

APPENDIX D

SAFETY ANALYSES

2014-2018 Existing Crash Data from PCIT

Roadway	PDO	Injury	Fatal	Total
SR 0045	72	70	1	143
SR 0144	68	39	4	111
SR 0192	0	1	0	1
SR 0322	69	39	0	108
Linden Hall Rd/ Cedar Hill Rd (SR 2004)	1	0	0	1
Brush Valley Rd/ Red Hill Rd (SR 2006)	3	3	0	6
Boalsburg Rd/ Warner Blvd (SR 3010)	3	10	0	13
Boal Ave (SR 3014)	5	6	0	11
Brush Valley Rd	2	0	0	2
Total	223	168	5	396

50	49	1	36	72 (50%)	70 (49%)	1 (1%)	143 (36%)
61	35	4	28	68 (61%)	39 (35%)	4 (4%)	111 (28%)
0	100	0	0	0 (0%)	1 (100%)	0 (0%)	1 (0%)
64	36	0	27	69 (64%)	39 (36%)	0 (0%)	108 (27%)
100	0	0	0	1 (100%)	0 (0%)	0 (0%)	1 (0%)
50	50	0	2	3 (50%)	3 (50%)	0 (0%)	6 (2%)
23	77	0	3	3 (23%)	10 (77%)	0 (0%)	13 (3%)
45	55	0	3	5 (45%)	6 (55%)	0 (0%)	11 (3%)
100	0	0	1	2 (100%)	0 (0%)	0 (0%)	2 (1%)
56	42	1	100	223 (56%)	168 (42%)	5 (1%)	396 (100%)

Roadway	Angle	Head-On	Hit Fixed Object	Hit Ped	Rear-end	Sides-wipe (Opp.)	Side-swipe (Same)	Non-Collision	Other	Total
SR 0045	49	6	43	1	28	1	3	4	8	143
SR 0144	17	4	52		22	4	1	5	6	111
SR 0192			1							1
SR 0322	18	3	25		42	6	2	2	10	108
SR 2004			1							1
SR 2006			3			1		2		6
SR 3010	7		2		3				1	13
SR 3014	4		2		2		2		1	11
Brush Valley Rd			2							2
Total	95	13	131	1	97	12	8	13	26	396

34	4	30
15	4	47
0	0	100
17	3	23
0	0	100
0	0	50
54	0	15
36	0	18
0	0	100
24	3	33

Roadway	Passenger Vehicles			Heavy Vehicles (Trucks)			Bicycle	Unknown	Total
	Auto	SUV	MC	Large	Small	Bus			
SR 0045	76	32	2	3	29			1	143
SR 0144	53	30	3	3	19	1	1	1	111
SR 0192		1							1
SR 0322	57	25	1	8	16	1			108
SR 2004	1								1
SR 2006	4	1			1				6
SR 3010	7	4	1	1					13
SR 3014	4	3	1	1	1		1		11
Brush Valley Road	2								2
Total	204	96	8	16	66	2	2	2	396

53	22	1
48	27	3
0	100	0
53	23	1
100	0	0
67	17	0
54	31	8
36	27	9
100	0	0
52	24	2

							Angle	Head-On	Hit Fixed	CHit Ped	Rear-end	Sides-wipe	Side-swipe	Non-Collis	Other	Total
1	20	1	2	3	6	36	49 (34%)	6 (4%)	43 (30%)	1 (1%)	28 (20%)	1 (1%)	3 (2%)	4 (3%)	8 (6%)	143 (36%)
0	20	4	1	5	5	28	17 (15%)	4 (4%)	52 (47%)	(0%)	22 (20%)	4 (4%)	1 (1%)	5 (5%)	6 (5%)	111 (28%)
0	0	0	0	0	0	0	(0%)	(0%)	1 (100%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	1 (0%)
0	39	6	2	2	9	27	18 (17%)	3 (3%)	25 (23%)	(0%)	42 (39%)	6 (6%)	2 (2%)	2 (2%)	10 (9%)	108 (27%)
0	0	0	0	0	0	0	(0%)	(0%)	1 (100%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	1 (0%)
0	0	17	0	33	0	2	(0%)	(0%)	3 (50%)	(0%)	(0%)	1 (17%)	(0%)	2 (33%)	(0%)	6 (2%)
0	23	0	0	0	8	3	7 (54%)	(0%)	2 (15%)	(0%)	3 (23%)	(0%)	(0%)	(0%)	1 (8%)	13 (3%)
0	18	0	18	0	9	3	4 (36%)	(0%)	2 (18%)	(0%)	2 (18%)	(0%)	2 (18%)	(0%)	1 (9%)	11 (3%)
0	0	0	0	0	0	1	(0%)	(0%)	2 (100%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	2 (1%)
0	24	3	2	3	7	100	95 (24%)	13 (3%)	131 (33%)	1 (0%)	97 (24%)	12 (3%)	8 (2%)	13 (3%)	26 (7%)	396 (100%)

2	20	0	0	1	36	76 (53%)	32 (22%)	2 (1%)	3 (2%)	29 (20%)	(0%)	(0%)	(0%)	1 (1%)	143 (36%)
3	17	1	1	1	28	53 (48%)	30 (27%)	3 (3%)	3 (3%)	19 (17%)	1 (1%)	1 (1%)	1 (1%)	1 (1%)	111 (28%)
0	0	0	0	0	0	(0%)	1 (100%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	1 (0%)
7	15	1	0	0	27	57 (53%)	25 (23%)	1 (1%)	8 (7%)	16 (15%)	1 (1%)	(0%)	(0%)	(0%)	108 (27%)
0	0	0	0	0	0	1 (100%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	1 (0%)
0	17	0	0	0	2	4 (67%)	1 (17%)	(0%)	(0%)	1 (17%)	(0%)	(0%)	(0%)	(0%)	6 (2%)
8	0	0	0	0	3	7 (54%)	4 (31%)	1 (8%)	1 (8%)	(0%)	(0%)	(0%)	(0%)	(0%)	13 (3%)
9	9	0	9	0	3	4 (36%)	3 (27%)	1 (9%)	1 (9%)	1 (9%)	(0%)	1 (9%)	(0%)	(0%)	11 (3%)
0	0	0	0	0	1	2 (100%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	2 (1%)
4	17	1	1	1	100	204 (52%)	96 (24%)	8 (2%)	16 (4%)	66 (17%)	2 (1%)	2 (1%)	2 (1%)	2 (1%)	396 (100%)

HSM Analyses

Existing Base Condition

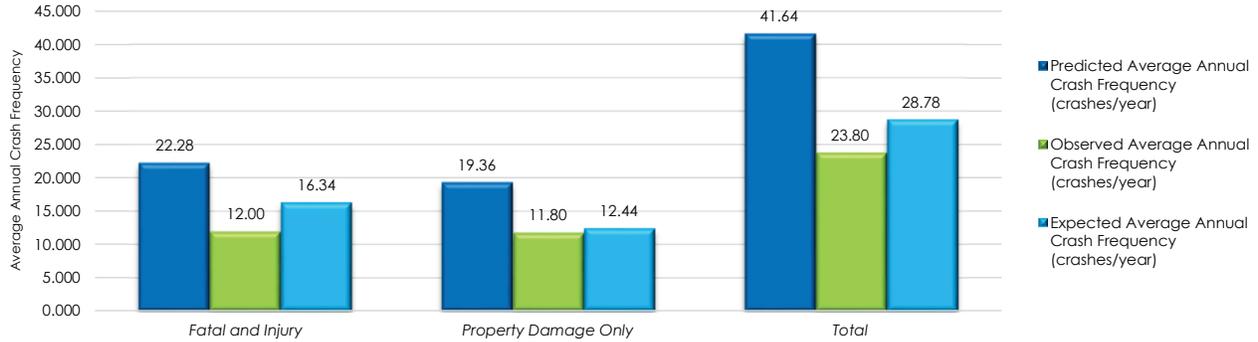
Shingletown Road, Boal Avenue, Earlystown Road (SR 0045)

Main Street to East of Pennsylvania Avenue (SR 0144)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



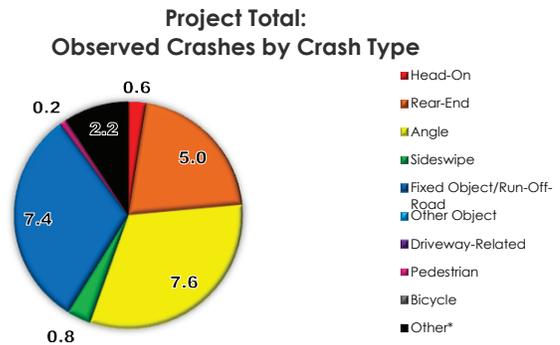
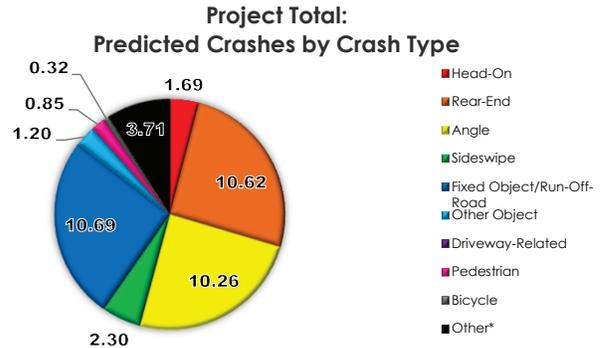
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	22.28	19.36	41.64
Observed Average Annual Crash Frequency	12.00	11.80	23.80
Expected Average Annual Crash Frequency	16.34	12.44	28.78
Potential for Safety Improvement (PSI)	-5.93	-6.92	-12.86

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	16.11	14.36	30.46
Observed Average Annual Crash Frequency (crashes/yr)	7.60	7.80	15.40
Expected Average Annual Crash Frequency (crashes/yr)	10.80	8.10	18.90

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	6.17	5.01	11.18
Observed Average Annual Crash Frequency (crashes/yr)	4.40	4.00	8.40
Expected Average Annual Crash Frequency (crashes/yr)	5.54	4.35	9.89

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	22.28	19.36	41.64
Observed Average Annual Crash Frequency (crashes/yr)	12.00	11.80	23.80
Expected Average Annual Crash Frequency (crashes/yr)	16.34	12.44	28.78

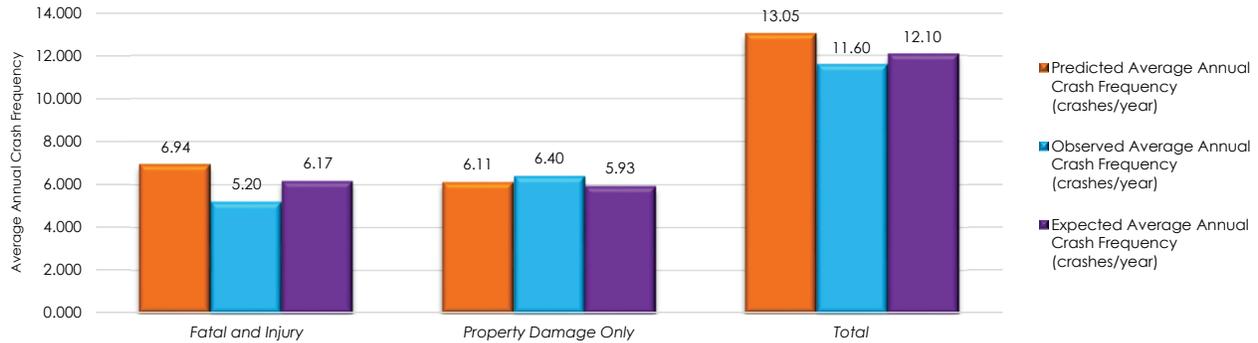


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	6.94	6.11	13.05
Observed Average Annual Crash Frequency	5.20	6.40	11.60
Expected Average Annual Crash Frequency	6.17	5.93	12.10
Potential for Safety Improvement (PSI)	-0.77	-0.18	-0.95

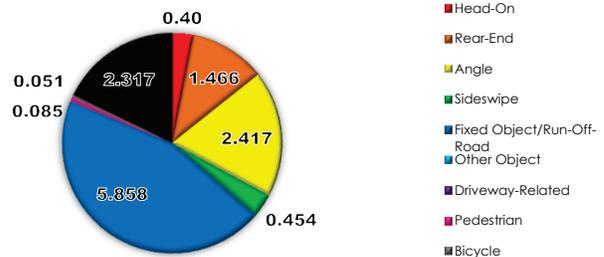
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.20	4.74	9.95
Observed Average Annual Crash Frequency (crashes/yr)	4.60	6.20	10.80
Expected Average Annual Crash Frequency (crashes/yr)	5.01	5.23	10.24

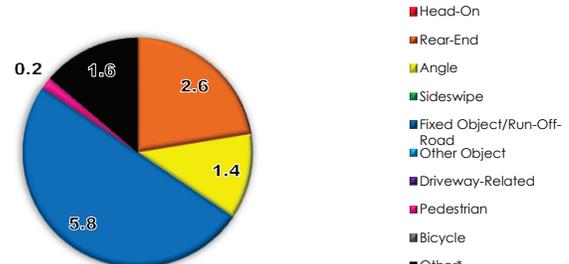
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.74	1.37	3.11
Observed Average Annual Crash Frequency (crashes/yr)	0.60	0.20	0.80
Expected Average Annual Crash Frequency (crashes/yr)	1.16	0.70	1.86

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	6.94	6.11	13.05
Observed Average Annual Crash Frequency (crashes/yr)	5.20	6.40	11.60
Expected Average Annual Crash Frequency (crashes/yr)	6.17	5.93	12.10

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

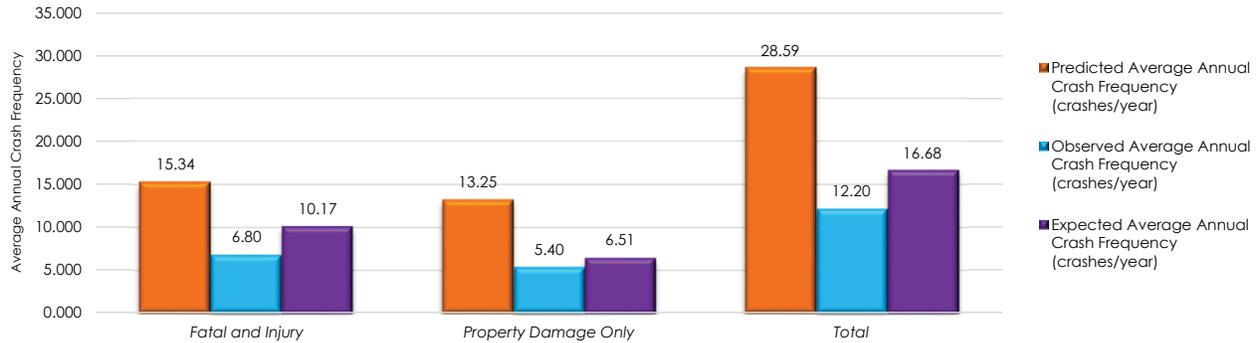


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



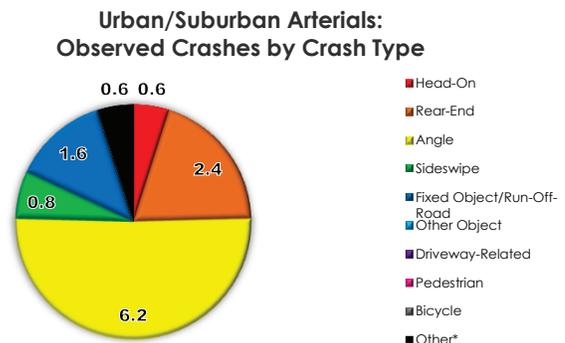
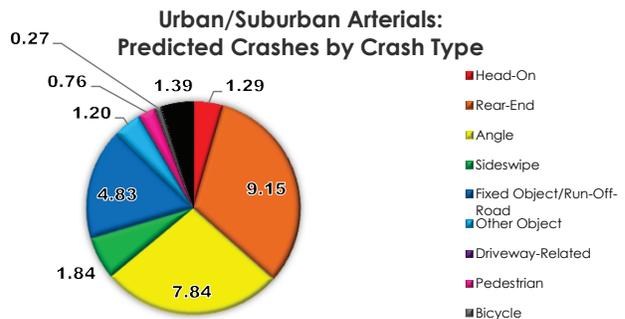
Urban/Suburban Arterial Totals	<i>Fatal and Injury Crashes</i>	<i>Property Damage Only Crashes</i>	<i>Total Crashes</i>
Predicted Average Annual Crash Frequency	15.34	13.25	28.59
Observed Average Annual Crash Frequency	6.80	5.40	12.20
Expected Average Annual Crash Frequency	10.17	6.51	16.68
Potential for Safety Improvement (PSI)	-5.16	-6.74	-11.91

Urban/Suburban Arterials Summary

<u>Segments</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	10.90	9.61	20.52
Observed Average Annual Crash Frequency (crashes/yr)	3.00	1.60	4.60
Expected Average Annual Crash Frequency (crashes/yr)	5.79	2.86	8.65

<u>Intersections</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	4.43	3.64	8.07
Observed Average Annual Crash Frequency (crashes/yr)	3.80	3.80	7.60
Expected Average Annual Crash Frequency (crashes/yr)	4.38	3.64	8.03

<u>Total</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	15.34	13.25	28.59
Observed Average Annual Crash Frequency (crashes/yr)	6.80	5.40	12.20
Expected Average Annual Crash Frequency (crashes/yr)	10.17	6.51	16.68



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Detailed Report

Rural Two-Lane, Two-Way Roads

Project Description SCAC
Date 8/3/2020
Analysis Year 2017
Analysis Type Site Level Analysis
Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Rural Two-Lane, Two-Way Roads: Segments

Segment Name	PennDOT Segment	PennDOT Offset	Total Predicted Crashes	Total Observed Crashes	Total Expected Crashes	Potential for Safety Improvement
Segment 1	300	1757	1.13	1.20	1.16	0.03
Segment 2	320	147	6.30	7.40	6.72	0.42
Segment 3	410	2006	1.45	1.60	1.52	0.07
Segment 4	430	0	1.07	0.60	0.85	-0.22

