

# Appendix D: ECAT Output

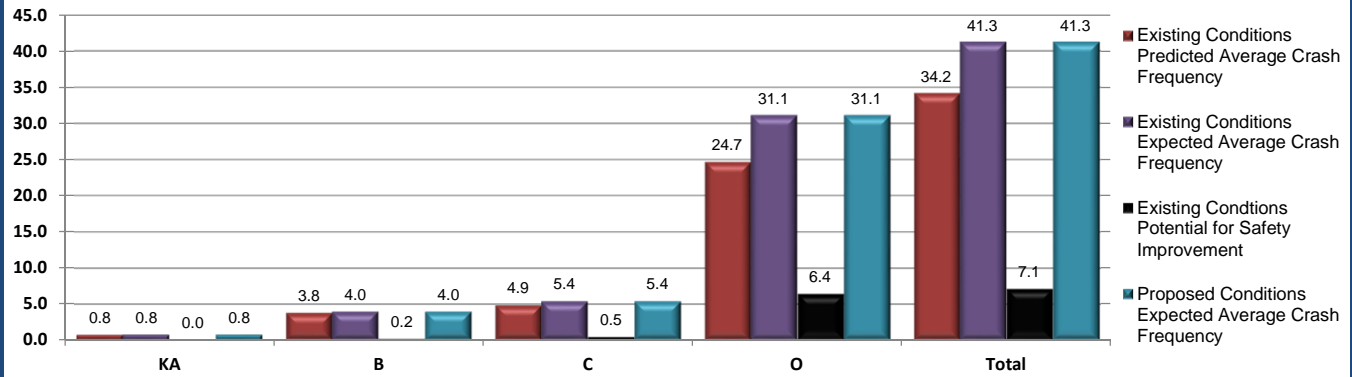


# Project Safety Performance Report

## General Information

Project Name	Limestone Street Corridor Study	Contact Email	
Project Description		Contact Phone	
Reference Number		Date Performed	March 2016
Analyst	KMS	Analysis Year	2016
Agency/Company	Burgess & Niple		

## Summary of Anticipated Safety Performance of the Project (average crashes/year)



## Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
<b>N<sub>predicted</sub> - Existing Conditions</b>	0.8186	3.7660	4.9329	24.6611	34.1786
<b>N<sub>expected</sub> - Existing Conditions</b>	0.8264	4.0086	5.4169	31.0551	41.3070
<b>N<sub>potential for improvement</sub> - Existing Conditions</b>	0.0078	0.2426	0.4840	6.3940	7.1284
<b>N<sub>expected</sub> - Proposed Conditions</b>	0.8264	4.0086	5.4169	31.0551	41.3070



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Agency/Company	Burgess & Niple		

## Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
<a href="#">SR72: 6.825-7.355</a>	Limestone between Leffel & John	0.0682	0.331	0.3156	1.7091	2.4239
<a href="#">SR72: 7.355-8.006</a>	Limestone between John & Grand	0.0549	0.2589	0.2503	1.3637	1.9278
<a href="#">SR72: 8.006-8.471</a>	Limestone between Grand & Selma	0.0402	0.1904	0.1862	1.0268	1.4436
<a href="#">SR72: 6.825</a>	Leffel Lane & S. Limestone Street	0.2045	0.9356	1.3116	6.4998	8.9515
<a href="#">SR72: 7.355</a>	John Street & S. Limestone Street	0.1667	0.7487	1.0417	5.1378	7.0949
<a href="#">SR72: 8.006</a>	Grand Avenue & S. Limestone Street	0.0908	0.4172	0.5871	2.841	3.9361
<a href="#">SR72: 8.471</a>	Selma Road & S. Limestone Street	0.1933	0.8842	1.2404	6.0829	8.4008



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## Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
<a href="#">SR72: 6.825-7.355</a>	Limestone between Leffel & John	0.0703	0.3373	0.4174	3.1458	3.9708
<a href="#">SR72: 7.355-8.006</a>	Limestone between John & Grand	0.0553	0.2761	0.2697	1.807	2.4081
<a href="#">SR72: 8.006-8.471</a>	Limestone between Grand & Selma	0.04	0.1955	0.1781	0.9618	1.3754
<a href="#">SR72: 6.825</a>	Leffel Lane & S. Limestone Street	0.2096	0.9709	1.6632	7.8781	10.7218
<a href="#">SR72: 7.355</a>	John Street & S. Limestone Street	0.1712	0.7991	1.0209	6.0764	8.0676
<a href="#">SR72: 8.006</a>	Grand Avenue & S. Limestone Street	0.0899	0.4447	0.5936	2.935	4.0632
<a href="#">SR72: 8.471</a>	Selma Road & S. Limestone Street	0.1901	0.985	1.274	8.251	10.7001



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Analyst	KMS	Analysis Year	2016
Agency/Company	Burgess & Niple		

## Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
SR72: 6.825-7.355	Limestone between Leffel & John	0.0021	0.0063	0.1018	1.4367	1.5469
SR72: 7.355-8.006	Limestone between John & Grand	0.0004	0.0172	0.0194	0.4433	0.4803
SR72: 8.006-8.471	Limestone between Grand & Selma	-0.0002	0.0051	-0.0081	-0.065	-0.0682
SR72: 6.825	Leffel Lane & S. Limestone Street	0.0051	0.0353	0.3516	1.3783	1.7703
SR72: 7.355	John Street & S. Limestone Street	0.0045	0.0504	-0.0208	0.9386	0.9727
SR72: 8.006	Grand Avenue & S. Limestone Street	-0.0009	0.0275	0.0065	0.094	0.1271
SR72: 8.471	Selma Road & S. Limestone Street	-0.0032	0.1008	0.0336	2.1681	2.2993



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Reference Number		Date Performed	March 2016
Analyst	KMS	Analysis Year	2016
Agency/Company	Burgess & Niple		

