Display 3.2.1d First Cut Hotspot Run for All Interstates in Alabama

Segment length: 20 miles
Criteria: three or more CMV crashes caused by 16-20 year old drivers
Time span: January 2007 through August 2010 (all data available)

County	City	Route	Beg MP	End MP	Crashes	Fatal	Injury	MVM	C/BVM
Mobile	Mobile	I-65	1	21	9	0	2	1598	5.63
Baldwin	Rural Baldwin	I-65	29.8	49.8	3	0	2	533	5.63
Escambia	Rural Escambia	I-65	62.3	82.3	4	0	2	560	7.14
Conecuh	Rural Conecuh	I-65	96.3	116.3	3	0	1	617	4.86
Butler	Greenville	I-65	129.9	149.9	4	1	0	760	5.27
Montgomery	**Montgomery**	**I-65**	**170**	**190**	**8**	**0**	**5**	**1378**	**5.81**
Chilton	**Rural Chilton**	**I-65**	**194.2**	**214.2**	**3**	**0**	**1**	**920**	**3.26**
Multiple	***Rural Shelby***	***I-65***	***236.1***	***256.1***	***17***	***0***	***4***	***2498***	***6.80***
Jefferson	Multiple	I-65	258	278	14	0	2	2025	6.91
Cullman	***Rural Cullman***	***I-65***	***288.2***	***308.2***	***9***	***0***	***1***	***1043***	***8.63***
Cullman	***Rural Cullman***	***I-65***	***311.3***	***331.3***	***3***	***0***	***1***	***856***	***3.50***
Morgan	***Rural Morgan***	***I-65***	***335***	***355***	***5***	***0***	***2***	***714***	***7.00***
Greene	Rural Greene	I-59	44.1	64.1	3	0	1	694	4.32
Tuscaloosa	***Rural Tuscaloosa***	***I-59***	***64.5***	***84.5***	***12***	***0***	***3***	***1127***	***10.65***
Tuscaloosa	***Rural Tuscaloosa***	***I-59***	***89.8***	***109.8***	***4***	***0***	***1***	***1388***	***2.88***
Jefferson	***Birmingham***	***I-59***	***112.8***	***132.8***	***12***	***1***	***2***	***2696***	***4.45***
Jefferson	Rural Jefferson	I-59	137.3	157.3	3	0	0	907	3.31
Saint Clair	Rural St. Clair	I-59	164.4	184.4	4	0	1	572	6.99
Mobile	***Multiple***	***I-10***	***1.3***	***21.3***	***9***	***0***	***4***	***1583***	***5.68***
Multiple	***Mobile***	***I-10***	***22***	***42***	***13***	***0***	***5***	***1589***	***8.18***
Baldwin	***Rural Baldwin***	***I-10***	***42.4***	***62.4***	***3***	***0***	***0***	***775***	***3.87***
Saint Clair	Rural St. Clair	I-20	138.1	158.1	7	0	2	1492	4.69
Multiple	Rural Talladega	I-20	168	188	10	0	2	1023	9.77
Calhoun	Rural Calhoun	I-20	188	208	5	0	0	941	5.31
Montgomery	***Montgomery***	***I-85***	***1***	***21***	***8***	***0***	***2***	***1651***	***4.85***
Macon	***Rural Macon***	***I-85***	***23.2***	***43.2***	***3***	***0***	***1***	***858***	***3.50***
Lee	***Opelika***	***I-85***	***47.6***	***67.6***	***7***	***0***	***3***	***942***	***7.43***
Jefferson	Multiple	I-459	5	25	7	1	2	2035	3.44
Jefferson	Rural Jefferson	I-459	26	46	4	0	1	1773	2.26
Madison	Athens	I-565	0.6	20.6	3	0	0	1630	1.84
Tuscaloosa	Tuscaloosa	I-359	0.1	20.1	5	0	2	1339	3.73

Bold and italics indicate those contiguous segments that had the highest crash frequencies.

There are five sets of contiguous segments that show a high number of crashes for this subset; listed in order that they occur on the list, they are:

- I-65 from 170.0 through 256.1 (about 86 miles), with 28 crashes,
- I-65 from 288.2 through 355.0 (about 67 miles), with 17 crashes,
- I-59 from 64.5 through 132.8 (about 68 miles), with 28 crashes,
- I-10 from 1.3 through 62.4 (about 60 miles) with 25 crashes, and
- I-85 from 1.0 through 67.6 (about 77 miles) with 18 crashes.

These are marked in italics and bold in the display above. The only segment that has a high crash number (14) that was excluded was on I-65 in Jefferson County; it was excluded because compared to the other included segments it was very highly urbanized and would not be comparable. This is not to say that it would not be affected inasmuch as it falls between two other segments that are being included for consideration.

3.2.1.2.2 Establishment of Test and Control Areas

The following table presents the pros and cons of selecting the particular segment for the TACT treatment:

Route; Milepost	Pros of Selection	Cons of Selection	Decision
I-65; 170-256	Connector between major cities High number of crashes	No major university	Control or treatment
I-65: 288-355	Connector between major cities	Low number of crashes	Control
I-59: 64-133	Proximal to major university Connector and high crash #		First treatment
I-10: 1-62	Not a connector	Highly out of state traffic	Potential control
I-85: 1-68	Proximal to major university Connector between major cities	Lower number of crashes	Second treatment

Because the primary target of the PI&E program was the young driver (age 16-25), the proximity to a major university was the primary consideration, given that a significantly higher number of youth-caused CMV crashes occurred on the segment with respect to the rest of the state. In this case, all of the segments qualified as high-crash segments for youth-caused CMV crashes compared to segments of similar length throughout the state.

The secondary consideration was whether the segment was a connector between two major cities (or metropolitan areas). If so, the rationale was that there would be repeated commuter type of traffic that would lead to a greater exposure to the billboards over time. The I-59 segment connects Tuscaloosa and Birmingham; the two I-65 segments connect Montgomery to Birmingham and Birmingham to Huntsville, respectively; and the I-85 segment connects

Montgomery to the Auburn-Opelika metropolitan area. All of the segments are predominantly rural and thus handling traffic of the highest speeds.

The five highest composite segments above were re-run to produce a summary for each and re-ordered by number of crashes, which is given in Display 3.2.1e. Some of the composite segments were adjusted in order to exclude some obvious urban roadway sections that tend to suffer from periodic delays due to congestion at rush hours, and thus would not be a typical section of roadway, especially for observational studies.

Display 3.2.1e Refined Location Specification

Route	Beg MP	End MP	Crashes	Fatal	Injury
I-59	64.0	133.0	28	1	6
I-65	170.0	257.0	28	0	10
I-10	1.3	62.4	25	0	10
I-85	1.0	67.7	18	0	6
I-65	288.2	355.0	17	0	4

The first three locations are not significantly different as far as their total youth-caused CMV crashes are concerned; and similarly for the bottom two. All of these locations were significantly higher than any comparable-length segments statewide.

I-59 was chosen to be the first treatment location due to its proximity to the University of Alabama and the availability of nearby video cameras.

This led to the following update to the plan for the project:

- First treatment (early in 2011): I-59 in the Tuscaloosa-Birmingham corridor due to the high crash number, the proximity of a major university and the availability of installed fixed video cameras.
- Second Treatment (about two months later): I-85, which has a major university fairly well centered and is a connector between Montgomery and the Auburn-Opelika metropolitan area.
- Third Treatment (if resources allow): I-65 in the rural area from Montgomery to Birmingham, chosen since it is a connector between major cities and also had a high number of qualifying crashes. If resources do not allow the standard SE-PI&E package to be applied, then this corridor will serve as a control throughout the project.
- Potential controls also included the I-10 segment as well as the I-65 Birmingham to Huntsville segments.