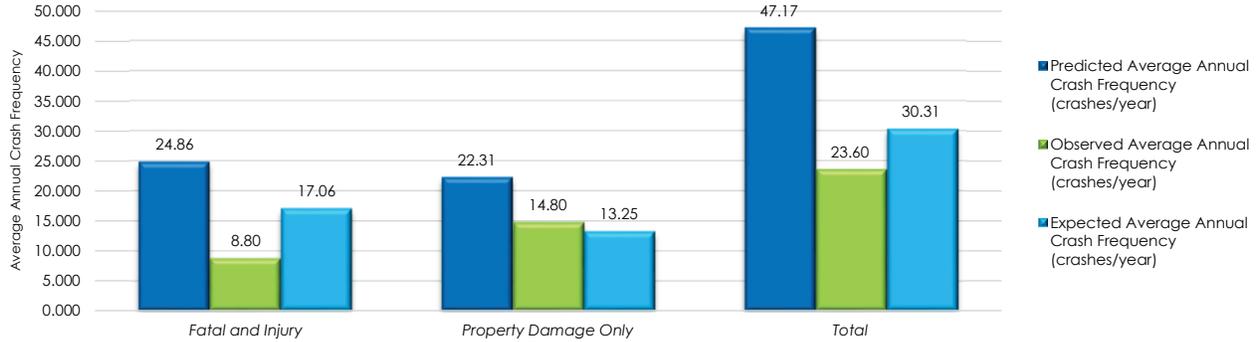
Old Forte Road, Pennsylvania Avenue, Main Street (SR 0144)

General Potter Highway (SR 0322) to North of College Avenue (SR 0026)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



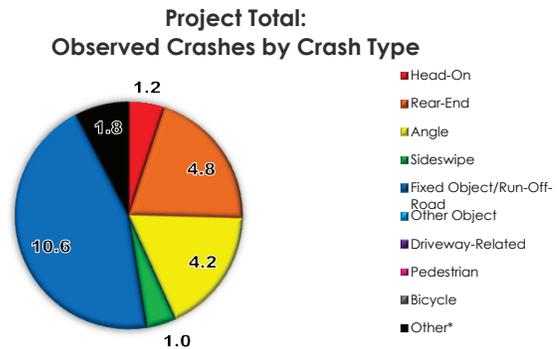
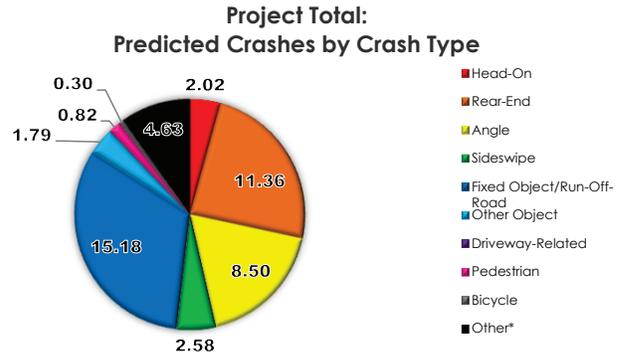
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	24.86	22.31	47.17
Observed Average Annual Crash Frequency	8.80	14.80	23.60
Expected Average Annual Crash Frequency	17.06	13.25	30.31
Potential for Safety Improvement (PSI)	-7.80	-9.06	-16.86

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	21.31	19.76	41.07
Observed Average Annual Crash Frequency (crashes/yr)	8.00	11.80	19.80
Expected Average Annual Crash Frequency (crashes/yr)	14.34	10.65	24.99

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.55	2.56	6.10
Observed Average Annual Crash Frequency (crashes/yr)	0.80	3.00	3.80
Expected Average Annual Crash Frequency (crashes/yr)	2.72	2.60	5.32

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	24.86	22.31	47.17
Observed Average Annual Crash Frequency (crashes/yr)	8.80	14.80	23.60
Expected Average Annual Crash Frequency (crashes/yr)	17.06	13.25	30.31

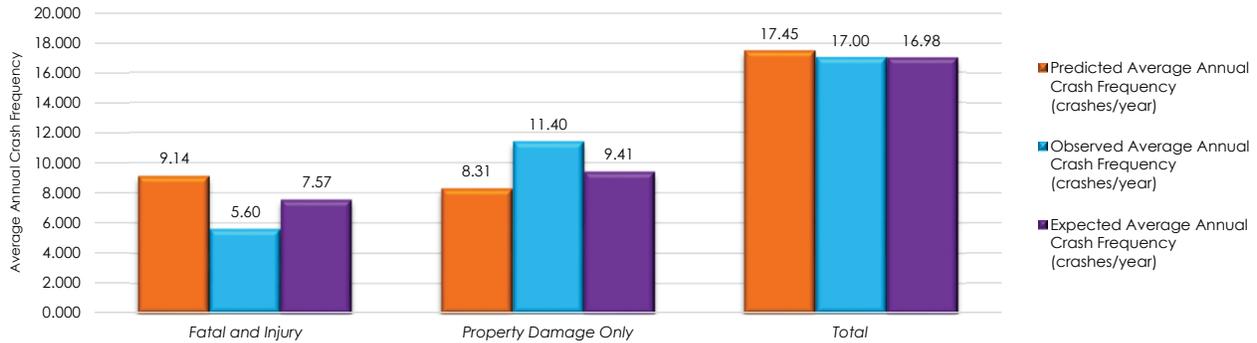


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	<i>Fatal and Injury Crashes</i>	<i>Property Damage Only Crashes</i>	<i>Total Crashes</i>
Predicted Average Annual Crash Frequency	9.14	8.31	17.45
Observed Average Annual Crash Frequency	5.60	11.40	17.00
Expected Average Annual Crash Frequency	7.57	9.41	16.98
Potential for Safety Improvement (PSI)	-1.57	1.10	-0.47

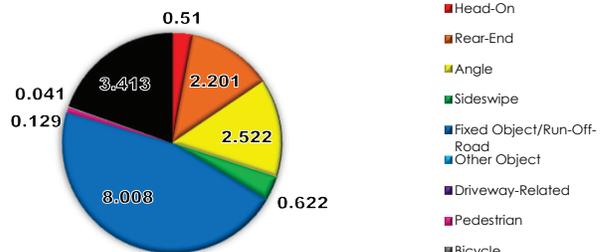
Rural Two-Lane Roads Summary

<u>Segments</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	7.95	7.25	15.20
Observed Average Annual Crash Frequency (crashes/yr)	5.00	9.40	14.40
Expected Average Annual Crash Frequency (crashes/yr)	6.63	7.92	14.55

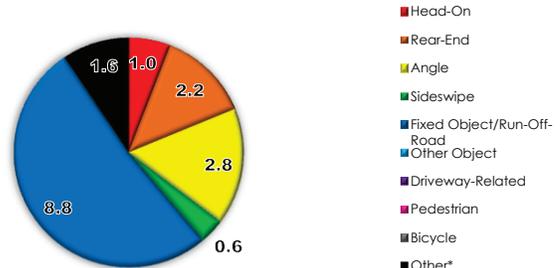
<u>Intersections</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	1.19	1.06	2.25
Observed Average Annual Crash Frequency (crashes/yr)	0.60	2.00	2.60
Expected Average Annual Crash Frequency (crashes/yr)	0.94	1.49	2.43

<u>Total</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	9.14	8.31	17.45
Observed Average Annual Crash Frequency (crashes/yr)	5.60	11.40	17.00
Expected Average Annual Crash Frequency (crashes/yr)	7.57	9.41	16.98

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

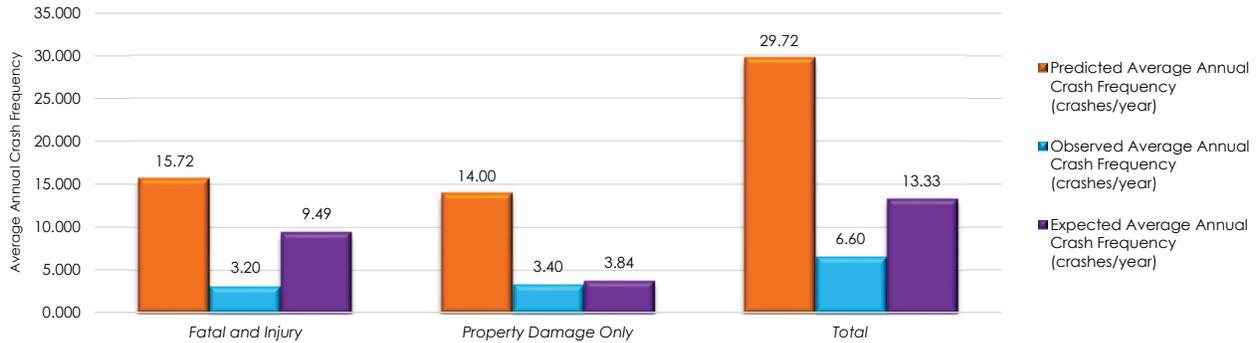


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



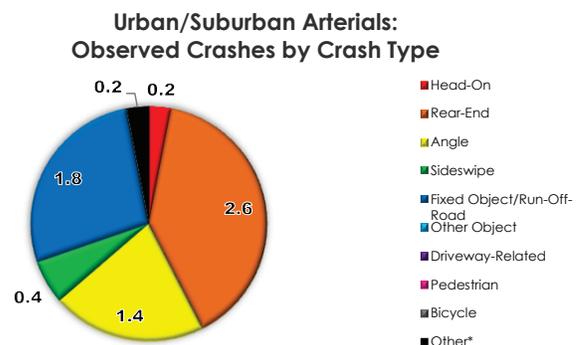
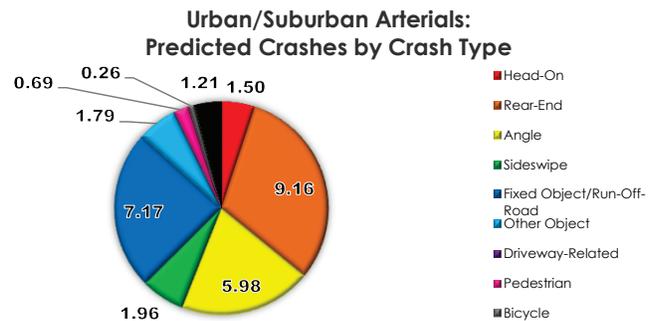
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	15.72	14.00	29.72
Observed Average Annual Crash Frequency	3.20	3.40	6.60
Expected Average Annual Crash Frequency	9.49	3.84	13.33
Potential for Safety Improvement (PSI)	-6.23	-10.16	-16.39

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	13.37	12.50	25.87
Observed Average Annual Crash Frequency (crashes/yr)	3.00	2.40	5.40
Expected Average Annual Crash Frequency (crashes/yr)	7.71	2.73	10.44

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.35	1.50	3.85
Observed Average Annual Crash Frequency (crashes/yr)	0.20	1.00	1.20
Expected Average Annual Crash Frequency (crashes/yr)	1.78	1.11	2.89

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	15.72	14.00	29.72
Observed Average Annual Crash Frequency (crashes/yr)	3.20	3.40	6.60
Expected Average Annual Crash Frequency (crashes/yr)	9.49	3.84	13.33

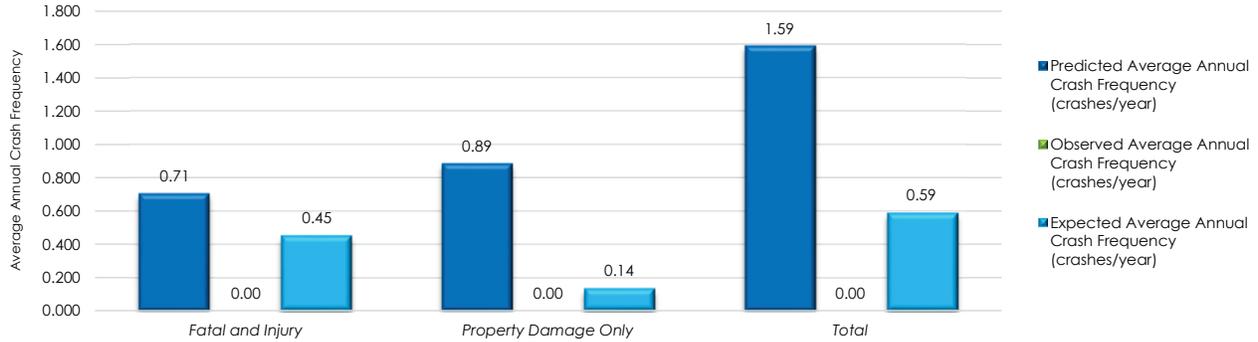


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description SCAC
Date 8/3/2020
Analysis Year 2017
Analysis Type Site Level Analysis
Facility Type(s) Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



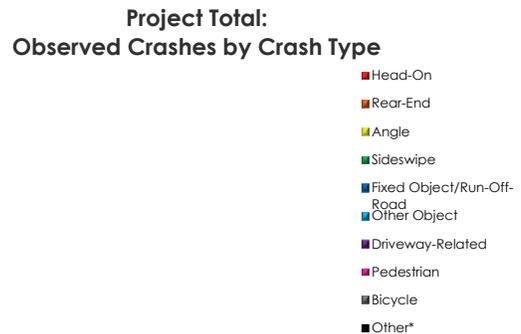
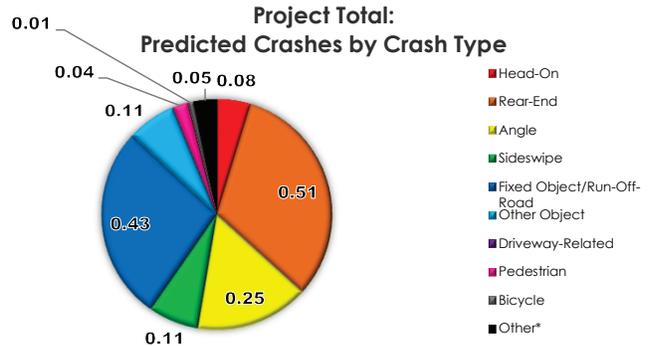
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	0.71	0.89	1.59
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	0.45	0.14	0.59
Potential for Safety Improvement (PSI)	-0.25	-0.75	-1.00

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.71	0.89	1.59
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.45	0.14	0.59

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.71	0.89	1.59
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.45	0.14	0.59



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

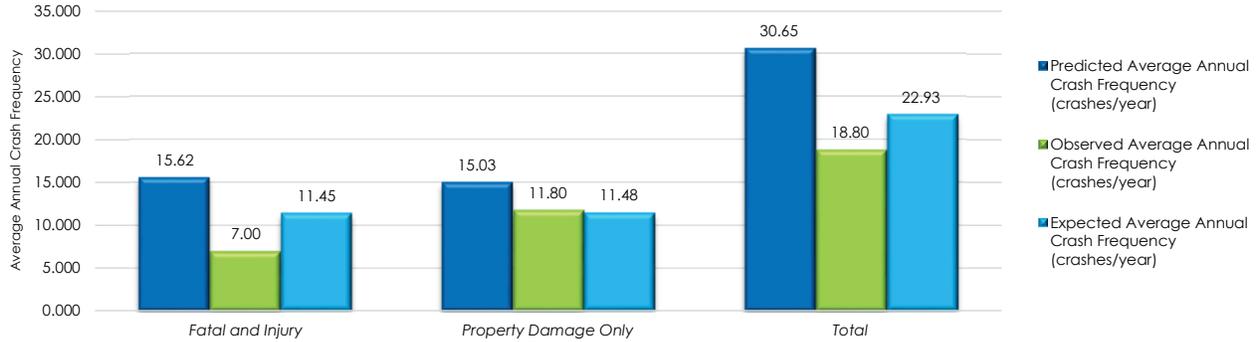
Mt. Nittany Expressway, Boal Avenue, General Potter Highway (SR 0322)

Old Forte Interchange (SR 0045) to Red Mill Road/Mountain Back Road

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	15.62	15.03	30.65
Observed Average Annual Crash Frequency	7.00	11.80	18.80
Expected Average Annual Crash Frequency	11.45	11.48	22.93
Potential for Safety Improvement (PSI)	-4.17	-3.55	-7.72

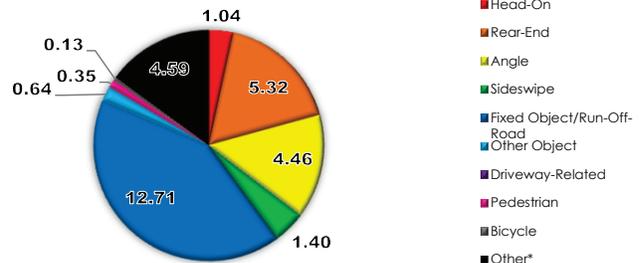
Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	14.33	14.19	28.52
Observed Average Annual Crash Frequency (crashes/yr)	6.60	9.60	16.20
Expected Average Annual Crash Frequency (crashes/yr)	10.59	9.98	20.57

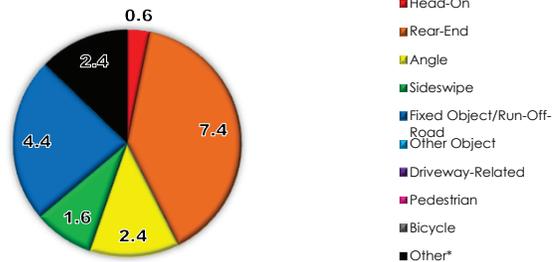
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.29	0.84	2.12
Observed Average Annual Crash Frequency (crashes/yr)	0.40	2.20	2.60
Expected Average Annual Crash Frequency (crashes/yr)	0.86	1.50	2.36

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	15.62	15.03	30.65
Observed Average Annual Crash Frequency (crashes/yr)	7.00	11.80	18.80
Expected Average Annual Crash Frequency (crashes/yr)	11.45	11.48	22.93

