N*=30, 0.3%), snow (*N*=32, 0.3%), severe crosswinds or high wind (*N*=3), and blowing sand, soil, dirt or snow (*N*=2).

Table 4. OIC location characteristics.

	N	%
Junction type		
Cross-over	164	1.7
Driveway	568	6.0
Five/more points	69	0.7
Four-way intersection	1505	17.8
Railway grade crossing	17	0.2
Shared use paths or trail	24	0.3
T-intersection	1186	12.4
Traffic circle	18	0.2
Y-intersection	103	1.1
Non-Junction	5831	61.2
Unknown	47	0.5
Road surface condition		
Dry	7973	83.6
Wet	1392	14.6
Snow	15	0.2
Slush	8	0.1
Ice	93	1.0
Contaminant (sand, mud, dirt, oil)	1	0.0
Water (standing)	20	0.2
Other	17	0.2
Unknown	13	0.1
Weather conditions		
Clear, no adverse conditions	7442	78.1
Rain	932	9.8
Cloudy	981	10.3
Sleet or hail	30	0.3
Snow	32	0.3
Fog, smog, smoke	99	1.0
Blowing sand, soil, dirt, or snow	2	0.0
Sever cross winds, high wind	3	0.0
Unknown	11	0.1
Total	9532	100.0

For purposes of this analysis, the primary contributing factors involved in OICs in South Carolina from 2001 to 2010 were grouped based on the type of factor and are presented in Table 5 (see Appendix for complete breakdown of these variables). The primary factors that contributed to OICs were most frequently

driver-related (*N*=7393, 77.6%), with driving too fast for conditions (*N*=1696, 17.8%; see Appendix) and failure to yield the right of way (1641, 17.2%; see Appendix) as the leading contributing driver factors. Environmental factors were the second most common contributing factors (*N*=1632, 17.1%), over 90% of which involved animals in the road (*N*=1487; see Appendix). Specifically, animals in the road were the primary contributing factor in over 15% of all OICs that occurred during the ten year observation period. The primary contributing factor in the remaining 4% of OICs was related to the vehicle (*N*=140, 1.5%), roadway (*N*=134, 1.4%), a non-motorist (*N*=43, 0.5%), or is otherwise unknown (*N*=153, 1.6%).

Table 5. Primary contributing factors in OICS, 2001-2010.

Factor Type	N	%
Driver	7393	77.6
Roadway	134	1.4
Non-motorist	43	0.5
Environmental	1632	17.1
Vehicle	140	1.5
Unknown	153	1.6
Total	9532	100.0

Unit Characteristics

Table 6 presents the primary use of the units involved in OICs in South Carolina from 2001 to 2010. There were 17652 police and civilian units (vehicles or pedestrians) involved in the 9532 OICs that occurred during this period. Given that the collisions of interest are those that involved officers, it follows that over 50% of vehicles involved in OICs were police vehicles (*N*=9861, 55.9%). In other words, there were a total of 9861 police vehicles involved in 9532 OICs from 2001 to 2010. Approximately 40% of the units involved in OICs were for personal use (*N*=6965,

39.5%), while the remaining units were used primarily to transport property (*N*=224, 1.3) and passengers (*N*=98, 0.6%) or were construction/maintenance vehicles (*N*=162, 0.9%). Approximately 1% of the units involved in OICs were some other type of unit (*N*=211, 1.1%)

Table 6. Primary use of units involved in OICs, 2001-2010.

	N	%
Police	9861	55.9
Personal	6965	39.5
Construction/maintenance	162	0.9
Government	89	0.5
Emergency services [a]	42	0.2
Transport passengers	98	0.6
Transport property	224	1.3
Other [b]	211	1.1
Total	17652	100.0

[a] Includes ambulance and fire trucks (not police)
[b] Includes pedestrian, farm use, driver training, military, and logging trucks

For the purposes of this discussion, civilian units include all those that were *not* identified as "police" as its primary use. Accordingly, there were 9861 police units and 7791 "non-police" (or civilian) units involved in the 9532 OICs that occurred from 2001 to 2010 in South Carolina.

