

Rural Stop-Sign Controlled Intersection

Crash Avoidance System Device

Benefit Cost



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Crash Avoidance System (CAS)

Overview of Crash Avoidance System

The Crash Avoidance System (CAS) is an Intelligent Transportation System (ITS) traffic control device, consisting of activated warning signs and pavement loop detectors. Actively illuminated signs, operating on input from vehicle-detection pavement loops, automatically warn drivers of conflicting crossroad traffic approaching the intersection. Drivers approaching the intersection from all directions are graphically advised of the presence and direction of approaching intersection traffic. The CAS has an eight-hour solar panel backup cell as an added safety measure during possible outages. In addition to a back-up power system, the CAS has a fail-safe mode built into the program. If the system would trip/malfunction, the illuminated signs would activate and flash, such as a worst-case situation to warn motorist that the system is not functioning properly.

Pennsylvania Statistics

From 2006 to 2010 there were 630,306 reportable crashes with 7,064 fatalities in Pennsylvania. Of those crashes 146,922 with 1,025 fatalities occurred at stop controlled intersections.

Pennsylvania's CAS Locations

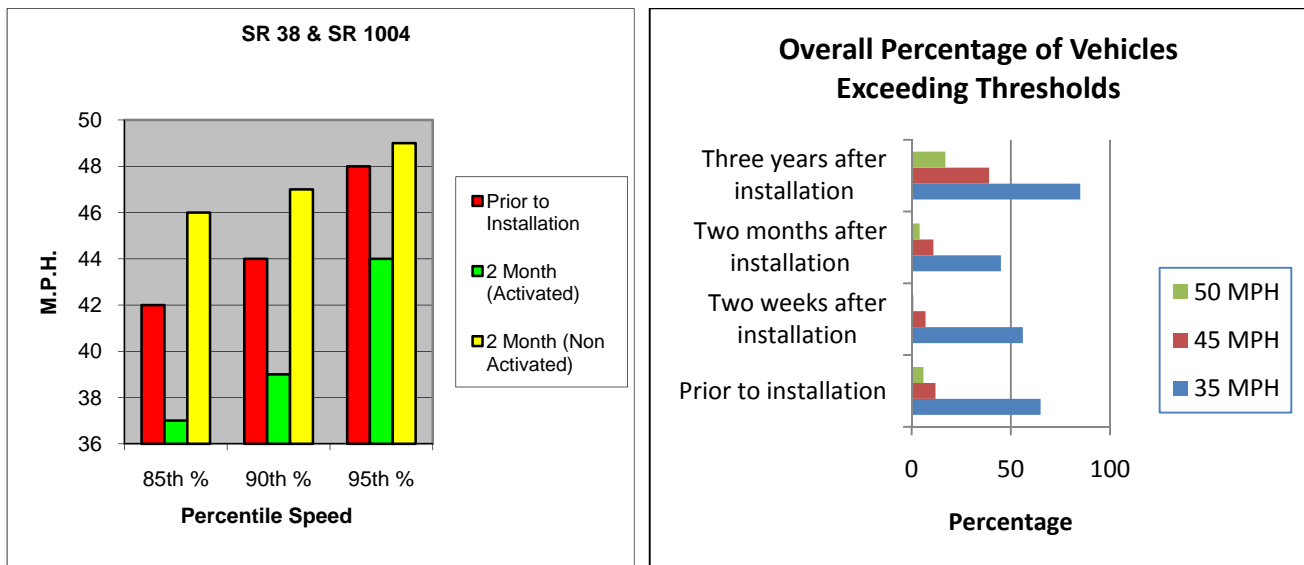
In November 2003, Pennsylvania installed this CAS at 2 locations in Butler County, on SR 0038 at the following locations:

- Hooker Rd (SR 1010)
- N. Washington Rd (SR 0138)

These locations were chosen because other efforts to improve the safety of the intersection such as convex mirrors, paint markings, conventional signing and State Police assistance were ineffective. Leaving the option to reconstruct the roadway, this would be very costly and wipe out the communities. The SAS has a small impact on the community and a much lower cost than full reconstruction.