Project Total: Predicted Crashes by Crash Type



Project Total: Observed Crashes by Crash Type

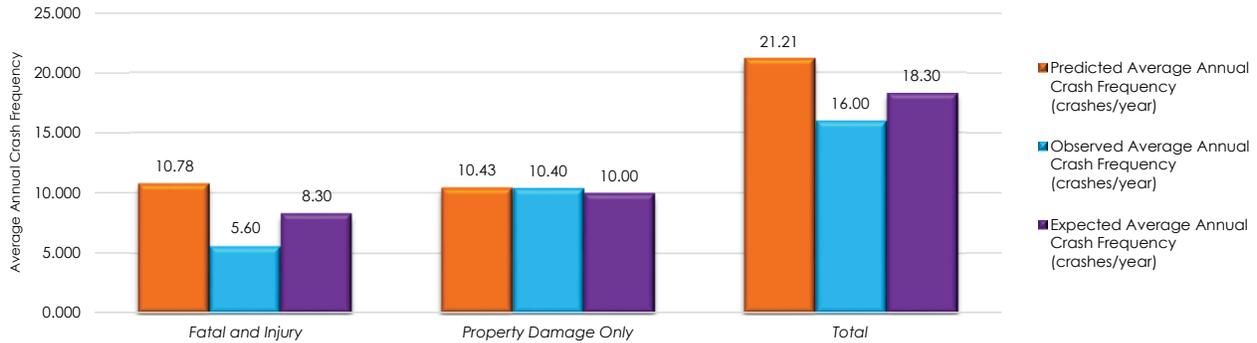


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



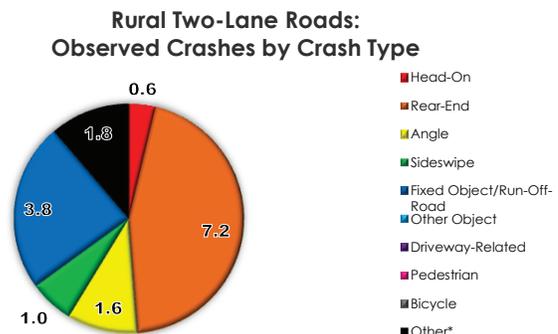
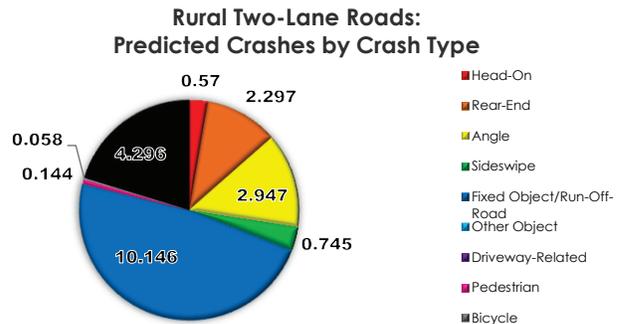
Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	10.78	10.43	21.21
Observed Average Annual Crash Frequency	5.60	10.40	16.00
Expected Average Annual Crash Frequency	8.30	10.00	18.30
Potential for Safety Improvement (PSI)	-2.48	-0.43	-2.91

Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	9.49	9.59	19.08
Observed Average Annual Crash Frequency (crashes/yr)	5.20	8.20	13.40
Expected Average Annual Crash Frequency (crashes/yr)	7.45	8.49	15.94

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.29	0.84	2.12
Observed Average Annual Crash Frequency (crashes/yr)	0.40	2.20	2.60
Expected Average Annual Crash Frequency (crashes/yr)	0.86	1.50	2.36

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	10.78	10.43	21.21
Observed Average Annual Crash Frequency (crashes/yr)	5.60	10.40	16.00
Expected Average Annual Crash Frequency (crashes/yr)	8.30	10.00	18.30

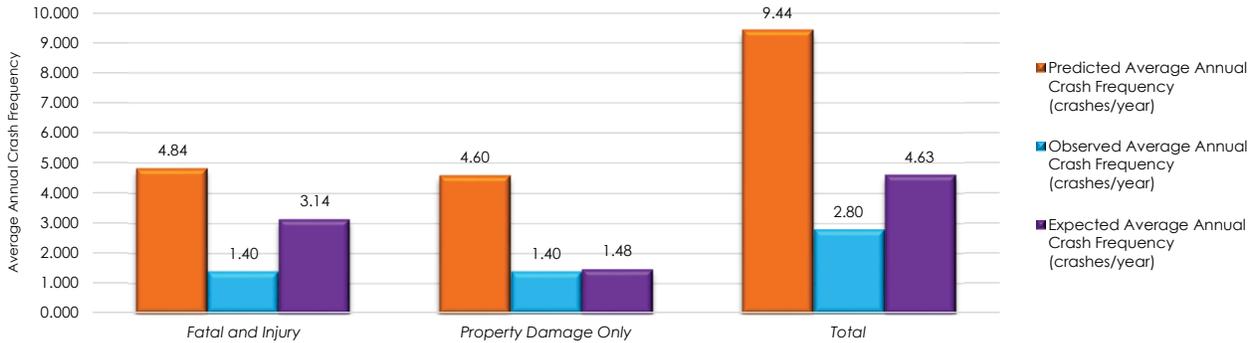


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



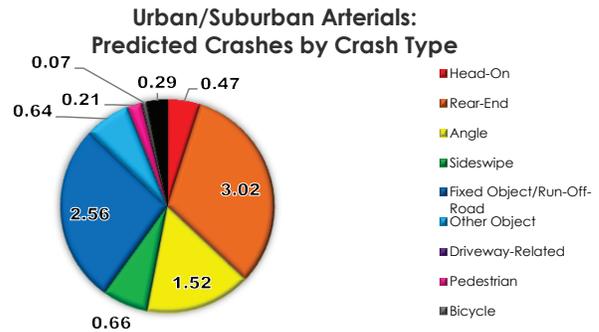
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	4.84	4.60	9.44
Observed Average Annual Crash Frequency	1.40	1.40	2.80
Expected Average Annual Crash Frequency	3.14	1.48	4.63
Potential for Safety Improvement (PSI)	-1.69	-3.12	-4.81

Urban/Suburban Arterials Summary

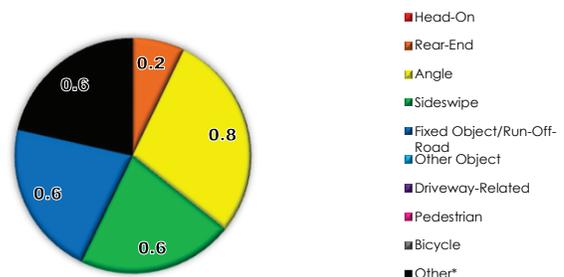
Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	4.84	4.60	9.44
Observed Average Annual Crash Frequency (crashes/yr)	1.40	1.40	2.80
Expected Average Annual Crash Frequency (crashes/yr)	3.14	1.48	4.63

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	4.84	4.60	9.44
Observed Average Annual Crash Frequency (crashes/yr)	1.40	1.40	2.80
Expected Average Annual Crash Frequency (crashes/yr)	3.14	1.48	4.63



Urban/Suburban Arterials: Observed Crashes by Crash Type



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Detailed Report

Rural Two-Lane, Two-Way Roads

Project Description SCAC
Date 8/3/2020
Analysis Year 2017
Analysis Type Site Level Analysis
Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Rural Two-Lane, Two-Way Roads: Intersections

Intersection Name	Major Road	Minor Road	Total Predicted Crashes	Total Observed Crashes	Total Expected Crashes	Potential for Safety Improvement
Intersection 1	SR 0322	b Road/Bear Meadow	0.70	1.00	0.84	0.15
Intersection 2	SR 0322	Neff Road	0.74	0.60	0.68	-0.06
Intersection 3	SR 0322	ll Road/Mountain Bac	0.69	1.00	0.84	0.15

Old Forte Interchange (SR 0322/SR 0045)

At Earlstown Road (SR 0045)

Output Summary								
General Information								
Project description:	State College Area Connector							
Analyst:	SMMcG	Date:	8/5/2020	Area type:	Urban			
First year of analysis:	2017							
Last year of analysis:	2017							
Crash Data Description								
Freeway segments	Segment crash data available?	Yes	First year of crash data:	2017				
	Project-level crash data available?	No	Last year of crash data:	2017				
Ramp segments	Segment crash data available?	Yes	First year of crash data:	2017				
	Project-level crash data available?	No	Last year of crash data:	2017				
Ramp terminals	Segment crash data available?	Yes	First year of crash data:	2014				
	Project-level crash data available?	No	Last year of crash data:	2017				
Estimated Crash Statistics								
Crashes for Entire Facility		Total	K	A	B	C	PDO	
Estimated number of crashes during Study Period, crashes:		1.4	0.0	0.0	0.1	0.5	0.7	
Estimated average crash freq. during Study Period, crashes/yr:		1.4	0.0	0.0	0.1	0.5	0.7	
Crashes by Facility Component		Nbr. Sites	Total	K	A	B	C	PDO
Freeway segments, crashes:		0	0.0	0.0	0.0	0.0	0.0	0.0
Ramp segments, crashes:		0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:		2	1.4	0.0	0.0	0.1	0.5	0.7
Crashes for Entire Facility by Year		Year	Total	K	A	B	C	PDO
Estimated number of crashes during the Study Period, crashes:		2017	1.4	0.0	0.0	0.1	0.5	0.7
		2018						
		2019						
		2020						
		2021						
		2022						
		2023						
		2024						
		2025						
		2026						
		2027						
		2028						
		2029						
		2030						
		2031						
		2032						
		2033						
		2034						
		2035						
		2036						
2037								
2038								
2039								
2040								
Distribution of Crashes for Entire Facility								
Crash Type	Crash Type Category	Estimated Number of Crashes During the Study Period						
		Total	K	A	B	C	PDO	
Multiple vehicle	Head-on crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Right-angle crashes:	0.4	0.0	0.0	0.0	0.2	0.2	
	Rear-end crashes:	0.7	0.0	0.0	0.1	0.3	0.3	
	Sideswipe crashes:	0.1	0.0	0.0	0.0	0.0	0.1	
	Other multiple-vehicle crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Total multiple-vehicle crashes:	1.2	0.0	0.0	0.1	0.5	0.6	
Single vehicle	Crashes with animal:	0.0	0.0	0.0	0.0	0.0	0.0	
	Crashes with fixed object:	0.1	0.0	0.0	0.0	0.0	0.1	
	Crashes with other object:	0.0	0.0	0.0	0.0	0.0	0.0	
	Crashes with parked vehicle:	0.0	0.0	0.0	0.0	0.0	0.0	
	Other single-vehicle crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Total single-vehicle crashes:	0.1	0.0	0.0	0.0	0.0	0.1	
Total crashes:		1.4	0.0	0.0	0.1	0.5	0.7	

Oak Hall Interchange (SR 0322/SR 3010)

At Boalsburg Road (SR 3010)

Output Summary								
General Information								
Project description:	State College Area Connector							
Analyst:	SMMcG	Date:	8/5/2020	Area type:	Urban			
First year of analysis:	2017							
Last year of analysis:	2017							
Crash Data Description								
Freeway segments	Segment crash data available?	Yes	First year of crash data:	2017				
	Project-level crash data available?	No	Last year of crash data:	2017				
Ramp segments	Segment crash data available?	Yes	First year of crash data:	2017				
	Project-level crash data available?	No	Last year of crash data:	2017				
Ramp terminals	Segment crash data available?	Yes	First year of crash data:	2014				
	Project-level crash data available?	No	Last year of crash data:	2017				
Estimated Crash Statistics								
Crashes for Entire Facility		Total	K	A	B	C	PDO	
Estimated number of crashes during Study Period, crashes:		1.0	0.0	0.0	0.1	0.4	0.4	
Estimated average crash freq. during Study Period, crashes/yr:		1.0	0.0	0.0	0.1	0.4	0.4	
Crashes by Facility Component		Nbr. Sites	Total	K	A	B	C	PDO
Freeway segments, crashes:		0	0.0	0.0	0.0	0.0	0.0	0.0
Ramp segments, crashes:		0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:		2	1.0	0.0	0.0	0.1	0.4	0.4
Crashes for Entire Facility by Year		Year	Total	K	A	B	C	PDO
Estimated number of crashes during the Study Period, crashes:		2017	1.0	0.0	0.0	0.1	0.4	0.4
		2018						
		2019						
		2020						
		2021						
		2022						
		2023						
		2024						
		2025						
		2026						
		2027						
		2028						
		2029						
		2030						
		2031						
		2032						
		2033						
		2034						
		2035						
		2036						
2037								
2038								
2039								
2040								
Distribution of Crashes for Entire Facility								
Crash Type	Crash Type Category	Estimated Number of Crashes During the Study Period						
		Total	K	A	B	C	PDO	
Multiple vehicle	Head-on crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Right-angle crashes:	0.4	0.0	0.0	0.0	0.2	0.2	
	Rear-end crashes:	0.4	0.0	0.0	0.0	0.2	0.2	
	Sideswipe crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Other multiple-vehicle crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Total multiple-vehicle crashes:	0.9	0.0	0.0	0.1	0.4	0.4	
Single vehicle	Crashes with animal:	0.0	0.0	0.0	0.0	0.0	0.0	
	Crashes with fixed object:	0.1	0.0	0.0	0.0	0.0	0.0	
	Crashes with other object:	0.0	0.0	0.0	0.0	0.0	0.0	
	Crashes with parked vehicle:	0.0	0.0	0.0	0.0	0.0	0.0	
	Other single-vehicle crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Total single-vehicle crashes:	0.1	0.0	0.0	0.0	0.0	0.1	
Total crashes:		1.0	0.0	0.0	0.1	0.4	0.4	

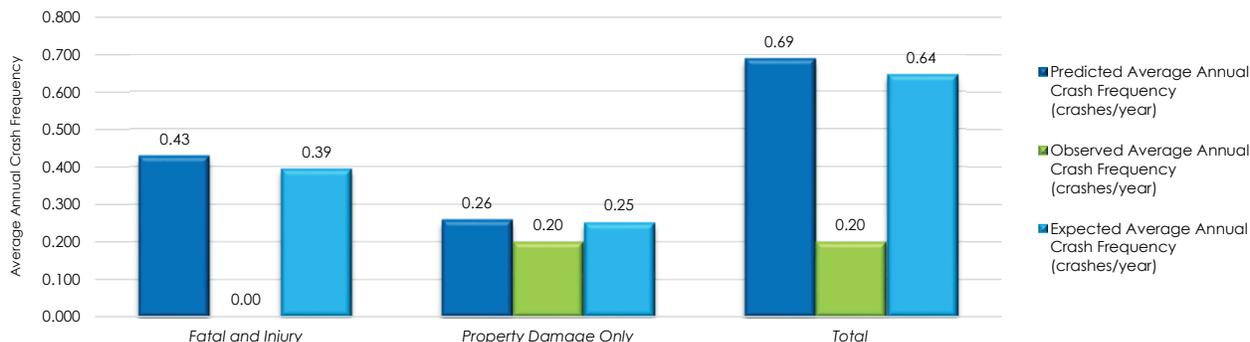
Linden Hall Road, Cedar Run Road (SR 2004)

Boalsburg Road (SR 3010) to Earlstown Road (SR 0045)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads

Summary of Average Safety Performance for the Project (crashes/year)



Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	0.43	0.26	0.69
Observed Average Annual Crash Frequency	0.00	0.20	0.20
Expected Average Annual Crash Frequency	0.39	0.25	0.64
Potential for Safety Improvement (PSI)	-0.04	-0.01	-0.04

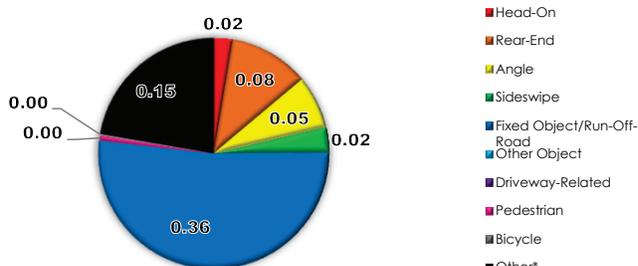
Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.43	0.26	0.69
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.20	0.20
Expected Average Annual Crash Frequency (crashes/yr)	0.39	0.25	0.64

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.43	0.26	0.69
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.20	0.20
Expected Average Annual Crash Frequency (crashes/yr)	0.39	0.25	0.64

Project Total: Predicted Crashes by Crash Type



Project Total: Observed Crashes by Crash Type



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

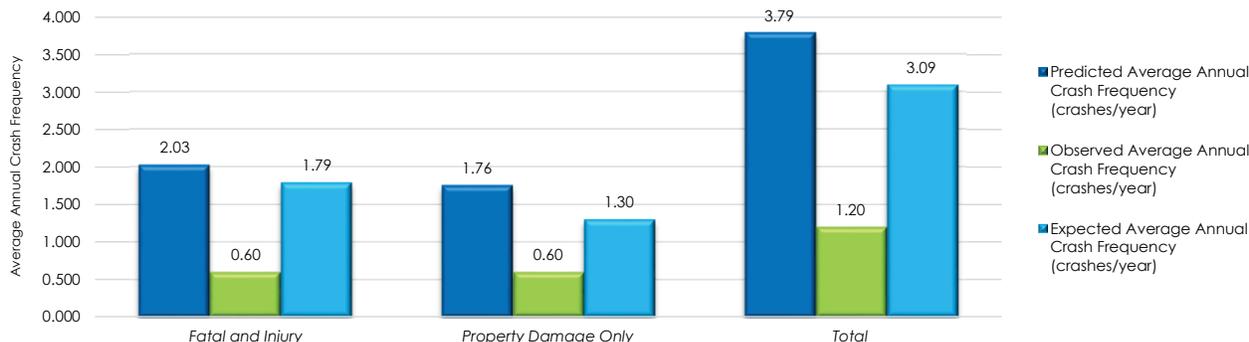
Linden Hall Road, Rock Hill Road, Brush Valley Road (SR 2006)

Earlstown Road (SR 0045) to Pennsylvania Avenue (SR 0144)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	2.03	1.76	3.79
Observed Average Annual Crash Frequency	0.60	0.60	1.20
Expected Average Annual Crash Frequency	1.79	1.30	3.09
Potential for Safety Improvement (PSI)	-0.24	-0.46	-0.69

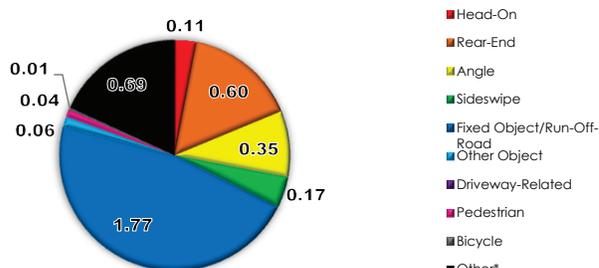
Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.03	1.76	3.79
Observed Average Annual Crash Frequency (crashes/yr)	0.60	0.60	1.20
Expected Average Annual Crash Frequency (crashes/yr)	1.79	1.30	3.09

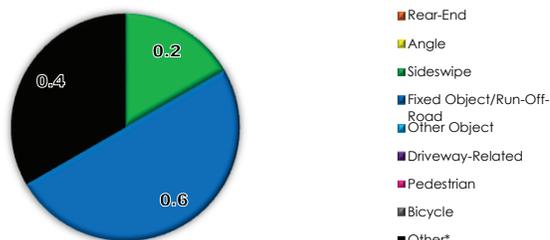
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.03	1.76	3.79
Observed Average Annual Crash Frequency (crashes/yr)	0.60	0.60	1.20
Expected Average Annual Crash Frequency (crashes/yr)	1.79	1.30	3.09