As shown in Table 7, a large majority of all units (both police and civilian) involved in OICs were vehicles (*N*=17193, 97.4%), while less than 1% of units were motorcycles (*N*=167). Although there were a greater number of police vehicles (*N*=9733, 98.7%) involved in OICs than civilian vehicles (*N*=7460, 95.8%), there were a greater number of civilian motorcycles (*N*=94, 1.2%) involved than police motorcycles (*N*=73, 0.8%). Also, there were a total of 120 pedestrians involved in OICs (0.7%), but over 90% of these pedestrians were civilians (*N*=110).

Table 7. Number of vehicles and motorcycles involved in OICs, 2001-2010.

	Police *N* (%)	Civilian *N* (%)	Total *N* (%)
Vehicles [a]	9733 (98.7)	7460 (95.8)	17193 (97.4)
Motorcycles [b]	73 (0.8)	94 (1.2)	167 (0.9)
Pedestrian	10 (0.1)	110 (1.4)	120 (0.7)
Other [c]	32 (0.3)	78 (1.0)	110 (0.6)
Unknown (hit-and-run only)	13 (0.1)	49 (0.6)	62 (0.4)
Total	9861	7791	17652

[a] Includes automobiles, trucks, vans, buses, and trains
[b] Includes animal drawn vehicle, pedalcycle, and "other"
[c] Includes motorcycles and other motorbikes

According to Table 8, nearly all OICs that occurred between 2001 and 2010 involved only one police vehicle (*N*=9221, 96.7%). In contrast, roughly 3% of all OICs involved more than one police vehicle (*N*=311). Of the 9,221 single officer collisions, approximately 73% also involved one or more civilian vehicles (*N*=6,676) while roughly 27% involved only the single police vehicle (*N*=2,545). In other words, collisions involving a single police unit were more likely to also involve one or more civilian units. Unlike single officer collisions, a greater number of multiple officer collisions involved only police vehicles (*N*=206) than those that also involved one or more civilian vehicles (*N*=105). Approximately two-thirds (66.2%) of multiple officer collisions involved only police vehicles (*N*=206) while the remaining third also involved one or more civilian vehicles (*N*=105).

Table 8. Number of police units involved in OICs (2001-2010)

	N	%
Single Police Vehicle		
No civilian vehicles	2545	26.7
With civilian vehicles	6676	70.0
Total	9221	96.7
Multiple Police Vehicles		
No civilian vehicles	206	2.2
With civilian vehicles	105	1.1
Total	311	3.3
Total	9532	100.0

Driver Characteristics

Table 9 presents the characteristics of those individuals driving the vehicles involved in OICs. Over two-thirds of all units involved in OICs were driven by males (*N*=12481, 70.7%). However, a much greater number of police units were driven by males (*N*=8094, 82.1%) than were civilian units (*N*=2918, 37.5%). In fact, while only 12% of police units were driven by females, over one-half of civilian units had a female driver (*N*=4387, 56.3%).

A majority of drivers of both police and civilian units involved in OICs were white (*N*=11852, 67.1%). A slightly larger portion of officer drivers were white (*N*=7363, 74.6%) than drivers of civilian units (*N*=4489, 57.6%). While approximately 19% of drivers of police units involved in OICs were African American (*N*=1820), nearly twice as many civilian units were driven by African Americans (*N*=2511, 32.2%). Likewise, less than 1% of police drivers were identified as Hispanic (*N*=68, 0.7%), but over 3% of civilian drivers were Hispanic (*N*=241).

Table 9. Characteristics of drivers involved in OICs, 2001-2010.

	Police *N* (%)	Civilian *N* (%)	Total *N* (%)
Driver Sex			
Male	8094 (82.1)	2918 (37.5)	12481 (70.7)
Female	1190 (12.1)	4387 (56.3)	4108 (23.3)
Unknown	577 (5.9)	486 (6.2)	1063 (6.0)
Driver Race			
White	7363 (74.7)	4489 (57.6)	11852 (67.1)
African American	1820 (18.8)	2511 (32.2)	4331 (24.5)
Hispanic	68 (0.7)	241 (3.1)	309 (1.8)
Asian/Pacific Islander	15 (0.2)	21 (0.3)	36 (0.2)
Native/Alaskan	0 (0.0)	8 (0.1)	8 (0.0)
Other	19 (0.2)	34 (0.4)	53 (0.3)
Unknown	576 (5.8)	487 (6.3)	1063 (6.0)
Total	9861 (55.9)	7791 (44.1)	17652 (100.0)