## Proposed Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
<a href="#">SR72: 6.825-7.355</a>	Limestone between Leffel & John	0.0703	0.3373	0.4174	3.1458	3.9708
<a href="#">SR72: 7.355-8.006</a>	Limestone between John & Grand	0.0553	0.2761	0.2697	1.807	2.4081
<a href="#">SR72: 8.006-8.471</a>	Limestone between Grand & Selma	0.04	0.1955	0.1781	0.9618	1.3754
<a href="#">SR72: 6.825</a>	Leffel Lane & S. Limestone Street	0.2096	0.9709	1.6632	7.8781	10.7218
<a href="#">SR72: 7.355</a>	John Street & S. Limestone Street	0.1712	0.7991	1.0209	6.0764	8.0676
<a href="#">SR72: 8.006</a>	Grand Avenue & S. Limestone Street	0.0899	0.4447	0.5936	2.935	4.0632
<a href="#">SR72: 8.471</a>	Selma Road & S. Limestone Street	0.1901	0.985	1.274	8.251	10.7001



# Project Safety Performance Report

## General Information

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Project Description		Contact Phone	
Reference Number		Date Performed	March 2016
Analyst	KMS	Analysis Year	2016
Agency/Company	Burgess & Niple		

## Summary by Crash Type

Crash Type	Existing		PSI	Proposed
	Predicted Crash Frequency	Expected Crash Frequency		Expected Crash Frequency
Unknown	0.0250	0.0250	0.0000	0.0250
Head On	0.2205	0.2212	0.0007	0.2212
Rear End	16.7789	19.0297	2.2508	19.0297
Backing	0.7726	0.9006	0.1280	0.9006
Sideswipe - Meeting	0.5097	0.5348	0.0251	0.5348
Sideswipe - Passing	4.1341	5.2100	1.0759	5.2100
Angle	5.6497	8.6682	3.0185	8.6682
Parked Vehicle	0.5432	0.5273	-0.0159	0.5273
Pedestrian	0.0850	0.0897	0.0047	0.0897
Animal	0.7634	0.7082	-0.0552	0.7082
Train	0.0007	0.0006	-0.0001	0.0006
Pedalcycles	0.9551	0.9138	-0.0413	0.9138
Other Non-Vehicle	0.0000	0.0000	0.0000	0.0000
Fixed Object	1.0341	1.1899	0.1558	1.1899
Other Object	0.0608	0.0605	-0.0003	0.0605
Overtuning	0.0516	0.0517	0.0001	0.0517
Other Non-Collision	0.1372	0.1365	-0.0007	0.1365
Left Turn	3.2230	3.7475	0.5245	3.7475
Right Turn	0.0000	0.0000	0.0000	0.0000

Existing Conditions: General Information and Data for Urban And Suburban Arterial Intersection						
General Information			Location Information			
Analyst	KMS	Route	SR72			
Agency or Company	Burgess & Niple	Logpoint	6.825			
Date Performed	March 2016	Common Name	Leffel Lane & S. Limestone Street			
Intersection	SR72; 6.825	Analysis Year	2016			
Signalized/Unsignalized	Signalized					
Input Data		Existing Conditions		HSM Base Conditions		
Intersection type (3ST, 3SG, 4ST, 4SG)		4SG		--		
AAADT <sub>major</sub> (veh/day) (total entering on major approaches)*	AAADT <sub>MAX</sub> = 67,700 (veh/day)	17,674		--		
AAADT <sub>minor</sub> (veh/day) (total entering on minor approaches)*	AAADT <sub>MAX</sub> = 33,400 (veh/day)	13,213		--		
Intersection lighting (present/not present)		Present		Not Present		
Calibration factor, C <sub>i</sub>		Varies, See Below		1.00		
<u>Data for unsignalized intersections only:</u>						
Number of major-road approaches with left-turn lanes					0	
Number of major-road approaches with right-turn lanes					0	
<u>Data for signalized intersections only:</u>						
Number of approaches with left-turn lanes		4		0		
Number of approaches with right-turn lanes		0		0		
Number of approaches with left-turn signal phasing		4		--		
Type of left-turn signal phasing for Leg #1		Protected/Permissive		Permissive		
Type of left-turn signal phasing for Leg #2		Protected/Permissive		--		
Type of left-turn signal phasing for Leg #3		Protected/Permissive		--		
Type of left-turn signal phasing for Leg #4		Protected/Permissive		--		
Number of approaches with right-turn-on-red prohibited		0		0		
Intersection red light cameras (present/not present)		Not Present		Not Present		
Sum of all pedestrian crossing volumes (PedVol)		50		--		
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )		5		--		
Number of bus stops within 300 m (1,000 ft) of the intersection		0		0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present		Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		1 to 8		0		
Locality:		State System				
NOTES: * AAADT: It is important to remember that the AAADT(major) = AAADT(major approach1) + AAADT(minor approach2) (refer to p.12-8 in Part C of the HSM)						

Existing Conditions: Crash Modification Factors (CMFs) for Urban And Suburban Arterial Intersection						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF <sub>1i</sub>	CMF <sub>2i</sub>	CMF <sub>3i</sub>	CMF <sub>4i</sub>	CMF <sub>5i</sub>	CMF <sub>6i</sub>	CMF <sub>COMB</sub>
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.6600	0.9606	1.0000	1.0000	0.9999	1.0000	0.6339



Existing Conditions: Multiple-Vehicle Crash Summary for Urban And Suburban Arterial Intersection										
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(6)*(7)*(8)
Crash Severity Level	SPF Coefficients			Overdispersion Parameter, k	Initial $N_{bimv}$	Proportion of Total Crashes	Adjusted $N_{bimv}$	Combined CMFs	Calibration Factor, $C_i$	Predicted $N_{bimv}$
	from Table 12-10									
	a	b	c							
Total	-10.99	1.07	0.23	0.39	5.243	1.000	5.243	0.63	2.48	8.243
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.629	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.322	1.688	0.63	1.91	2.044
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.431	$(5)_{TOTAL}-(5)_{FI}$ 0.678	3.555	0.63	2.75	6.198