A before and after speed study was completed for the above mentioned intersections. Two months after implementation of the CAS speeds have decreased through the intersection when the system is activated; conversely, speeds have increased when the system is not indicating opposing traffic. See chart on left below.

Speeds were recorded to draw a comparison between speeds prior to the installation of the CAS and current speeds. Overall speeds, speeds with the signs activated and speeds without the signs activated were recorded. 85th, 90th and 95th percentile speeds were an average of 3mph higher with and without the signs activated during the 2006 evaluations than prior to the installation of the CAS. See chart on right below.



Future Priorities/Needs

Through review of 77,608 statewide reported stop controlled intersection crashes for the period between 2006 and 2010 we were able to ascertain the top 100 locations for future consideration of safety improvements. Using PennDOT's Crash Data Analysis and Retrieval Tool we were able to search those 77,608 crashes for locations or clusters with a minimum of fifteen (15) stop controlled intersection crashes within a 5 year period. This resulted in 100 intersections ranging from 54 crashes down to 15 crashes. See Attachment 1.

It is Important to note that not all of the intersections in the top 100 list would meet the criteria for the installation of CAS traffic control device. These devices shall be considered for one-way

stop (T) or two-way stop (+) intersections with poor intersection sight distance that cannot be easily corrected.

Benefit/Cost Analysis

This information is based on the study of two (2) locations, SR 38 and Hooker Rd and SR 38 and N. Washington Rd. The total cost for design and construction/installation of CAS at these two locations was \$422,000.

PennDOT estimates the economic loss due to reportable traffic crashes (2009 Pennsylvania Crash Facts and Statistics). Following are the average cost to society for different categories (in 2008 dollars).

Death's.....	\$5,816,848
Major Injuries.....	\$1,303,332
Moderate Injuries.....	\$87,107
Minor Injuries.....	\$6,905
Property Damage Only.....	\$2,762
Unknown Injuries.....	\$6,905

Upon review of crash data for seven years before and seven years after installation for these two CAS Systems there was 1 fatality in the 7 years before installation and zero fatalities in the 7 years after installation. We realize a 7 year Economic Saving Due to Reduction in Fatality/Injury of \$9,259,963 and a benefit/cost ratio of 22:1.

Cost Benefit Tables

	Fatalities	Major	Moderate	Minor	PDO	Unknown Severity	Economic Savings Due to Reduction in Fatality/Injury
SR 38 & Hooker Rd Before 1997-2003	1	0	4	2	4	0	
SR 38 & Hooker Rd After 2004-2010	0	0	1	4	1	0	
Difference	1	0	3	-2	3	0	\$6,072,645

	Fatalities	Major	Moderate	Minor	PDO	Unknown Severity	Economic Savings Due to Reduction in Fatality/Injury
SR 38 & N. Washington Rd Before 1997-2003	0	2	10	9	0	0	
SR 38 & N. Washington Rd After 2004-2010	0	0	3	6	5	0	
Difference	0	2	7	3	-5	0	\$3,223,318
Total							\$9,295,963

Findings

It is clear from two year speed study data that installation of the CAS system tends to increase speed on the main line. This may be due to the added comfort of knowing about vehicle presence or lack of vehicle presence on the secondary approach. The observation of 7 year crash data indicates the total number of crashes at these two sites went down from 32 to 20. It also reduces fatal and all injury crashes. Property damage only crashes are the only category that increased. See Attachment 2. It can be concluded from above that this system is successful in decreasing crash frequency as well as severity.

Conclusions can be drawn from this study that as a result of installation of the CAS, although mainline speeds may go up as a result of knowing about the lack of traffic on the secondary road, it seems to reduce speed at the time of presence of vehicles on the secondary road. This was concluded based on the speed study as well as a reduction in severity of crashes at these locations. It may also be viewed as increasing the efficiency of the roadway while at the same time improving safety.

Since the installation of this system in 2003 there have been advancements in technology that can be implemented to future systems to reduce costs. We now have pole mounted radar to detect approaching vehicles, L.E.D.'s, and wireless communications systems. This should conceivably reduce installation and maintenance costs.