The decision as to exactly which ones to include as controls was deferred until more information about the costs and timing of the SE and PI&E details were resolved.

3.2.2 Supplementary Problem Identification

The following topics were considered for additional problem identification type of analysis:

- Causal driver age;
- Point of initial impact; and
- Time of day and day of the week,

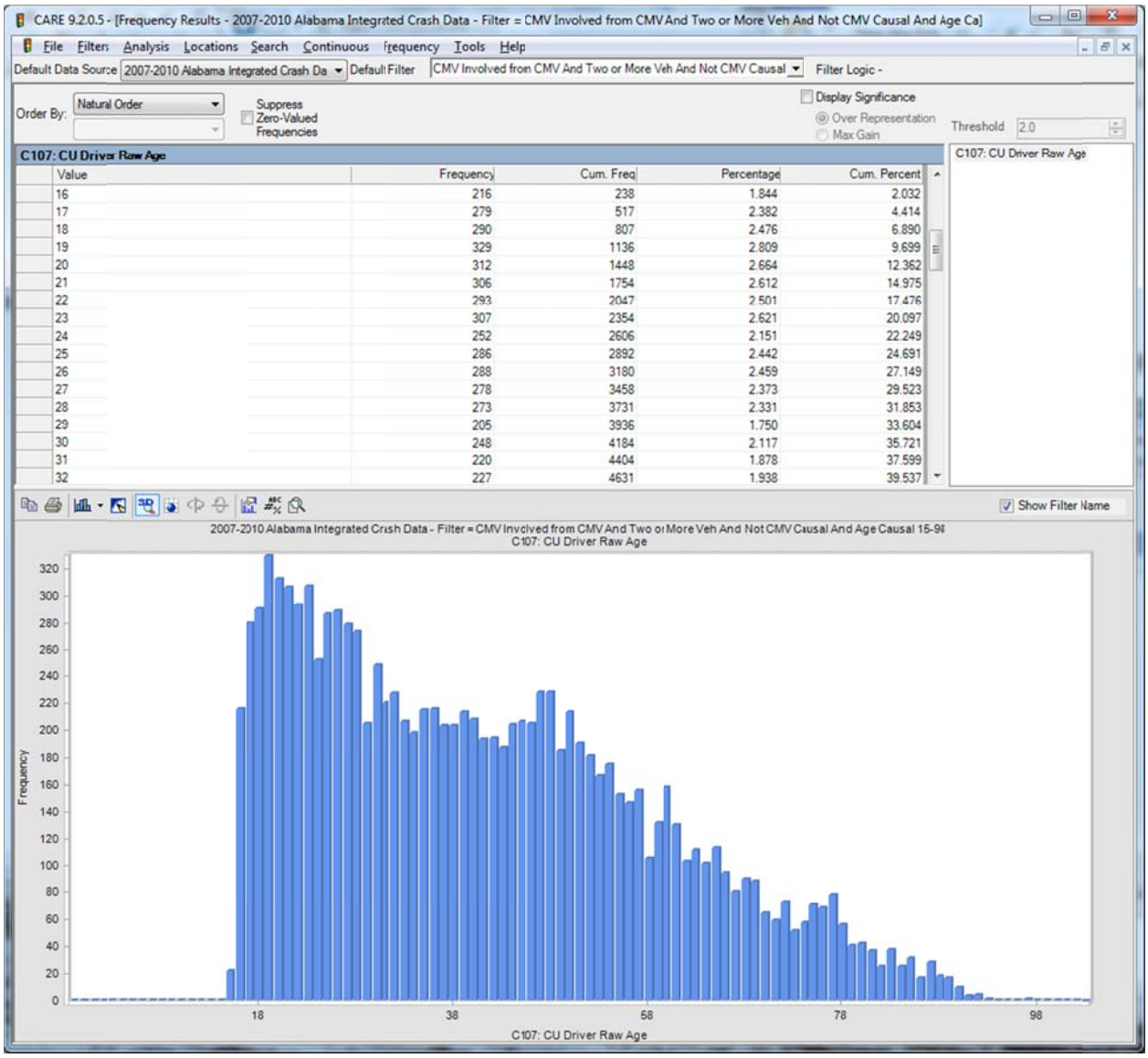
and they are considered in their respective subsections below. This is followed by a section that describes problem identification tools that are available to the patrol officer via the Internet.

3.2.2.1 Problem Identification Example 1: Causal Driver Age

Display 3.2.2.1 presents the frequency distribution for the car-driver in CMV-car crashes when the CMV driver is not at fault. All other things being equal, the expected percentage for any age is about 1.67%. That is, assuming that any one given age were equal in probability of causing this type of crash, if you were to arrive at the scene of a CMV-car crash caused by the car driver, the probability that the car causal driver is any age between 16 and 86 (as a cut-off point) the probability of any particular age would be 1/60 = 1.67%. Note that even the 16 year old driver is significantly higher in probability than this expected number despite their much lower exposure to truck traffic than would be expected of older drivers. The probabilities increase dramatically from above the age of 16, and they do not level out until the age of 31. There is a plateau at this point and a slight rise in the 47-48 years, after which the relative involvements (probabilities) drop off dramatically.

Of course, it can be argued that the exposure is higher due to the larger number of drivers at the lower ages, and it would be of interest to study this further. However, the raw number of drivers in each age group (which is fairly easy to obtain) does not tell the whole story, since the youngest drivers (16-20) probably do not put in as many miles in close proximity with CMVs as is true of the older drivers. So, to accurately quantify the over-representation of young causal drivers it would be necessary to consider their respective miles traveled in the proximity of CMVs. These data do not exist, and they would be exceedingly difficult to obtain. Further, the *reason* for the higher percentages of younger drivers is of no concern when it comes to directing TACT resources. Rather, the intent is to direct them to where they are likely to have the maximum impact. It seems quite clear that this would be focused toward drivers 28 or younger (i.e., aged 16-28 years). A filter of 16-20 years above was used in an effort to further restrict the focus to new and college-aged drivers. This is not inconsistent, and one reason for this target is that if these drivers are reached at the earlier age, the benefits will carry over into the 21-28 year ages.