Project Total: Predicted Crashes by Crash Type



Project Total: Observed Crashes by Crash Type

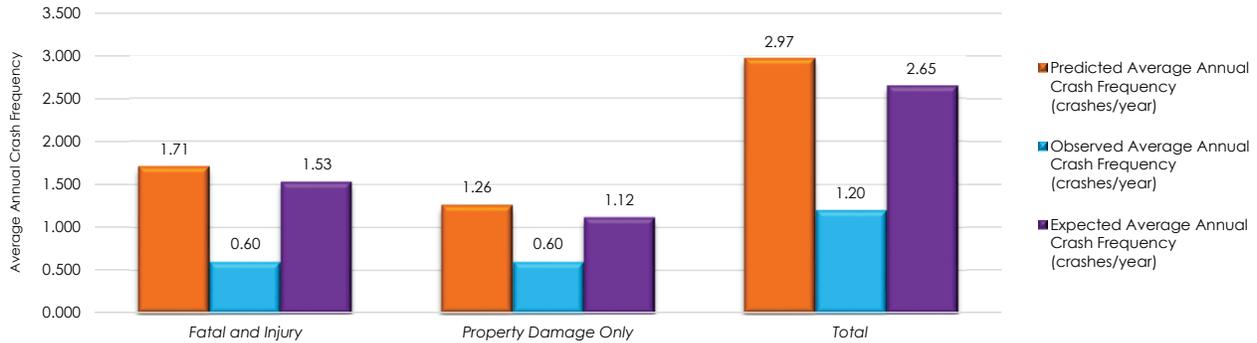


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	<i>Fatal and Injury Crashes</i>	<i>Property Damage Only Crashes</i>	<i>Total Crashes</i>
Predicted Average Annual Crash Frequency	1.71	1.26	2.97
Observed Average Annual Crash Frequency	0.60	0.60	1.20
Expected Average Annual Crash Frequency	1.53	1.12	2.65
Potential for Safety Improvement (PSI)	-0.18	-0.14	-0.32

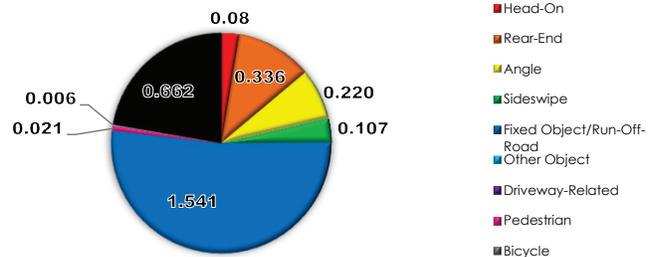
Rural Two-Lane Roads Summary

<u>Segments</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	1.71	1.26	2.97
Observed Average Annual Crash Frequency (crashes/yr)	0.60	0.60	1.20
Expected Average Annual Crash Frequency (crashes/yr)	1.53	1.12	2.65

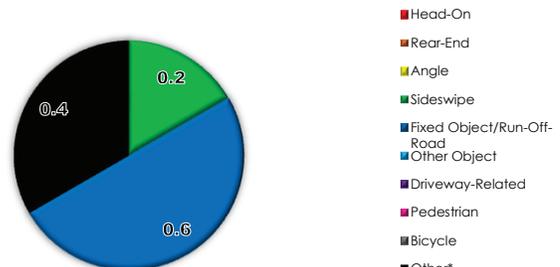
<u>Intersections</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00

<u>Total</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	1.71	1.26	2.97
Observed Average Annual Crash Frequency (crashes/yr)	0.60	0.60	1.20
Expected Average Annual Crash Frequency (crashes/yr)	1.53	1.12	2.65

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

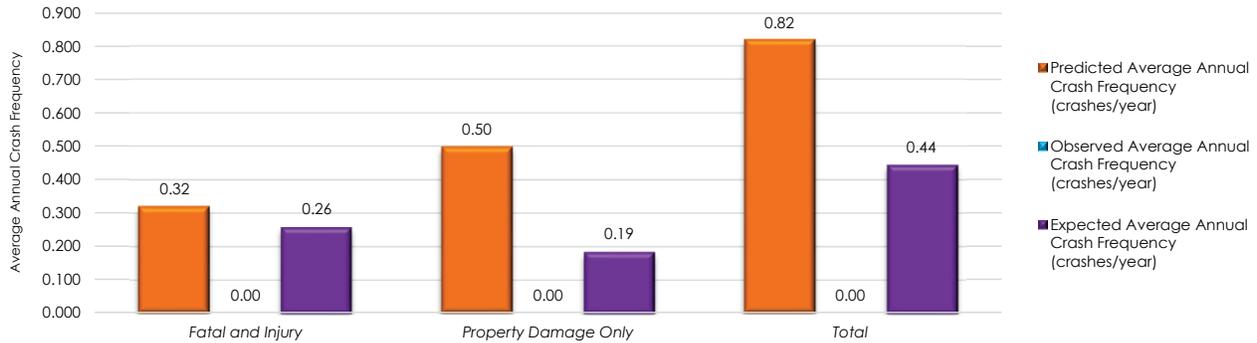


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



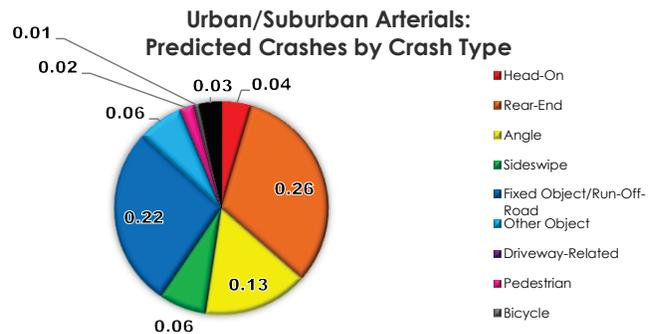
Urban/Suburban Arterial Totals	<i>Fatal and Injury Crashes</i>	<i>Property Damage Only Crashes</i>	<i>Total Crashes</i>
Predicted Average Annual Crash Frequency	0.32	0.50	0.82
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	0.26	0.19	0.44
Potential for Safety Improvement (PSI)	-0.06	-0.31	-0.37

Urban/Suburban Arterials Summary

<u>Segments</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	0.32	0.50	0.82
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.26	0.19	0.44

<u>Intersections</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00

<u>Total</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	0.32	0.50	0.82
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.26	0.19	0.44



Urban/Suburban Arterials: Observed Crashes by Crash Type

- Head-On
- Rear-End
- Angle
- Sideswipe
- Fixed Object/Run-Off-Road
- Other Object
- Driveway-Related
- Pedestrian
- Bicycle
- Other*

*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

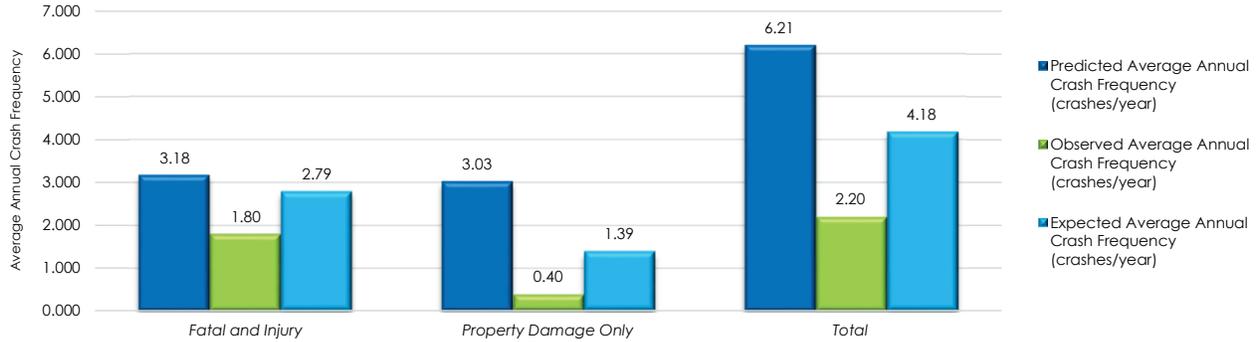
Boalsburg Road, Warner Boulevard (SR 3010)

North of Linden Hall Road (SR 2004) to Boal Avenue (SR 0045/SR 3014)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



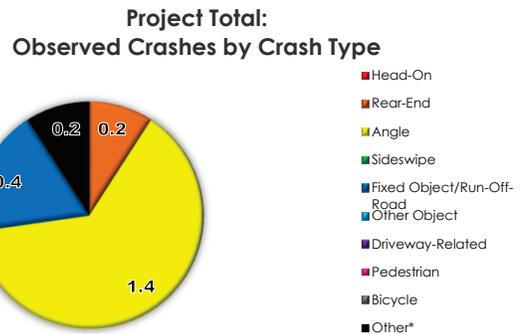
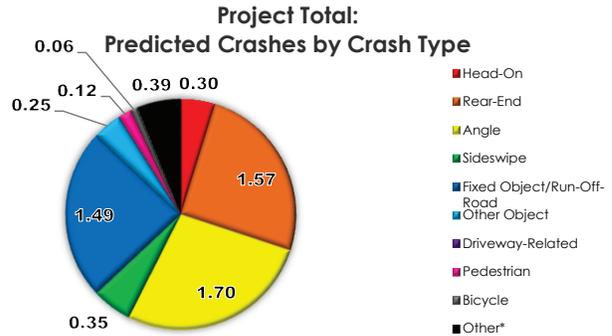
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	3.18	3.03	6.21
Observed Average Annual Crash Frequency	1.80	0.40	2.20
Expected Average Annual Crash Frequency	2.79	1.39	4.18
Potential for Safety Improvement (PSI)	-0.38	-1.64	-2.03

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.10	1.98	4.08
Observed Average Annual Crash Frequency (crashes/yr)	1.20	0.00	1.20
Expected Average Annual Crash Frequency (crashes/yr)	1.83	0.65	2.47

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.08	1.05	2.13
Observed Average Annual Crash Frequency (crashes/yr)	0.60	0.40	1.00
Expected Average Annual Crash Frequency (crashes/yr)	0.97	0.74	1.71

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.18	3.03	6.21
Observed Average Annual Crash Frequency (crashes/yr)	1.80	0.40	2.20
Expected Average Annual Crash Frequency (crashes/yr)	2.79	1.39	4.18

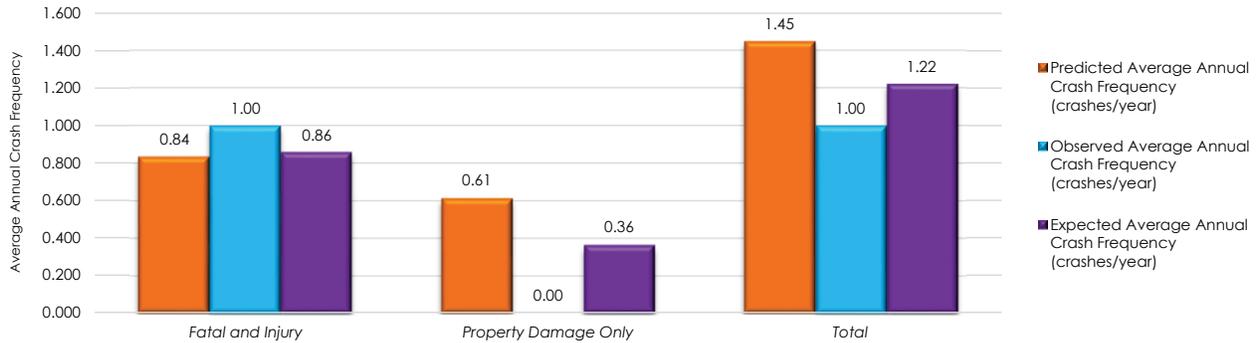


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	0.84	0.61	1.45
Observed Average Annual Crash Frequency	1.00	0.00	1.00
Expected Average Annual Crash Frequency	0.86	0.36	1.22
Potential for Safety Improvement (PSI)	0.02	-0.25	-0.23

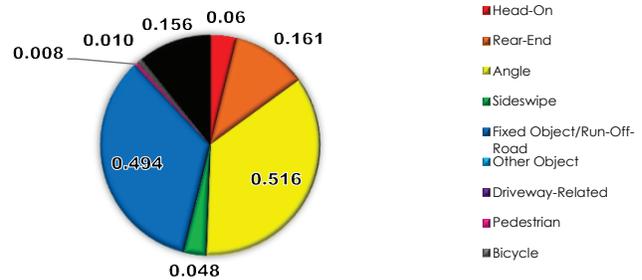
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.33	0.24	0.57
Observed Average Annual Crash Frequency (crashes/yr)	0.60	0.00	0.60
Expected Average Annual Crash Frequency (crashes/yr)	0.40	0.18	0.58

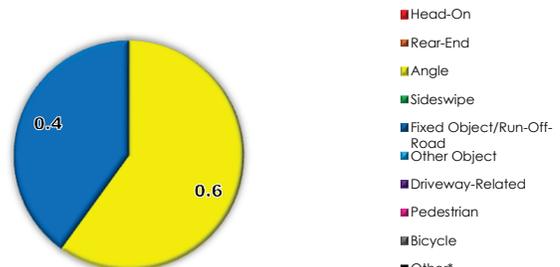
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.50	0.37	0.87
Observed Average Annual Crash Frequency (crashes/yr)	0.40	0.00	0.40
Expected Average Annual Crash Frequency (crashes/yr)	0.45	0.19	0.64

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.84	0.61	1.45
Observed Average Annual Crash Frequency (crashes/yr)	1.00	0.00	1.00
Expected Average Annual Crash Frequency (crashes/yr)	0.86	0.36	1.22

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

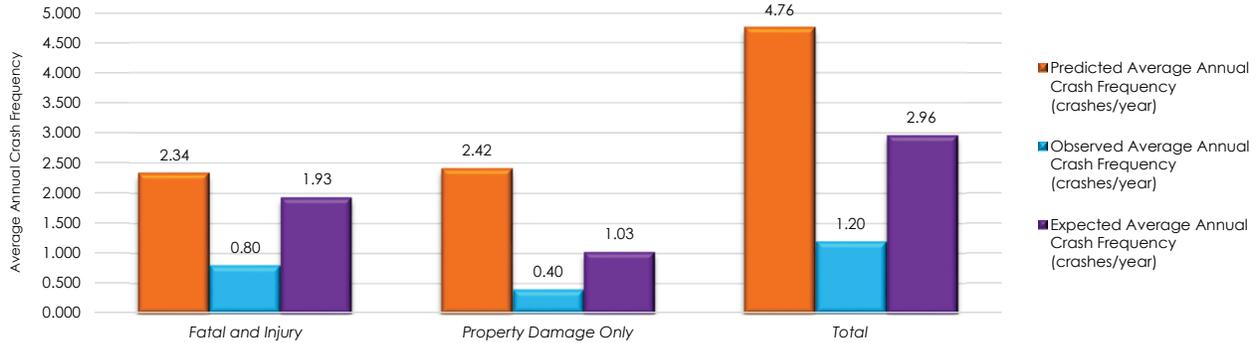


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



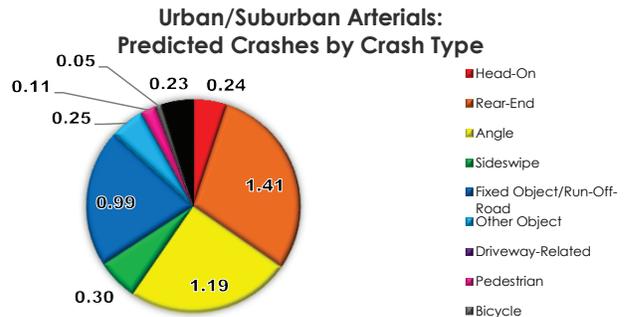
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	2.34	2.42	4.76
Observed Average Annual Crash Frequency	0.80	0.40	1.20
Expected Average Annual Crash Frequency	1.93	1.03	2.96
Potential for Safety Improvement (PSI)	-0.41	-1.39	-1.80

Urban/Suburban Arterials Summary

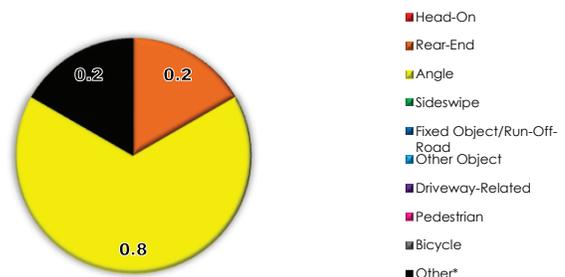
Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.77	1.74	3.51
Observed Average Annual Crash Frequency (crashes/yr)	0.60	0.00	0.60
Expected Average Annual Crash Frequency (crashes/yr)	1.42	0.47	1.89

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.57	0.68	1.25
Observed Average Annual Crash Frequency (crashes/yr)	0.20	0.40	0.60
Expected Average Annual Crash Frequency (crashes/yr)	0.51	0.56	1.07

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.34	2.42	4.76
Observed Average Annual Crash Frequency (crashes/yr)	0.80	0.40	1.20
Expected Average Annual Crash Frequency (crashes/yr)	1.93	1.03	2.96



Urban/Suburban Arterials: Observed Crashes by Crash Type



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

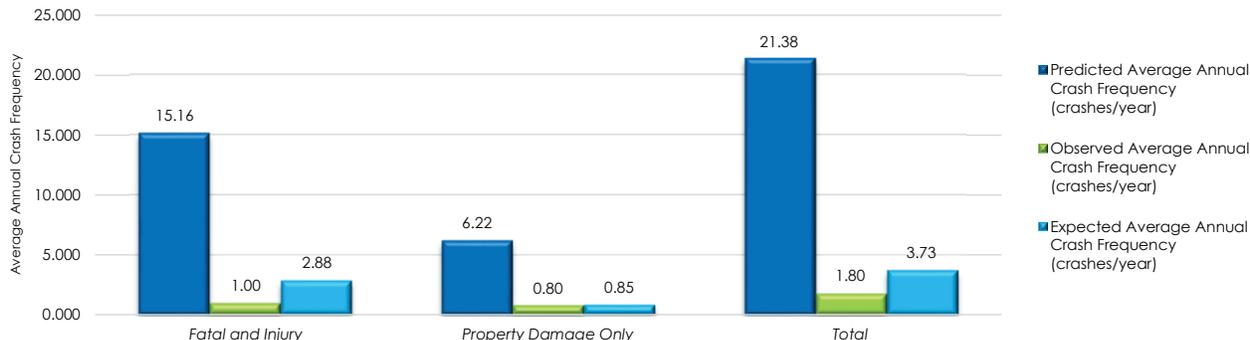
S. Atherton Street, Boal Avenue (SR 3014)

