

APPENDICES

APPENDIX A: 50 STATE COMPARISON

State	Reporting Threshold	Total Crashes (2010-2014 avg.)	Injury Crashes (2009-2014 avg.)	Total Licensed Drivers (2013)
New Jersey	\$ 500	301,233	67,394	6,039,623
Alabama	\$ 500*	123,503	25,415	3,827,522
Alaska	\$ 2,000	-	359	526,371
Arizona	\$ 1,000	103,295	50,284	4,697,579
Arkansas	\$ 2,000	62,808	19,486	2,199,164
California	N/A	426,228	163,524	24,200,997
Colorado	\$ 500	157,706	32,201	3,807,673
Connecticut	\$ 1,000	103,719	25,738	2,485,708
Delaware	\$ 1,500	16,723	4,946	720,290
Florida	\$ 500*	235,803	125,681	13,896,581
Georgia	\$ 500	318,531	81,730	6,581,534
Hawaii	\$ 3,000	-	379	915,033
Idaho	\$ 1,500	-	1,262	1,092,977
Illinois	\$ 500 / \$ 1,500	292,437	63,383	8,235,745
Indiana	\$ 1,000	189,983	33,786	5,375,973
Iowa	\$ 1,500*	55,488	14,434	2,217,304
Kansas	\$ 1,000	61,119	13,927	2,018,029
Kentucky	\$ 500*	126,237	25,036	2,985,234
Louisiana	\$ 500	155,857	45,335	2,923,744
Maine	\$ 1,000	27,863	863	1,008,190
Maryland	N/A	96,391	32,358	4,102,154
Massachusetts	\$ 1,000	108,379	38,799	4,733,936
Michigan	\$ 1,000	293,403	53,550	7,018,713
Minnesota	\$ 1,000	73,498	22,159	3,321,760
Mississippi	\$ 500	-	26,645	1,957,980
Missouri	\$ 500	153,015	37,005	4,288,488
Montana	\$ 1,000	21,971	5,793	757,812
Nebraska	\$ 1,000	34,664	12,212	1,363,596
Nevada	\$ 750	-	1,189	1,728,060
New Hampshire	\$ 1,000	29,984	394	1,064,604
New Mexico	\$ 500	46,213	13,137	1,430,475
New York	\$ 1,000	314,974	133,888	11,248,617
North Carolina	\$ 1,000	209,695	69,394	6,677,693
North Dakota	\$ 1,000	17,686	2,450	502,807
Ohio	\$ 400	299,040	73,290	8,006,183
Oklahoma	\$ 500	-	14,734	2,400,358
Oregon	\$ 1,500	49,053	23,887	2,769,757
Pennsylvania	N/A	121,298	61,776	8,842,587
Rhode Island	\$ 1,000	-	403	749,706

State	Reporting Threshold	Total Crashes (2010-2014 avg.)	Injury Crashes (2009-2014 avg.)	Total Licensed Drivers (2013)
South Carolina	\$ 1,000	106,864	31,086	3,455,931
South Dakota	\$ 2,000	-	832	606,779
Tennessee	\$50, \$400	-	-	4,573,871
Texas	\$ 1,000	428,667	155,044	15,252,192
Utah	\$ 1,000	53,905	19,424	1,788,822
Vermont	N/A	-	322	529,501
Virginia	\$ 1,000	116,742	44,284	5,538,480
Washington	\$ 1,000	110,070	35,789	5,227,889
West Virginia	\$ 500	38,095	15,404	1,241,586
Wisconsin	\$ 1,000	121,736	31,085	4,056,649
Wyoming	\$ 1,000	15,507	3,360	421,580

* 2011 AAA Digest of Motor Laws; "Accident Reporting" <http://drivinglaws.aaa.com/tag/accident-reporting/>, Interviews with states.

APPENDIX B: 9 STATE COMPARISON

State	Reporting Threshold (2009)	Threshold Changed	Previous Threshold	Total Crashes (2010-2014 avg.)	Injury Crashes (2009-2014 avg.)	Annual VMT, millions (2013)	Licensed Drivers (2013)	Electronic Reporting (2009, 2014)	Reporting Software (2009, 2014)
New Jersey	\$ 500	-	-	301,233	67,394	74,530	6,039,623	Yes	Unknown
California	\$ 500	-	-	426,228	163,524	329,534	24,200,997	Unknown	Unknown
Georgia	\$ 500	-	-	318,531	81,730	109,355	6,581,534	Yes: 90%	ARIES v5
Illinois	\$ 1,500	2009	\$ 500	292,437	63,383	105,297	8,235,745	Yes	40%
Indiana	\$ 1,000	2005	\$ 750	189,983	33,786	78,311	5,375,973	Yes: 100%	ARIES v5 (Automated Reporting Information Exchange)
Massachusetts	\$ 1,000	-	-	108,379	38,799	56,311	4,733,936	Yes	Oracle database w/ Visual Basic
Michigan	\$ 1,000	2004	\$ 400	293,403	53,550	95,132	7,018,713	Unknown	Unknown
New York	\$ 1,000	-	-	314,974	133,888	129,737	11,248,617	Yes: 60%>	Accident Information System; Kofax scanning; Oracle
Oregon	\$ 1,500	-	-	49,053	23,887	33,706	2,769,757	No	
Washington	\$ 700	-	-	110,070	35,789	57,211	5,227,889	Yes	Unknown

APPENDIX C: SOURCING FOR 50 & 9 STATE COMPARISON

Reporting Threshold / Threshold Changed / Previous Threshold:

NHTSA - State Data System Crash Data Report: 2000-2009; <http://www-nrd.nhtsa.dot.gov/Pubs/812052.pdf>; 2014

State Data Information Resources;
<http://www.nhtsa.gov/nhtsa/stateCatalog/stateData.html>; 2014
(For: Alaska, Arizona, Hawaii, Idaho, Maine, Massachusetts, Mississippi, Nevada, New Hampshire, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee, Vermont, West Virginia)

Arizona Strategic Highway Safety Plan; <http://azdot.gov/docs/default-source/about/az-shsp-appendix-c-crash-characteristic-data-map-book.pdf?sfvrsn=2>; 2013

AAA Digest of Motor Laws "Accident Reporting"
<http://drivinglaws.aaa.com/tag/accident-reporting/>

Total Crashes:

NHTSA - State Data System Crash Data Report: 2000-2009; <http://www-nrd.nhtsa.dot.gov/Pubs/812052.pdf>; 2014

NHTSA State Highway Safety Documents;
<http://www.nhtsa.gov/links/StateDocs/pages/AnnualReports.htm>; 2014
(For: Massachusetts, New Hampshire [2013], Oregon [2011], and West Virginia [2013])

Arizona Strategic Highway Safety Plan; <http://azdot.gov/docs/default-source/about/az-shsp-appendix-c-crash-characteristic-data-map-book.pdf?sfvrsn=2>; 2013

Maine Strategic Highway Safety Plan;
<http://www.themtsc.org/news/ckfinder/userfiles/files/shspnewversionreducedsize.pdf>; 2012 (2010 data)

Injury Crashes:

NHTSA - State Data System Crash Data Report: 2000-2009;
<http://www-nrd.nhtsa.dot.gov/Pubs/812052.pdf>; 2014

NHTSA State Highway Safety Documents;
<http://www.nhtsa.gov/links/StateDocs/pages/AnnualReports.htm>;

(For: Alaska [2012], Arizona 2013], Hawaii [2011], Idaho [2013], Maine 2013], Massachusetts [2012], Mississippi 2013], Nevada [2013], New Hampshire [2013], Oklahoma [2013], Oregon [2011], Rhode Island [2014], Vermont [2013], West Virginia [2013])

Annual VMT (millions):

NHTSA – State Traffic Safety Information; Quick easy access to traffic safety facts; <http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM>; 2013

Licensed Drivers:

“Licensed Total Drivers, By Age – December 2013” NCSA DATA RESOURCE WEBSITE - FATALITY ANALYSIS REPORTING SYSTEM
<http://www-fars.nhtsa.dot.gov/>

Electronic Reporting / Reporting Software:

I-95 Corridor Crash Data Reporting Methods; http://i95coalition.org/wp-content/uploads/2015/03/Crash_DataTask_1_Technical_Memo.pdf?dd650d ; 2009

NHTSA State Highway Safety Documents;
<http://www.nhtsa.gov/links/StateDocs/pages/AnnualReports.htm>; 2014

APPENDIX D: California Highway Patrol Interview Notes

The interview with Isaac Tillman, the commander of CHP Support Services took place on February 22, 2016 at 2:00 p.m.