Attachment 1

Stop Controlled Intersection Top 100 Crash Location List

Sorted by Select Crashes, Select Ratio, Total Crashes

USER ID/QUERY ID:

c-bgross / 0020110707009

Date Range: 1/1/2006 to 12/31/2010

Area of Interest: State-wide

DIST	CO	COUNTY	ROUT		INT		LOCATION TYPE	STOP CONTROLLED INTERSECTION			STOP CONTROLLED INTERSECTION CRASHES/		TCD	TYPE
			E	SEG	OFFSET	TYPE		TOTAL CRASHES	INTERSECTION CRASHES	FATAL CNT	INJ CNT	TOTAL CRASHES		
1	06	09	BUCKS	4063	0030	0000	4WAY	Not applicable	55	54	0	27	98.2%	Stop sign
2	08	21	CUMBERLAND	0641	0720	1229	T	Underpass	37	35	0	18	94.6%	Stop sign
3	08	21	CUMBERLAND	1021	0010	0000	T	Underpass	37	35	0	18	94.6%	Stop sign
4	06	46	MONTGOMERY	1017	0050	0000	4WAY	Not applicable	32	32	0	27	100.0%	Stop sign
5	06	46	MONTGOMERY	4018	0130	2273	4WAY	Not applicable	32	32	0	27	100.0%	Stop sign
6	08	36	LANCASTER	1020	0030	0000	4WAY	Not applicable	33	31	1	33	93.9%	Stop sign
7	06	23	DELAWARE	0452	0050	0820	4WAY	Ramp	34	30	0	26	88.2%	Stop sign
8	06	23	DELAWARE	0452	0050	0830	4WAY	Ramp	34	30	0	26	88.2%	Stop sign
9	06	15	CHESTER	0082	0512	0000	4WAY	Not applicable	31	29	0	40	93.5%	Stop sign
10	06	15	CHESTER	4005	0120	1725	4WAY	Not applicable	31	29	0	40	93.5%	Stop sign
11	05	39	LEHIGH	1002	0200	1242	T	Not applicable	27	27	0	25	100.0%	Stop sign
12	08	28	FRANKLIN	0997	0100	0865	4WAY	Not applicable	29	27	0	34	93.1%	Stop sign
13	08	28	FRANKLIN	2015	0020	0000	4WAY	Not applicable	29	27	0	34	93.1%	Stop sign
14	05	39	LEHIGH	0222	0020	0000	T	Not applicable	30	26	0	25	86.7%	Stop sign
15	05	39	LEHIGH	0863	0010	0000	T	Not applicable	30	26	0	25	86.7%	Stop sign
16	05	39	LEHIGH	3011	0020	1381	T	Not applicable	30	26	0	25	86.7%	Stop sign
17	06	46	MONTGOMERY	4006	0020	0000	4WAY	Not applicable	27	25	0	16	92.6%	Stop sign
18	06	15	CHESTER	0023	0360	2017	4WAY	Not applicable	26	24	0	27	92.3%	Stop sign
19	06	15	CHESTER	1045	0040	0000	4WAY	Not applicable	26	24	0	27	92.3%	Stop sign
20	06	67	PHILADELPHIA	4002	0060	0000	T	Not applicable	26	23	0	27	88.5%	Stop sign
21	06	23	DELAWARE	3009	0030	0201	T	Ramp	30	23	0	17	76.7%	Stop sign
22	06	23	DELAWARE	3009	0030	0213	T	Ramp	30	23	0	17	76.7%	Stop sign
23	06	23	DELAWARE	3009	0030	0222	T	Ramp	30	23	0	17	76.7%	Stop sign
24	05	06	BERKS	2003	0011	2466	4WAY	Not applicable	23	22	0	14	95.7%	Stop sign
25	11	02	ALLEGHENY	3010	0010	0000	Y	Not applicable	24	22	0	9	91.7%	Stop sign
26	05	39	LEHIGH	0863	0060	1639	MIDB	Not applicable	24	22	0	19	91.7%	Stop sign
27	05	39	LEHIGH	0863	0060	1666	MIDB	Not applicable	24	22	0	19	91.7%	Stop sign
28	06	15	CHESTER	0841	0250	2677	4WAY	Not applicable	21	21	0	8	100.0%	Stop sign
29	06	15	CHESTER	0926	0124	0000	4WAY	Not applicable	21	21	0	8	100.0%	Stop sign
30	08	36	LANCASTER	0772	0304	0000	T	Not applicable	21	21	0	16	100.0%	Stop sign
31	11	04	BEAVER	0989	0230	0000	T	Not applicable	24	21	0	28	87.5%	Stop sign
32	11	04	BEAVER	2006	0070	0000	T	Not applicable	24	21	0	28	87.5%	Stop sign
33	05	53	SCHUYLKILL	0209	0440	0000	4WAY	Not applicable	26	21	0	36	80.8%	Stop sign
34	05	53	SCHUYLKILL	0209	0441	0000	4WAY	Not applicable	26	21	0	36	80.8%	Stop sign
35	05	53	SCHUYLKILL	0901	0282	3019	4WAY	Not applicable	26	21	0	36	80.8%	Stop sign