Villa Chrest Drive to Mt. Nittany Expressway (SR 0322)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2017
 Analysis Type Site Level Analysis
 Facility Type(s) Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



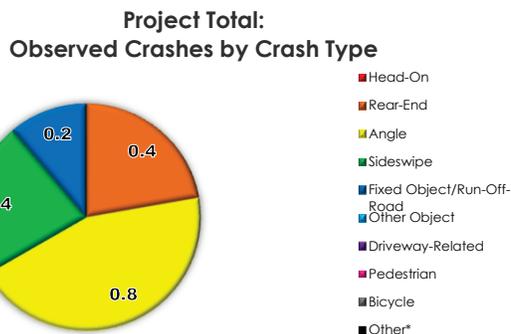
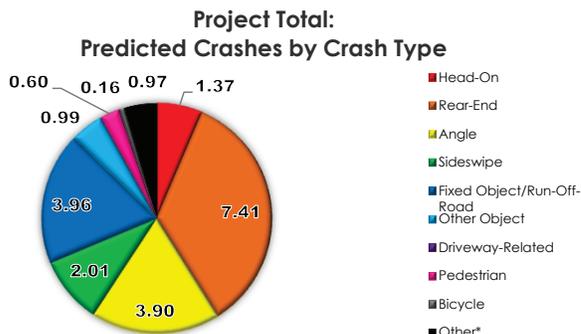
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	15.16	6.22	21.38
Observed Average Annual Crash Frequency	1.00	0.80	1.80
Expected Average Annual Crash Frequency	2.88	0.85	3.73
Potential for Safety Improvement (PSI)	-12.28	-5.36	-17.65

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	15.16	6.22	21.38
Observed Average Annual Crash Frequency (crashes/yr)	1.00	0.80	1.80
Expected Average Annual Crash Frequency (crashes/yr)	2.88	0.85	3.73

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	15.16	6.22	21.38
Observed Average Annual Crash Frequency (crashes/yr)	1.00	0.80	1.80
Expected Average Annual Crash Frequency (crashes/yr)	2.88	0.85	3.73

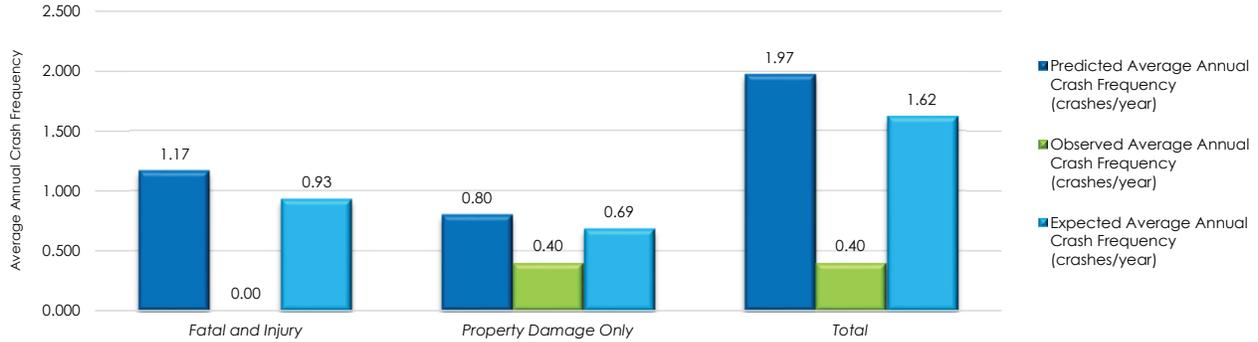


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description SCAC
Date 8/3/2020
Analysis Year 2017
Analysis Type Site Level Analysis
Facility Type(s) Rural Two-Lane Roads

Summary of Average Safety Performance for the Project (crashes/year)



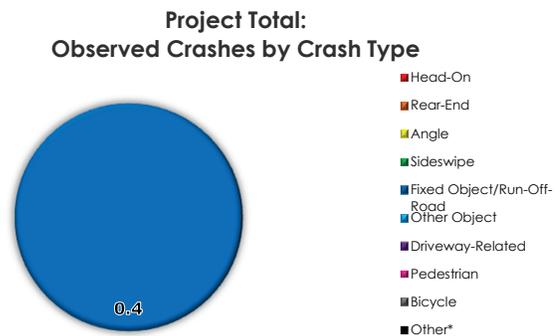
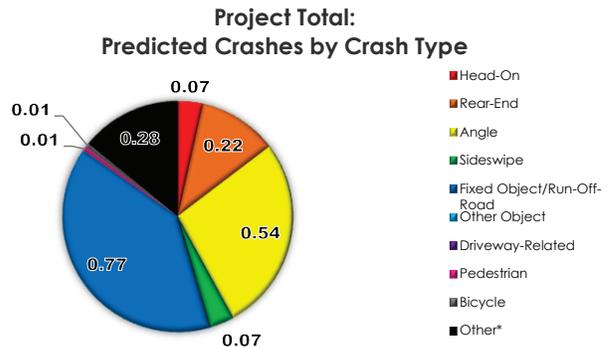
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	1.17	0.80	1.97
Observed Average Annual Crash Frequency	0.00	0.40	0.40
Expected Average Annual Crash Frequency	0.93	0.69	1.62
Potential for Safety Improvement (PSI)	-0.23	-0.12	-0.35

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.65	0.48	1.13
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.40	0.40
Expected Average Annual Crash Frequency (crashes/yr)	0.55	0.45	1.00

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.52	0.32	0.84
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.38	0.24	0.62

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.17	0.80	1.97
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.40	0.40
Expected Average Annual Crash Frequency (crashes/yr)	0.93	0.69	1.62



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

HSM Analyses

Year 2050 No Build

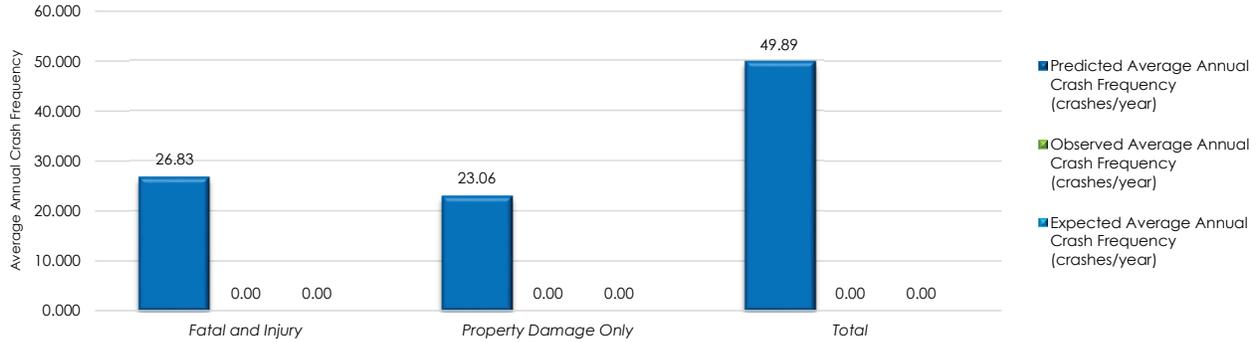
Shingletown Road, Boal Avenue, Earlystown Road (SR 0045)

Main Street to East of Pennsylvania Avenue (SR 0144)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



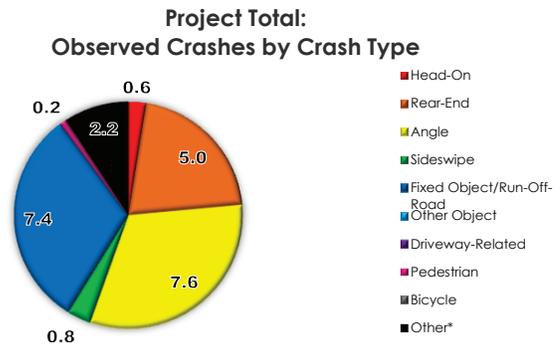
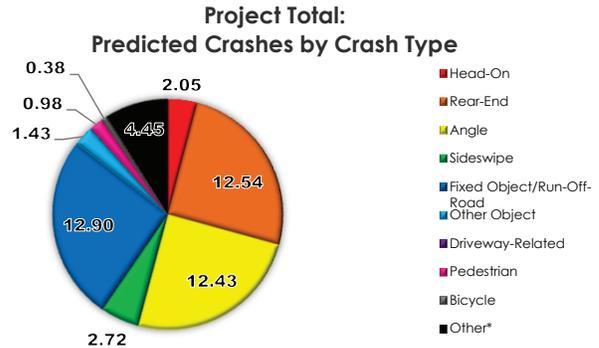
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	26.83	23.06	49.89
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	19.16	16.88	36.04
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	7.66	6.18	13.84
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	26.83	23.06	49.89
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	9.36	6.84	16.21

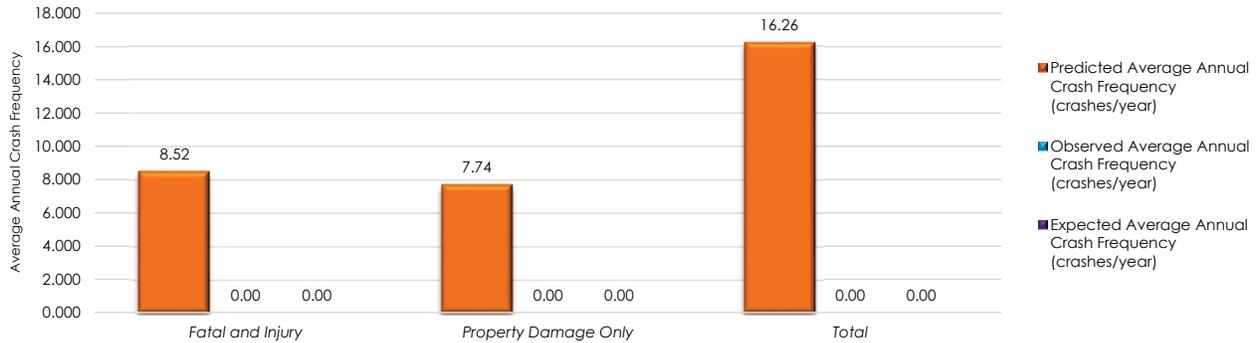


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	8.52	7.74	16.26
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

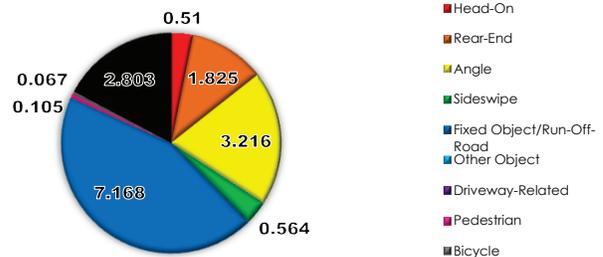
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	6.16	5.79	11.95
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

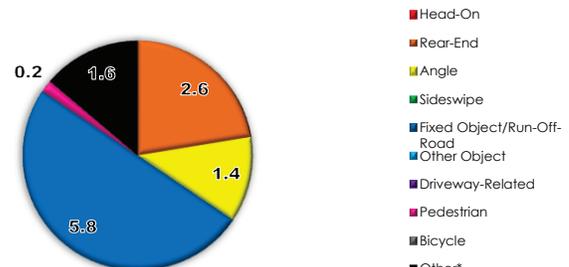
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.36	1.95	4.31
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	8.52	7.74	16.26
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

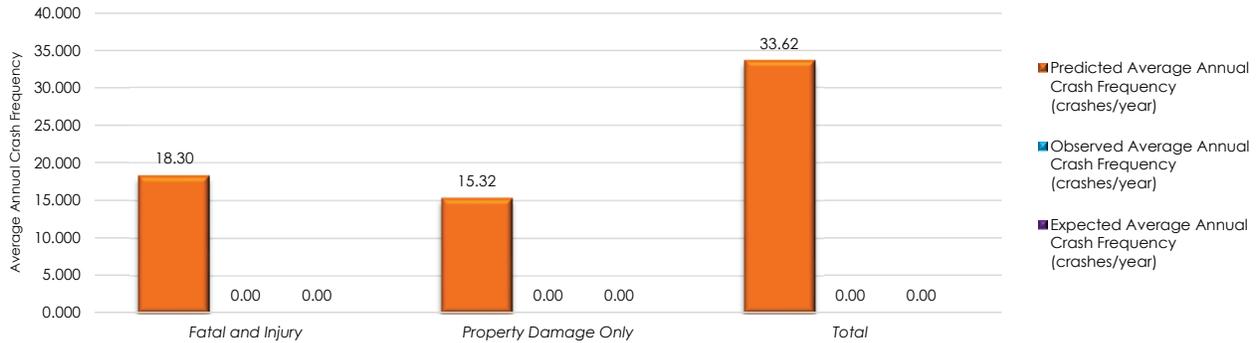


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



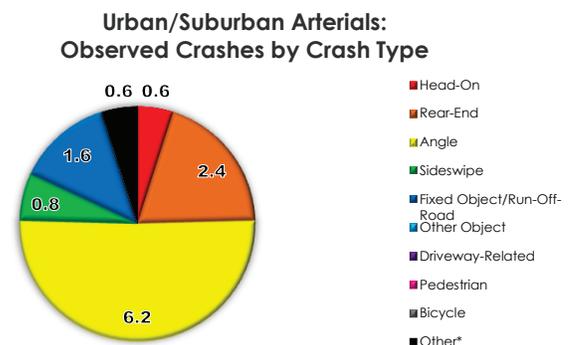
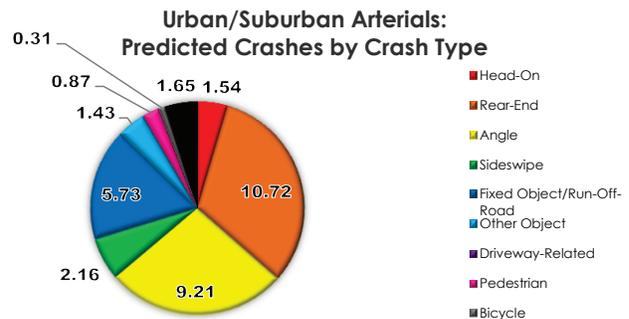
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	18.30	15.32	33.62
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	13.00	11.09	24.09
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.30	4.23	9.53
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	18.30	15.32	33.62
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	9.36	6.84	16.21



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

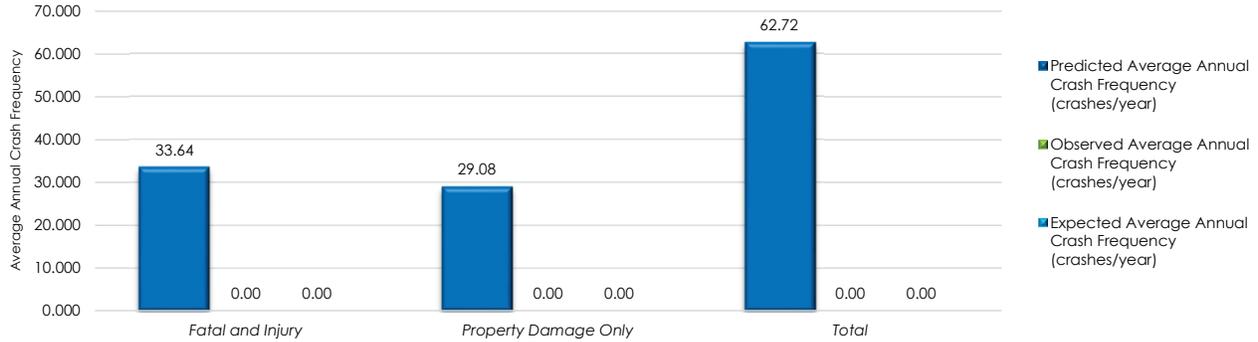
Old Forte Road, Pennsylvania Avenue, Main Street (SR 0144)

General Potter Highway (SR 0322) to North of College Avenue (SR 0026)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



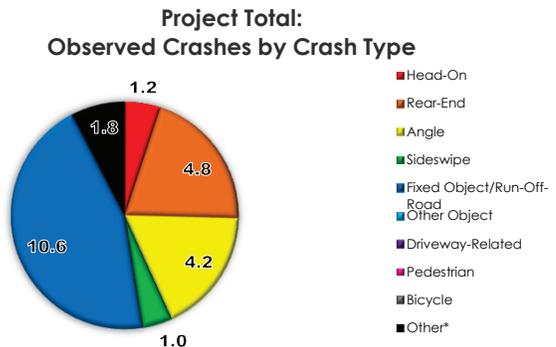
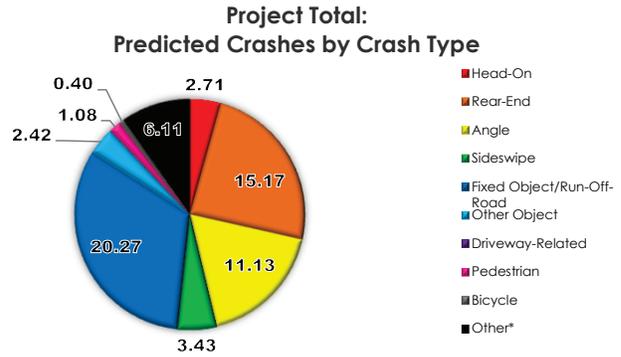
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	33.64	29.08	62.72
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	29.24	25.90	55.14
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	4.40	3.18	7.59
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	33.64	29.08	62.72
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	11.56	8.42	19.97