Reporting Thresholds

1. Please describe your department's background and responsibilities regarding crash reporting.

CA uses Crash Manual Investigations (CMI) that all local law enforcement agencies are supposed to adhere to. Injuries & fatalities crashes go to the California Highway Patrol (CHP), support services.

2. What agency is the statutory record holder of crash records?

CHP is the statutory record holder.

3. What is your state's current crash property damage threshold?

There is no threshold; it is recommended that all law enforcement agencies report as many PDOs as possible. Local policy will determine the degree of participation.

Not necessarily \$500, but as many crashes as possible, though some crashes do go through the DMV in addition to the CHP. It is not considered a reportable collision if it is not reported from law enforcement. \$1 damage still reported? Yes.

CHP meets with multiple agencies to see about upticks in crash numbers and we try to implement successful initiatives to reduce them. The crash totals are not tied to dollar amounts, but to local law enforcement agencies looking for grant funding. This has to do with how many crashes are reported in an agency's jurisdiction and why the crashes are happening; financial burdens come into play here with OTS & NHTSA.

4. Has this threshold changed in the last fifteen years?

No

Reporting Costs

5. How many total crashes (including fatal, serious injury, non-serious injury, etc.) did your state report this last calendar year?

Preliminary number for 2015 is 410,663

6. Please describe your crash reporting process from start to finish, with what happens after a crash occurs to who stores the data. Please provide a diagram of your state's crash reporting process if available.

Fatality/injury crashes follow the same route as non-fatality/injury but are expedited. PDO crashes go to the Data Collection Unit, while fatalities go to the Information Services Unit; these are parallel processes though much less volume for fatalities.

SWITRS is the repository of all collisions where crash data goes, where analysis is done, where we generate reports for stakeholders.

Reports go to, and come back from Caltrans because they input milepost and GIS data; this is used for engineering discrepancies.

7. Does your state cover all associated costs for crash reporting or does it partner with outside private organizations/vendors to assist with the collection and retention of crash records? Please explain.

No information available.

8. Does your state track the total annual cost to report crashes?

No information available.

9. Does your state track the cost to report a single crash?

No, but our 2015 budget for overhead and personnel was \$2.3M, though this doesn't capture all costs of data reports.

We processed 410,000 total reports (100,000 backlog) in 2015.

Crossroads (vendor) sells the reports to get their costs back.

Electronic Reporting

10. Does your state electronically submit crash records? If yes:

Traffic collision reports are only submitted electronically for CHP. Allied Agencies submit paper form.

CHP went to electronic on 10/1/1. We started the process 10 years ago for both CHP and allied agencies but there are so many allied agencies, over 550, that it became unfeasible so we focused on CHP.

CA approach wasn't from cost perspective, came from timeliness perspective. That is why the costs aren't baked in. Funding to allied agencies has to do with how many crashes are reported in their jurisdiction each year, so more timely crash reports captures more crashes.

CA doesn't have 1 form across the whole state, numerous kinds of forms, 150 forms. Some have their own electronic forms via Crossroads, A vendor that provides a service. 250-300 allied agencies use Crossroads, the majority of the police force.

- a. What were the most significant challenges to bringing the electronic system online (e.g. political, capacity, or technical challenges)?

Technical and infrastructure, linked together. Electronic reports slow down the network, we have space issues housing the reports that come in.

Non-technical challenges: there is no mandate for electronic reporting; smaller police stations are not reporting. There is no incentive if too few reports.

- b. What percentage of crash records are submitted electronically?

40% (CHP only) of all CA reports

- c. What parts of the crash reporting system are electronic and what parts are not?

CHP's traffic collision reports (TCR) are 100% electronic. Allied Agencies are not submitting TCRs electronically. They are submitted 100% paper form at this time.

- d. What is preventing all crash records from being submitted electronically?

CHP's Information Technology Section is vetting a solution for our Allied Agencies. We anticipate challenges with some of the Allied Agencies if their technology infrastructure is unable to interface with the technology that will be implemented. In addition, possible cost factors associated with upgrading legacy infrastructures may be too high.

- e. Is there one standard vendor/crash reporting format or template or multiple formats?

CHP's electronic record submission uses one standard format that mirrors the hard copy of the CHP 555 form.

- f. What crash reporting software does your state use?

California Automated Reporting System (CARS), Statewide Integrated Traffic Records System (SWITRS), California Collision Reporting System (CCRS)

This is all in-house, ITS built software. CARS is on the patrol car laptops; CTRS is an interim repository; SWITRS (Oracle) is final repository.

- g. What is the timeframe from the crash occurring to the report being available for extraction from the system?

8 days. 94% of reports meet that target. It 10-11 days for paper reports, while huge crashes can take 30 days. Pre-electronic could take 1 year+ for injuries & fatalities.

- h. Are there any disadvantages to implementing an electronic crash reporting system?

Poor search capabilities in SWITRS.

11. How does CA gauge good reporting?

Timeliness & accuracy are the two big ones.

12. If your state does not electronically report crashes, why is this the case?

Currently CHP submits TCRs electronically. CHP is working on a solution for Allied Agencies to submit TCRs electronically.

APPENDIX E: Illinois Department of Transportation Interview Notes

The interview with Jessica Keldermans, Safety Data and Data Services Bureau Chief - Traffic Safety Division, Charles Adams, Traffic Safety Division, Mark Blankenship, Traffic Safety Division, and Anne Hillen, Traffic Safety Division took place on February 23, 2016 at 10:30 a.m.

Reporting Thresholds

1. Please describe your department's background and responsibilities regarding crash reporting.

The Illinois Department of Transportation is the sole Administrator for the production, maintenance, and distribution of the state's standardized motor vehicle crash report form, and is the sole repository for all of Illinois' motor vehicle related crash data.

2. What agency is the statutory record holder of crash records?

Illinois Department of Transportation

3. What is your state's current crash property damage threshold?

Damage over \$1,500 for insured drivers; damage over \$500 for uninsured drivers.

We tried to change the threshold to \$1000 in 2007, but didn't go through. In 2008 the legislature asked how it would work with uninsured drivers and the Safety Responsibility Law. The compromise was the 2009 change to two different thresholds. The Safety Responsibility Law seeks restitution for property damages and penalizes uninsured drivers by suspending their driver license or vehicle registration.

4. Has this threshold changed in the last fifteen years? If yes:

Yes, January 1, 2009

- a. What was the impetus to change the threshold?

Because we were getting so many crash reports around %500 we analyzed the data and realized there were less crashes around the \$1000 line. Also, when the threshold was raised in 1992 it was doubled from \$250 to \$500 so we thought it logical to double it this time.

- b. Who were the biggest proponents and opponents of the threshold change?