Existing Conditions: Single-Vehicle Crash Summary for Urban And Suburban Arterial Intersection										
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients			Overdispersion Parameter, k	Initial $N_{bisv}$	Proportion of Total Crashes	Adjusted $N_{bisv}$	Combined CMFs	Calibration Factor, $C_i$	Predicted $N_{bisv}$
	from Table 12-12									
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.369	1.000	0.369	0.63	1.70	0.397
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.101	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.278	0.103	0.63	1.48	0.096
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.262	$(5)_{TOTAL}-(5)_{FI}$ 0.722	0.266	0.63	1.79	0.302

Existing Conditions: Vehicle-Pedestrian Crash Summary at Urban And Suburban Arterial Stop-Controlled Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted $N_{bimv}$	Predicted $N_{bisv}$	Predicted $N_{bi}$	$f_{pedl}$	Calibration factor, $C_i$	Predicted $N_{pedl}$
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16		$(4)*(5)*(6)$
Total	--	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--	--

Existing Conditions: CMFs for Vehicle-Pedestrian Crash Summary for Urban And Suburban Arterial Signalized Intersections			
(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
$CMF_{1p}$	$CMF_{2p}$	$CMF_{3p}$	
from Table 12-28	from Table 12-29	from Table 12-30	
1.00	1.00	1.12	$(1)*(2)*(3)$ 1.12

Existing Conditions: Vehicle-Pedestrian Crash Summary at Urban And Suburban Arterial Signalized Intersections										
(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SPF Coefficients					Overdispersion Parameter, k	$N_{pedbase}$	Combined CMF	Calibration factor, $C_i$	Predicted $N_{pedl}$
	from Table 12-14									
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.030	1.12	0.47	0.016
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	0.47	0.016

Existing Conditions: Vehicle-Bicycle Crash Summary for Urban And Suburban Arterial Intersection						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted $N_{bimv}$	Predicted $N_{bisv}$	Predicted $N_{bi}$	$f_{bikei}$	Calibration factor, $C_i$	Predicted $N_{bikei}$
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17		(4)*(5)*(6)
Total	8.243	0.397	8.640	0.0076	4.51	0.296
Fatal and injury (FI)	--	--	--	--	4.51	0.296

Existing Conditions: General Information and Data for Urban And Suburban Roadway Segment			
<b>General Information</b>		<b>Location Information</b>	
Analyst	KMS	Route	SR72
Agency or Company	Burgess & Niple	Logpoints	6.825 to 7.355
Date Performed	March 2016	Common Name	Limestone between Leffel & John
Segment for Analysis	SR72; 6.825-7.355	Analysis Year	2016
<b>Input Data</b>		<b>Existing Conditions</b>	<b>HSM Base Conditions</b>
Roadway type (2U, 3T, 4U, 4D, 5T)		5T	--
Length of segment, L (mi)		0.53	--
AAADT (veh/day) is within range	AAADT <sub>MAX</sub> = 53,800 (veh/day)	17,674	--
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		0	--
Median width (ft) - for divided only		Not Present	15
Lighting (present / not present)		Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		8	--
Minor commercial driveways (number)		30	--
Major industrial / institutional driveways (number)		0	--
Minor industrial / institutional driveways (number)		2	--
Major residential driveways (number)		0	--
Minor residential driveways (number)		11	--
Other driveways (number)		0	--
Speed Category		Posted Speed Greater than 30 mph	--
Roadside fixed object density (fixed objects / mi)		75	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		5	30
Calibration Factor, Cr		Varies, See Below	1.00
Locality:		State System	

Existing Conditions: Crash Modification Factors (CMFs) for Urban And Suburban Roadway Segment					
(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
<i>CMF 1r</i>	<i>CMF 2r</i>	<i>CMF 3r</i>	<i>CMF 4r</i>	<i>CMF 5r</i>	<i>CMF comb</i>
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.50	1.00	0.92	1.00	1.37

Existing Conditions: Multiple-Vehicle Nondriveway Crash Summary for Urban And Suburban Roadway Segment											
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)		
Crash Severity Level	SPF Coefficients		Overdispersion Parameter, k	Initial $N_{brmv}$	Proportion of Total Crashes	Adjusted $N_{brmv}$	Combined CMFs	Calibration Factor, Cr	Predicted $N_{brmv}$		
	from Table 12-3									from Table 12-3	from Equation 12-10
	a	b									
Total	-9.70	1.17	0.81	3.027	1.000	3.027	1.37	0.46	1.913		
Fatal and Injury (FI)	-10.47	1.12	0.62	0.859	$(4)_{FI} / ((4)_{FI} + (4)_{PDO})$	0.821	1.37	0.47	0.530		
Property Damage Only (PDO)	-9.97	1.17	0.88	2.311	$(5)_{TOTAL} - (5)_{FI}$	2.206	1.37	0.45	1.364		
					0.271						
					0.729						

Existing Conditions: Single-Vehicle Crash Summary for Urban And Suburban Roadway Segment											
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)		
Crash Severity Level	SPF Coefficients		Overdispersion Parameter, k	Initial $N_{brsv}$	Proportion of Total Crashes	Adjusted $N_{brsv}$	Combined CMFs	Calibration Factor, Cr	Predicted $N_{brsv}$		
	from Table 12-5									from Table 12-5	from Equation 12-13
	a	b									
Total	-4.82	0.54	0.52	0.840	1.000	0.840	1.37	0.46	0.531		
Fatal and Injury (FI)	-4.43	0.35	0.36	0.194	$(4)_{FI} / ((4)_{FI} + (4)_{PDO})$	0.203	1.37	0.35	0.098		
Property Damage Only (PDO)	-5.83	0.61	0.55	0.607	$(5)_{TOTAL} - (5)_{FI}$	0.637	1.37	0.50	0.438		
					0.242						
					0.758						

Multiple-Vehicle Driveway-Related Collisions By Driveway Type for Urban And Suburban Roadway Segment						
(1)	(2)	(3)	(4)	(5)	(6)	
Driveway Type	Number of driveways, $n_j$	Crashes per driveway per year, $N_j$	Coefficient for traffic adjustment, $t$	Initial $N_{brdwy}$	Overdispersion parameter, k	
		from Table 12-7	from Table 12-7	Equation 12-16		
				$n_j * N_j * (AADT/15,000)^t$		
Major commercial	8	0.165	1.172	1.600	--	
Minor commercial	30	0.053	1.172	1.927		
Major industrial/institutional	0	0.181	1.172	0.000		
Minor industrial/institutional	2	0.024	1.172	0.058		
Major residential	0	0.087	1.172	0.000		
Minor residential	11	0.016	1.172	0.213		
Other	0	0.027	1.172	0.000		
Total	--	--	--	3.798		0.10