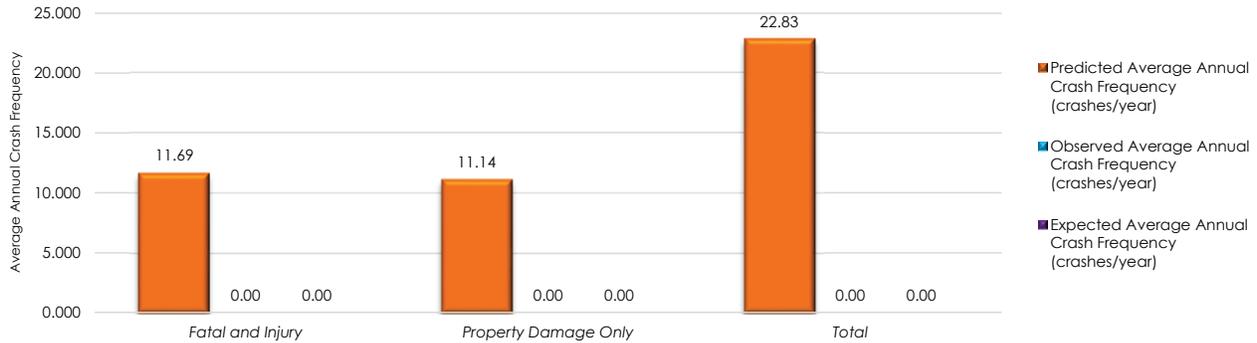


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	11.69	11.14	22.83
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

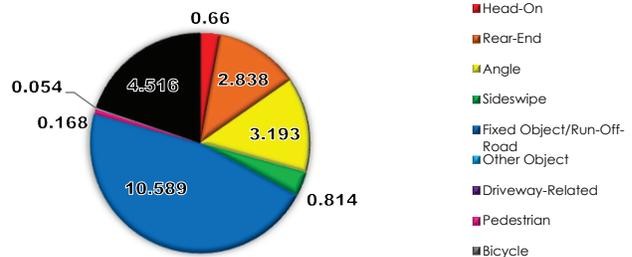
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	10.30	9.82	20.12
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

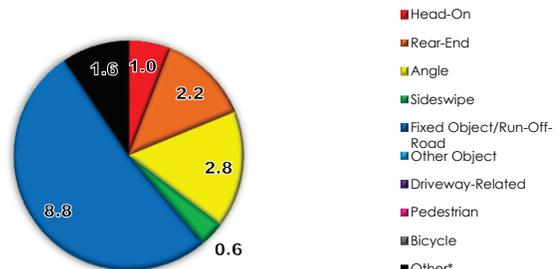
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.39	1.32	2.71
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	11.69	11.14	22.83
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

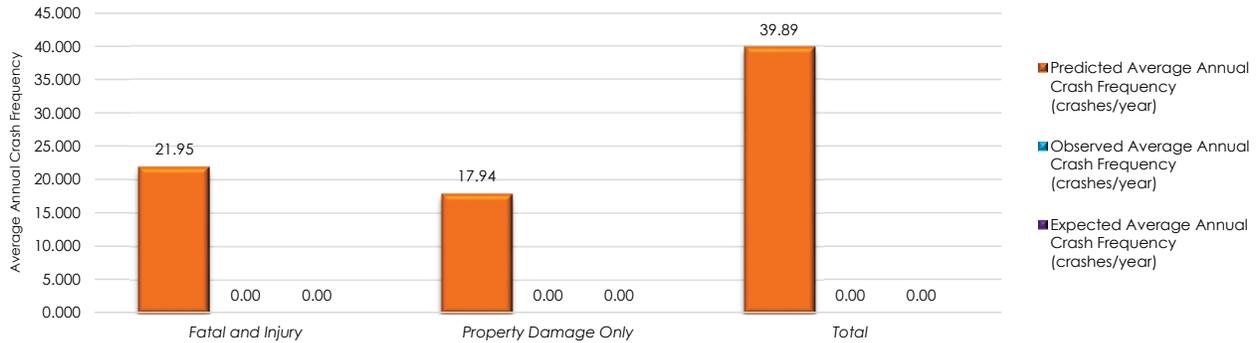


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



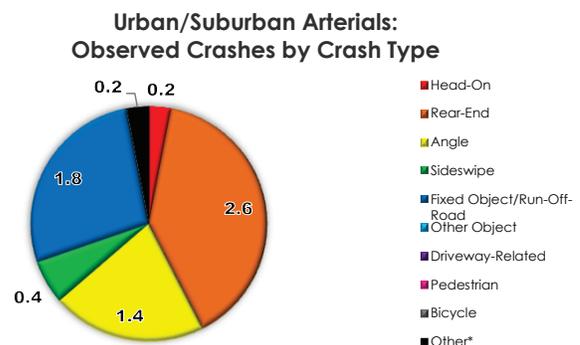
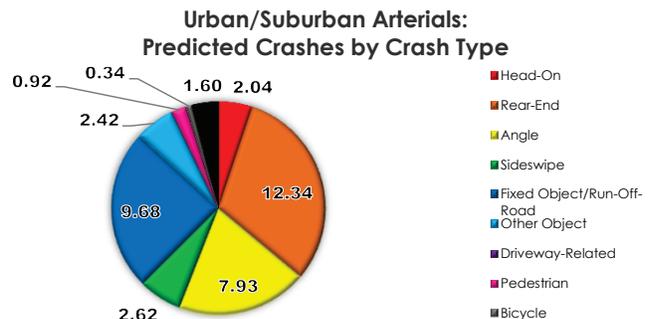
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	21.95	17.94	39.89
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	18.93	16.08	35.01
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.01	1.86	4.88
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	21.95	17.94	39.89
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	11.56	8.42	19.97

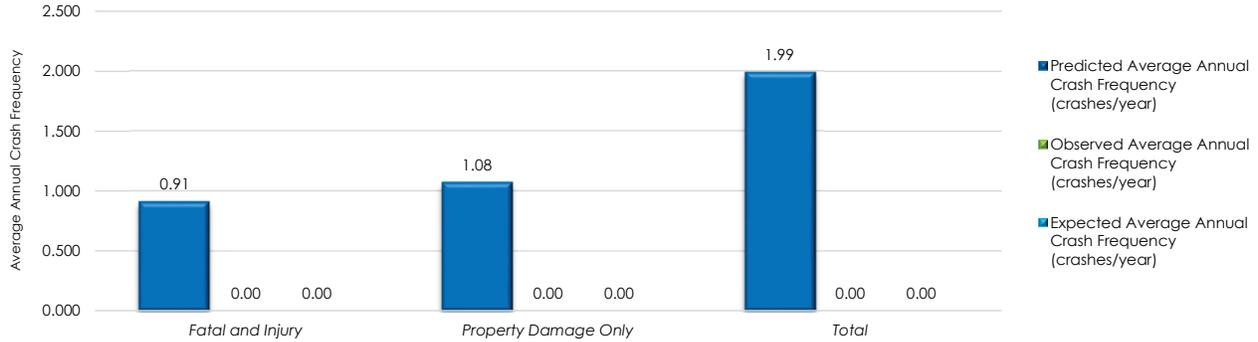


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



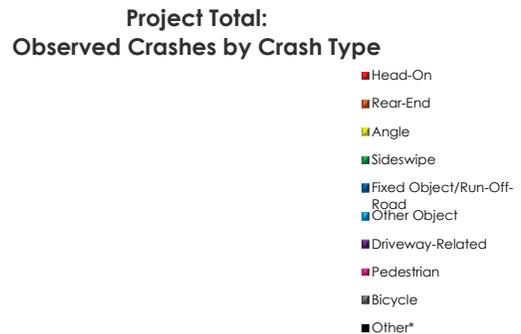
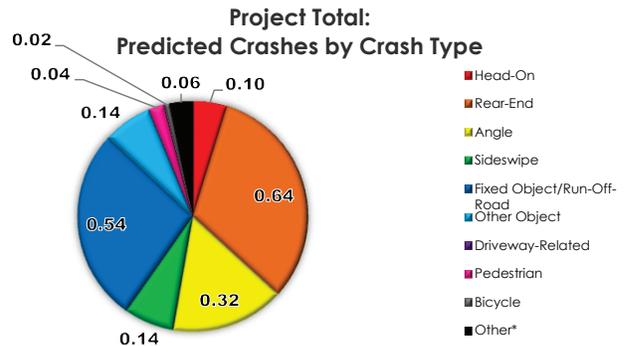
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	0.91	1.08	1.99
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.91	1.08	1.99
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.91	1.08	1.99
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

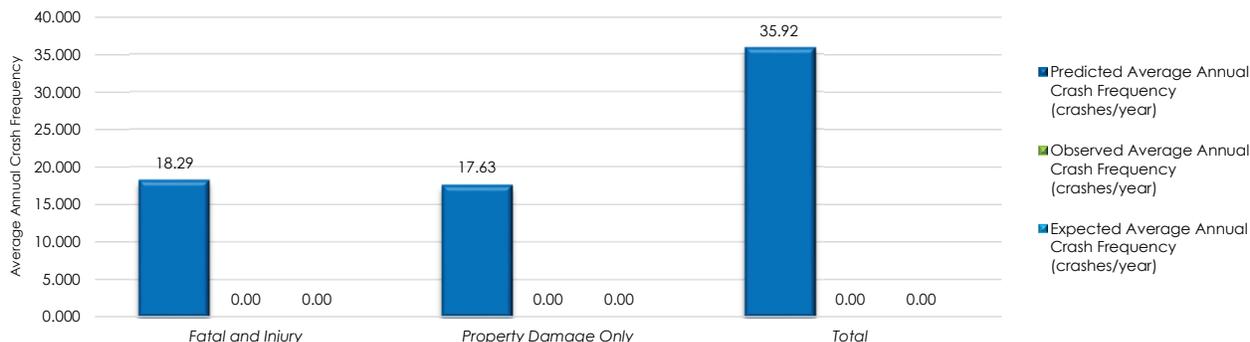
Mt. Nittany Expressway, Boal Avenue, General Potter Highway (SR 0322)

Old Forte Interchange (SR 0045) to Red Mill Road/Mountain Back Road

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	18.29	17.63	35.92
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

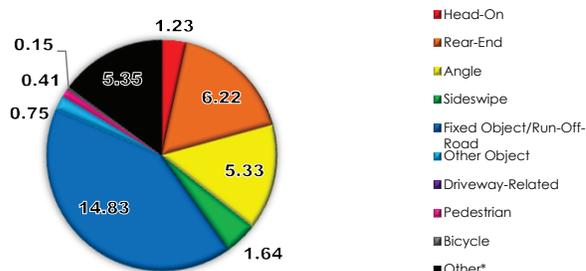
Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	16.72	16.54	33.26
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

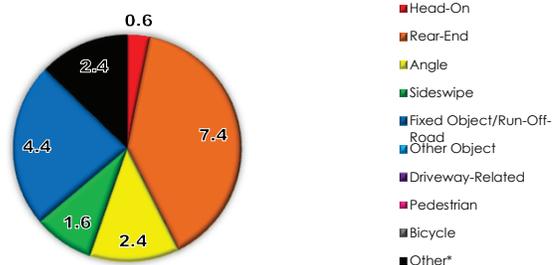
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.56	1.09	2.65
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	18.29	17.63	35.92
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	2.92	2.35	5.27

Project Total: Predicted Crashes by Crash Type



Project Total: Observed Crashes by Crash Type

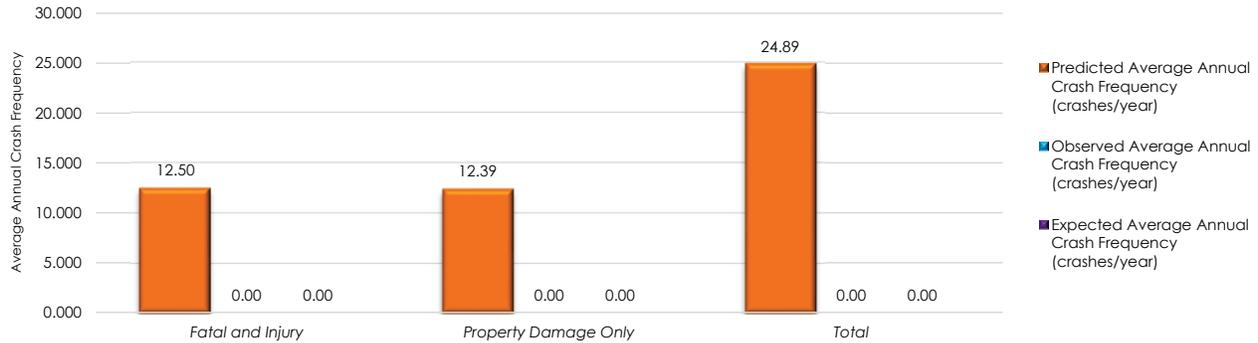


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	12.50	12.39	24.89
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

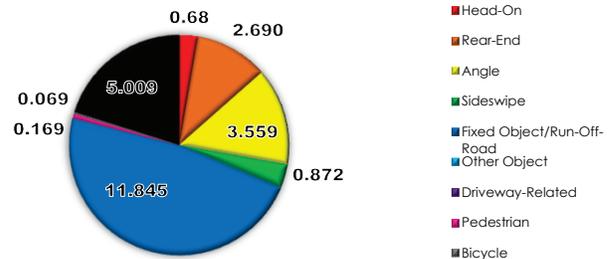
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	10.94	11.30	22.23
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

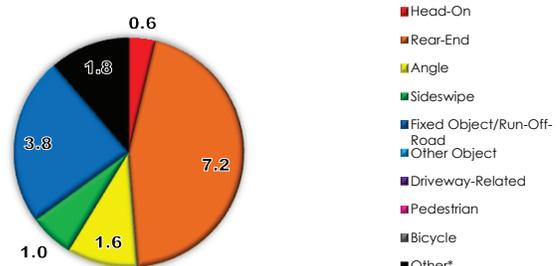
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.56	1.09	2.65
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	12.50	12.39	24.89
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

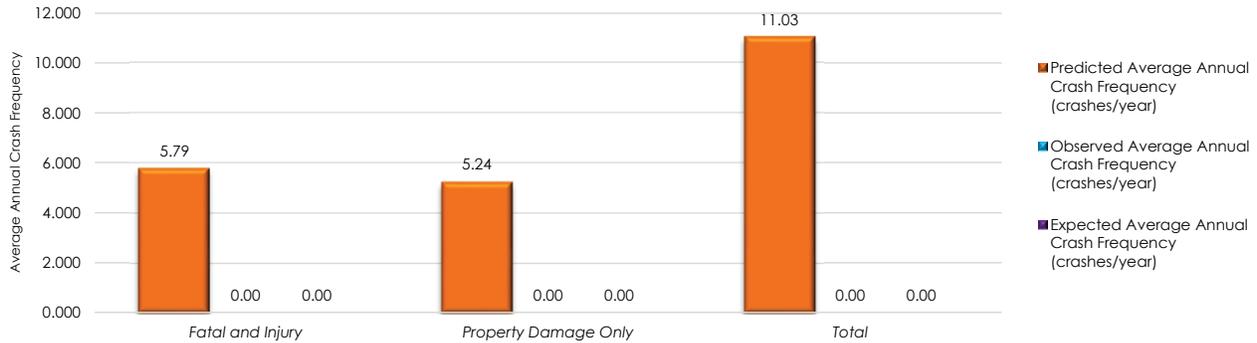


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



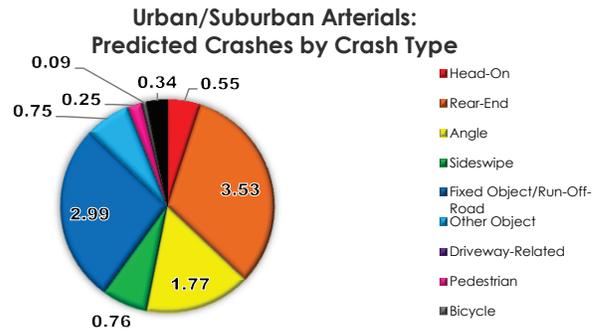
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	5.79	5.24	11.03
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

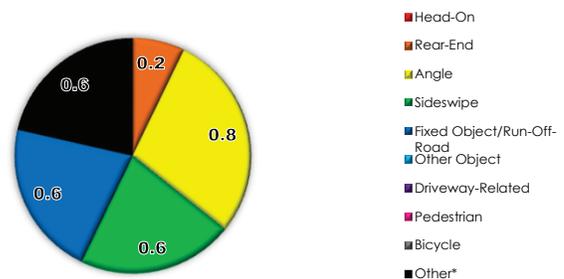
Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.79	5.24	11.03
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.79	5.24	11.03
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	2.92	2.35	5.27



Urban/Suburban Arterials: Observed Crashes by Crash Type



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Old Forte Interchange (SR 0322/SR 0045)

At Earlstown Road (SR 0045)

Output Summary								
General Information								
Project description:	State College Area Connector							
Analyst:	SMMcG	Date:	8/6/2020	Area type:	Urban			
First year of analysis:	2017							
Last year of analysis:	2017							
Crash Data Description								
Freeway segments	Segment crash data available?	Yes	First year of crash data:	2017				
	Project-level crash data available?	No	Last year of crash data:	2017				
Ramp segments	Segment crash data available?	Yes	First year of crash data:	2017				
	Project-level crash data available?	No	Last year of crash data:	2017				
Ramp terminals	Segment crash data available?	Yes	First year of crash data:	2014				
	Project-level crash data available?	No	Last year of crash data:	2017				
Estimated Crash Statistics								
Crashes for Entire Facility		Total	K	A	B	C	PDO	
Estimated number of crashes during Study Period, crashes:		1.6	0.0	0.0	0.1	0.6	0.8	
Estimated average crash freq. during Study Period, crashes/yr:		1.6	0.0	0.0	0.1	0.6	0.8	
Crashes by Facility Component		Nbr. Sites	Total	K	A	B	C	PDO
Freeway segments, crashes:		0	0.0	0.0	0.0	0.0	0.0	0.0
Ramp segments, crashes:		0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:		2	1.6	0.0	0.0	0.1	0.6	0.8
Crashes for Entire Facility by Year		Year	Total	K	A	B	C	PDO
Estimated number of crashes during the Study Period, crashes:		2017	1.6	0.0	0.0	0.1	0.6	0.8
		2018						
		2019						
		2020						
		2021						
		2022						
		2023						
		2024						
		2025						
		2026						
		2027						
		2028						
		2029						
		2030						
		2031						
		2032						
		2033						
		2034						
		2035						
		2036						
2037								
2038								
2039								
2040								
Distribution of Crashes for Entire Facility								
Crash Type	Crash Type Category	Estimated Number of Crashes During the Study Period						
		Total	K	A	B	C	PDO	
Multiple vehicle	Head-on crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Right-angle crashes:	0.5	0.0	0.0	0.0	0.2	0.2	
	Rear-end crashes:	0.8	0.0	0.0	0.1	0.4	0.3	
	Sideswipe crashes:	0.1	0.0	0.0	0.0	0.0	0.1	
	Other multiple-vehicle crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Total multiple-vehicle crashes:	1.4	0.0	0.0	0.1	0.6	0.7	
Single vehicle	Crashes with animal:	0.0	0.0	0.0	0.0	0.0	0.0	
	Crashes with fixed object:	0.1	0.0	0.0	0.0	0.0	0.1	
	Crashes with other object:	0.0	0.0	0.0	0.0	0.0	0.0	
	Crashes with parked vehicle:	0.0	0.0	0.0	0.0	0.0	0.0	
	Other single-vehicle crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Total single-vehicle crashes:	0.1	0.0	0.0	0.0	0.0	0.1	
Total crashes:		1.6	0.0	0.0	0.1	0.6	0.8	