36	06	09	BUCKS	0413	0390	0000	T	Not applicable	30	21	0	21	70.0%	Stop sign
37	06	09	BUCKS	2081	0060	0000	T	Not applicable	30	21	0	21	70.0%	Stop sign
38	10	10	BUTLER	3021	0070	0000	4WAY	Not applicable	20	20	0	12	100.0%	Stop sign
39	08	38	LEBANON	0343	0030	0585	4WAY	Not applicable	20	20	0	23	100.0%	Stop sign
40	08	66	YORK	3048	0030	1613	4WAY	Not applicable	20	20	0	19	100.0%	Stop sign
41	05	48	NORTHAMPTON	0191	0150	0166	4WAY	Not applicable	22	20	0	13	90.9%	Stop sign
42	05	48	NORTHAMPTON	0191	0150	0179	4WAY	Not applicable	22	20	0	13	90.9%	Stop sign
43	08	66	YORK	0074	1130	2193	4WAY	Not applicable	21	19	0	23	90.5%	Stop sign
44	08	66	YORK	0074	1130	2211	4WAY	Not applicable	21	19	0	23	90.5%	Stop sign
45	08	66	YORK	4045	0040	2343	4WAY	Not applicable	21	19	0	23	90.5%	Stop sign
46	08	21	CUMBERLAND	0641	0520	0000	MIDB	Not applicable	22	19	1	16	86.4%	Stop sign
47	08	36	LANCASTER	0741	0050	0808	4WAY	Ramp	24	19	0	12	79.2%	Stop sign
48	08	36	LANCASTER	0741	0050	0820	4WAY	Ramp	24	19	0	12	79.2%	Stop sign
49	05	53	SCHUYLKILL	0209	0430	3178	Y	Not applicable	24	19	0	31	79.2%	Stop sign
50	05	06	BERKS	1010	0010	0000	Y	Not applicable	27	19	0	28	70.4%	Stop sign
51	05	06	BERKS	2005	0161	0513	Y	Not applicable	27	19	0	28	70.4%	Stop sign
52	08	36	LANCASTER	4002	0130	0208	4WAY	Not applicable	18	18	1	17	100.0%	Stop sign
53	08	36	LANCASTER	4015	0030	1844	4WAY	Not applicable	18	18	1	17	100.0%	Stop sign
54	05	06	BERKS	0073	0220	0000	Y	Not applicable	19	18	0	14	94.7%	Stop sign
55	05	06	BERKS	0662	0190	3576	Y	Not applicable	19	18	0	14	94.7%	Stop sign
56	08	66	YORK	4009	0030	0000	4WAY	Not applicable	19	18	0	12	94.7%	Stop sign
57	06	67	PHILADELPHIA	4002	0050	1311	T	Not applicable	20	18	0	27	90.0%	Stop sign
58	08	36	LANCASTER	0896	0170	0000	4WAY	Not applicable	21	18	0	30	85.7%	Stop sign
59	08	36	LANCASTER	2026	0040	0000	4WAY	Not applicable	21	18	0	30	85.7%	Stop sign
60	05	39	LEHIGH	2002	0070	2156	4WAY	Not applicable	21	18	0	10	85.7%	Stop sign
61	06	09	BUCKS	4017	0070	0000	4WAY	Bridge	17	17	0	19	100.0%	Stop sign
62	06	15	CHESTER	0926	0530	0000	4WAY	Not applicable	17	17	0	19	100.0%	Stop sign
63	06	46	MONTGOMERY	2034	0060	2009	4WAY	Not applicable	17	17	0	12	100.0%	Stop sign
64	06	46	MONTGOMERY	4013	0084	0000	4WAY	Not applicable	17	17	0	12	100.0%	Stop sign
65	06	15	CHESTER	1005	0080	0000	4WAY	Not applicable	18	17	0	13	94.4%	Stop sign
66	05	53	SCHUYLKILL	0209	0440	0079	4WAY	Not applicable	21	17	0	29	81.0%	Stop sign
67	05	06	BERKS	2008	0020	2303	4WAY	Not applicable	23	17	0	23	73.9%	Stop sign
68	05	06	BERKS	2021	0080	0724	4WAY	Not applicable	23	17	0	23	73.9%	Stop sign
69	05	06	BERKS	0422	0650	0849	T	Driveway or Parking Lot	37	17	0	15	45.9%	Stop sign
70	05	06	BERKS	2077	0010	2365	T	Driveway or Parking Lot	37	17	0	15	45.9%	Stop sign
71	08	36	LANCASTER	2041	0061	0398	4WAY	Not applicable	17	16	0	15	94.1%	Stop sign
72	08	38	LEBANON	0897	0210	0000	T	Not applicable	17	16	0	17	94.1%	Stop sign
73	05	48	NORTHAMPTON	8003	0750	1136	T	Ramp and bridge	17	16	0	22	94.1%	Stop sign
74	12	64	WESTMORELAND	4006	0030	0000	4WAY	Not applicable	17	16	0	7	94.1%	Stop sign