Display 3.2.2.1 Age of Car Causal Driver in CMV-Car Crashes 2007-2010



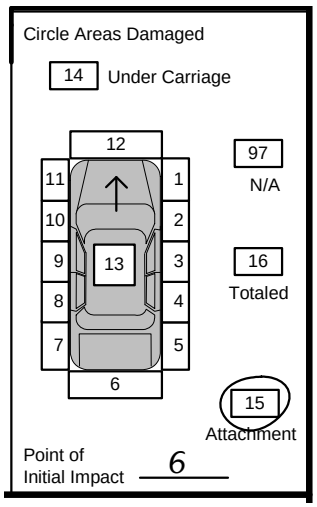
Value	Frequency	Cum. Freq	Percentage	Cum. Percent
16	216	238	1.844	2.032
17	279	517	2.382	4.414
18	290	807	2.476	6.890
19	329	1136	2.809	9.699
20	312	1448	2.664	12.362
21	306	1754	2.612	14.975
22	293	2047	2.501	17.476
23	307	2354	2.621	20.097
24	252	2606	2.151	22.249
25	286	2892	2.442	24.691
26	288	3180	2.459	27.149
27	278	3458	2.373	29.523
28	273	3731	2.331	31.853
29	205	3936	1.750	33.604
30	248	4184	2.117	35.721
31	220	4404	1.878	37.599
32	227	4631	1.938	39.537

3.2.2.2 Problem Identification Example 2: Point of Initial Impact

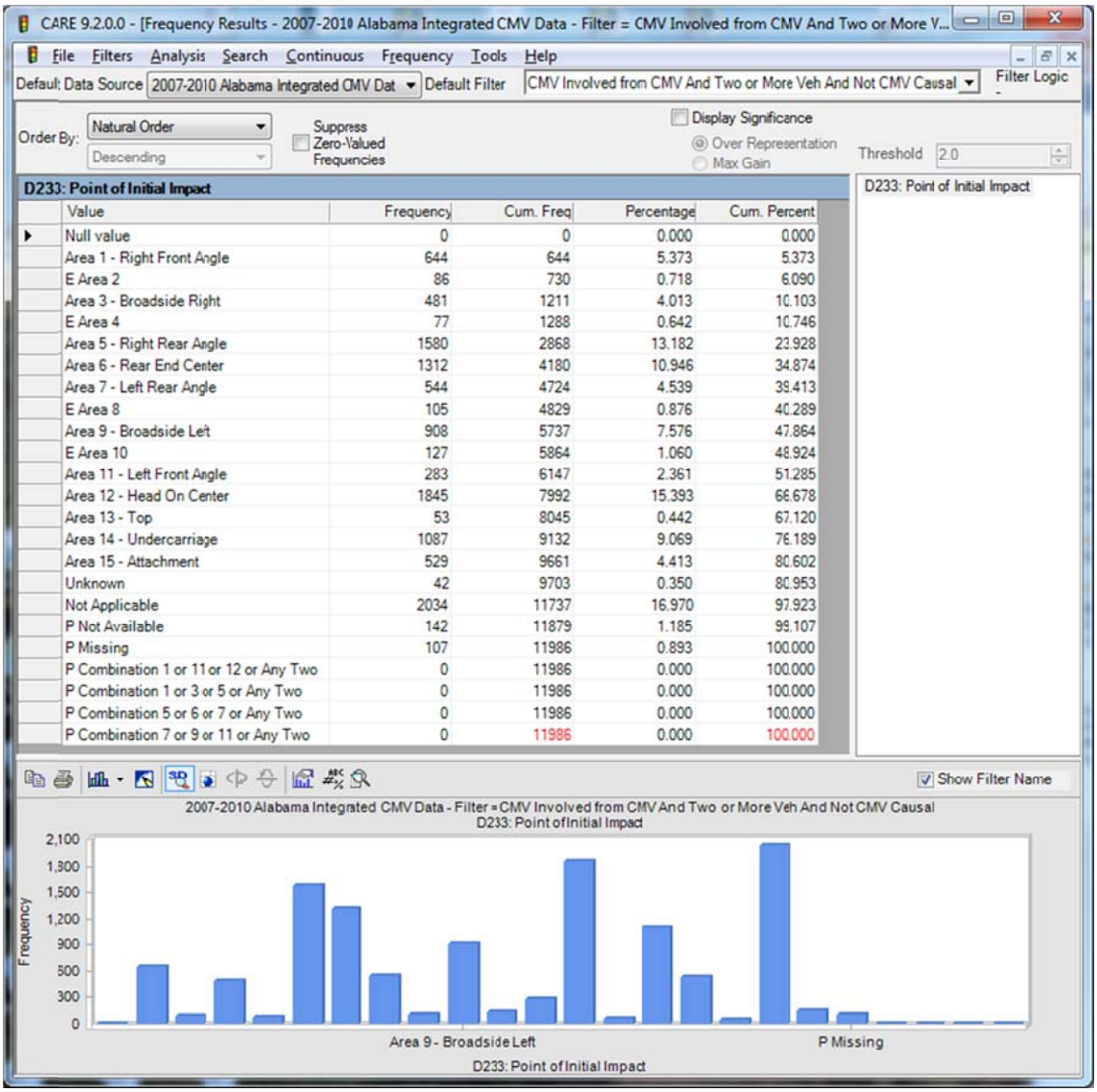
Another more detailed problem identification step that was performed for the recent Alabama project was done to support the PI&E effort. The question arose as to which of the critical areas around CMVs was experiencing more problems. The theory was that an excellent proxy could be exploited for information if a measure could be taken before and after (PI&E)) of the drivers' perceived relative importance of providing more space in one of the three following areas: (1) in front of the truck, especially after passing (the area given most consideration by most PI&E efforts in the past); (2) in the rear of the truck (tailgating); or (3) in the blind spots. The left and right blind spots were combined since the treatment for both is relatively the same, and it would be confusing to try to differentiate between them in a questionnaire.

So, the question was: Which of these three areas should be given the greatest concentration in the PI&E effort? It seemed reasonable that the area that was having the greatest crash frequency should receive greatest concentration, since this might be the area that the general driving public is not fully informed about. A variable within the Alabama crash records indicates the point of initial impact. While not a perfect indicator, this would tend to show which areas are most vulnerable in a CMV-car impact. The analysis was run on all crashes (not just youth-caused) from 2007 to 2010, on CMV involved crashes where there was a car and CMV involved, and the initial impact was on the CMV. This provided 11,986 CMVs for evaluation. The process was re-run with just youth-caused crashes with everything else the same. While this only provided 1,208 crashes, it was clear from the proportions that the overall conclusions would not be changed in any significant way, so the analysis was moved forward using all of the data (as opposed to the youth-caused subset).

Display 3.2.2.2 presents the point of initial impact on the CMV when involved in two-vehicle crashes in which the CMV was not the causal vehicle (filter: CMV Involved from CMV [dataset] AND Two or More Vehicles involved AND NOT CMV Causal Vehicle). The following is a key to the eCrash areas:



Display 3.2.2.2 Point of Initial Impact for Car-CMV Crashes



Value	Frequency	Cum. Freq	Percentage	Cum. Percent
Null value	0	0	0.000	0.000
Area 1 - Right Front Angle	644	644	5.373	5.373
E Area 2	86	730	0.718	6.090
Area 3 - Broadside Right	481	1211	4.013	10.103
E Area 4	77	1288	0.642	10.746
Area 5 - Right Rear Angle	1580	2868	13.182	23.928
Area 6 - Rear End Center	1312	4180	10.946	34.874
Area 7 - Left Rear Angle	544	4724	4.539	39.413
E Area 8	105	4829	0.876	40.289
Area 9 - Broadside Left	908	5737	7.576	47.864
E Area 10	127	5864	1.060	48.924
Area 11 - Left Front Angle	283	6147	2.361	51.285
Area 12 - Head On Center	1845	7992	15.393	66.678
Area 13 - Top	53	8045	0.442	67.120
Area 14 - Undercarriage	1087	9132	9.069	76.189
Area 15 - Attachment	529	9661	4.413	80.602
Unknown	42	9703	0.350	80.953
Not Applicable	2034	11737	16.970	97.923
P Not Available	142	11879	1.185	99.107
P Missing	107	11986	0.893	100.000
P Combination 1 or 11 or 12 or Any Two	0	11986	0.000	100.000
P Combination 1 or 3 or 5 or Any Two	0	11986	0.000	100.000
P Combination 5 or 6 or 7 or Any Two	0	11986	0.000	100.000
P Combination 7 or 9 or 11 or Any Two	0	11986	0.000	100.000