Occupant Characteristics

There were a total of 21048 occupants (both drivers and passengers) in the 9532 units involved in the 17652 OICs that occurred from 2001 to 2010. The characteristics of these occupants are presented in Table 10. Although there were slightly more police occupants, approximately one-half were in police units (*N*=10657, 50.6%) and one-half were in civilian units (*N*=10391, 49.4%). It is important to note than occupants of police vehicles can include both law enforcement officers and civilian passengers.

Similar to the trends observed in the drivers' gender, a majority of occupants of units involved in OICs were male (*N*=14767, 70.2%). However, over 80% of police occupants were male, as opposed to the 56% of civilian occupants. While almost 30% of all occupants (police or civilian) were females, only 15% of occupants in police units were female. Over 67% of occupants of units involved in OICs were white (*N*=14136), with a greater number of white occupants in police vehicles

(*N*=8151) than in civilian units (*N*=5985). Almost 30% of occupants were African American (*N*=5922), although there were more African American occupants in civilian units (*N*=3697) than in police units (*N*=2225). Other minority groups such as Hispanics (*N*=476, 2.3%) and Asian/Pacific Islanders (*N*=49, 0.2%) comprise less than 5% of all occupants in units involved in OICs.

The age of occupants in both police and civilian units is relatively evenly distributed across age groups. Most occupants in units involved in OICs were ages 16 to 45 (*N*=14822, 70.4%), with police occupants slightly older on average. Although there were over 2000 occupants in police vehicles who were less than 25 years old, more than 100 police units were identified as full-size vans, mini-vans, and passenger buses. Thus, the younger occupants of police vehicles include juvenile civilians in transport to and from detention centers and other juvenile facilities.

Table 10. Characteristics of occupants within units involved in OICs, 2001-2010.

	Police *N* (%)	Civilian *N* (%)	Total *N* (%)
Occupant Sex			
Male	8911 (83.6)	5856 (56.4)	14767 (70.2)
Female	1609 (15.1)	4325 (41.6)	5934 (28.8)
Unknown	137 (1.3)	210 (2.0)	347 (1.6)
Occupant Race			
White	8151 (76.5)	5985 (57.6)	14136 (67.2)
African American	2225 (20.9)	3697 (35.6)	5922 (28.1)
Hispanic	93 (0.9)	383 (4.7)	476 (2.3)
Asian/Pacific Islander	12 (0.1)	37 (0.4)	49 (0.2)
Native/Alaskan	0 (0.0)	11 (0.1)	11 (0.1)
Other	26 (0.2)	42 (0.4)	68 (0.3)
Unknown	150 (1.4)	236 (2.3)	386 (1.8)
Age			
15 years or younger	448 (4.2)	1357 (13.1)	1805 (8.5)
16-25 years	1823 (17.1)	2896 (27.8)	4719 (22.4)
26-35 years	4176 (39.2)	1889 (18.2)	6065 (28.8)
36-45 years	2495 (23.4)	1543 (14.9)	4038 (19.2)
46-55 years	1174 (11.0)	1194 (11.5)	2368 (11.3)
56-65 years	416 (3.9)	779 (7.5)	1195 (5.7)
66 years and older	125 (1.2)	732 (7.0)	857 (4.1)
	10657 (50.6)	10391 (49.4)	21048 (100.0)

Table 11 presents the injury status of occupants within the units involved in OICs from 2001-2010. Over 80% of occupants in both police (*N*=8652) and civilian (*N*=8310) units were not injured as a result of the OIC in which they were involved and another 12% were reported as possible injuries (*N*=2565). In contrast, less than 1% of occupants (*N*=63), in both police (*N*= 19, 0.2%) and civilian (*N*=44, 0.4%) units, died as a result of their injury. Fewer than 2% of all occupants (*N*=331) suffered incapacitating injuries as a result of the OIC and just over 5% of all occupants suffered non-incapacitating injuries.