Existing Conditions: Multiple-Vehicle Crash Summary by Driveway Type for Urban And Suburban Roadway Segment						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial $N_{brdwy}$	Proportion of total crashes ( $f_{dwy}$ )	Adjusted $N_{brdwy}$	Combined CMFs	Calibration factor, $C_r$	Predicted $N_{brdwy}$
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		$(4)*(5)*(6)$
	Total	3.798	1.000	3.798		1.37
Fatal and injury (FI)	--	0.075	0.283	1.37	0.24	0.093
Property damage only (PDO)	--	0.182	0.689	1.37	0.20	0.189

Existing Conditions: Vehicle-Pedestrian Crash Summary for Urban And Suburban Roadway Segment							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted $N_{brmv}$	Predicted $N_{brsv}$	Predicted $N_{brdwy}$	Predicted $N_{br}$	$f_{pedr}$	Calibration factor, $C_r$	Predicted $N_{pedr}$
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		$(5)*(6)*(7)$
Total	1.913	0.531	1.096	3.540	0.0044	0.23	0.004

Fatal and injury (FI)	--	--	--	--	--	0.23	0.004
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Existing Conditions: Vehicle-Bicycle Crash Summary for Urban And Suburban Roadway Segment							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted $N_{brmv}$	Predicted $N_{brsv}$	Predicted $N_{brdwy}$	Predicted $N_{br}$	$f_{biker}$	Calibration factor, $C_r$	Predicted $N_{biker}$
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	1.913	0.531	1.096	3.540	0.0044	0.46	0.007
Fatal and injury (FI)	--	--	--	--	--	0.46	0.007

Existing Conditions: General Information and Data for Urban And Suburban Arterial Intersection						
General Information			Location Information			
Analyst	KMS		Route	SR72		
Agency or Company	Burgess & Niple		Logpoint	7.355		
Date Performed	March 2016		Common Name	John Street & S. Limestone Street		
Intersection	SR72; 7.355		Analysis Year	2016		
Signalized/Unsignalized	Signalized					
Input Data			Existing Conditions		HSM Base Conditions	
Intersection type (3ST, 3SG, 4ST, 4SG)			4SG		--	
AADT <sub>major</sub> (veh/day) (total entering on major approaches)*		AADT <sub>MAX</sub> = 67,700 (veh/day)	16,331		--	
AADT <sub>minor</sub> (veh/day) (total entering on minor approaches)*		AADT <sub>MAX</sub> = 33,400 (veh/day)	8,151		--	
Intersection lighting (present/not present)			Present		Not Present	
Calibration factor, C <sub>i</sub>			Varies, See Below		1.00	
<u>Data for unsignalized intersections only:</u>						
Number of major-road approaches with left-turn lanes					0	
Number of major-road approaches with right-turn lanes					0	
<u>Data for signalized intersections only:</u>						
Number of approaches with left-turn lanes			4		0	
Number of approaches with right-turn lanes			1		0	
Number of approaches with left-turn signal phasing			4		--	
Type of left-turn signal phasing for Leg #1			Protected/Permissive		Permissive	
Type of left-turn signal phasing for Leg #2			Protected/Permissive		--	
Type of left-turn signal phasing for Leg #3			Protected/Permissive		--	
Type of left-turn signal phasing for Leg #4			Protected/Permissive		--	
Number of approaches with right-turn-on-red prohibited			0		0	
Intersection red light cameras (present/not present)			Not Present		Not Present	
Sum of all pedestrian crossing volumes (PedVol)			50		--	
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )			5		--	
Number of bus stops within 300 m (1,000 ft) of the intersection			1 or 2		0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)			Not Present		Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection			1 to 8		0	
Locality:			State System			
NOTES: * AADT: It is important to remember that the AADT(major) = AADT(major approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the HSM)						

Existing Conditions: Crash Modification Factors (CMFs) for Urban And Suburban Arterial Intersection						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
<i>CMF 1i</i>	<i>CMF 2i</i>	<i>CMF 3i</i>	<i>CMF 4i</i>	<i>CMF 5i</i>	<i>CMF 6i</i>	<i>CMF<sub>COMB</sub></i>
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.6600	0.9606	0.9600	1.0000	0.9999	1.0000	0.6086

Existing Conditions: Multiple-Vehicle Crash Summary for Urban And Suburban Arterial Intersection										
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(6)*(7)*(8)
Crash Severity Level	SPF Coefficients			Overdispersion Parameter, k	Initial $N_{bimv}$	Proportion of Total Crashes	Adjusted $N_{bimv}$	Combined CMFs	Calibration Factor, $C_i$	Predicted $N_{bimv}$
	from Table 12-10									
	a	b	c							
Total	-10.99	1.07	0.23	0.39	4.311	1.000	4.311	0.61	2.48	6.507
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.334	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.321	1.385	0.61	1.91	1.610
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	2.819	$(5)_{TOTAL}-(5)_{FI}$ 0.679	2.926	0.61	2.75	4.897

Existing Conditions: Single-Vehicle Crash Summary for Urban And Suburban Arterial Intersection										
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients			Overdispersion Parameter, k	Initial $N_{bisv}$	Proportion of Total Crashes	Adjusted $N_{bisv}$	Combined CMFs	Calibration Factor, $C_i$	Predicted $N_{bisv}$
	from Table 12-12									
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.307	1.000	0.307	0.61	1.70	0.317
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.085	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.280	0.086	0.61	1.48	0.077
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.218	$(5)_{TOTAL}-(5)_{FI}$ 0.720	0.221	0.61	1.79	0.241

Existing Conditions: Vehicle-Pedestrian Crash Summary at Urban And Suburban Arterial Stop-Controlled Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted $N_{bimv}$	Predicted $N_{bisv}$	Predicted $N_{bi}$	$f_{pedl}$	Calibration factor, $C_i$	Predicted $N_{pedl}$
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16		(4)*(5)*(6)
Total	--	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--	--