The following provides the rationale for translating the initial point of impact into an inference as to the error of the non-CMV vehicle (car) that caused the crash:

- Car was in the right blind spot: 1, 2, 4, 5.
- Car was tailgating: 6.
- Car was in the left blind spot: 7, 8, 10,11.
- Car was cutting off, slowing down or otherwise too close to the front of the CMV: 12.
- No inference can be made from any of the other categories

The following summarizes the various inferences drawn above with the most frequent listed first:

TYPE OF CAR ERROR	POINT OF IMPACT	NUMBER	PERCENT
Car in the right blind spot	1, 2, 4, 5	2387	19.9%
Car in the left blind spot	7, 8, 10, 11	1059	8.8%
Car was tailgating	6	1312	10.9%
Car too close in front of truck	12	1845	15.4%
Other (not applicable)	3, 9, 13-22	5383	44.9%

Assuming that this mapping of points of impact to errors of the automobile driver are correct, this indicates that blind spots are far more critical than tailgating or driving too close in front of a CMV (including cutting off the truck). Right blind spots are more of an issue than left blind spots; this is reasonable since passing a CMV on the right is a particularly hazardous driving maneuver. Also, it is reasonable to see more truck-hitting-car rear-end crashes than vice versa. Blind spots are approximated three times the problem of car tailgating, and about twice the problem of cars being too close in front of trucks (or truck tailgating).

The following are additional points for possible consideration:

- The relative speed of the car with respect to the truck is far more important than the distance allowed when passing. If a car is accelerating and going faster than the truck then the space between the car and the truck will continue to increase. The worst situation is when the car pulls in front of the truck and then slows down, even if it left plenty of room in pulling over ahead of the truck.
- To get out of the blind spot might require the car to either speed up or slow down. In any event the worst case situation is remaining for any length of time in the blind spot. Cars should never drive along side of trucks – they should either speed up or slow down, but not remain in the blind spot. It might be noted here that an initial recommendation to "speed up" as a countermeasure was removed from the Alabama TACT poster because law enforcement viewed it as giving car drivers a right to drive over the speed limit.
- Neither cars nor trucks should tailgate (i.e., continue to travel over an extended period of time within two semi-truck's length of the other vehicle). This can be avoided by moving into the other lane (preferably the left lane), passing the truck and maintaining a speed higher than that of the truck, or not passing but slowing down and allowing more room between the car and the truck.

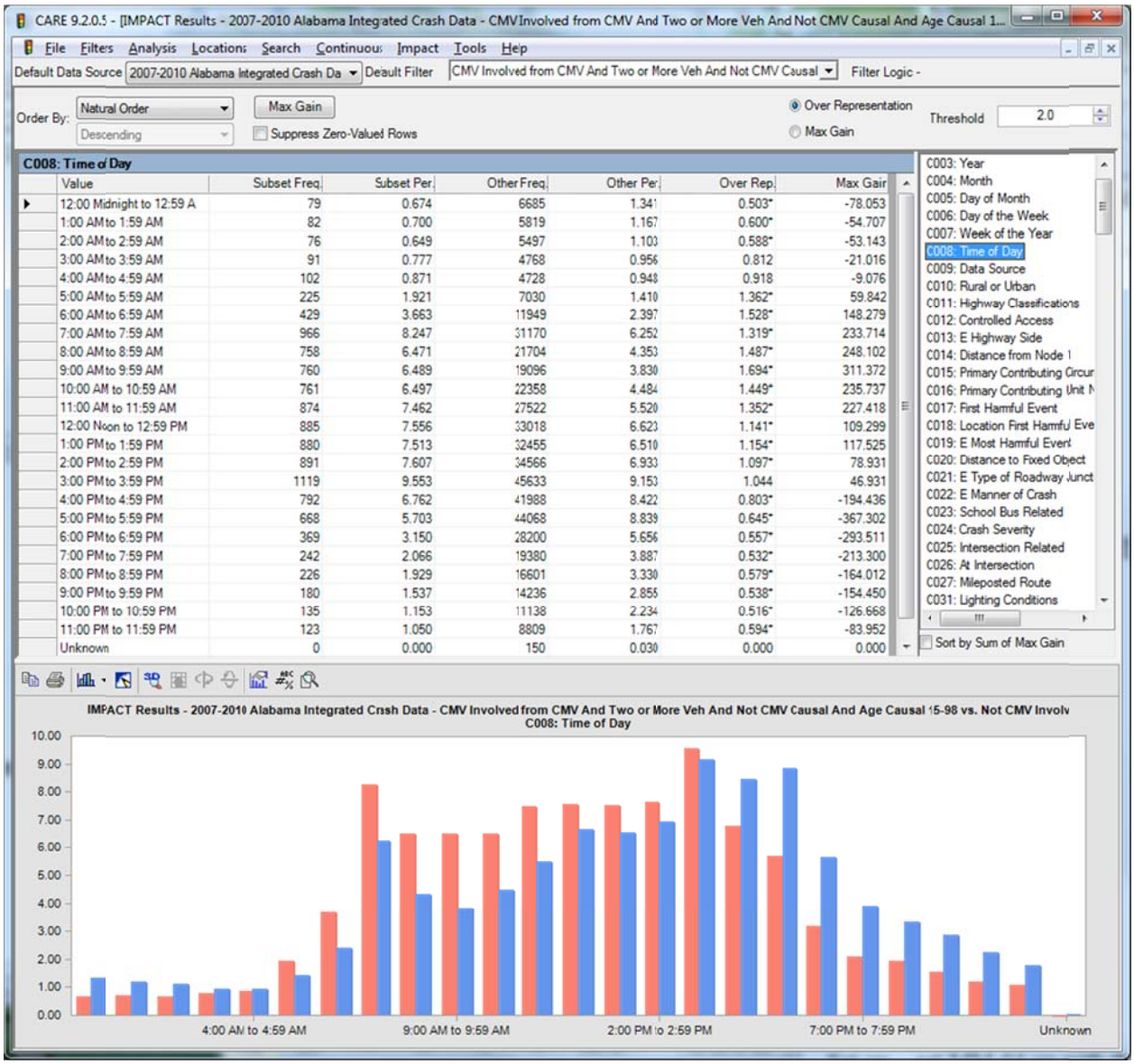
The above gives the rationale for the design of the billboard and posters used in this project to emphasize blind spots as opposed to tailgating. One of the questions in the drivers' survey had to do with the recognition of this, and it was assumed that if a change was detected between the before-during-after time periods that this would be a positive effect to either the billboard or the posters (or both).

3.2.2.3 Problem Identification Example 3: Time of Day and Day of the Week

In order to maximize the effectiveness of the TACT effort with regard to the target focus crash type under consideration, it is essential that the time of day and day of the week when most of these crashes are occurring be established and resourced be deployed accordingly. Recall that the focus crash type in this particular project was those crashes caused by younger (aged 16-28, with a special emphasis on the 16-20 year old drivers).