Table 11. Occupant injury status

	Police *N* (%)	Civilian *N* (%)	Total *N* (%)
Not injured	8652 (81.2)	8310 (80.0)	16962 (80.6)
Possible injury	1244 (11.7)	1320 (12.7)	2565 (12.2)
Non-incapacitating	578 (5.4)	550 (5.3)	1128 (5.4)
Incapacitating	164 (1.5)	167 (1.6)	331 (1.6)
Fatal	19 (0.2)	44 (0.4)	63 (0.2)
Total	10657	10657	21047

Executive Survey Analysis

In addition to the official data gathered from accident reports, a survey was created to explore law enforcement executives' insights on OICs and gauge their perceptions of the problem. The survey was conducted from July to October of 2014 and included a sample of 224 law enforcement agencies across South Carolina. First, a survey packet was mailed to each agency which included a cover letter, survey, and pre-paid return envelope. The cover letter explained the purpose of the study, emphasized the importance of participation, and ensured confidentiality. The survey included options for the participant to fill out the survey on paper and return via mail, or follow a link to a website and complete the survey online. Approximately three weeks after the initial survey packet was sent, a follow-up letter was mailed to every agency. This letter expressed appreciation to those who had returned a completed survey and encouraged participation from those who had not done so. A second survey packet was mailed roughly three weeks after the follow-up letter was sent, which again included a cover letter, survey, and return envelope. Survey collection ended October 31, 2014. Completed surveys were received from 161 law enforcement executives, representing a 71.6% response rate.

Sample Characteristics

Table 12 presents the characteristics of the 161 responding law enforcement executives. On average, respondents were between 40 and 60 years old, with the most between 45-49 years of age (*N*=45, 28.0%). A large majority of respondents are male (*N*=148, 91.9%), while only about 6% of respondents are female. Most respondents had at least 15 years of experience in law enforcement (90.1%), while

less than 2% have 10 years or less of experience (*N*=3, 1.8%). Indeed, nearly half of the responding executives have 25 years or more experience in law enforcement (*N*=77, 47.8%)

Table 12. Sample characteristics

	N	%
Respondent Age		
34 years or younger	4	2.5
35-39 years	15	9.3
40-44 years	22	13.7
45-49 years	45	28.0
50-54 years	24	14.9
55-59 years	26	16.1
60-64 years	16	9.9
65 years or older	6	3.7
Missing	3	1.9
Respondent Gender		
Male	148	91.9
Female	10	6.2
Missing	3	1.2
Respondents' Years of Law Enforcement Experience		
1-4 years	2	1.2
5-9 years	1	0.6
10-14 years	11	6.8
15-19 years	31	19.3
20-24 years	37	23.0
25 or more years	77	47.8
Missing	2	1.2
Total	161	100.0

Survey Results

To begin investigating law enforcement executives' perceptions of OICs we asked the respondents to indicate the likelihood that an officer or deputy in their agency would experience four harmful incidents during traffic stops (see Table 13). These incidents included being struck on the roadway while outside the patrol vehicle, being in a motor vehicle crash resulting in injury, being shot while

conducting a traffic stop, and being injuriously assaulted with a weapon during the traffic stop. For each of the four incidents over 50 percent of respondents indicated that it was "somewhat likely" for their officers to experience such incidents during traffic stops. The greatest percentage of respondents indicated that it was "very likely" for their officers to be involved in a motor vehicle crash (*N*=46, 28.6%). This shows that law enforcement executives recognize the significant threat that OICs represent.

Table 13. Likelihood of harm to officers

	Very Unlikely *N* (%)	Somewhat Unlikely *N* (%)	Somewhat Likely *N* (%)	Very Likely *N* (%)
Injuriously assaulted without a weapon (n=161)	7 (4.3)	32 (19.9)	97 (60.2)	25 (15.5)
Be shot while conducting a traffic stop (n=161)	9 (5.6)	52 (32.3)	81 (50.3)	19 (11.8)
Be in a motor vehicle crash resulting in injury (n=161)	3 (1.9)	27 (16.8)	85 (52.8)	46 (28.6)
Be struck on the roadway while outside the vehicle (n=160)	5 (3.1)	36 (22.5)	91 (56.9)	28 (17.5)

To further examine this issue we asked respondents to rank each incident in order from most likely to least likely (see Table 14). Of the 161 responding executives, 137 correctly filled out the question by assigning each incident a unique rank from 1 to 4. A score of 4 represented the most likely incident while a score of 1 represented the least likely incident. In support of the finding from the previous question, law enforcement executives indicated that being in a motor vehicle crash was the most likely incident their officers would experience (*M*=3.45).