Existing Conditions: CMFs for Vehicle-Pedestrian Crash Summary for Urban And Suburban Arterial Signalized Intersections			
(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
$CMF_{1p}$	$CMF_{2p}$	$CMF_{3p}$	
from Table 12-28	from Table 12-29	from Table 12-30	
2.78	1.00	1.12	$(1)*(2)*(3)$ 3.11

Existing Conditions: Vehicle-Pedestrian Crash Summary at Urban And Suburban Arterial Signalized Intersections										
(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SPF Coefficients					Overdispersion Parameter, k	$N_{pedbase}$	Combined CMF	Calibration factor, $C_i$	Predicted $N_{pedl}$
	from Table 12-14									
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.025	3.11	0.47	0.036
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	0.47	0.036

Existing Conditions: Vehicle-Bicycle Crash Summary for Urban And Suburban Arterial Intersection						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted $N_{bimv}$	Predicted $N_{bisv}$	Predicted $N_{bi}$	$f_{bikei}$	Calibration factor, $C_i$	Predicted $N_{bikei}$
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17		(4)*(5)*(6)
Total	6.507	0.317	6.824	0.0076	4.51	0.234
Fatal and injury (FI)	--	--	--	--	4.51	0.234



Existing Conditions: General Information and Data for Urban And Suburban Roadway Segment			
<b>General Information</b>		<b>Location Information</b>	
Analyst	KMS	Route	SR72
Agency or Company	Burgess & Niple	Logpoints	7.355 to 8.006
Date Performed	March 2016	Common Name	Limestone between John & Grand
Segment for Analysis	SR72; 7.355-8.006	Analysis Year	2016
<b>Input Data</b>		<b>Existing Conditions</b>	<b>HSM Base Conditions</b>
Roadway type (2U, 3T, 4U, 4D, 5T)		5T	--
Length of segment, L (mi)		0.651	--
AAADT (veh/day) is within range	AAADT <sub>MAX</sub> = 53,800 (veh/day)	16,331	--
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		0	--
Median width (ft) - for divided only		Not Present	15
Lighting (present / not present)		Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		3	--
Minor commercial driveways (number)		8	--
Major industrial / institutional driveways (number)		0	--
Minor industrial / institutional driveways (number)		1	--
Major residential driveways (number)		0	--
Minor residential driveways (number)		17	--
Other driveways (number)		0	--
Speed Category		Posted Speed Greater than 30 mph	--
Roadside fixed object density (fixed objects / mi)		75	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		25	30
Calibration Factor, Cr		Varies, See Below	1.00
Locality:		State System	

Existing Conditions: Crash Modification Factors (CMFs) for Urban And Suburban Roadway Segment					
(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
<i>CMF 1r</i>	<i>CMF 2r</i>	<i>CMF 3r</i>	<i>CMF 4r</i>	<i>CMF 5r</i>	<i>CMF comb</i>
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.15	1.00	0.92	1.00	1.06

Existing Conditions: Multiple-Vehicle Nondriveway Crash Summary for Urban And Suburban Roadway Segment									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients		Overdispersion Parameter, k	Initial $N_{brmv}$	Proportion of Total Crashes	Adjusted $N_{brmv}$	Combined CMFs	Calibration Factor, Cr	Predicted $N_{brmv}$
	from Table 12-3								
	a	b							
Total	-9.70	1.17	0.81	3.390	1.000	3.390	1.06	0.46	1.646
Fatal and Injury (FI)	-10.47	1.12	0.62	0.966	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$	0.922	1.06	0.47	0.457
Property Damage Only (PDO)	-9.97	1.17	0.88	2.588	$(5)_{TOTAL}-(5)_{FI}$	2.468	1.06	0.45	1.172
					0.272				
					0.728				

Existing Conditions: Single-Vehicle Crash Summary for Urban And Suburban Roadway Segment									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients		Overdispersion Parameter, k	Initial $N_{brsv}$	Proportion of Total Crashes	Adjusted $N_{brsv}$	Combined CMFs	Calibration Factor, Cr	Predicted $N_{brsv}$
	from Table 12-5								
	a	b							
Total	-4.82	0.54	0.52	0.989	1.000	0.989	1.06	0.46	0.480
Fatal and Injury (FI)	-4.43	0.35	0.36	0.231	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$	0.243	1.06	0.35	0.090
Property Damage Only (PDO)	-5.83	0.61	0.55	0.711	$(5)_{TOTAL}-(5)_{FI}$	0.746	1.06	0.50	0.394
					0.246				
					0.754				

Multiple-Vehicle Driveway-Related Collisions By Driveway Type for Urban And Suburban Roadway Segment						
(1)	(2)	(3)	(4)	(5)	(6)	
Driveway Type	Number of driveways, $n_j$	Crashes per driveway per year, $N_j$	Coefficient for traffic adjustment, $t$	Initial $N_{brdwy}$	Overdispersion parameter, k	
		from Table 12-7	from Table 12-7	Equation 12-16		
				$n_j * N_j * (AADT/15,000)^t$		
Major commercial	3	0.165	1.172	0.547	--	
Minor commercial	8	0.053	1.172	0.468		
Major industrial/institutional	0	0.181	1.172	0.000		
Minor industrial/institutional	1	0.024	1.172	0.027		
Major residential	0	0.087	1.172	0.000		
Minor residential	17	0.016	1.172	0.300		
Other	0	0.027	1.172	0.000		
Total	--	--	--	1.342		0.10

Existing Conditions: Multiple-Vehicle Crash Summary by Driveway Type for Urban And Suburban Roadway Segment						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial $N_{brdwy}$	Proportion of total crashes ( $f_{dwy}$ )	Adjusted $N_{brdwy}$	Combined CMFs	Calibration factor, $C_r$	Predicted $N_{brdwy}$
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		$(4)*(5)*(6)$
	Total	1.342	1.000	1.342		1.06
Fatal and injury (FI)	--	0.075	0.100	1.06	0.24	0.025
Property damage only (PDO)	--	0.182	0.244	1.06	0.20	0.051