Time of Day

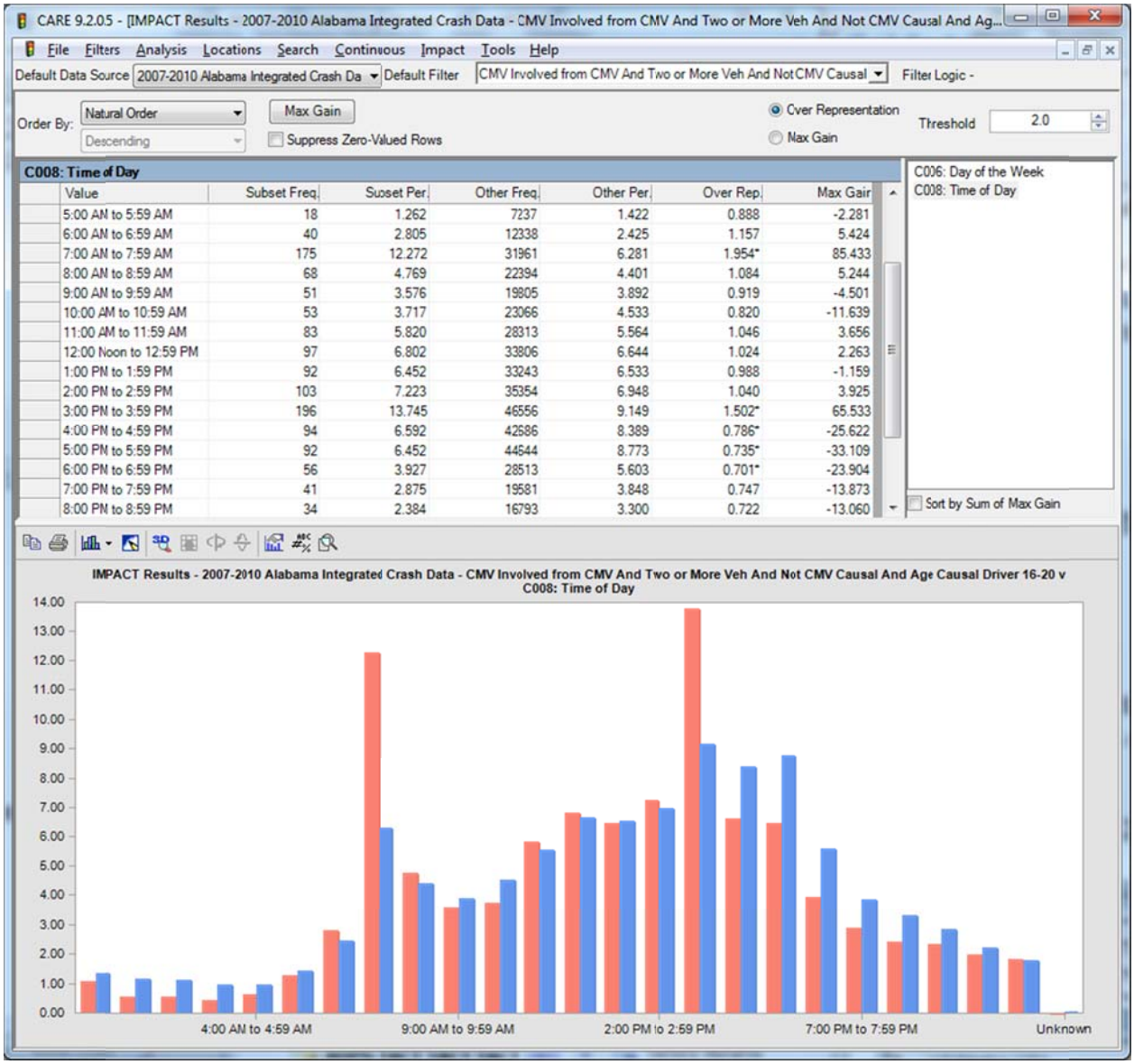
Display 3.2.2.3 Time of Day IMPACT Comparison for Focus Crash Type (All Ages)



Display 3.2.2.3 shows a comparison of CMV involved multi-vehicle crashes caused by car drivers (red bars) as compared to its complement (all other crashes – blue bars). It demonstrates that the day-time morning and early afternoon hours are those that should be given priority. The highest for both the CMV involved and non-CMV involved is 3:00-3:59 PM, which is the beginning of the afternoon rush hour. These concentration times for TACT are fortuitous in that law enforcement resources are often consumed in afternoon rush hour emergencies, and DUI enforcement during the later night-time hours.

It is interesting to compare the IMPACT run in Display 3.2.2.3, which includes causal drivers of all ages, to that given in Display 3.2.2.3a, which includes only causal drivers aged 16-20. Clearly the before and after school hours are greatly increased due to the presence of younger drivers at these times. While such a result is not expected to create a major change in the TACT approach, it is certainly be of interest to the patrol officers.

Display 3.2.2.3a Time of Day IMPACT for CMV Involved with Causal Drivers Aged 16-20