Table 14. Rank likelihood of harm to officers (n=137)

	Mean	Standard Deviation	Minimum	Maximum
Being injuriously assaulted without a weapon	2.48	.900	1	4
Being shot while conducting a traffic stop	1.53	.875	1	4
Being in a motor vehicle crash resulting in injury	3.45	.839	1	4
Being struck on the roadway while outside the vehicle	2.58	.960	1	4

Next, the executives were asked to rate the perceived dangerousness of several tasks that an officer might engage in while on duty, including driving under emergency conditions, driving during regular patrol, making traffic stops on roadways, working crash scenes on roadways, foot pursuits, vehicle pursuits, and responding to burglary, robbery, and domestic violence calls. Table 15 indicates that, in general, law enforcement executives find all of these tasks to be "dangerous" or "very dangerous". Indeed, few activities were identified as "not at all dangerous" by the respondents. However, driving under regular patrol, was identified as less dangerous as 25% of respondents indicated that it was "not at all dangerous" (*N*=40) and 65% indicated that it was "somewhat dangerous" (*N*=104). A majority of the executives identified driving in a vehicle pursuit as a "very dangerous" activity (*N*=71, 67.6%) for on duty officers. It is important to note, however, that the vehicle pursuit question was only asked of participants in the paper version of the survey (*N*=105).

Table 15. Perceived dangerousness of job-related activities

	Not at all Dangerous *N* (%)	Somewhat Dangerous *N* (%)	Dangerous *N* (%)	Very Dangerous *N* (%)
Driving under emergency conditions (n=161)	1 (0.6)	21 (13.0)	64 (39.8)	75 (46.6)
Driving during regular patrol (n=160)	40 (25.0)	104 (65.0)	14 (8.8)	2 (1.3)
Making traffic stops on roadways (n=159)	0 (0.0)	47 (29.6)	83 (52.2)	29 (18.2)
Working crash scenes on roadways (n=160)	5 (3.1)	50 (31.3)	77 (48.1)	28 (17.5)
Foot pursuits (n=161)	1 (0.6)	30 (18.6)	64 (39.8)	66 (41.0)
Vehicle pursuits (n=105)	0 (0.0)	6 (5.7)	28 (26.7)	71 (67.6)
Responding to a burglary in progress call (n=161)	0 (0.0)	27 (16.8)	70 (43.5)	64 (39.8)
Responding to a robbery in progress call (n=161)	0 (0.0)	17 (10.6)	59 (36.6)	85 (52.8)
Responding to a domestic violence call (n=161)	1 (0.6)	25 (15.5)	65 (40.4)	70 (43.5)

*The number of respondents for the vehicle pursuits question is significantly lower than it is for other questions because the vehicle pursuits question was only asked of participants in the paper version of the survey. Participants who filled out the survey online were not asked.

Table 16 shows the responses to a question asking how many fatalities or injuries that required a hospital admission had resulted from OICs in their agency within the past three years. Forty-two respondents (26.1%) indicated that an OIC had occurred in their agency during the past three years that required an officer to be admitted to the hospital, while approximately 15% reported civilian injury requiring hospitalization as a result of OICs involving their agency (*N*=27). Less than 2% of respondents (*N*=3) reported that they had experienced an officer fatality from an OIC during the previous three years. Ten agencies (6.2%) indicated that an OIC within their agency resulted in a civilian fatality. Those respondents that indicated they had experienced the death of an officer or civilian during an OIC typically reported that only one such incident occurred during the time period. However, one

executive indicated that his/her agency had experienced 5 officer fatalities as a result of OICs in the previous three years. Four agencies indicated that there had been more than 5 civilian injuries resulting in hospital admissions and six agencies indicated that there had been more than 5 officer injuries resulting in hospital admissions.