Existing Conditions: Vehicle-Pedestrian Crash Summary for Urban And Suburban Roadway Segment							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted $N_{brmv}$	Predicted $N_{brsv}$	Predicted $N_{brdwy}$	Predicted $N_{br}$	$f_{pedr}$	Calibration factor, $C_r$	Predicted $N_{pedr}$
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		$(5)*(6)*(7)$
Total	1.646	0.480	0.298	2.424	0.0044	0.23	0.002

Fatal and injury (FI)	--	--	--	--	--	0.23	0.002
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Existing Conditions: Vehicle-Bicycle Crash Summary for Urban And Suburban Roadway Segment							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted $N_{brmv}$	Predicted $N_{brsv}$	Predicted $N_{brdwy}$	Predicted $N_{br}$	$f_{biker}$	Calibration factor, $C_r$	Predicted $N_{biker}$
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	1.646	0.480	0.298	2.424	0.0044	0.46	0.005
Fatal and injury (FI)	--	--	--	--	--	0.46	0.005

Existing Conditions: General Information and Data for Urban And Suburban Arterial Intersection						
General Information			Location Information			
Analyst	KMS		Route	SR72		
Agency or Company	Burgess & Niple		Logpoint	8.006		
Date Performed	March 2016		Common Name	Grand Avenue & S. Limestone Street		
Intersection	SR72; 8.006		Analysis Year	2016		
Signalized/Unsignalized	Signalized					
Input Data			Existing Conditions		HSM Base Conditions	
Intersection type (3ST, 3SG, 4ST, 4SG)			4SG		--	
AADT <sub>major</sub> (veh/day) (total entering on major approaches)*		AADT <sub>MAX</sub> = 67,700 (veh/day)	15,639		--	
AADT <sub>minor</sub> (veh/day) (total entering on minor approaches)*		AADT <sub>MAX</sub> = 33,400 (veh/day)	1,240		--	
Intersection lighting (present/not present)			Present		Not Present	
Calibration factor, C <sub>i</sub>			Varies, See Below		1.00	
<u>Data for unsignalized intersections only:</u>						
Number of major-road approaches with left-turn lanes					0	
Number of major-road approaches with right-turn lanes					0	
<u>Data for signalized intersections only:</u>						
Number of approaches with left-turn lanes			4		0	
Number of approaches with right-turn lanes			4		0	
Number of approaches with left-turn signal phasing			0		--	
Type of left-turn signal phasing for Leg #1			Protected/Permissive		Permissive	
Type of left-turn signal phasing for Leg #2			Protected/Permissive		--	
Type of left-turn signal phasing for Leg #3			Protected/Permissive		--	
Type of left-turn signal phasing for Leg #4			Protected/Permissive		--	
Number of approaches with right-turn-on-red prohibited			0		0	
Intersection red light cameras (present/not present)			Not Present		Not Present	
Sum of all pedestrian crossing volumes (PedVol)			50		--	
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )			5		--	
Number of bus stops within 300 m (1,000 ft) of the intersection			0		0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)			Not Present		Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection			0		0	
Locality:			State System			
NOTES: * AADT: It is important to remember that the AADT(major) = AADT(major approach1) + AADT(minor approach2) (refer to p.12-8 in Part C of the HSM)						

Existing Conditions: Crash Modification Factors (CMFs) for Urban And Suburban Arterial Intersection						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
<i>CMF 1i</i>	<i>CMF 2i</i>	<i>CMF 3i</i>	<i>CMF 4i</i>	<i>CMF 5i</i>	<i>CMF 6i</i>	<i>CMF<sub>COMB</sub></i>
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.6600	0.9801	0.8500	1.0000	0.9999	1.0000	0.5498

Existing Conditions: Multiple-Vehicle Crash Summary for Urban And Suburban Arterial Intersection										
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(6)*(7)*(8)
Crash Severity Level	SPF Coefficients			Overdispersion Parameter, k	Initial $N_{bimv}$	Proportion of Total Crashes	Adjusted $N_{bimv}$	Combined CMFs	Calibration Factor, $C_i$	Predicted $N_{bimv}$
	from Table 12-10									
	a	b	c							
Total	-10.99	1.07	0.23	0.39	2.669	1.000	2.669	0.55	2.48	3.639
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	0.838	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.328	0.876	0.55	1.91	0.919
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	1.716	$(5)_{TOTAL}-(5)_{FI}$ 0.672	1.794	0.55	2.75	2.712

Existing Conditions: Single-Vehicle Crash Summary for Urban And Suburban Arterial Intersection										
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients			Overdispersion Parameter, k	Initial $N_{bisv}$	Proportion of Total Crashes	Adjusted $N_{bisv}$	Combined CMFs	Calibration Factor, $C_i$	Predicted $N_{bisv}$
	from Table 12-12									
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.179	1.000	0.179	0.55	1.70	0.167
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.048	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.268	0.048	0.55	1.48	0.039
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.132	$(5)_{TOTAL}-(5)_{FI}$ 0.732	0.131	0.55	1.79	0.129

Existing Conditions: Vehicle-Pedestrian Crash Summary at Urban And Suburban Arterial Stop-Controlled Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted $N_{bimv}$	Predicted $N_{bisv}$	Predicted $N_{bi}$	$f_{pedl}$	Calibration factor, $C_i$	Predicted $N_{pedl}$
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16		(4)*(5)*(6)
Total	--	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--	--

Existing Conditions: CMFs for Vehicle-Pedestrian Crash Summary for Urban And Suburban Arterial Signalized Intersections			
(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
$CMF_{1p}$	$CMF_{2p}$	$CMF_{3p}$	
from Table 12-28	from Table 12-29	from Table 12-30	
1.00	1.00	1.00	$(1)*(2)*(3)$ 1.00

Existing Conditions: Vehicle-Pedestrian Crash Summary at Urban And Suburban Arterial Signalized Intersections										
(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SPF Coefficients					Overdispersion Parameter, k	$N_{pedbase}$	Combined CMF	Calibration factor, $C_i$	Predicted $N_{pedl}$
	from Table 12-14									
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.013	1.00	0.47	0.006
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	0.47	0.006