Biggest proponents was insurance companies; lower thresholds would create more work for them. State of Illinois was also pro. Lots of officers probably supported it; there wasn't much opposition because the threshold went higher than we planned.

- c. How did your state decide what the new threshold would be?

Analyzed crash data around \$1000.

- d. What was the process to change the threshold (legislation enacted, amended, etc.)?

We spoke to the Director of Traffic Safety then to the Legislative Affairs Office (LAO). They reviewed the bill and required us to complete a report to explain why the hike would be beneficial, so we did that. Then the LAO went to the capital to work with who was in charge of the bill; IDOT never went to capital.

IDOT makes proposal, LAO reviews and questions it, gauge support for it; IDOT responds to questions. Agencies that would potentially be negatively impacted could oppose it.

- e. What were the benefits (or drawbacks) on your state's crash record reporting system?

Initially confusing to officers.

Benefits: dramatic decrease in overall crashes per year.

Drawbacks: people will contact us because in Chicago, police won't come to the crash scene if there is no injury or severe damage, and if there is no crash document, there is no crash file.

We received criticism for not reporting all crashes so we leave it up to the officers' discretion. We record all crashes, just don't necessarily report them all.

- f. Were there any costs associated with the threshold change?

We had to revise the 1050 crash reporting document and incur the printing costs of these forms, and mailing costs to the law enforcement agencies. It cost about \$200,000

- g. Is there one crash report document?

3 documents: Chicago alone, rest of Illinois, self-reporting form. We are trying to eliminate the motorist report because carbon copies don't get scanned properly.

- h. How did the crash numbers change after the threshold increase (compare before & after)?

Average crashes reported prior to 2009 were around 419,000 per year. Average crashes reported after the change was around 285,000 per year.

Reporting Costs

5. How many total crashes (including fatal, serious injury, non-serious injury, etc.) did your state report this last calendar year?

Fatal - 929, A Injury ~ 10,077, B and C Injury ~ 57,098, Property Damage Only ~ 257,592. TOTAL: 325,696 Please note non-fatal crash data are incomplete as of 2-18-2016 and are estimated based on the percentage increase of fatal crashes reported from 2014-2015.

6. Please describe your crash reporting process from start to finish, with what happens after a crash occurs to who stores the data. Please provide a diagram of your state's crash reporting process if available.

Please see the diagram. Technically, yes, electronic forms go straight from law enforcement laptops into the CIS but with validation rule. If a report does not pass validation rules then it bounces back, otherwise it goes straight into CIS, which is the final crash report repository.

7. Does your state cover all associated costs for crash reporting or does it partner with outside private organizations/vendors to assist with the collection and retention of crash records? Please explain.

For paper reports, we cover costs associated with the development, production, and shipping of the actual reports. Agencies are responsible for costs associated with mailing completed reports to us. As the Administrator of Illinois' crash reports and data, we have our own IT staff and consultants that design, and maintain the central database where all the state's crash data is stored. If an agency elects to submit their crash data electronically, they must choose a vendor from our approved list. Some of these approved vendors provide their services free of charge in exchange for access to that agency's crash data.

8. How many vendors operate in Illinois?

11 approved vendors. There is no cap to the number of vendors, though they have to jump through hoops to get approved. Some vendors charge high amounts and some can't pay that in addition to equipping vehicles. No cost vendors only pay to equip their clients' cars.

9. The vendors generate revenue by selling the records? How do they get around privacy issues?

Illinois has statutes; it is up to local agencies to see if they can sell them. The statute states that local law enforcement agencies can sell crash records, and that vendors can do so on their behalf. Typically a vendor charges \$10-\$15 while law enforcement gets \$5 of that.

10. Does your state track the total annual cost to report crashes?

No

11. Does your state track the cost to report a single crash?

No...though we have roughly 12 staff dedicated to crash reporting, each earning \$30,000 to \$40,000 per year, so you can calculate an approximate number from that.

Electronic Reporting

12. Does your state electronically submit crash records? If yes:

Yes, along with paper. As of 2-18-2016 279 of 879 (32%) law enforcement agencies submit electronically (Safety Portal).

- a. What were the most significant challenges to bringing the electronic system online (e.g. political, capacity, or technical challenges)?

Mobile capture reporting systems (MCR) was the original software, created by the DOT, and it was a nightmare. Now we have an XML system which has few technical issues...it helped create CIS. MCR was built in 2006 and was way too costly; state police was the biggest user. The system was hard to use because updates to crash reports were too difficult; it became outdated and needed 24/7 support which was an issue. We learned a lot...the biggest issue is that officers don't like crash reports so

we don't allow them to submit them without validation checks because then we get tons of errors.

Now only vendors handle the electronic reporting, which is a big cost savings-millions of dollars. We don't know the costs associated with this conversion to electronic because IDOT wasn't directly involved in this process, and it takes too much time to track or manage these costs, so we don't.

- b. What percentage of crash records are submitted electronically?

51% as of 2-18-2016 (Safety Portal)

- c. So 32% of law enforcement agencies submit electronically, but 51% of all crash reports statewide are submitted electronically?

Correct. Chicago generates 25% of all reports. There is a project underway for all of Chicago to go electronic; we got about 400,000\$ from NHTSA for this. We worked with vendor to do this and they developed a system that IDOT now owns. IDOT plans to roll it out to other agencies to make electronic as well.

- d. What parts of the crash reporting system are electronic and what parts are not?

Only paper reports are non-electronic. Once the officer fills them out they are mailed to IDOT. Once received they are scanned as a pdf image into the CIS document retrieval system and the data manually entered into CIS.

- e. What is preventing all crash records from being submitted electronically?

Smaller agencies may lack the funds to equip their police vehicles with laptops, or their annual volume of crash reports completed are too low to show a cost benefit for them to convert to electronic submission.

- f. For the local law enforcement agencies that began electronic reporting, what incentivized them to do so?

No more paper processing or storing paper, data gets returned quicker, electronic reports have a faster turnaround time. For example, we are still processing February 2015 backlog of paper reports, which is also due to a staff reduction.

End users of the data include engineers, universities, state & local government.

Some law enforcement agencies incur costs but it also gives them the ability to do their own analysis of the records. But some chiefs still won't go electronic – they only submit 100 reports a year and can't justify the costs to upgrade to electronic.

- g. Have you evaluated the cost differential between paper and electronic crash reporting?

No

- h. Is there one standard vendor/crash reporting format or template or multiple formats?

Electronic - Multiple vendors must meet our reporting criteria and submit their product through our edit checks before being approved. Each agency's chosen vendor must be on our approved list. They are allowed to design their own crash reporting system/format, but must include, at a minimum, our defined attributes.

Paper - we provide non-electronic law enforcement agencies with preprinted crash report forms. We have 3 statewide forms: Chicago alone, rest of Illinois, self-reporting form

- i. What crash reporting software does your state use?

Approved vendors are permitted to design a system using whatever language they choose, but the data must be submitted to us via XML. Our data entry/repository system is SQL based.

- j. What is the timeframe from the crash occurring to the report being available for extraction from the system?

Crash data received electronically are available immediately upon our receipt. Paper crash report availability varies. If a fatal crash, the data are entered and the crash located usually the same day they are received. Non-fatal crashes go into data entry queues for manual entry into our system and must then be manually located to ensure accuracy in the reported crash location (i.e., the crash happened where the officer indicated). Due to staff shortages this process may take up to three months or longer to complete and not until then will the data be available.

- k. Electronic reports available within a day or two?

Yes two days on everything but fatalities, which take up to two weeks.