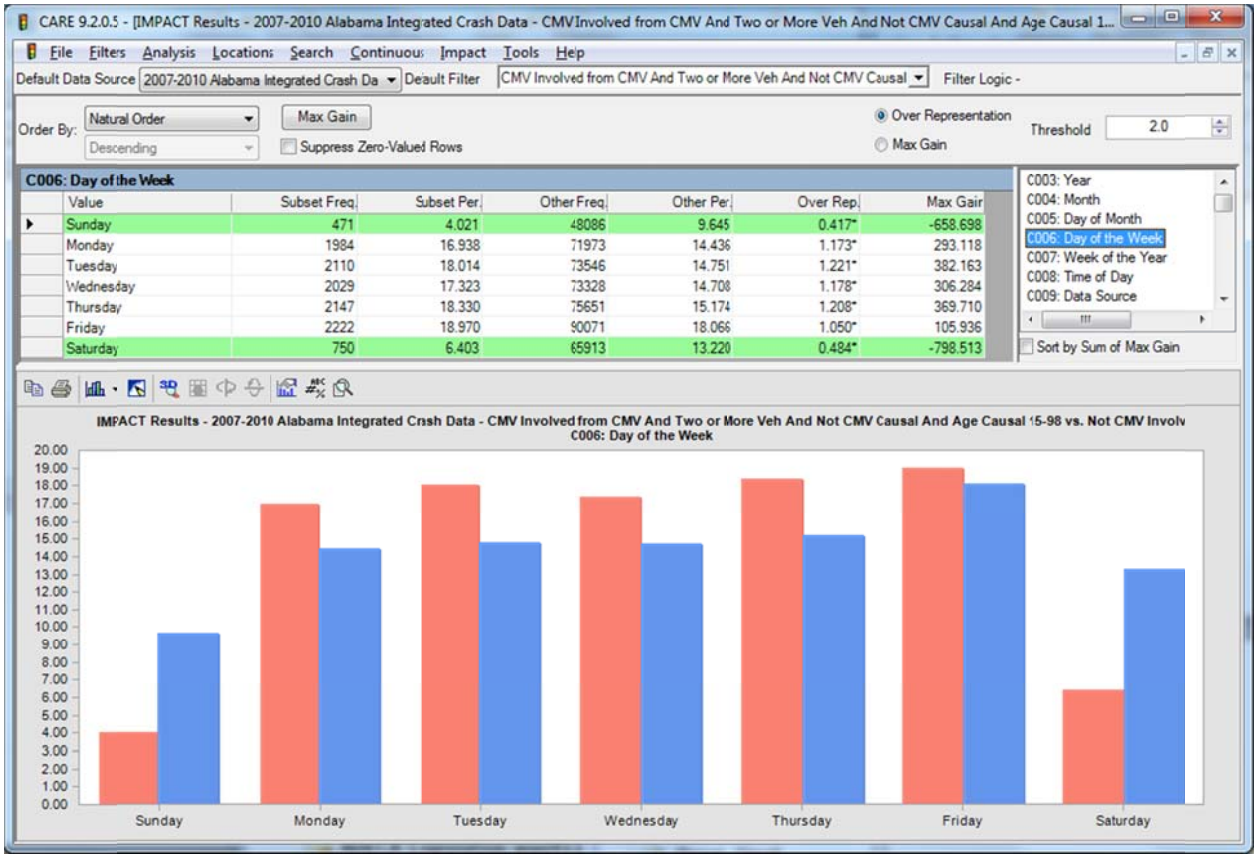


Value	Subset Freq.	Subset Per.	Other Freq.	Other Per.	Over Rep.	Max Gain
5:00 AM to 5:59 AM	18	1.262	7237	1.422	0.888	-2.281
6:00 AM to 6:59 AM	40	2.805	12338	2.425	1.157	5.424
7:00 AM to 7:59 AM	175	12.272	31961	6.281	1.954*	85.433
8:00 AM to 8:59 AM	68	4.769	22394	4.401	1.084	5.244
9:00 AM to 9:59 AM	51	3.576	19805	3.892	0.919	-4.501
10:00 AM to 10:59 AM	53	3.717	23066	4.533	0.820	-11.639
11:00 AM to 11:59 AM	83	5.820	28313	5.564	1.046	3.656
12:00 Noon to 12:59 PM	97	6.802	33806	6.644	1.024	2.263
1:00 PM to 1:59 PM	92	6.452	33243	6.533	0.988	-1.159
2:00 PM to 2:59 PM	103	7.223	35354	6.948	1.040	3.925
3:00 PM to 3:59 PM	196	13.745	46556	9.149	1.502*	65.533
4:00 PM to 4:59 PM	94	6.592	42686	8.389	0.786*	-25.622
5:00 PM to 5:59 PM	92	6.452	44544	8.773	0.735*	-33.109
6:00 PM to 6:59 PM	56	3.927	28513	5.603	0.701*	-23.904
7:00 PM to 7:59 PM	41	2.875	19581	3.848	0.747	-13.873
8:00 PM to 8:59 PM	34	2.384	16793	3.300	0.722	-13.060

Day of the Week

Similar to the analysis above, a comparison of the CMV-car crashes that were caused by the car drivers were compared against all other crashes (both, in this case, for all aged causal drivers). The results are presented in Display 3.2.2.3b. This illustrated that Monday through Thursday are the prime over-represented days with the weekend days being very significantly under-represented. Friday is the highest day for both the subset and its complement, but the over-representation is not nearly as high for Friday. Law enforcement resources are usually diverted to the typical Friday PM rush as well as alcohol enforcement on the weekends, so this provides additional reasons for allocating TACT resources on Monday through Thursdays.

Display 3.2.2.3b Day of the Week IMPACT Comparison for Focus Crash Type



As was the case of the time-of-day run above, a further analysis was run that considered only those crashes caused by 16-20 year old drivers. The shape of the comparison was almost identical to that given above, however, so very little additional information could be gained from it.

A Note about Setting Specific Goals

Some federal safety programs require that effectiveness goals be set that are very specific to the particular target population. If these goals are just set arbitrarily they can be counterproductive in being summarily ignored if not met, or providing a false sense of security if they are met. Usually they are set so aggressively that they are rarely met. Thus the setting of specific quantitative goals has not been emphasized. However, if they are going to be set, the double-bar charts (as exemplified above) for over-representation can be used to assure that they are reasonable. For example, if a youth-driver proxy metric of “after school” is going to be used to set a goal, then it can be noticed that for youth aged (16-20) drivers the percentage in the 3-4 PM time slot was 13.7%, while for all drivers included it was 9.5%. It would be unreasonable to think that the 13.7% could be reduced any lower than its 9.5% base if targeting youthful drivers.

In other words, the over-representation provides a strong guide to setting reasonable goals that are addressed to specific targets. A simpler example is found in the day of the week comparison above. Discarding Friday, since it would not be an effective TACT day due to the many other distractions (and perhaps much heavier traffic), other weekdays are considered to be prime targets for TACT activities. The TACT issues on those days represent, on average, 17.6% of the TACT crashes, while the non-TACT issues represent only 14.8% of those issues. It is a reasonable (yet aggressive) goal to perform TACT on Monday-Thursday (at the appropriate over-represented hours) and expect a reduction of the 17.6% to 14.8%. However, to expect more than this would not be reasonable.

3.2.3 Problem Identification Tools Available to the Patrol Officers

While the problem identification methods and processes above are essential to providing the information for planning and guiding a TACT project, they are largely conducted by the TACT technical staff of a university or a private consultant organization. The tools presented in this section are designed to be implemented by the patrol officers themselves. The value of enabling the officers themselves to be able to access this information should be obvious:

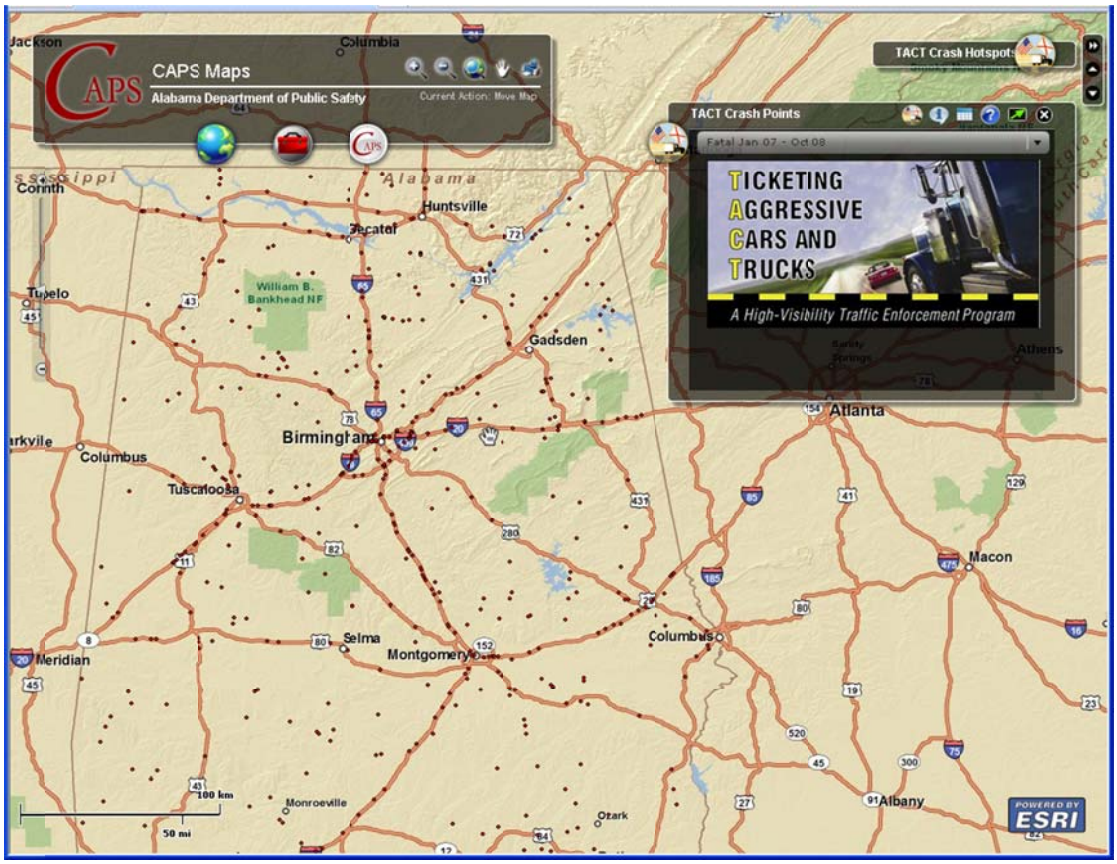
- There is an increased trust level when any individual discovers new information for himself or herself; this is basic human nature and law it applies to enforcement officers just like anyone else.
- The officer can call up information dynamically as opposed to the analysis being done weeks or months ahead of time and perhaps not targeted specifically to the officers' immediate needs.
- Perhaps most importantly, if it is recognized by the reporting officers that the data that they are generating are deficient, there will be a cultural change to improve the accuracy of the data, especially with regard to location specifications, in a way that could not otherwise be accomplished. Of course, these data are used for other traffic safety purposes as well (e.g., roadway improvements), so this provides a very important benefit.