DIST	CO	COUNTY	ROUT E	SEG	OFFSET	INT TYPE	LOCATION TYPE	STOP CONTROLLED INTERSECTION				STOP CONTROLLED INTERSECTION CRASHES/ TOTAL CRASHES		TCD	TYPE
								TOTAL CRASHES	INTERSECTION CRASHES	FATAL CNT	INJ CNT	RATIO	RATIO		
75	12	64	WESTMORELAND	4008	0040	0935	4WAY	Not applicable	17	16	0	7	94.1%	Stop sign	
76	06	15	CHESTER	2026	0080	0000	4WAY	Not applicable	18	16	0	9	88.9%	Stop sign	
77	06	23	DELAWARE	3014	0010	3167	T	Not applicable	18	16	0	20	88.9%	Stop sign	
78	06	23	DELAWARE	3017	0014	0000	T	Not applicable	18	16	0	20	88.9%	Stop sign	
79	12	62	WASHINGTON	1009	0170	1390	T	Not applicable	18	16	1	9	88.9%	Stop sign	
80	11	02	ALLEGHENY	2074	0030	0075	MULT	Not applicable	19	16	0	15	84.2%	Stop sign	
81	11	02	ALLEGHENY	2078	0020	0000	MULT	Not applicable	19	16	0	15	84.2%	Stop sign	
82	11	02	ALLEGHENY	2074	0030	0000	MULT	Not applicable	20	16	0	15	80.0%	Stop sign	
83	11	02	ALLEGHENY	2078	0010	2039	MULT	Not applicable	20	16	0	15	80.0%	Stop sign	
84	08	36	LANCASTER	0072	0240	0000	4WAY	Not applicable	21	16	0	17	76.2%	Stop sign	
85	05	39	LEHIGH	1023	0040	0000	Y	Not applicable	21	16	0	12	76.2%	Stop sign	
86	05	39	LEHIGH	4003	0300	1852	Y	Not applicable	21	16	0	12	76.2%	Stop sign	
87	06	46	MONTGOMERY	4027	0032	0000	T	Not applicable	22	16	0	29	72.7%	Stop sign	
88	06	46	MONTGOMERY	4028	0040	0000	T	Not applicable	22	16	0	29	72.7%	Stop sign	
89	08	66	YORK	0114	0130	0000	4WAY	Not applicable	22	16	0	12	72.7%	Stop sign	
90	08	66	YORK	1001	0010	0000	4WAY	Not applicable	22	16	0	12	72.7%	Stop sign	
91	05	45	MONROE	0209	0150	1856	4WAY	Not applicable	28	16	0	14	57.1%	Stop sign	
92	06	09	BUCKS	0532	0080	0000	T	Not applicable	15	15	0	10	100.0%	Stop sign	
93	06	09	BUCKS	1004	0030	1191	T	Not applicable	15	15	0	25	100.0%	Stop sign	
94	06	09	BUCKS	1020	0010	0000	T	Not applicable	15	15	0	25	100.0%	Stop sign	
95	01	25	ERIE	0098	0210	0000	4WAY	Not applicable	15	15	0	20	100.0%	Stop sign	
96	01	25	ERIE	0832	0010	0000	4WAY	Not applicable	15	15	0	20	100.0%	Stop sign	
97	01	25	ERIE	3018	0090	1786	4WAY	Not applicable	15	15	0	20	100.0%	Stop sign	
98	08	36	LANCASTER	1024	0220	0000	4WAY	Not applicable	15	15	0	20	100.0%	Stop sign	
99	08	36	LANCASTER	1047	0070	0000	4WAY	Not applicable	15	15	0	20	100.0%	Stop sign	
100	06	46	MONTGOMERY	4014	0150	0000	4WAY	Not applicable	15	15	0	6	100.0%	Stop sign	