Paper forms: depends on agency; some submit their forms once a week, others submit once a month, sometimes we have to request to get an agency's forms after 6 months. By statute they have to submit to us within 10 days of a crash but it doesn't work that way, as there is no way to enforce this statute. Most agencies send within week or twice a month; that is fine because the backlog is high.

- l. How has the implementation of the electronic reporting system impacted reporting costs and time?

We haven't tracked this.

- m. Are there any disadvantages to implementing an electronic crash reporting system?

There is a minor disadvantage when we make changes to our crash report form and format: since there are multiple vendors, each must modify their client's (law enforcement agency) system to reflect these changes and submit test cases to ensure they pass our edit checks. However, timeliness and accuracy far outweigh this disadvantage.

Another is that we still have to locate electronic reports. Vendors don't have location tools to add this to the crash reports, so we still have properly locate reports with

latitude/ longitude GIS data. One issue is that when officers cross the highway it doesn't place the crash properly.

13. Does your state measure the performance of its crash reporting system?

Yes. We have an interface called Safety Portal that allows registered law enforcement and select government agencies to view their crash data. We also provide them with reporting status with regard to timeliness and accuracy.

APPENDIX F: Appriss Interview Notes

The interview with Kevin Sifferlen, Account Manager and Craig Roth, Project Manager with Appriss took place on February 18, 2016 at 3:00 p.m.

Reporting Thresholds

1. Please describe your department's background and responsibilities regarding crash reporting.

Appriss is a vendor that manages and holds the crash data for Indiana.

2. Is Appriss the only statutory record holder of crash records in Indiana?

Indiana State Police is the statutory record holder of crash records in Indiana.

3. Indiana's current crash property damage threshold is \$1000?

Yes

Reporting Costs

4. How many total crashes (including fatal, serious injury, non-serious injury, etc.) did your state report this last calendar year?

Approximately 217,000 total crashes occurred in 2015.

5. Please describe your crash reporting process from start to finish, with what happens after a crash occurs to who stores the data. Please provide a diagram of your state's crash reporting process if available.

The police submit crash records electronically, and once a manager approves the record it goes into two databases – Appriss and Buycrash. Appriss (the vendor) manages Indiana's crash reporting process. Every law enforcement agency uses our electronic crash reporting software, Automated Record Information Exchange System (ARIES); this centralization makes it easier to clean the data and manage software upgrades. Both the existing, and the next generation software will be web-based. The records are far more accurate than paper records, and can be pulled down to edit then re-uploaded.

6. Does your state cover all associated costs for crash reporting or does it partner with outside private organizations/vendors to assist with the collection and retention of crash records? Please explain.

This is a zero cost solution where the state police pay nothing; we generate revenue by selling crash records on BuyCrash.com. In addition, Appriss gives 2/3 of these sales back to the investigating law enforcement agency. We provide all hardware and software needs and make crash records available to the Department of Transportation and insurance companies.

7. Why do you give money back to law enforcement agencies?

Because this is a source of revenue for them to cover their costs; it is not a full cost recovery but it is significant revenue back to law enforcement agencies. It also acted as an incentive for initial buy-in from law enforcement agencies.

8. Does your state track the total annual cost to report crashes?

Appriss spent approximately \$1.5 million last year to input data.

Electronic Reporting

9. 100% electronic submittal? Phased implementation starting in 2006? If yes:

Yes, we have 100% electronic submittal. We had a phased implementation from 2005 to 2008, where we started with the Indiana State Police, then targeted Bartholomew County Sheriff Department, then worked with other large counties and agencies across the state until the entire state became electronic. Leadership was key to get this done, with both the state police and criminal justice system.

Electronic reporting has the benefits of complete, accurate, timely data, for all different stakeholders and agencies, including engineering uses. Over 90% mapped with latitude and longitude data and integrated with Google Maps.

- a. What were the most significant challenges to bringing the electronic system online (e.g. political, capacity, or technical challenges)?

Biggest challenges were making sure that people have up to date computers to run the software, instead of using outdated laptops. The quantity of trainings were difficult, as was the shift to full electronic implementation. But the system is now on autopilot. We have a centralized, sophisticated technical support center that services all ten states and takes calls from officers 24/7 for technical support.

- b. 100% electronic submission of all parts of the crash record?

Yes. All parts of all reports.

- c. The cost differential between paper and electronic crash reporting?

It is estimated that we saved Illinois \$1.2 million overall; a whole division of the state police that was doing this work has been repurposed for other tasks. This is a big savings to Indiana.

- d. How did APPRISS spread across the state?

It happened quickly but organically, from the Indiana State Police, to separate law enforcement agencies. Electronic reporting saved officers time, so the word spread about a free system available to local law enforcement agencies.

- e. What are the time savings to complete a crash report?

45 minutes for a paper report and 20 minutes for an electronic report.

- f. Is there one standard vendor/crash reporting format or template or multiple formats?

Yes, there is one electronic form.

- g. Indiana uses ARIES; is this the only software it uses? Please explain how buycrash.com is different from ARIES.

Yes, ARIES is the only software used in Indiana. Law enforcement and traffic professionals use ARIES Portal to extract crash reports for free (ariesportal.com), while the rest of the public buys crash reports from BuyCrash.com.

- h. What is the average number of days from the crash occurrence to the report being available for extraction from the system?

92% of crashes hit both databases in less than 5 days. The remaining 8% of reports are fatalities and injuries that take longer to process.

- i. Are there any disadvantages to implementing an electronic crash reporting system?

Absolutely not.

10. Does your state measure the performance of its crash reporting system?

Yes - timeliness, accuracy, completeness, percentage of reports with latitude/longitude data (currently 90%) and integration with Google Maps.

APPENDIX G: Indiana State Police Interview Notes

The interview with First Sergeant Robert Simpson, Commander of Information Technology Unit, and Captain Larry Jenkins, Commander of Criminal Justice Data Division, took place on April 1 at 11:00 a.m.

Reporting Thresholds

1. Please describe your department's background and responsibilities regarding crash reporting.

The ISP is the repository of Indiana's crash data.

2. What is your state's current crash property damage threshold?

\$1000

3. Has this threshold changed in the last fifteen years? If yes:

Yes, February 2003.

- a. What was the impetus to change the threshold?

The previous threshold was too low for all damage, as any minor damage cost at least \$750 to repair. Also, we believe that the insurance companies lobbied for an increase, as there were too many claims under a lower threshold and the insurance companies had to pay out more for them.

- b. Who were the biggest proponents and opponents of the threshold change?

This threshold increase process was done without our (ISP's) involvement, so we can't speak on this, though we said insurance companies were big proponents. No opposition that we know of. ISP's Legal Unit was probably briefed on the proposed threshold hike and consulted; if they were opposed the state would have noted it, but a \$250 hike was too insignificant to warrant any opposition.

- c. What was the process to change the threshold (legislation enacted, amended, etc.)?

We were not involved in this process. Please look up HB 1171, February 2003.

- d. What were the benefits (or drawbacks) on your state's crash record reporting system?

From a road perspective, and an ISP perspective, nothing changed – crashes still happened

- e. Is there an imbedded ISP unit at the DOT?

No, however we have different ISP & DOT committees that collaborate to extract analyses from crash data for safety endeavors.

Reporting Costs

4. How many total crashes (including fatal, serious injury, non-serious injury, etc.) did your state report this last calendar year?

About 217,000

5. Please describe your crash reporting process from start to finish, with what happens after a crash occurs to who stores the data. Please provide a diagram of your state's crash reporting process if available.

For either the city or county, an officers arrives at a crash, gathers the data, fills it out, submits it electronically then it gets reviewed before going to the central repository. The same applies to local agencies. ISP submit reports from their cruisers but smaller agencies can send them from their home office.

- a. How easy or challenging is it for police to submit crash reports?