Existing Conditions: Vehicle-Bicycle Crash Summary for Urban And Suburban Arterial Intersection						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted $N_{bimv}$	Predicted $N_{bisv}$	Predicted $N_{bi}$	$f_{bikei}$	Calibration factor, $C_i$	Predicted $N_{bikei}$
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17		(4)*(5)*(6)
Total	3.639	0.167	3.807	0.0076	4.51	0.130
Fatal and injury (FI)	--	--	--	--	4.51	0.130

Existing Conditions: General Information and Data for Urban And Suburban Roadway Segment			
<b>General Information</b>		<b>Location Information</b>	
Analyst	KMS	Route	SR72
Agency or Company	Burgess & Niple	Logpoints	8.006 to 8.471
Date Performed	March 2016	Common Name	Limestone between Grand & Selma
Segment for Analysis	SR72; 8.006-8.471	Analysis Year	2016
<b>Input Data</b>		<b>Existing Conditions</b>	<b>HSM Base Conditions</b>
Roadway type (2U, 3T, 4U, 4D, 5T)		5T	--
Length of segment, L (mi)		0.465	--
AAADT (veh/day) is within range	AAADT <sub>MAX</sub> = 53,800 (veh/day)	18,610	--
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		0	--
Median width (ft) - for divided only		Not Present	15
Lighting (present / not present)		Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		0	--
Minor commercial driveways (number)		3	--
Major industrial / institutional driveways (number)		0	--
Minor industrial / institutional driveways (number)		1	--
Major residential driveways (number)		0	--
Minor residential driveways (number)		4	--
Other driveways (number)		0	--
Speed Category		Posted Speed Greater than 30 mph	--
Roadside fixed object density (fixed objects / mi)		35	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		15	30
Calibration Factor, Cr		Varies, See Below	1.00
Locality:		State System	

Existing Conditions: Crash Modification Factors (CMFs) for Urban And Suburban Roadway Segment					
(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
<i>CMF 1r</i>	<i>CMF 2r</i>	<i>CMF 3r</i>	<i>CMF 4r</i>	<i>CMF 5r</i>	<i>CMF comb</i>
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	1.00	0.92	1.00	0.99

Existing Conditions: Multiple-Vehicle Nondriveway Crash Summary for Urban And Suburban Roadway Segment											
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)		
Crash Severity Level	SPF Coefficients		Overdispersion Parameter, k	Initial $N_{brmv}$	Proportion of Total Crashes	Adjusted $N_{brmv}$	Combined CMFs	Calibration Factor, Cr	Predicted $N_{brmv}$		
	from Table 12-3									from Table 12-3	from Equation 12-10
	a	b									
Total	-9.70	1.17	0.81	2.821	1.000	2.821	0.99	0.46	1.281		
Fatal and Injury (FI)	-10.47	1.12	0.62	0.799	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$	0.763	0.99	0.47	0.354		
Property Damage Only (PDO)	-9.97	1.17	0.88	2.153	$(5)_{TOTAL}-(5)_{FI}$	2.058	0.99	0.45	0.914		
					0.271						
					0.729						

Existing Conditions: Single-Vehicle Crash Summary for Urban And Suburban Roadway Segment											
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)		
Crash Severity Level	SPF Coefficients		Overdispersion Parameter, k	Initial $N_{brsv}$	Proportion of Total Crashes	Adjusted $N_{brsv}$	Combined CMFs	Calibration Factor, Cr	Predicted $N_{brsv}$		
	from Table 12-5									from Table 12-5	from Equation 12-13
	a	b									
Total	-4.82	0.54	0.52	0.758	1.000	0.758	0.99	0.46	0.344		
Fatal and Injury (FI)	-4.43	0.35	0.36	0.173	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$	0.181	0.99	0.35	0.063		
Property Damage Only (PDO)	-5.83	0.61	0.55	0.550	$(5)_{TOTAL}-(5)_{FI}$	0.577	0.99	0.50	0.285		
					0.239						
					0.761						

Multiple-Vehicle Driveway-Related Collisions By Driveway Type for Urban And Suburban Roadway Segment						
(1)	(2)	(3)	(4)	(5)	(6)	
Driveway Type	Number of driveways, $n_j$	Crashes per driveway per year, $N_j$	Coefficient for traffic adjustment, $t$	Initial $N_{brdwy}$	Overdispersion parameter, k	
		from Table 12-7	from Table 12-7	Equation 12-16		
				$n_j * N_j * (AADT/15,000)^t$		
Major commercial	0	0.165	1.172	0.000	--	
Minor commercial	3	0.053	1.172	0.205		
Major industrial/institutional	0	0.181	1.172	0.000		
Minor industrial/institutional	1	0.024	1.172	0.031		
Major residential	0	0.087	1.172	0.000		
Minor residential	4	0.016	1.172	0.082		
Other	0	0.027	1.172	0.000		
Total	--	--	--	0.318		0.10

Existing Conditions: Multiple-Vehicle Crash Summary by Driveway Type for Urban And Suburban Roadway Segment						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial $N_{brdwy}$	Proportion of total crashes ( $f_{dwy}$ )	Adjusted $N_{brdwy}$	Combined CMFs	Calibration factor, $C_r$	Predicted $N_{brdwy}$
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		$(4)*(5)*(6)$
Total	0.318	1.000	0.318	0.99	0.21	0.066
Fatal and injury (FI)	--	0.075	0.024	0.99	0.24	0.006
Property damage only (PDO)	--	0.182	0.058	0.99	0.20	0.011

Existing Conditions: Vehicle-Pedestrian Crash Summary for Urban And Suburban Roadway Segment							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted $N_{brmv}$	Predicted $N_{brsv}$	Predicted $N_{brdwy}$	Predicted $N_{br}$	$f_{pedr}$	Calibration factor, $C_r$	Predicted $N_{pedr}$
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		$(5)*(6)*(7)$
Total	1.281	0.344	0.066	1.692	0.0044	0.23	0.002