Stop Controlled Intersection Top 100 Crash Location List

NOTES:

- The data available in this application is dynamic and should be used with care. Please take note of the following data alerts:
- 2011 crash records are incomplete
Data for the current year, 2011, is not fully represented in CDART. Crashes will be added for this year as they are made available to the Department. Include this year in queries with caution.
- Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010

QUERY PARAMETERS:

Note: This report includes data for state roads only

Query ID: [0020110707009](#)

User ID: c-bgross

Min 15 Crashes

Crashes:

Cluster 100 ft

Tolerance:

Min Ratio: 0 %

Area of State-wide

Interest:

Date Range: 1/1/2006 to 12/31/2010

Criteria: STOP CONTROLLED INT

STATE_ROAD

Attachment 2

SR38 HOOKER RD BEFORE



Date Range: 1/1/1997 to 12/31/2003

USER_ID/QUERY_ID:
c-bgross/ 0020110705006

Area of (In County 10 Intersection: HOOKER RD (1010) / SR 0038 SH (0038)) (On State Route 0038) (On SR 0038 SH-(CO 10)SR

Interest: 0038 SH-10)

MONTH OF YEAR								DAY OF WEEK				
	FEB	APR	MAY	AUG	SEP	OCT		SUN	WED	THR	SAT	
CRASHES	2	1	1	1	2	1	8	1	1	1	5	
PCT	25%	13%	13%	13%	25%	13%	100%	13%	13%	13%	63%	