"A billion times easier. It was one of the best moves of the agency to go electronic." There is built in logic, it is more standardized, expedient, the police can clear crashes faster, they can't overlook something on the report, reports are more accurate and complete.

6. What costs did ISP incur to bring the electronic system online?

None. Appriss taking over cut costs to Indiana by over \$1M per year. The ISP staff that were previously devoted to crash reports were reabsorbed into other units and no one was let go.

7. Does your state track the total annual cost to report crashes?

No.

8. What is the program budget for the crash reporting program?

Unknown; Appriss manages it.

- a. Can you confirm that investigating law enforcement agencies get 2/3 of crash record sales back from Appriss?

That is 100% correct. The Superintendent of ISP set the crash record fee at \$12.00. Appriss keeps \$4.00 and give \$8.00 back to agencies who submitted the crash reports. Law enforcement agencies can either do this or sell crash reports themselves and opt out of Appriss selling it for them. However, there is no staff time required to receive checks from Appriss; officers submit the reports and receive a check from Appriss once a month. It is Easier to do this way. I can't remember the name, but in on town of 40,000 people a 3-person police staff spent the bulk of their time processing crash records to the public, agencies and companies.

Electronic Reporting

9. Does your state electronically submit crash records

Yes

- a. What were the most significant challenges to bringing the electronic system online (e.g. political, capacity, or technical challenges)?

The biggest challenges were all of the different law enforcement agencies having useable computers; now computers are ubiquitous but 10 years ago (when the electronic switchover started) computers were not as prevalent as they are today. The

branch of the Indiana government that manages grants was critical to providing computers to agencies.

Training was and was not a challenge: using the electronic software required learning, but after submitting one or two reports this is learned.

b. Please describe the electronic reporting background.

It was a phased implementation, which Appriss summarized well. There was not 100% statewide compliance until a few years ago (approximately 2013).

c. Is there one standard vendor/crash reporting format or template or multiple formats?

One.

d. What crash reporting software does your state use?

ARIES.

e. Are there any disadvantages to implementing an electronic crash reporting system?

No.

f. What are the benefits of electronic reporting?

We already mentioned it is faster for officers to complete and in turn they can clear crashes faster; it yields more accurate data, more complete forms, the audit trail is easier to follow, there is less personnel needed to manage and process the reports and data.

g. Who pays the vendors?

Appriss keeps 1/3 of the sale of all crash records.

APPENDIX H: Michigan State Police Interview Notes

The interview with Sydney Smith, Traffic Crash Reporting Unit Manager, and Brian Sine, Traffic Crash Reporting System (TCRS) IT Programmer/Analyst P12 with MSP took place on February 18, 2016 at 9:00 a.m.

Reporting Thresholds

1. Please describe your department's background and responsibilities regarding crash reporting.

Brian is with the DTMB, Department of Technology, Management and Budget. Sydney is with the Michigan State Police (MSP), who is the owner of the crash records repository. In Michigan each law enforcement agency reports crash to the MSP. MDOT is very involved as they have a big interest in the crash data.

2. What agency is the statutory record holder of crash records?

MSP

3. What is your state's current crash property damage threshold?

\$1000.

4. Has this threshold changed in the last fifteen years? If yes:

2003

- a. What was the impetus to change the threshold?

We were not involved, we joined in 2003.

- b. What were the benefits (or drawbacks) on your state's crash record reporting system?

Reported crashes went down from 375,000 reports (2003) to 300,000 (2004) reports, but not all of that is due to reporting threshold change; there are lots of factors, such as initiatives to reduce fatalities.

Reporting Costs

5. How many total crashes (including fatal, serious injury, non-serious injury, etc.) did your state report this last calendar year?

296,650 (2015)

6. Please describe your crash reporting process from start to finish, with what happens after a crash occurs to who stores the data. Please provide a diagram of your state's crash reporting process if available.

A reportable crash occurs, law enforcement is called, they gather info, and they submit a report to the state on a paper or electronic format.

7. Does your state cover all associated costs for crash reporting or does it partner with outside private organizations/vendors to assist with the collection and retention of crash records? Please explain.

MSP owns the crash records but MDOT funds the traffic crash reporting unit – the staff and system. [Part of this] is funded with federal trunk line funds and 250,000\$ from the Secretary of State, as well as fees/sale of vehicle and driver records.

8. Does your state track the total annual cost to report crashes?

No

9. What is the program budget for the crash reporting program?

\$1.2 M

Electronic Reporting

10. Does your state electronically submit crash records

Yes

- a. What were the most significant challenges to bringing the electronic system online (e.g. political, capacity, or technical challenges)?

Michigan didn't want to be seen as entering the private sector and profiting from it; Michigan felt that a private entity should write the software, though we came up with the requirements for electronic submittal. We were also wary of building our own electronic crash collection system then telling all local law enforcement agencies to use it. Thus, political challenges.

Other challenges included having to work with seven different vendors that collect and process crash reports; this can get overwhelming.

- b. Please describe the electronic reporting background.

It was a phased (7 phases) approach from 2003 to 2009. Federal funds were used to induce law enforcement agencies to buy into electronic reporting. Michigan used federal funding over five years to implement this process. The first electronic report was submitted in 2006. In 2010 60% of reports were electronic; in 2012 80% of them were and today 97% of reports are electronic.

The process is that reports go into the statewide repository and can be exported for both internal and external use – by traffic safety professionals, the University of Michigan, Carfax, any research institute, etc.

Another helpful crash data repository is where crash images are stored for 10 years and any agency can pull them via a traffic crash purchasing system that is owned by the state. It has helped by alleviating people of running in and out of agencies to get crash records.

- c. Does vendor competition lead to better software?

Not so much, they all contain the same basic requirements. 360 edits run against data for quality control purposes. But the vendor situation is like survival of the fittest in that 1 or 2 vendors do very well while others struggle and partner with other vendors. This was not the intended purpose of the system but is an outcome.

- d. What was the approximate cost to implement this electronic reporting system?

The overall project cost \$4.5M over 5 to 6 years, from 2004 to 2009. It cost approximately \$2M to design it; approximately 95% of it was paid for with federal funds, and MSP or MDOT matched one of the phases.

- e. Is there one standard vendor/crash reporting format or template or multiple formats?

There is 1 standard crash reporting form. It was recently revised to be more Model Minimum Uniform Crash Criteria (MMUCC) compliant (address distracted driving, add new values, new fields, etc.) This occurred January 2016.

- f. What crash reporting software does your state use?

There are multiple software used by multiple vendors; potentially a separate software for each vendor.

- g. What is the timeframe from the crash occurring to the report being available for extraction from the system?

Average reporting days is 16. It was 13 but there was a small uptick due to agency reporting problems that is vendor related. Prior to electronic reporting in 2003 the average reporting days were 100 for paper reports. There are huge benefits to accuracy, timeliness and completeness in e-reporting.

- h. Are there any disadvantages to implementing an electronic crash reporting system?

Vendor issues: if they don't have a solid system, it affects us immensely. The more processes that are done in-house, the better.

- i. Who pays the vendors?

Local law enforcement agencies pay the vendors. It depends on the size of the agency; one vendor sells crash reports via an ecommerce site and waives the fee to law enforcement agencies if they sell enough reports.

- j. There are still problems with vendors despite having requirements?

Yes a couple vendors (New World, Sunguard) have records management systems but there are still technical issues with importing crash records from the patrol cars.

11. Does your state measure the performance of its crash reporting system?

Yes - error rates: agencies' average error rates, states' average error rates, per crash average error rates. We try to identify the fields that encourage these errors.