Fatal and injury (FI)	--	--	--	--	--	0.23	0.002
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Existing Conditions: Vehicle-Bicycle Crash Summary for Urban And Suburban Roadway Segment							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted $N_{brmv}$	Predicted $N_{brsv}$	Predicted $N_{brdwy}$	Predicted $N_{br}$	$f_{biker}$	Calibration factor, $C_r$	Predicted $N_{biker}$
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	1.281	0.344	0.066	1.692	0.0044	0.46	0.003
Fatal and injury (FI)	--	--	--	--	--	0.46	0.003

Existing Conditions: General Information and Data for Urban And Suburban Arterial Intersection						
General Information			Location Information			
Analyst	KMS	Route	SR72			
Agency or Company	Burgess & Niple	Logpoint	8.471			
Date Performed	March 2016	Common Name	Selma Road & S. Limestone Street			
Intersection	SR72; 8.471	Analysis Year	2016			
Signalized/Unsignalized	Signalized					
Input Data		Existing Conditions		HSM Base Conditions		
Intersection type (3ST, 3SG, 4ST, 4SG)		4SG		--		
AAADT <sub>major</sub> (veh/day) (total entering on major approaches)*	AAADT <sub>MAX</sub> = 67,700 (veh/day)	18,610		--		
AAADT <sub>minor</sub> (veh/day) (total entering on minor approaches)*	AAADT <sub>MAX</sub> = 33,400 (veh/day)	11,403		--		
Intersection lighting (present/not present)		Not Present		Not Present		
Calibration factor, C <sub>i</sub>		Varies, See Below		1.00		
<u>Data for unsignalized intersections only:</u>						
Number of major-road approaches with left-turn lanes					0	
Number of major-road approaches with right-turn lanes					0	
<u>Data for signalized intersections only:</u>						
Number of approaches with left-turn lanes		4		0		
Number of approaches with right-turn lanes		2		0		
Number of approaches with left-turn signal phasing		4		--		
Type of left-turn signal phasing for Leg #1		Protected/Permissive		Permissive		
Type of left-turn signal phasing for Leg #2		Protected/Permissive		--		
Type of left-turn signal phasing for Leg #3		Protected/Permissive		--		
Type of left-turn signal phasing for Leg #4		Protected/Permissive		--		
Number of approaches with right-turn-on-red prohibited		0		0		
Intersection red light cameras (present/not present)		Not Present		Not Present		
Sum of all pedestrian crossing volumes (PedVol)		50		--		
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )		5		--		
Number of bus stops within 300 m (1,000 ft) of the intersection		0		0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Present		Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0		0		
Locality:		State System				
NOTES: * AAADT: It is important to remember that the AAADT(major) = AAADT(major approach1) + AAADT(minor approach2) (refer to p.12-8 in Part C of the HSM)						

Existing Conditions: Crash Modification Factors (CMFs) for Urban And Suburban Arterial Intersection						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF <sub>1i</sub>	CMF <sub>2i</sub>	CMF <sub>3i</sub>	CMF <sub>4i</sub>	CMF <sub>5i</sub>	CMF <sub>6i</sub>	CMF <sub>COMB</sub>
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.6600	0.9606	0.9200	1.0000	1.0000	1.0000	0.5833

Existing Conditions: Multiple-Vehicle Crash Summary for Urban And Suburban Arterial Intersection										
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(6)*(7)*(8)
Crash Severity Level	SPF Coefficients			Overdispersion Parameter, k	Initial $N_{bimv}$	Proportion of Total Crashes	Adjusted $N_{bimv}$	Combined CMFs	Calibration Factor, $C_i$	Predicted $N_{bimv}$
	from Table 12-10									
	a	b	c							
Total	-10.99	1.07	0.23	0.39	5.356	1.000	5.356	0.58	2.48	7.748
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.676	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.324	1.737	0.58	1.91	1.935
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.491	$(5)_{TOTAL}-(5)_{FI}$ 0.676	3.619	0.58	2.75	5.805

Existing Conditions: Single-Vehicle Crash Summary for Urban And Suburban Arterial Intersection										
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	SPF Coefficients			Overdispersion Parameter, k	Initial $N_{bisv}$	Proportion of Total Crashes	Adjusted $N_{bisv}$	Combined CMFs	Calibration Factor, $C_i$	Predicted $N_{bisv}$
	from Table 12-12									
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.367	1.000	0.367	0.58	1.70	0.364
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.099	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.273	0.100	0.58	1.48	0.087
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.263	$(5)_{TOTAL}-(5)_{FI}$ 0.727	0.267	0.58	1.79	0.278

Existing Conditions: Vehicle-Pedestrian Crash Summary at Urban And Suburban Arterial Stop-Controlled Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted $N_{bimv}$	Predicted $N_{bisv}$	Predicted $N_{bi}$	$f_{pedl}$	Calibration factor, $C_i$	Predicted $N_{pedl}$
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16		(4)*(5)*(6)
Total	--	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--	--

Existing Conditions: CMFs for Vehicle-Pedestrian Crash Summary for Urban And Suburban Arterial Signalized Intersections			
(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
$CMF_{1p}$	$CMF_{2p}$	$CMF_{3p}$	
from Table 12-28	from Table 12-29	from Table 12-30	
1.00	1.35	1.00	$(1)*(2)*(3)$ 1.35

Existing Conditions: Vehicle-Pedestrian Crash Summary at Urban And Suburban Arterial Signalized Intersections										
(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	SPF Coefficients					Overdispersion Parameter, k	$N_{pedbase}$	Combined CMF	Calibration factor, $C_i$	Predicted $N_{pedl}$
	from Table 12-14									
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.028	1.35	0.47	0.018
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	0.47	0.018

Existing Conditions: Vehicle-Bicycle Crash Summary for Urban And Suburban Arterial Intersection						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Predicted $N_{bimv}$	Predicted $N_{bisv}$	Predicted $N_{bi}$	$f_{bikei}$	Calibration factor, $C_i$	Predicted $N_{bikei}$
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17		(4)*(5)*(6)
Total	7.748	0.364	8.112	0.0076	4.51	0.278
Fatal and injury (FI)	--	--	--	--	4.51	0.278