HOUR OF DAY									
	02	08	10	13	17	18	20	21	
CRASHES	1	1	1	1	1	1	1	1	8
PCT	13%	13%	13%	13%	13%	13%	13%	13%	100%

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT	DRIVER ACTIONS		
	CRASHES	PCT	CRASHES	PCT		PERSONS	ACTIONS	PCT
1997	2	25%	ANGLE	5 63%	FATAL	1 13%	FATALITIES	10 48%
1998	2	25%	OPP DIR SS	2 25%	MODERATE	1 13%	MAJOR	4 19%
2000	1	13%	HEAD ON	1 13%	MINOR	2 25%	MODERATE	2 10%
2001	1	13%	TOTAL	8 100%	PDO	4 50%	MINOR	1 5%
2002	1	13%			TOTAL	8 100%	UNK SEVERITY	1 5%
2003	1	13%					UNK IF INJURED	1 5%
TOTAL	8	100%					OTHER IMPROPER DRIVING	1 5%
							TOO FAST FOR CONDITION	1 5%
							TOTAL	21 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER	ENVIR/ROADWAY FACTORS			
VEHICLES	PCT	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	FACTORS	PCT
AUTOMOBILE	11 58%	DRY	5 63%	DAYLIGHT	4 50%	CLEAR	5 63%	NONE	8 100%
SMALL TRUCK	7 37%	WET	3 38%	DARK	3 38%	RAIN	3 38%	TOTAL	8 100%
VAN	1 5%	TOTAL	8 100%	STREET LIGHTS	1 13%	TOTAL	8 100%		
TOTAL	19 100%			TOTAL	8 100%				

SR38 HOOKER RD AFTER



Date Range: 1/1/2004 to 12/31/2010

USER_ID/QUERY_ID:
c-bgross/ 0020110705007

Area of (In County 10 Intersection: HOOKER RD (1010) / SR 0038 SH (0038)) (On State Route 0038) (On SR 0038 SH-(CO 10)SR

Interest: 0038 SH-10)

MONTH OF YEAR					DAY OF WEEK		
	JAN	SEP	OCT		TUE		
CRASHES	1	1	1	3	CRASHES	3	3
PCT	33%	33%	33%	100%	PCT	100%	100%

HOUR OF DAY				
	15	16	21	
CRASHES	1	1	1	3
PCT	33%	33%	33%	100%

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT	DRIVER ACTIONS	
	CRASHES	PCT	CRASHES	PCT	PERSONS	ACTIONS	PCT
2004	1	33%	ANGLE	2 67%	FATALITIES	0	NO CONTRIBUTING ACTION 3 43%
2005	1	33%	OPP DIR SS	1 33%	MAJOR	0	DRIVER INEXPERIENCED 1 14%
2008	1	33%	TOTAL	3 100%	MODERATE	1	IMPROPER/CARELESS TURN 1 14%
TOTAL	3	100%			MINOR	4	PROCEED W/O CLEARANCE 1 14%
					UNK SEVERITY	0	RUNNING RED LIGHT 1 14%
					UNK IF INJURED	0	TOTAL 7 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER	ENVIR/ROADWAY FACTORS		
VEHICLES	PCT	CRASHES	PCT	CRASHES	PCT	FACTORS	PCT	
AUTOMOBILE	3	50%	DRY	2 67%	DAYLIGHT	2 67%	CLEAR	2 67%
SMALL TRUCK	2	33%	WET	1 33%	DARK	1 33%	RAIN	1 33%
LARGE TRUCK	1	17%	TOTAL	3 100%	TOTAL	3 100%	TOTAL	3 100%
TOTAL	6	100%					OTHER ENVIR FACTOR	1 33%

SR38 N. WASHINGTON RD BEFORE



Date Range: 1/1/1997 to 12/31/2003

USER_ID/QUERY_ID:
c-bgross/ 0020110705009

Area of (In County 10 Intersection: SR 0138 SH (0138) / SR 0038 SH (0038)) (On State Route 0038)

Interest:

MONTH OF YEAR										DAY OF WEEK						
	JAN	MAR	MAY	JUN	JUL	SEP	OCT	NOV		SUN	TUE	WED	THR	FRI	SAT	
CRASHES	3	1	1	1	1	1	1	1	10	1	2	2	2	2	1	10
PCT	30%	10%	10%	10%	10%	10%	10%	10%	100%	10%	20%	20%	20%	20%	10%	100%