12. If your state does not electronically report crashes, why is this the case?

In Michigan's Upper Peninsula some agencies literally submit 10 crashes a year; for those types of agencies there is no real incentive to go electronic...the time savings incentive isn't there.

**APPENDIX I: Washington State Department of Transportation Interview
Notes**

The interview with Warren Stanley, the Senior Crash Data Systems Project Manager with WSDOT took place on February 29, 2016 at 2:00 p.m.

Reporting Thresholds

1. Please describe your department's background and responsibilities regarding crash reporting.

Originally, the Washington State Department of Transportation only collected crash data on the state route system. In 2002 the state legislature ask WSDOT to take over the processing of crash data for all roadways in the state as the state patrol, who is obligated by law to collect and report the data, had a failed project that resulted in a 6 year backlog of crash data. However, the legislature failed to change the law taking the responsibility away from the state patrol and granting it to WSDOT. So today we process crashes via an Interagency Agreement.

Today, WSDOT houses the statewide engineering and safety crash database. We collect all police traffic collision reports for all roadways within the state. We analyze the report and derive 21 additional data elements including the X,Y Coordinates. This safety and engineering data is provided to all state and local jurisdictions.

2. Because of a lack of formal legislation, have there been any issues with this interagency agreement?

It has been seamless and cooperative until 2014, when there was a lawsuit where a biker on bridge got hurt, but no crash report was filed. He was an attorney and went to state patrol (at the time it was an imbedded unit in the DOT) and he claimed US 23, section 409 - data cannot be used against you in court. State patrol used 409 protection regarding enforcement data and safety data. Out of this case Washington passed legislation to give the crash database to the State Patrol. It is smooth except when dealing with attorneys.

3. What agency is the statutory record holder of crash records?

The Washington State Patrol (WSP) who has delegated it to WSDOT via an Interagency Agreement. The WSP, via a memorandum of understanding (MOU) owns the collision reports and takes the responsibility to analyze the data and give it to WSDOT.

4. What is your state's current crash property damage threshold?

\$1,000 in damage to any unit and or an Injury or death.

5. Has this threshold changed in the last fifteen years? If yes:

- a. What was the impetus to change the threshold?

In January 2015 the damage threshold was changed from \$750 to \$1,000. This was changed due to the number of property damage only collisions. It was apparent that a simple scratch or dent took more than \$750 to fix.

- b. Who were the biggest proponents and opponents of the threshold change?

We really had no opponents; in fact, WSDOT along with others recommended a higher damage threshold rate of \$1400, but the Chief of the WSP decided on this number.

- c. How did your state decide what the new threshold would be?

By law, our damage threshold is determined by the Chief of the Washington State Patrol. He didn't base it on research, he just decided on \$1000. WSDOT wanted \$1400 based on documentation of Injury crashes and reportable collisions, but the threshold change is solely the Chief's decision, though he is a Cabinet member.

- d. What was the process to change the threshold (legislation enacted, amended, etc.)?

The Chief of the Washington State Patrol submitted a Washington Administrative Code (WAC) increasing our damage threshold to \$1,000.

We changed the threshold because there were problems with local law enforcement, especially when funds were tight; they only responded to blocking or injury crashes because the threshold was too small to respond to a scratch. We worked with law enforcement for more reasonable number.

- e. What were the benefits (or drawbacks) on your state's crash record reporting system?

Very minimal, we had to update our manual and change a business edit in our crash processing system known as Crash Location Analysis System (CLAS)

- f. Were there any costs associated with the threshold change?

None

- g. How did the crash numbers change after the threshold increase (compare before & after)?

During the past two years Washington has seen a 15% increase in crashes. However, this is not attributed to the raised damage threshold. It is contributed to an increase in miles traveled in our state with the improved economy. There was not a decrease in reportable crashes, actually an increase...attributed to the better economy.

Reporting Costs

6. How many total crashes (including fatal, serious injury, non-serious injury, etc.) did your state report this last calendar year?

Total Crashes – 117,113

Fatal Crashes – 493

Serious Injury Crashes – 1,779

Evident Injury Crashes – 8,977

Possible Injury Crashes – 25,844

Property Damage Only Crashes – 80,020

7. Please describe your crash reporting process from start to finish, with what happens after a crash occurs to who stores the data. Please provide a diagram of your state's crash reporting process if available.

There is an imbedded WSP unit imbedded at the DOT and local law enforcement support this unit. Additionally, citizens can submit their own reports if an officer is not there. While these self reports are still collected, they haven't been part of the data pool that is analyzed because self reports over report injuries, the fault is unclear, crash locations are off, etc.

Electronic reporting: Police submit reports, they go into SECTOR, get approved by a supervisor; once approved, the reports go through the Justice Information Network Data Exchange (JINDEX), then to the DOT where reports are validated against business edits. The reports then get a report number assigned to it. If the report is rejected, there is reasoning why. Once finished, reports go back to the state patrol & the Department of Licensing for the Driver Responsibility Unit.

8. Does your state cover all associated costs for crash reporting or does it partner with outside private organizations/vendors to assist with the collection and retention of crash records? Please explain.

The state covers all costs.

9. Does your state track the total annual cost to report crashes?

No

10. Does your state track the cost to report a single crash?

No

11. How much does it currently cost your state to:

All I can report is that we have 18 FTE's that are responsible for the collection, analyzing and reporting of crash data at a cost of \$3 million per biennium; \$1.5M per year.

12. Does your state track the crash related costs associated with the following areas?

No

Electronic Reporting

13. Does your state electronically submit crash records? If yes:

- a. What were the most significant challenges to bringing the electronic system online (e.g. political, capacity, or technical challenges)?

We had to change legislation allowing electronic signatures. We had to change the law to allow a user ID and password to act as an electronic signature for electronic crash reports and tickets.

- b. What was the approximate cost to implement this electronic reporting system?
The Electronic application known as the Statewide Electronic Collision and Tickets Online Records (SECTOR) was implemented in 2007. It was implemented via a contractor for \$450,000. This money was all state funds, nothing federal. Staff costs were absorbed by each agency involved in the project. We do use Federal 408 funding to provide barcode scanners and laptops to law enforcement officers as an incentive to use SECTOR.
- c. Do all agencies use SECTOR or are there different software across Washington?
SECTOR is free to local law enforcement but these agencies can build their own formats to meet the minimum field requirements.
- d. Does Washington State use vendors for the processing & maintenance of electronic reporting?
An outside vendor created SECTOR but WSP owns the source code and the software and WSDOT houses the data. We are looking into Appriss.
- e. What percentage of crash records are submitted electronically?
As of December 31, 2015, 85% of all crash reports are submitted electronically by law enforcement. However, this has been a slow process since 2007 please see attached chart.
- f. What parts of the crash reporting system are electronic and what parts are not?
All parts are electronic, except that a report number is later assigned to it via the DOT.
- g. What is preventing all crash records from being submitted electronically?
There is no law requiring local law enforcement to submit their crash reports electronically. It is voluntary; the biggest issues from getting us to a 100% electronic submittal rate are the cost and maintenance of the equipment needed to submit the reports electronically.

Primarily that not enough cost and time savings for small agencies with low crash volumes. However, Seattle is not electronic and this city generates 11% of the state's crash reports.
- h. Have you evaluated the cost differential between paper and electronic crash reporting? If yes what have you found?
We have not studied the monetary costs, but we have documented the time difference and the quality of the data. For example: the average time it takes to process a paper report in the field is 30 minutes compared to 10 minutes electronically. Also, the average rejection rate for accuracy and completeness is 25% on paper vs less than 1% for electronic.
- i. Is there one standard vendor/crash reporting format or template or multiple formats?

We have one XML schema that must be used in order to submit collisions electronically. All applications must meet this schema.