Table 16. Injuries requiring hospitalization/fatalities from OICs in past 3 years

	Yes *N* (%)	No *N* (%)
Officer fatalities	3 (1.9)	157 (97.5)
Civilian fatalities	10 (6.2)	150 (93.2)
Officer injuries	42 (26.1)	117 (72.7)
Civilian injuries	27 (16.8)	129 (80.1)

Because the occurrence of OICs may be related to the types of driving-related policies within the executives' agencies respondents were asked whether they had a policy related to seven driving issues (see Table 17). Among executives who responded to the survey, the majority had policies requiring officers to wear a seatbelt (*N*=154, 96.3%), to not use a cell phone for non-work tasks while driving (*N*=84, 53.2%), and to not text while driving (*N*=124, 79.0%). Most departments *did not* have a policy regarding a maximum speed when responding to emergency situations (*N*=98, 61.3%), the maximum number of vehicles that may respond to a critical incident (*N*=110, 69.2%), or a restriction on the use of a cell phone for work tasks while driving (*N*=120, 75.0%). Almost all departments, however, had a written policy regarding vehicle pursuits in their agency (*N*=156, 98.1%).

Table 17. Driving-related agency policies

	Yes *N* (%)	No *N* (%)
Wear a seatbelt (n=160)	154 (96.3)	6 (3.8)
Not use a cell phone for non-work related tasks while driving (n=158)	84 (53.2)	74 (46.8)
Not text while driving (n=157)	124 (79.0)	33 (21.0)
Maximum speed when responding to emergency situations (n=160)	62 (38.8)	98 (61.3)
Restriction on number of law enforcement vehicles that may respond to a critical incident (n=159)	49 (30.8)	110 (69.2)
Not use a cell phone for work-related tasks while driving (n=160)	40 (25.0)	120 (75.0)
Written policy or procedural directive regarding vehicle pursuits (n=159)	156 (98.1)	3 (1.9)

As noted above, over 98% of executives indicated that they had a written vehicle pursuit policy and more than 67% indicated that vehicle pursuits are a "very dangerous" police activity. To further investigate this issue, executives were asked which of four typologies best described their vehicle pursuit policy (i.e., judgmental, discouragement, restrictive or prohibition). Their responses are presented in Table 18. About 30% (*N*=47) of executives indicated that their agency had a judgmental policy, which leaves the pursuit decision to individual officers' discretion. Only four respondents (2.5%) worked in agencies with discouragement policies, which discouraged all vehicle pursuits. Most respondents indicated that their agency had a restrictive pursuit policy (65.2% *N*=105), restricting pursuit decisions to specific criteria. Finally, only two agencies (1.3%) had a prohibition on all vehicle pursuits.

Table 18. Type of vehicle pursuit policy or directive (n=158)

	N	%
Judgmental	47	29.7
Discouragement	4	2.5
Restrictive	105	65.2
Prohibition	2	1.3

Another potential area for reducing the number of OICs is through in-service training. Table 19 presents the types of in-service training provided by the responding agencies. The majority of respondents' agencies offered driver decision-making training (*N*=111, 69.4%), track training (*N*=83, 51.9%), EVOC (Emergency Vehicle Operations Course) training (*N*=130, 81.3%), and pursuit training (*N*=100, 62.9%). The most common type of training offered was EVOC training (81.3%). In contrast, very few agencies, offered in-service simulator training (*N*=13, 8.2%).

Table 19. Types of In-Service Training Offered by Agency

	Yes *N* (%)	No *N* (%)
Driving decision-making training (n=160)	111 (69.4)	49 (30.6)
Track training (n=160)	83 (51.9)	77 (48.1)
EVOC training (n=160)	130 (81.3)	30 (18.8)
Pursuit training (n=159)	100 (62.9)	59 (37.1)
Simulator training (n=158)	13 (8.2)	145 (91.8)

The next section of the survey turned attention to law enforcement executives' perceptions of OICs (see Table 20). Respondents were asked to indicate how many OICs could be prevented, were largely unavoidable, or were citizens' fault. Only 3 respondents (1.9%) thought that almost no OICs could be prevented. About three-quarters of executives believe that "some" or "many" OICs could be prevented. Similarly, only 12 respondents (7.5%) thought that almost all OICs were largely unavoidable. Thus, a large proportion of the respondents believed at least some OICs could be prevented or avoided. Additionally, respondents seemed to believe that police officers were at fault for at least some OICs with only 5

respondents (3.1%) indicating that almost all OICs were the fault of citizens. About 70% (*N*=112) of executives believed that "some" OICs are citizens' fault.