HOUR OF DAY								
	05	07	11	15	16	19	21	
CRASHES	1	2	1	2	2	1	1	10
PCT	10%	20%	10%	20%	20%	10%	10%	100%

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT		DRIVER ACTIONS		
	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	PERSONS	ACTIONS	PCT
1997	2	20%	ANGLE	8 80%	MAJOR	2 20%	0	NO CONTRIBUTING ACTION	8 36%
1998	1	10%	HIT FIX OBJ	2 20%	MODERATE	4 40%	2	PROCEED W/O CLEARANCE	7 32%
2000	3	30%	TOTAL	10 100%	MINOR	4 40%	10	TOO FAST FOR CONDITION	3 14%
2001	1	10%			TOTAL	10 100%	9	DRIVER WAS DISTRACTED	2 9%
2002	1	10%					0	DRIVER INEXPERIENCED	1 5%
2003	2	20%					1	FAILURE TO RESPOND TCD	1 5%
TOTAL	10	100%						TOTAL	22 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER		ENVIR/ROADWAY FACTORS		
VEHICLES	PCT	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	FACTORS	PCT
AUTOMOBILE	12 63%	5 50%	DAYLIGHT	7 70%	CLEAR	7 70%	8 80%	NONE	8 80%
SMALL TRUCK	5 26%	2 20%	DARK	2 20%	SNOW	3 30%	2 20%	SLIPPERY ICE/SNOW	2 20%
SUV	2 11%	1 10%	DAWN	1 10%	TOTAL	10 100%	10 100%	TOTAL	10 100%
TOTAL	19 100%	1 10%	TOTAL	10 100%					
		1 10%							
		TOTAL	10 100%						

SR38 N. WASHINGTON RD AFTER

Date Range: 1/1/2004 to 12/31/2010

Area of (In County 10 Intersection: SR 0138 SH (0138) / SR 0038 SH (0038)) (On State Route 0038)

Interest:

USER_ID/QUERY_ID:
c-bgross/ 0020110705008



MONTH OF YEAR										DAY OF WEEK						
	FEB	MAR	MAY	JUN	JUL	AUG	OCT	DEC			SUN	TUE	WED	THR	FRI	
CRASHES	1	1	1	2	1	2	2	2	12	CRASHES	1	1	5	3	2	12
PCT	8%	8%	8%	17%	8%	17%	17%	17%	100%	PCT	8%	8%	42%	25%	17%	100%

HOUR OF DAY										
	07	10	11	14	15	16	17	18	19	
CRASHES	1	1	1	1	1	2	1	1	3	12
PCT	8%	8%	8%	8%	8%	17%	8%	8%	25%	100%

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT		DRIVER ACTIONS		
	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	PERSONS	ACTIONS	PCT
2006	4	33%	ANGLE	10 83%	MODERATE	2 17%	FATALITIES	0	NO CONTRIBUTING ACTION 13 54%
2007	1	8%	HIT FIX OBJ	1 8%	MINOR	5 42%	MAJOR	0	PROCEED W/O CLEARANCE 8 33%
2008	5	42%	UNKNOWN	1 8%	PDO	5 42%	MODERATE	3	DRIVER WAS DISTRACTED 1 4%
2009	1	8%	TOTAL	12 100%	TOTAL	12 100%	MINOR	6	IMPROPER ENTRANCE HWY 1 4%
2010	1	8%					UNK SEVERITY	0	TOO FAST FOR CONDITION 1 4%
TOTAL	12	100%					UNK IF INJURED	0	TOTAL 24 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER		ENVIR/ROADWAY FACTORS		
VEHICLES	PCT	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	FACTORS	PCT
AUTOMOBILE	9 41%	DRY	11 92%	DAYLIGHT	9 75%	CLEAR	12 100%	NONE	9 69%
SMALL TRUCK	5 23%	WET	1 8%	DARK	1 8%	TOTAL	12 100%	OTHER RDWY FACTOR	2 15%
SUV	5 23%	TOTAL	12 100%	DUSK	1 8%			DEER IN ROADWAY	1 8%
MOTORCYCLE	1 5%			STREET LIGHTS	1 8%			OTHER ENVIR FACTOR	1 8%
LARGE TRUCK	1 5%			TOTAL	12 100%			TOTAL	13 100%
VAN	1 5%								
TOTAL	22 100%								