- j. What crash reporting software does your state use?

We have a custom built application that we provide free to law enforcement agencies. This application was developed by the same contractor that developed KY OPS in Kentucky.

- k. What is the timeframe from the crash occurring to the report being available for extraction from the system?

Currently the average time is two days from the date of the collision. This is primarily because we have a supervisor approval process for crash reports that causes the 48 hour delay. However, this is still good compared to 14 days for paper reports. I have attached a graph that shows the time it takes for us to receive electronic crashes.

- l. How has the implementation of the electronic reporting system impacted reporting costs and time?

We have experienced a tremendous increase in timeliness, accuracy and completeness since the implementation of electronic crash reporting.

Also WSDOT has also significantly saved the time it takes to enter a crash incident into our data base for an electronic report. I can provide more information if you are interested.

- m. Are there any disadvantages to implementing an electronic crash reporting system?

My only warning is to make sure all edits that are used for the capturing of electronic data are black and white. We have had to do some re-work on business edits that contain grey areas.

Examples of black & white, versus gray, edits: if a crash occurred at this time of day then street lights were on or off? But street lights come on and off at different times of the day across the state; one must be 16 years old to drive but if this field doesn't allow for an entry below 16 years then we can't capture underage crashes.

14. Does your state measure the performance of its crash reporting system?

Yes: completeness, timeliness, accuracy. Paper reports used to take 14 – 21 days to process, now 3 with electronic reporting. It is easier to read reports when we don't have to decipher handwriting; paper reports took 30 minutes to complete and electronic ones take 10 minutes...which allows crash scenes to be cleared more quickly, which reduces congestion...this in itself represents a cost savings.

APPENDIX J: Georgia Department of Transportation Interview Notes

The interview with Dave Adams, the State Safety Manager with GDOT took place on June 10, 2016.

Reporting Thresholds

1. Please describe your department's background and responsibilities regarding crash reporting.

GDOT is responsible for all statewide crash reports. This is defined by Georgia State Code. In particular, the responsibility falls within traffic operation division and the safety programs unit.

2. What agency is the statutory record holder of crash records?

GDOT

3. What is your state's current crash property damage threshold?

\$500 – It has been this way a long time, perhaps 20 Years.

4. Has this threshold changed in the last fifteen years?

Over the last 10 years, this has not been an item on the legislative docket. There is no interest.

Reporting Costs

5. How many total crashes (including fatal, serious injury, non-serious injury, etc.) did your state report this last calendar year?

GDOT saw 437,185 crashes in 2015. They see on a given year about 400,000 crashes. Of these about 30,000 are on private property, while the rest are on public roadways.

6. Please describe your crash reporting process from start to finish, with what happens after a crash occurs to who stores the data. Please provide a diagram of your state's crash reporting process if available.

Georgia is an absolute open state. This means that local law enforcement is allowed to partner with anyone they want to. 90% of crashes are reported electronically. Some agencies still choose to send in paper.

Currently the state contracts with Appriss. Therefore Appriss has to work with all agencies who submit to "crosswalk" the reports (ensure that all data is shared).

Electronic reports go straight to Appriss. For paper reports, Appriss hires a 3rd party vendor who receives the print copies from GDOT, who forwards records from law enforcement agencies.

7. Does your state cover all associated costs for crash reporting or does it partner with outside private organizations/vendors to assist with the collection and retention of crash records? Please explain.

In Georgia, Appriss represents a unique data model.

Instead of the state paying Appriss to provide a service, Appriss provides the service at no cost. Appriss provides crash data to various organizations and they sell data and crash reports with a convenience fee.

From the state's perspective this is a wonderful arrangement. When the state recognized that they wanted to go electronic, they researched the types of available services. They really dug around to see what companies were out there. Initially the quotes that they received were very expensive; however, Open Portal (Later Appriss) indicated that their services had no charge.

Open Portal started out working with Indiana and Kentucky using a single open portal client interface. In Georgia, Appriss is working hard to verify when the data gets pushed or pulled out of the system. They have to be able to receive and sync data from third party developers who are contracted to different local law enforcement agencies. This creates a big challenge as all software updates need to be coordinated through Appriss and GDOT for the system to work. While the system is complicated and has some drawbacks GDOT feels that this business model is a tremendous savings for the citizens of Georgia.

Previously, GDOT had a huge room of people who were keying in data (with an approximate budget of \$2.5 Million annually). Now they have redirected the funds to much better use: money spent on safety / engineering / etc. If New Jersey is going in this direction they need to get everyone on the same page. The benefits to law enforcement are huge.

The Crash Records Unit spends about \$130,000 annually to maintain and manage the Appriss contract, and ensure that things are working. This figure would be significantly less if the State chose to use a single source portal for all law enforcement agencies.

Within the Safety Unit, \$80,000 is required to manage the paper scanning process. The State also must spend about \$50,000 to manage and coordinate the multiple vendors, which is a significant piece.

GDOT estimates that Appriss spends at least \$100,000 of their own funds per year to coordinate / accommodate third party software developers.

8. Does your state track the total annual cost to report crashes?
 - a. How did you determine that (note source or research referenced)?

The state does not track the total costs.

Previously, GA was paying around \$2.5 million per year for this service.

With the changeover from paper to electronic reports, there was no change in the number of crashes. What did change was the timeliness that the reports were submitted. Previously, it took 3 to 9 months to process paper forms; now the records are submitted and updated the next day.

The challenge is that GDOT is looking at the cross checks (valid codes) and doing pretty good with this. They are going through the rules to tighten up and have a better set in place. The accuracy issues don't fall on the shoulders of Appriss, but they fall on the shoulders of the third party providers. Often third party vendors do not have checks in the software that kick records back to law enforcement agencies if there are errors.

Time line for electronic implementation:

2005 Contract initiated with Open Portal

2007 Open Portal purchased by Appriss

2012 renewed contract with Appriss for an additional five years

9. Does your state track the cost to report a single crash?

No. GDOT does not track this.

Electronic Reporting

10. Does your state electronically submit crash records? If yes:

- a. What is preventing all crash records from being submitted electronically?

Comfort level of local law enforcement agencies and the number of crashes / records that must be processed.

- b. What is the timeframe from the crash occurring to the report being available for extraction from the system?

Overnight for electronic submission. Time not tracked for paper. Local law enforcement agency must submit paper reports to GDOT. GDOT then submits the reports to Appriss subcontractor to input data into the system.

- c. How has the implementation of the electronic reporting system impacted reporting costs and time?

GDOT hasn't tracked the cost savings to the state post transition to electronic submission. However, they estimate huge time and cost savings.

Looking at paper records alone, the State of Georgia has 400,000 crashes. If the average form is 2 pages long, that means 800,000 sheets of paper must be mailed to GDOT; 800,000 sheets of paper must be stored in filing cabinet at local law enforcement; 800,000 sheets must be cycled through the court system. It is estimated that at least 24 Million pieces of paper are generated annually. At 5 cents a page that is \$1,200,000. This is only the cost to buy the paper and does not capture the administrative, storage, mailing and processing tasks.

- d. Are there any disadvantages to implementing an electronic crash reporting system?

No disadvantages.

APPENDIX K: New Jersey State Police Interview Notes

The interview with Michael Rizol, Traffic Officer for the New Jersey State Police (NJSP), occurred on December 13, 2016 at 9:30 a.m.

1. In trying to calculate the cost to report crashes in NJ, CS would like to multiply the time it takes for an officer to report a crash by the average salary of that officer; therefore:
 - a. Can you please give an approximation of the median salary of police officers reporting on crashes?