Table 20. Perceptions of Fault and Preventability of OICs

	Almost None *N* (%)	Some *N* (%)	Many *N* (%)	Almost All *N* (%)
Could be prevented? (n=160)	3 (1.9)	67 (41.9)	53 (33.1)	37 (23.1)
Are largely unavoidable? (n=159)	23 (14.5)	86 (54.1)	38 (23.9)	12 (7.5)
Are citizens' fault? (n=160)	7 (4.4)	112 (70.0)	36 (22.5)	5 (3.1)

The final section of the survey examined law enforcement executives' perceptions of the contributors and consequences of OICs. Specifically, we asked respondents how much of a problem the financial burden of three consequences of OICs posed to their agencies' budgets (see Table 21). Nearly 50% (*N*=78) of respondents indicated that liability claims, agency vehicle repairs, and worker compensation claims are "a slight problem," respectively. Additionally, about 3-out-of-10 respondents believe that liability and workers compensation claims are "a serious problem." Finally, about 45% (*N*=72) of executives indicated that agency vehicle repairs are "a serious problem."

Table 21. Problem posed by OIC financial burdens

	Not at all a problem *N* (%)	A slight problem *N* (%)	A serious problem *N* (%)
Liability claims (n=161)	32 (19.9)	78 (48.4)	51 (31.7)
Agency vehicle repairs (n=161)	13 (8.1)	76 (47.2)	72 (44.7)
Worker compensation claims (n=160)	21 (13.1)	90 (56.3)	49 (30.6)

Table 22 presents law enforcement executives' sentiments regarding the effectiveness of safety features of police vehicles. Respondents were asked to indicate how strongly they agreed that six aspects (i.e., vehicles' brakes, acceleration, steering, visibility, air bags, and seat belts) of police vehicles are

adequately engineered for safety (see Table 22). A majority of respondents agreed or strongly agreed that each of the police vehicle components are adequately engineered for safety. However, approximately one-third of responding executives disagree that the visibility of police vehicles are adequately engineered for safety (i.e., visibility was described to respondents as the ability to see out of the vehicle or the presence of blind spots).

Table 22. Safety of specific aspects of police vehicles

	Strongly Disagree *N* (%)	Disagree *N* (%)	Agree *N* (%)	Strongly Agree *N* (%)
Brakes (n=158)	4 (2.5)	8 (5.0)	107 (67.7)	39 (24.7)
Acceleration (n=158)	0 (0.0)	7 (4.4)	115 (72.8)	36 (22.8)
Steering (n=158)	0 (0.0)	4 (2.5)	116 (73.4)	38 (24.1)
Visibility (n=157)	10 (6.4)	43 (27.4)	80 (51.0)	24 (15.3)
Air bags (n=158)	0 (0.0)	3 (1.9)	106 (67.1)	49 (31.0)
Seatbelts (n=157)	0 (0.0)	4 (2.5)	97 (61.8)	56 (35.7)

Presented in Table 23 are law enforcement executives' perspectives on driver-related factors that may contribute to the occurrence of OICs. Thus, respondents were asked how strongly they agreed that each of the following is a contributing factor to OICs: driving at an unsafe speeds, being distracted while driving, fatigue, and insufficient driver training. These four factors were measured for both civilians and officers to create a total of eight factors. The most common response for all but one factor was "agree." However, nearly one-half of respondents (*N*=77) indicated that they disagreed and greater than 10% (*N*=19) indicated that they strongly disagreed that insufficient officer driver training contributed to OICs. This suggests that police executives believe that driver training is sufficient and changes would not likely help prevent OICs.