Oak Hall Interchange (SR 0322/SR 3010)

At Boalsburg Road (SR 3010)

Output Summary								
General Information								
Project description:	State College Area Connector							
Analyst:	SMMcG	Date:	8/6/2020	Area type:	Urban			
First year of analysis:	2017							
Last year of analysis:	2017							
Crash Data Description								
Freeway segments	Segment crash data available?	Yes	First year of crash data:	2017				
	Project-level crash data available?	No	Last year of crash data:	2017				
Ramp segments	Segment crash data available?	Yes	First year of crash data:	2017				
	Project-level crash data available?	No	Last year of crash data:	2017				
Ramp terminals	Segment crash data available?	Yes	First year of crash data:	2014				
	Project-level crash data available?	No	Last year of crash data:	2017				
Estimated Crash Statistics								
Crashes for Entire Facility		Total	K	A	B	C	PDO	
Estimated number of crashes during Study Period, crashes:		1.5	0.0	0.0	0.1	0.6	0.7	
Estimated average crash freq. during Study Period, crashes/yr:		1.5	0.0	0.0	0.1	0.6	0.7	
Crashes by Facility Component		Nbr. Sites	Total	K	A	B	C	PDO
Freeway segments, crashes:		0	0.0	0.0	0.0	0.0	0.0	0.0
Ramp segments, crashes:		0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:		2	1.5	0.0	0.0	0.1	0.6	0.7
Crashes for Entire Facility by Year		Year	Total	K	A	B	C	PDO
Estimated number of crashes during the Study Period, crashes:		2017	1.5	0.0	0.0	0.1	0.6	0.7
		2018						
		2019						
		2020						
		2021						
		2022						
		2023						
		2024						
		2025						
		2026						
		2027						
		2028						
		2029						
		2030						
		2031						
		2032						
		2033						
		2034						
		2035						
		2036						
2037								
2038								
2039								
2040								
Distribution of Crashes for Entire Facility								
Crash Type	Crash Type Category	Estimated Number of Crashes During the Study Period						
		Total	K	A	B	C	PDO	
Multiple vehicle	Head-on crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Right-angle crashes:	0.6	0.0	0.0	0.1	0.3	0.3	
	Rear-end crashes:	0.5	0.0	0.0	0.1	0.2	0.2	
	Sideswipe crashes:	0.1	0.0	0.0	0.0	0.0	0.1	
	Other multiple-vehicle crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Total multiple-vehicle crashes:	1.3	0.0	0.0	0.1	0.6	0.6	
Single vehicle	Crashes with animal:	0.0	0.0	0.0	0.0	0.0	0.0	
	Crashes with fixed object:	0.1	0.0	0.0	0.0	0.1	0.1	
	Crashes with other object:	0.0	0.0	0.0	0.0	0.0	0.0	
	Crashes with parked vehicle:	0.0	0.0	0.0	0.0	0.0	0.0	
	Other single-vehicle crashes:	0.0	0.0	0.0	0.0	0.0	0.0	
	Total single-vehicle crashes:	0.2	0.0	0.0	0.0	0.1	0.1	
Total crashes:		1.5	0.0	0.0	0.1	0.6	0.7	

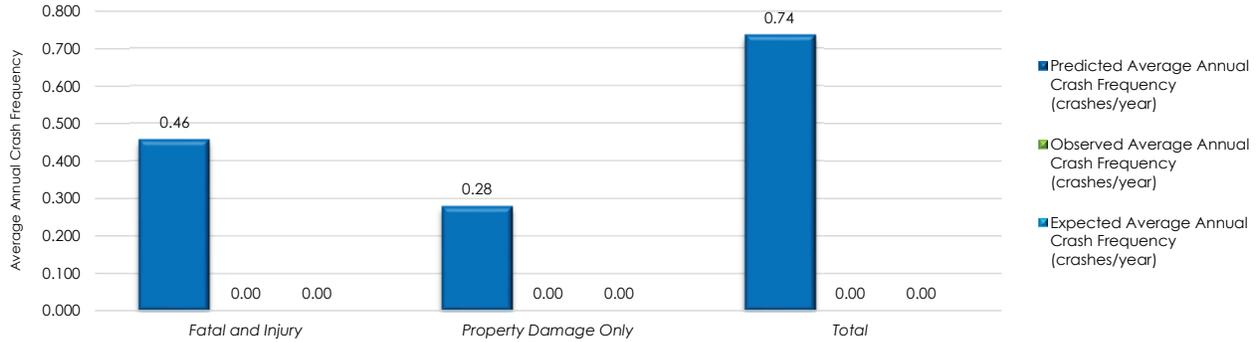
Linden Hall Road, Cedar Run Road (SR 2004)

Boalsburg Road (SR 3010) to Earlstown Road (SR 0045)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads

Summary of Average Safety Performance for the Project (crashes/year)



Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	0.46	0.28	0.74
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

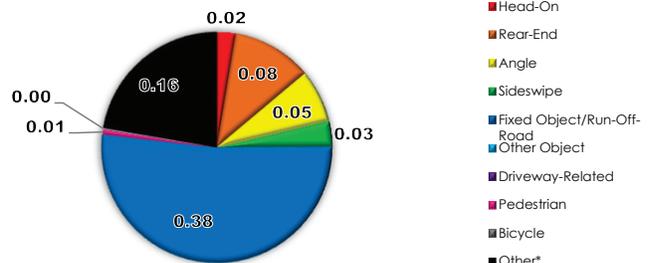
Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.46	0.28	0.74
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

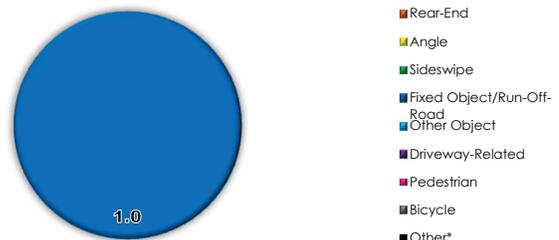
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.46	0.28	0.74
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Project Total: Predicted Crashes by Crash Type



Project Total: Observed Crashes by Crash Type



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

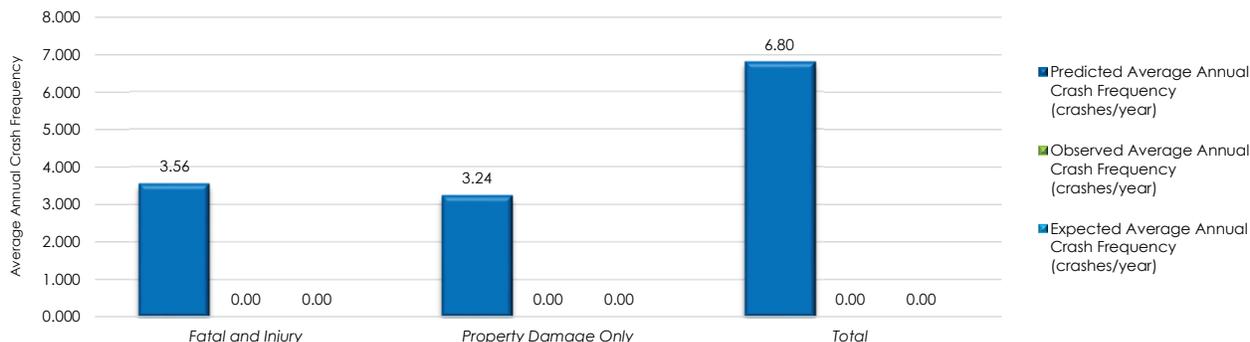
Linden Hall Road, Rock Hill Road, Brush Valley Road (SR 2006)

Earlstown Road (SR 0045) to Pennsylvania Avenue (SR 0144)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	3.56	3.24	6.80
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

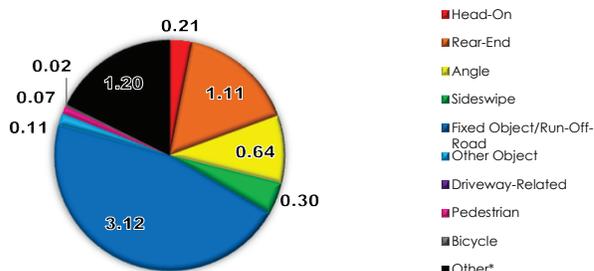
Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.56	3.24	6.80
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

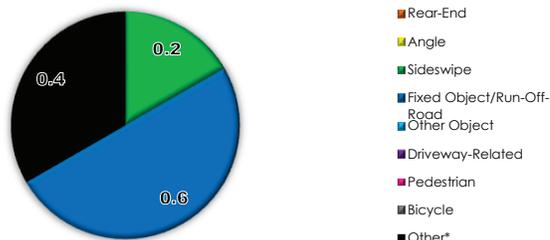
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.56	3.24	6.80
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.38	0.43	0.80

Project Total: Predicted Crashes by Crash Type



Project Total: Observed Crashes by Crash Type

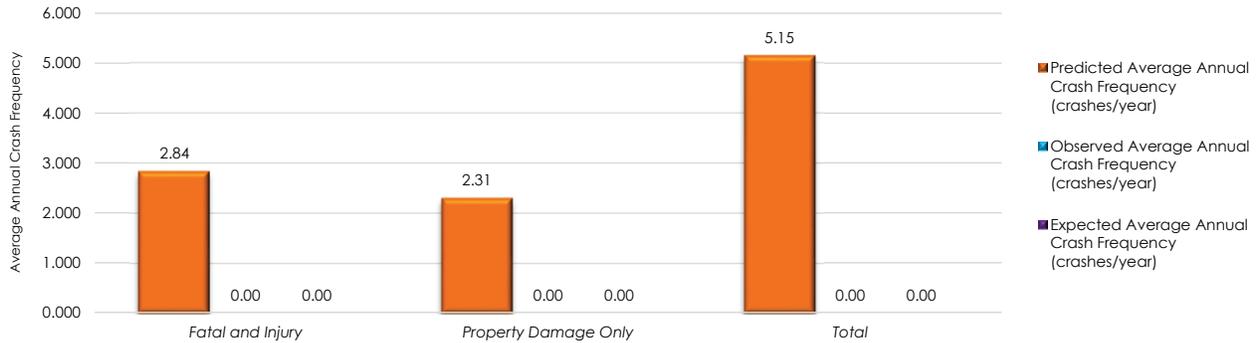


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	2.84	2.31	5.15
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

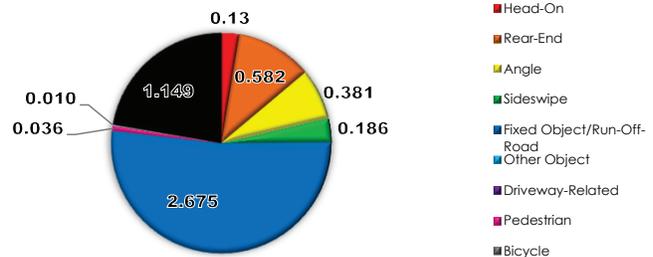
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.84	2.31	5.15
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

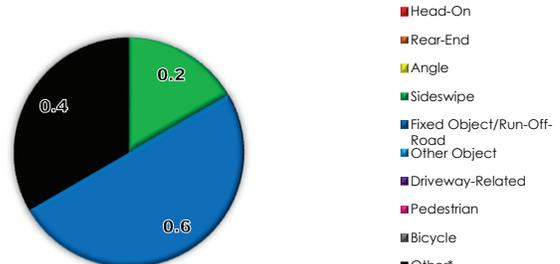
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.84	2.31	5.15
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

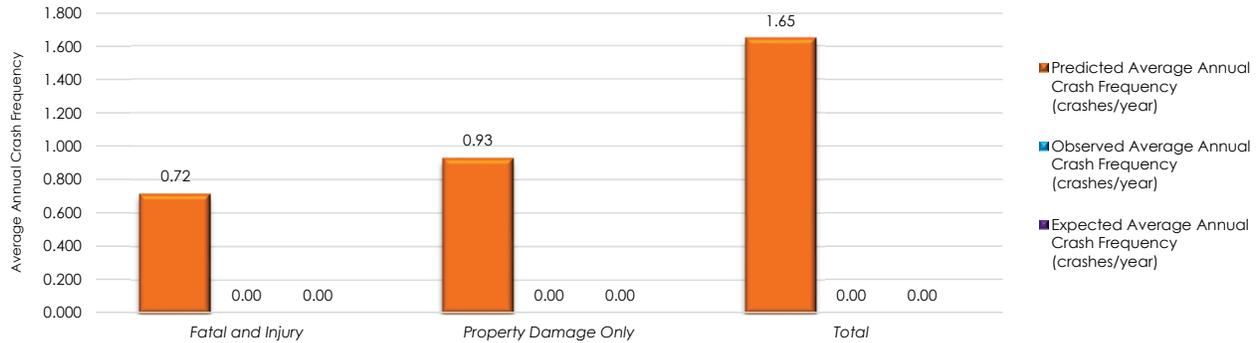


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



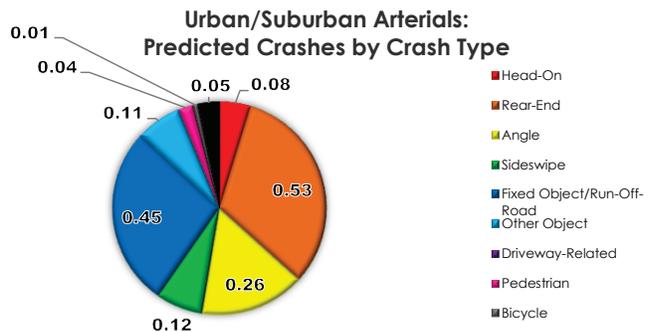
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	0.72	0.93	1.65
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.72	0.93	1.65
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.72	0.93	1.65
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	0.38	0.43	0.80



Urban/Suburban Arterials: Observed Crashes by Crash Type

- Head-On
- Rear-End
- Angle
- Sideswipe
- Fixed Object/Run-Off-Road
- Other Object
- Driveway-Related
- Pedestrian
- Bicycle
- Other*

*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

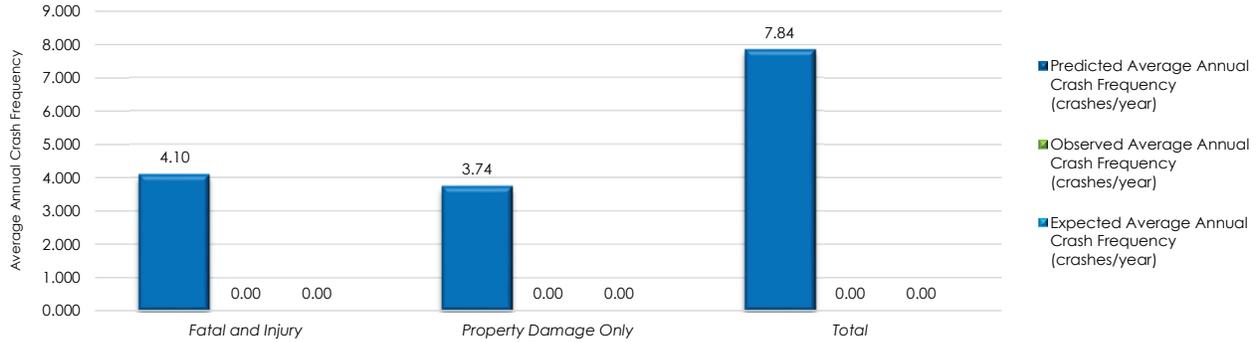
Boalsburg Road, Warner Boulevard (SR 3010)

North of Linden Hall Road (SR 2004) to Boal Avenue (SR 0045/SR 3014)

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



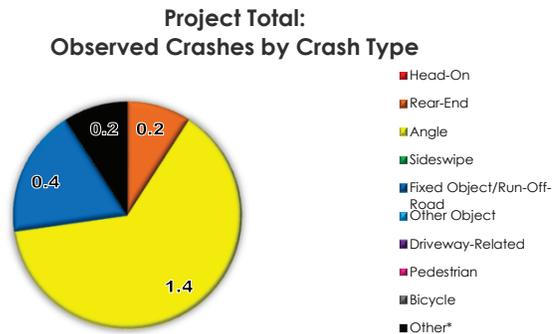
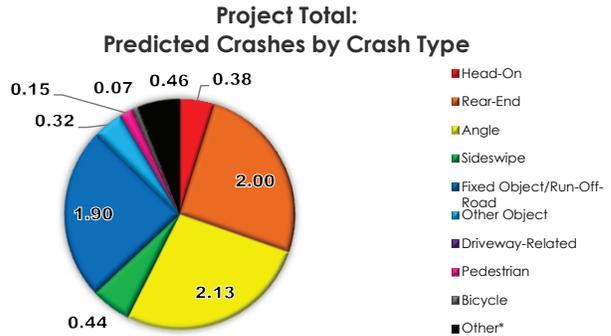
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	4.10	3.74	7.84
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.79	2.47	5.26
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.31	1.28	2.59
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	4.10	3.74	7.84
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	1.79	1.53	3.32

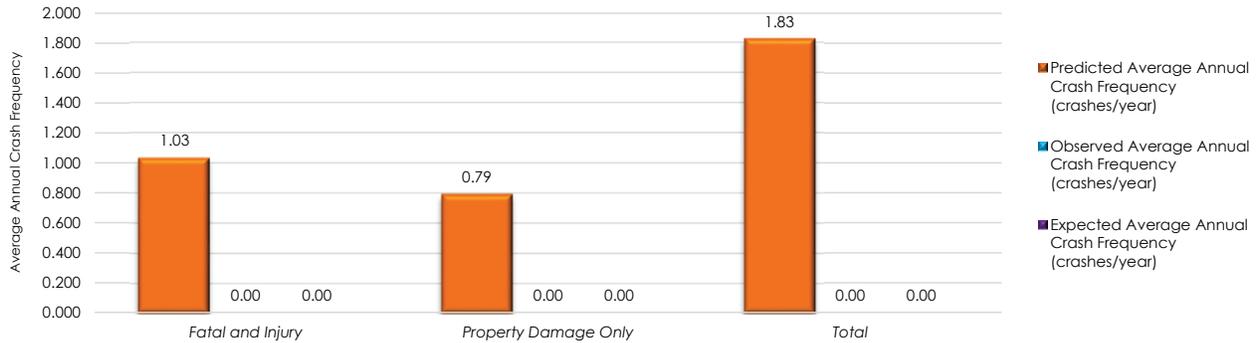


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	1.03	0.79	1.83
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