The median salary of NJSP troopers varies from agency to agency but the median salary of those taking crash reports is approximately \$65-70K annually; a trooper starts at about \$45-50K and a senior trooper earns about \$90K.

- b. Approximately how long does it take an officer to complete the NJTR-1?

The time to complete traditional and e-reports, respectively, is unknown because it was never timed out. However, the time for police to travel to the crash scene, interview the drivers, write the report then return to duty should all be accounted for. Mr. Rizol mentioned one hour to complete these steps, and that if officers travelled to a crash scene but didn't have to report the crash it would "greatly decrease time."

- c. How much time does it takes NJSP on average to complete the NJTR-1 form for property damage only crashes?

Mr. Rizol did not even hazard an approximation for this; he doesn't know.

2. What does NJSP think about an update to the NJTR-1 form that includes a field for the officer to estimate the damage in property damage only crashes? This would allow NJDOT / NJSP to better calibrate the required PDO threshold in the future.

Any additional required information is more of a burden. While crash reporting is more of a burden than a benefit to State troopers, it is a service that benefits the MVC, NJDOT, NHTSA, insurance agencies and the citizens who get the crash reports. In a perfect world if a crash was under \$1000 then people wouldn't even call the state police but would handle it on their own, though that won't happen.

3. What does NJSP think of the following:

- a. What would be an appropriate threshold increase?

Regarding what the threshold should be, that depends on NJDOT and the MVC because NJSP report all crashes regardless of threshold. NJDOT uses the data to track how safe the roads are and MVC uses the data to see how well drivers drive. A \$1000 threshold would eliminate the need for all municipal officers to report scraped doors, fender benders, etc. if the driver(s) involved in the crash agreed to settle the issue themselves. How important to NJDOT and MVC is data on very minor crashes?

- b. How would a threshold increase impact the number of crashes reported?

New Jersey State Police (NJSP) report all crashes, regardless of the dollar threshold or value of the crash, but only reportable crashes go to NJDOT. Reportable crashes are those involving death, injury or damage above \$500.

- c. Will a higher threshold equate to a faster processing of crash records by police departments?

Not for State Police, because they report all crashes. Municipal police forces could benefit, because it is possible for officers to let drivers work it out when they see that a crash is small; in this scenario the municipal officer wouldn't need to complete a crash report or send it on to NJDOT or the MVC.

- d. Would there be any negative impacts of less reported crashes?

Because less reports would be sent to NJDOT, this means less crash data. However, nearly any fender-bender or scratched door hits the \$500 threshold. While less data would be collected, are these minor scrapes and scratches data that NJDOT cares about? The only use of such data may be concentrations of fender-benders on roads to prove congestion. MVC will also lose data on people who crash.

- e. NJ is moving towards electronic crash record submission - how will this impact NJSP and local law enforcement agencies?

This will not impact NJSP as we already report 100 percent of crashes electronically. This would impact municipal police forces that currently don't report electronically in various ways. The drawbacks to electronic reporting include a learning curve, especially for older officers, and that it takes longer to complete a report (Mr. Rizol did not give an estimate how time required to fill out traditional and e-reports though offered a guess that e-reports take 10 minutes longer than traditional reports).

The benefits of electronic reporting is that:

- *Data is more complete and accurate*
- *Data is stored in RMS system which makes it easier to maintain, manage and distribute reports*
- *Overall higher quality with better crash diagrams*

- f. Can you identify any legislative barriers or opportunities related to a threshold increase?

The PDO threshold is law 39:4-130 and as such would require a legislative process. It would probably be supported because the public would support it, because it would mean less crashes on drivers' records, which would lower insurance costs. Because of this insurance companies may be opposed to the hike; NJDOT and MVC may be opposed, though the data gathered is very minor crashes and doesn't yield information about dangerous intersections, etc.

4. In trying to calculate the cost to report crashes in NJ, CS would like to multiply the time it takes for an officer to report a crash by the average salary of that officer; therefore:
 - a. Can you please give an approximation of the median salary of police officers reporting on crashes?

The median salary of NJSP troopers varies from agency to agency but the median salary of those taking crash reports is approximately \$65-70K annually; a trooper starts at about \$45-50K and a senior trooper earns about \$90K.

- b. Approximately how long does it take an officer to complete the NJTR-1?

The time to complete traditional and e-reports, respectively, is unknown because it was never timed out. However, the time for police to travel to the crash scene, interview the drivers, write the report then return to duty should all be accounted for. Mr. Rizol mentioned one hour to complete these steps, and that if officers travelled to a crash scene but didn't have to report the crash it would "greatly decrease time."

- c. How much time does it takes NJSP on average to complete the NJTR-1 form for property damage only crashes?

Mr. Rizol did not even hazard an approximation for this; he doesn't know.

5. What does NJSP think about an update to the NJTR-1 form that includes a field for the officer to estimate the damage in property damage only crashes? This would allow NJDOT / NJSP to better calibrate the required PDO threshold in the future.

Any additional required information is more of a burden. While crash reporting is more of a burden than a benefit to State troopers, it is a service that benefits the MVC, NJDOT, NHTSA, insurance agencies and the citizens who get the crash reports. In a perfect world if a crash was under \$1000 then people wouldn't even call the state police but would handle it on their own, though that won't happen.

6. What does NJSP think of the following:

- a. What would be an appropriate threshold increase?

Regarding what the threshold should be, that depends on NJDOT and the MVC because NJSP report all crashes regardless of threshold. NJDOT uses the data to track how safe the roads are and MVC uses the data to see how well drivers drive. A \$1000 threshold would eliminate the need for all municipal officers to report scraped doors, fender benders, etc. if the driver(s) involved in the crash agreed to settle the issue themselves. How important to NJDOT and MVC is data on very minor crashes?

- b. How would a threshold increase impact the number of crashes reported?

New Jersey State Police (NJSP) report all crashes, regardless of the dollar threshold or value of the crash, but only reportable crashes go to NJDOT. Reportable crashes are those involving death, injury or damage above \$500.

- c. Will a higher threshold equate to a faster processing of crash records by police departments?

Not for State Police, because they report all crashes. Municipal police forces could benefit, because it is possible for officers to let drivers work it out when they see that a crash is small; in this scenario the municipal officer wouldn't need to complete a crash report or send it on to NJDOT or the MVC.

- d. Would there be any negative impacts of less reported crashes?

Because less reports would be sent to NJDOT, this means less crash data. However, nearly any fender-bender or scratched door hits the \$500 threshold. While less data would be collected, are these minor scrapes and scratches data that NJDOT cares about? The only use of such data may be concentrations of fender-benders on roads to prove congestion. MVC will also lose data on people who crash.

- e. NJ is moving towards electronic crash record submission - how will this impact NJSP and local law enforcement agencies?

This will not impact NJSP as we already report 100 percent of crashes electronically. This would impact municipal police forces that currently don't report electronically in various ways. The drawbacks to electronic reporting include a learning curve, especially for older officers, and that it takes longer to complete a report (Mr. Rizol did not give an estimate how time required to fill out traditional and e-reports though offered a guess that e-reports take 10 minutes longer than traditional reports).

The benefits of electronic reporting is that:

- *Data is more complete and accurate*
- *Data is stored in RMS system which makes it easier to maintain, manage and distribute reports*
- *Overall higher quality with better crash diagrams*

- f. Can you identify any legislative barriers or opportunities related to a threshold increase?

The PDO threshold is law 39:4-130 and as such would require a legislative process. It would probably be supported because the public would support it, because it would mean less crashes on drivers' records, which would lower insurance costs. Because of this insurance companies may be opposed to the hike; NJDOT and MVC may be opposed, though the data gathered is very minor crashes and doesn't yield information about dangerous intersections, etc.