Several tools were developed and placed on the TACT web site that could be used directly by participating law enforcement officers. This section will go through some of these tools to illustrate their value and use.

The first of these is the high-crash hotspot identification program itself, the output of which is given in Display 3.2.3. This differs from the hotspot listings and maps described in Section 3.2.1 in that the files to be downloaded there of hotspot listings were static, i.e., they had already been determined by a set criteria established by the project management. Here the criteria can be altered as can the time frame of the data. For example, the output displayed is limited to fatal crashes that occurred between January 7 and October 8, 2009 (see the second line on the pane

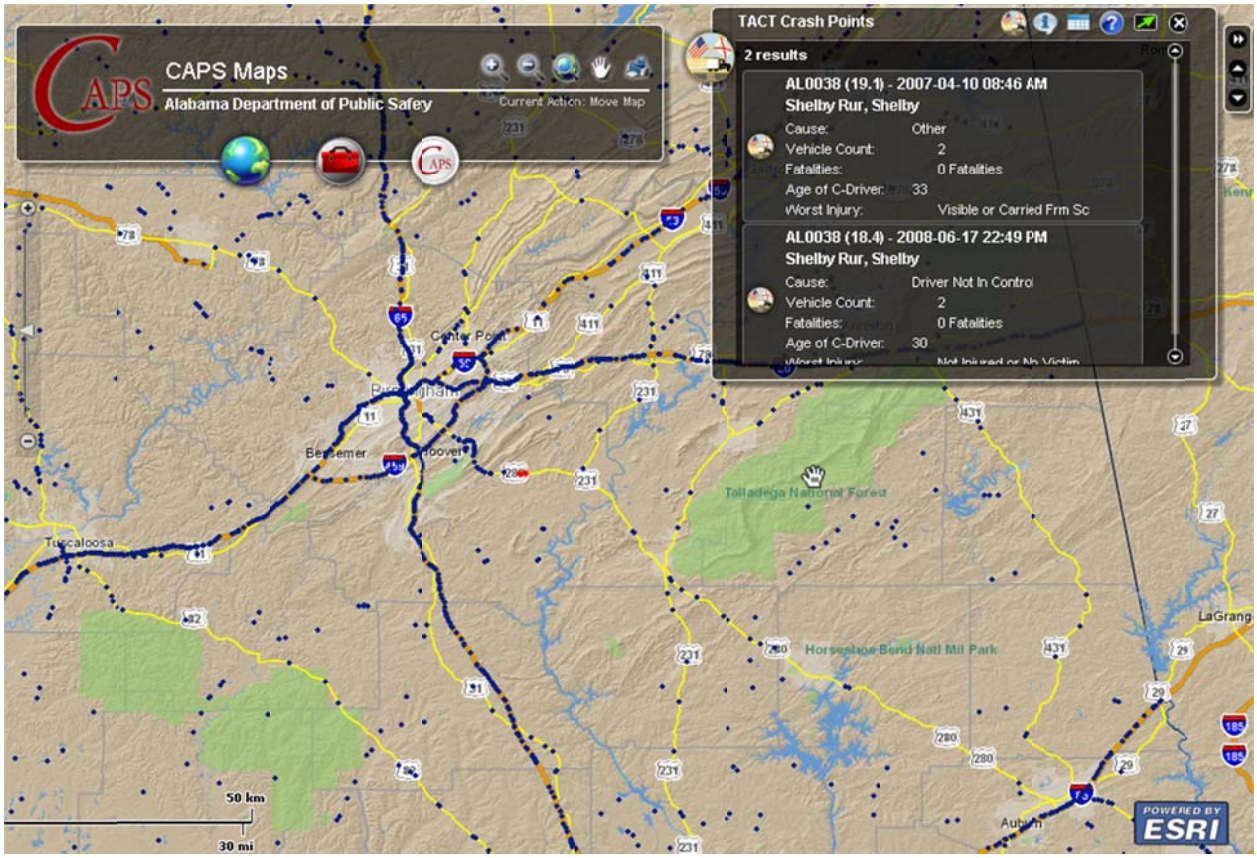
labeled “TACT Crash Points). Users can specify if the hotspots are for CMVs in general or for only the TACT violations.