Table 23. Contributing factors to OICs

	Strongly Disagree *N* (%)	Disagree *N* (%)	Agree *N* (%)	Strongly Agree *N* (%)
Officer driving at unsafe speed (n=161)	0 (0.0)	19 (11.8)	101 (62.7)	41 (25.5)
Civilian driving at unsafe speed (n=160)	2 (1.3)	25 (15.6)	101 (63.1)	32 (20.0)
Officer distracted (n=160)	1 (0.6)	28 (17.5)	108 (67.5)	23 (14.4)
Civilian distracted (n=161)	1 (0.6)	5 (3.1)	103 (64.0)	52 (32.3)
Officer fatigue (n=160)	6 (3.8)	64 (40.0)	75 (46.9)	15 (9.4)
Civilian fatigue (n=160)	4 (2.5)	56 (35.0)	88 (55.0)	12 (7.5)
Insufficient officer driver training (n=161)	19 (11.8)	77 (47.8)	49 (30.4)	16 (9.9)
Insufficient civilian driver training (n=161)	4 (2.5)	27 (16.8)	90 (55.9)	40 (24.8)

A majority of respondents (N=131, 81.9%) agreed or strongly agreed that an officer being distracted while driving contributes to OICs. This issue was further investigated by asking respondents to indicate how strongly they agreed that the presence of a computer, cell phone, or radio in police vehicles contributed to OICs by causing distracted driving behaviors (see Table 24). The majority of respondents agreed or strongly agreed that computers (*N*=92, 57.3%) and cell phones (*N*=117, 72.6%) created distractions that contribute to OICs. However, the majority of respondents disagreed or strongly disagreed that radios (*N*=101, 62.8%) create enough of a distraction to contribute to OICs.

Table 24. Technology distractions contributing to OICs (n=161)

	Strongly Disagree *N* (%)	Disagree *N* (%)	Agree *N* (%)	Strongly Agree *N* (%)
Computers	12 (7.5)	57 (35.4)	75 (46.6)	17 (10.6)
Cell Phones	5 (3.1)	39 (24.2)	91 (56.5)	26 (16.1)
Radio	13 (8.1)	88 (54.7)	55 (34.2)	5 (3.1)

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Appendix. Primary contributing factor to OICs in South Carolina, 2001-2010.

	N	%
Disregarded sign/signal	382	4.0
Distracted/inattention	824	8.6
Too fast for conditions	1696	17.8
Exceeded speed limit	54	0.6
Failed to yield right of way	1641	17.2
Run off road	131	1.4
Fatigued/asleep	35	0.4
Followed too closely	173	1.8
Improper turn	288	3.0
Medical related	43	0.5
Aggressive driving	329	3.5
Over-correcting/over-steering	45	0.5
Swerving to avoid object	49	0.5
Wrong side/wrong way	134	1.4
Driver under the influence	407	4.3
Vision obscured (within unit)	19	0.2
Improper lane usage/change	390	4.1
Cell phone	4	0.0
Other improper action (driver)	749	7.9
Debris	44	0.5
Non-highway work	1	0.0
Road surface condition (i.e. wet)	49	0.5
Rut, hole, bump	7	0.1
Shoulders (none, low, soft, high)	7	0.1
Traffic control device (i.e. missing)	4	0.0
Work zone (construction/maintenance/utility)	2	0.0
Worn, travel-polished surface	2	0.0
Other roadway factor	18	0.2
Non-motorist inattentive	5	0.1
Lying and/or illegally in roadway	11	0.1
Non-motorist failed to yield ROW	11	0.1
Not visible (dark clothing)	1	0.0
Non-motorist disregarded sign/signal/etc.	4	0.0
Other non-motorist factor	2	0.0
Animal in road	1487	15.6
Glare	10	0.1
Obstruction	45	0.5
Weather condition	64	0.7
Non-motorist under influence	7	0.1
Other person under influence	2	0.0
Other environmental factor	17	0.2
Brakes	39	0.4
Steering	3	0.0
Power plant	4	0.0
Tires/wheels	25	0.3
Lights	3	0.0
Truck coupling	1	0.0
Cargo	13	0.1
Fuel System	1	0.0
Other vehicle defect	30	0.3
Unknown vehicle defect	21	0.2
Unknown	153	1.6
Total	9532	100.0