Display 3.2.3 TACT Crash Hotspots Statewide for User Specified Criteria



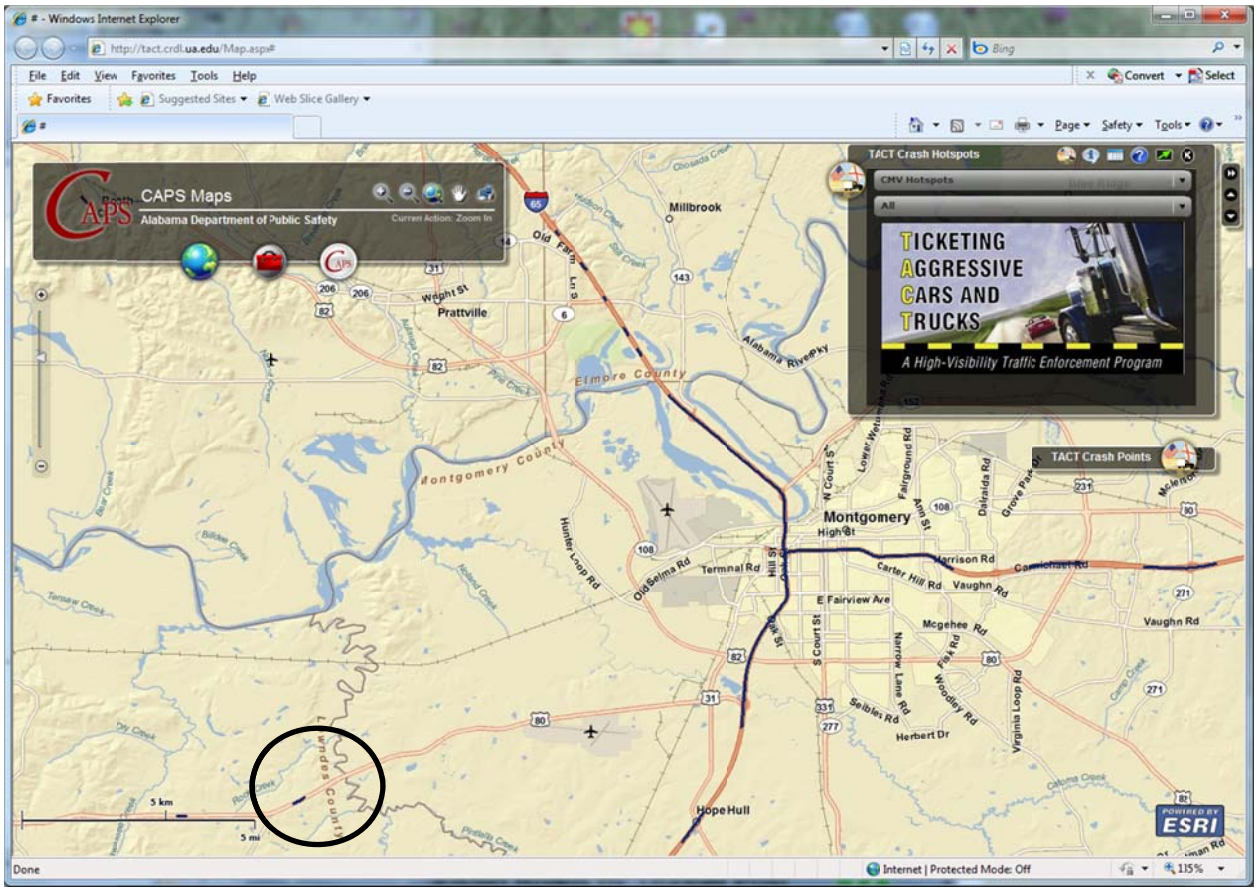
Display 3.2.3a illustrates the output when a user clicks on a hotspot. This will cause a pane to pop up that will give information on the crashes within that hotspot. This pane is scrollable if there are more than two crashes involved. The particular details that come out can be reset by parameters within this tool. The variables specified to come out for this example included the crash cause, number of vehicles in the crash, the number of fatalities, the age of the causal driver and the worst injury in the crash.

Display 3.2.3a TACT Crash Points – Result of Clicking on a Hotspot



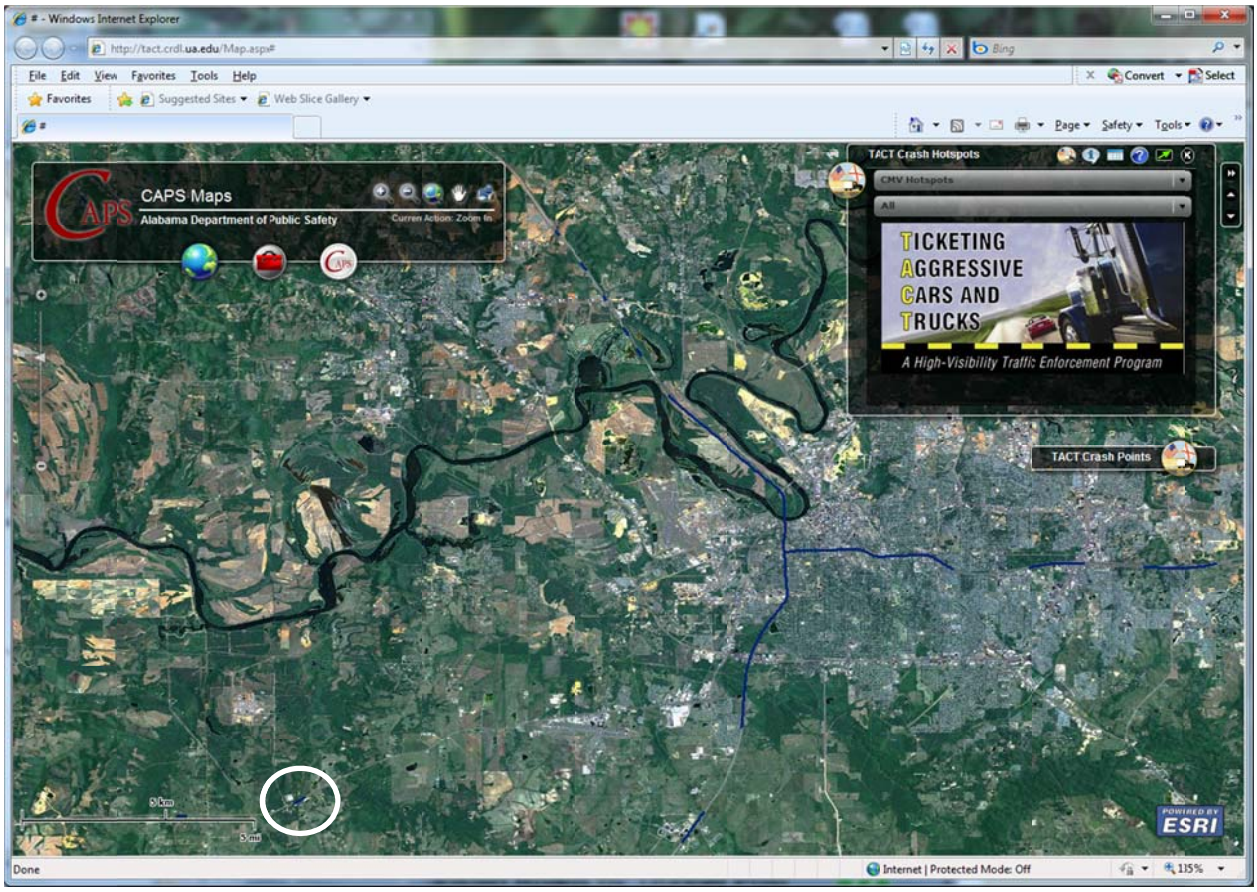
Hotspots can be represented as segments of roadway as opposed to collections of crashes. This is illustrated for the area west of Montgomery in Display 3.2.3b. Notice the second and third lines on the TACT Crash Hotspots pane, in the upper right corner of the screen. This shows that the output is for CMV clusters with no restrictions (All). These drop downs allow a number of different alternative outputs, e.g., TACT violations for injury and fatality crashes. While it is no surprise that the Interstate highways through Montgomery have high concentrations of CMV crashes, note the two hotspots near the bottom left on the map on route US-80 (the major route to Jackson Mississippi).

Display 3.2.3b Highlighted Hotspot Segments in the Montgomery Area



There are times when it is difficult to determine the location of a hotspot just from the features given on a map. Since aerial photography exists and is in the public domain for most of the state, CAPS was able to work this into its tool set. Display 3.2.3c presents the aerial imagery for the map given in Display 3.2.3b. The hotspots are still shown in this display, although they are difficult to see at this "altitude." Note the black circle at the bottom left of the screen above, which corresponds to the white circle on the imagery below. These are of the identical hotspot location that will be the focus of the next display.

Display 3.2.3c Previous Display in Aerial Photography Imagery



Display 3.2.3d demonstrates a close-up of the area marked in the previous displays. Notice the hotspot mark on the major route (US-80). It appears that there might be industrial plants or other commercial activities in this area. The imagery can be magnified to very close up in order to see the features along the roadway that would define not only the range of the hotspot, but also some of the hazards that might have caused the crashes along this stretch of roadway. This could be quite valuable in the decision as to whether to work this hotspot or not, and, if so, the tactics that would be employed in working it.

SEE PART 3