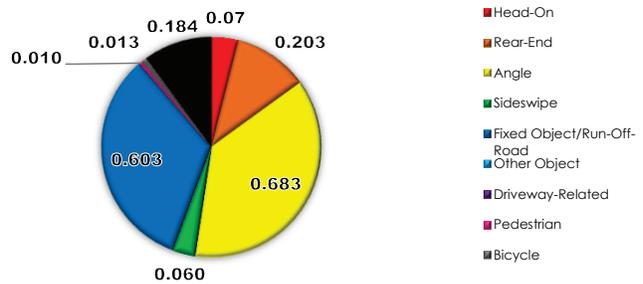
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.38	0.28	0.66
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

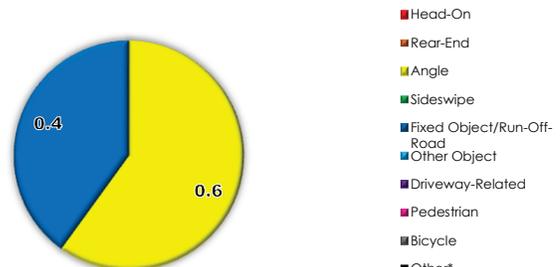
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.66	0.51	1.17
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.03	0.79	1.83
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

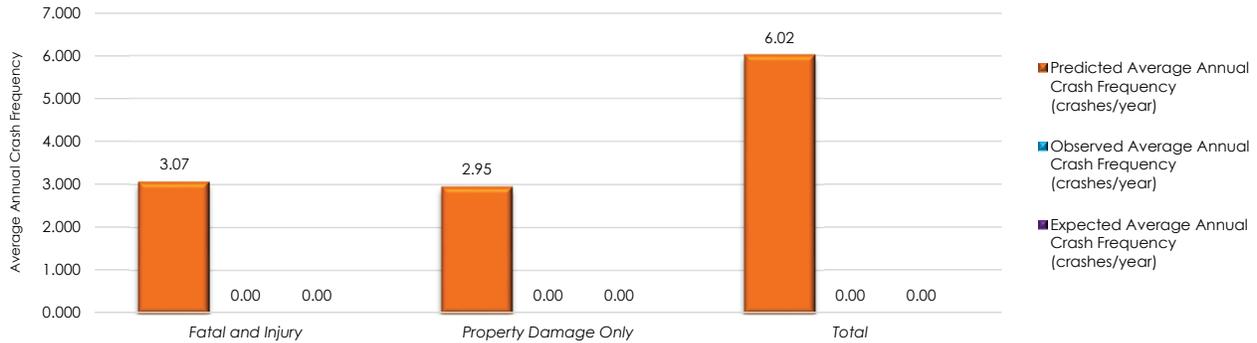


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



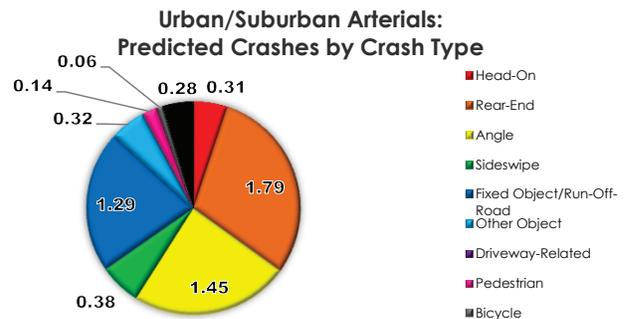
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	3.07	2.95	6.02
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

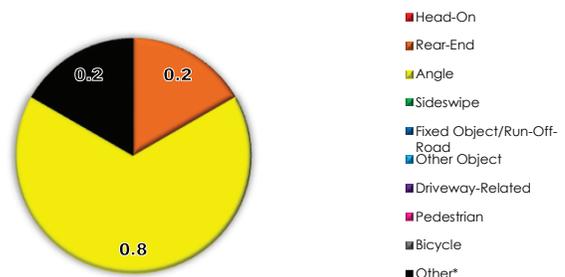
Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.41	2.19	4.60
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.65	0.76	1.42
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.07	2.95	6.02
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	1.79	1.53	3.32



Urban/Suburban Arterials: Observed Crashes by Crash Type

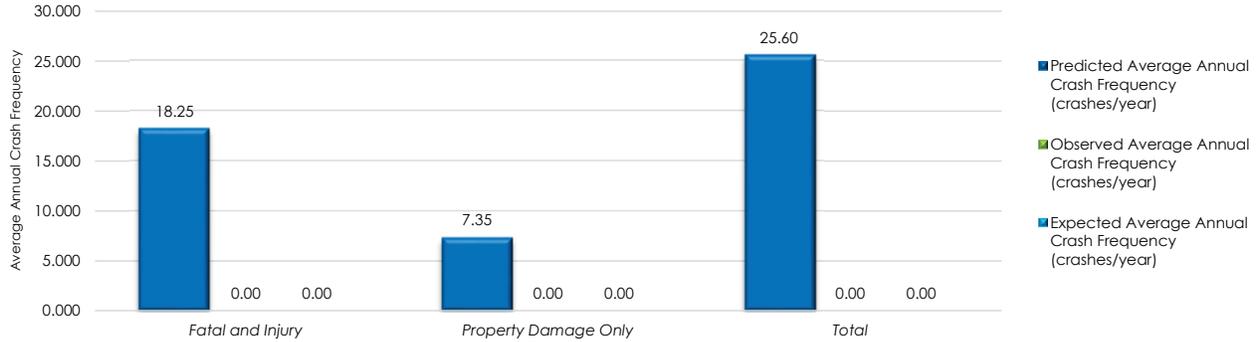


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



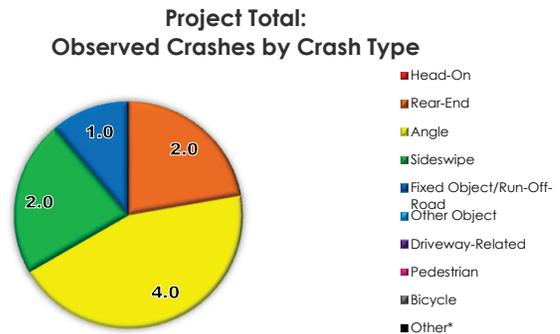
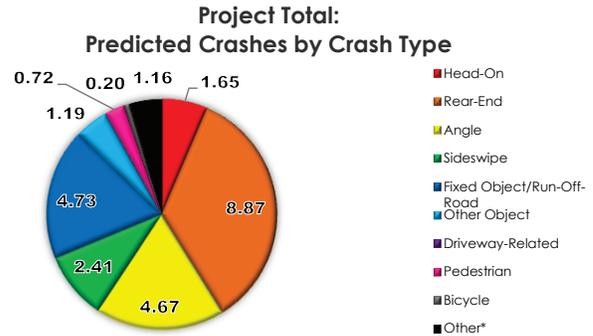
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	18.25	7.35	25.60
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	18.25	7.35	25.60
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	18.25	7.35	25.60
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

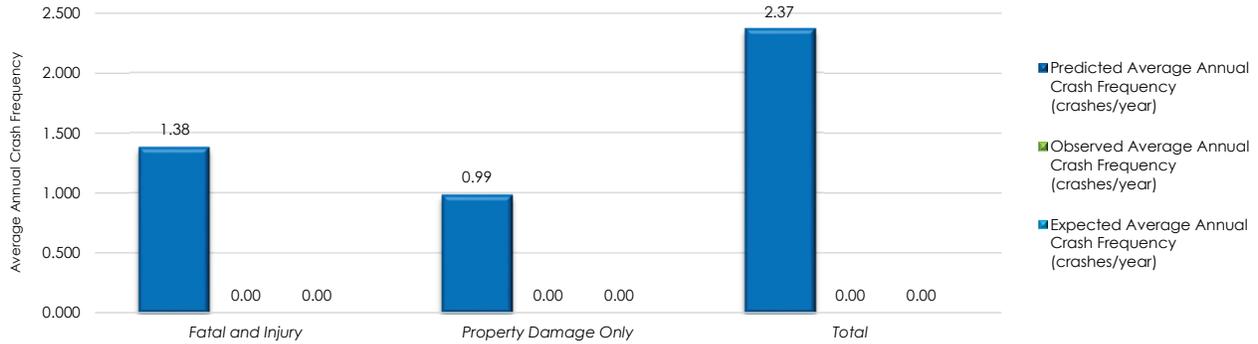


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description SCAC
 Date 8/3/2020
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads

Summary of Average Safety Performance for the Project (crashes/year)



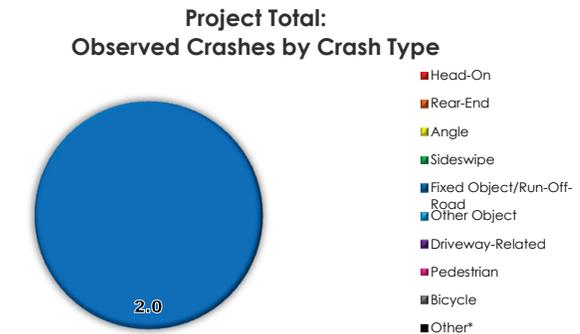
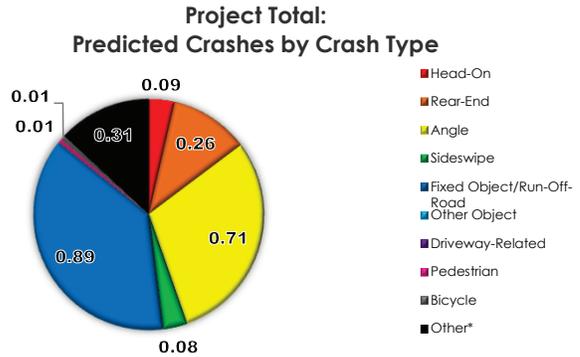
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	1.38	0.99	2.37
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.70	0.52	1.23
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.68	0.46	1.14
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.38	0.99	2.37
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

HSM Analyses

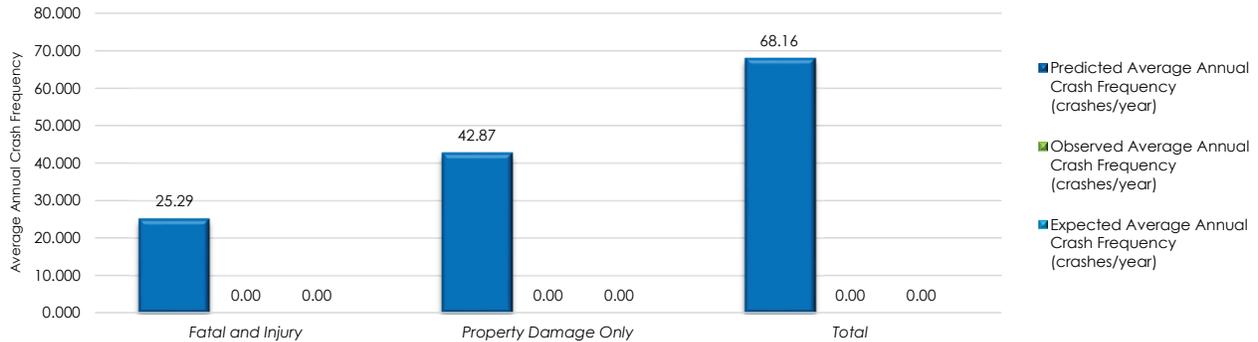
Year 2050 Build

**Upgrade Existing US 322
Alternative**

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Multilane Highways, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



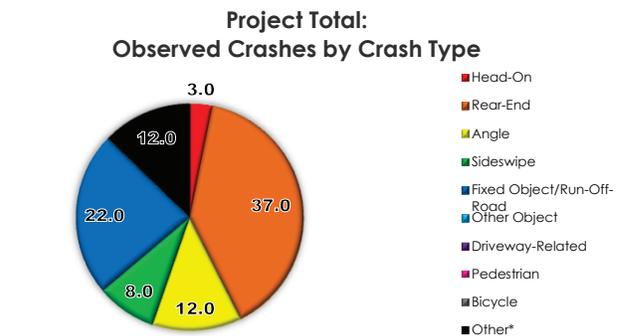
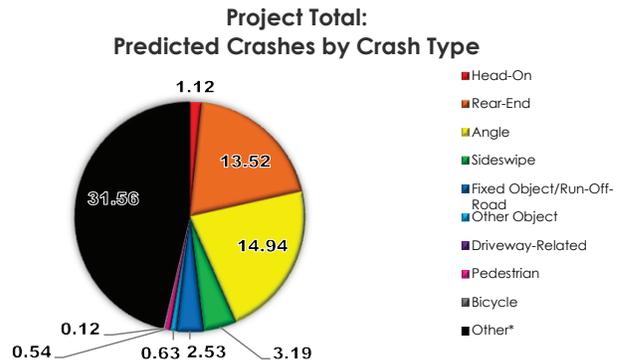
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	25.29	42.87	68.16
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	16.93	35.26	52.19
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	8.36	7.61	15.97
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	25.29	42.87	68.16
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

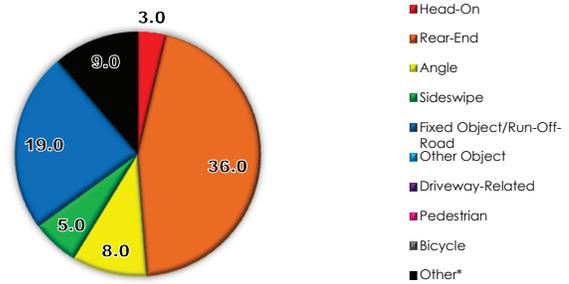


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

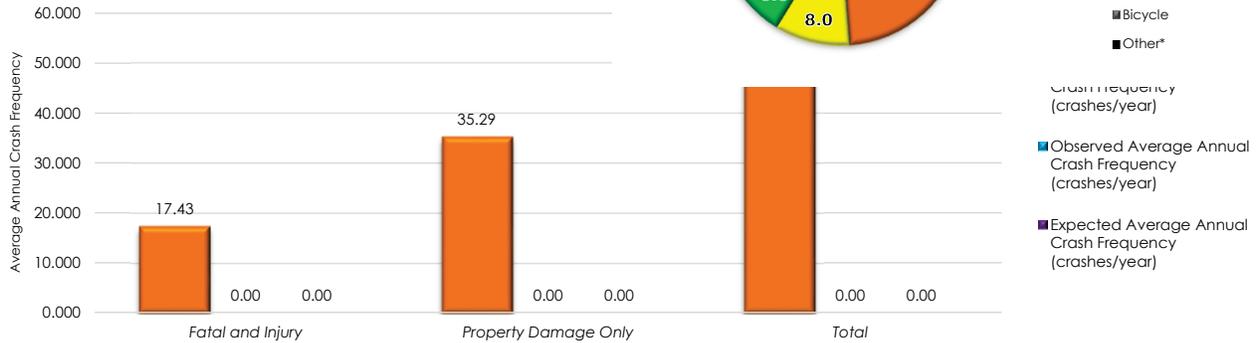
Rural Multilane Highways Safety Perfo

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Multilane Highways, and Urban/Suburban Ar

Rural Two-Lane Roads: Observed Crashes by Crash Type



Summary of Average Safety Perfo



Rural Multilane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	17.43	35.29	52.73
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

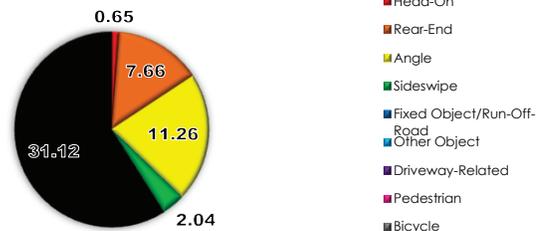
Rural Multilane Highways Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	9.73	28.24	37.97
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	7.70	7.06	14.76
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	17.43	35.29	52.73
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Multilane Highways: Predicted Crashes by Crash Type



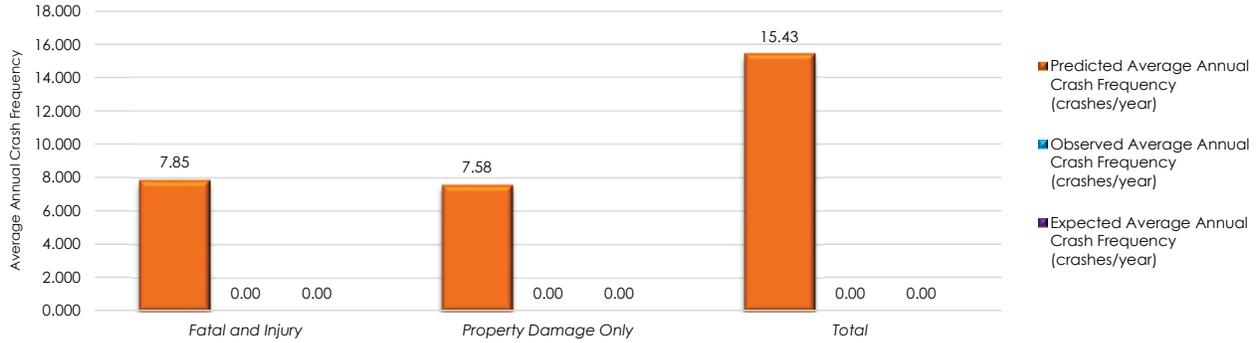
No Observed Crash Data Provided

*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Multilane Highways, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



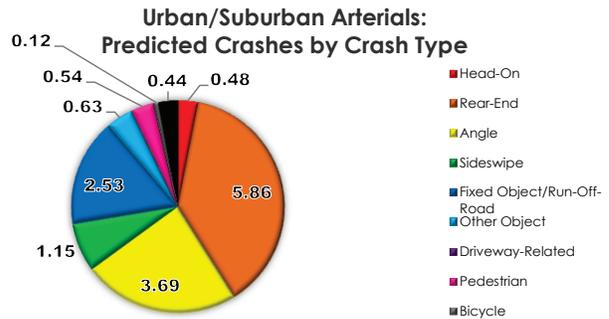
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	7.85	7.58	15.43
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

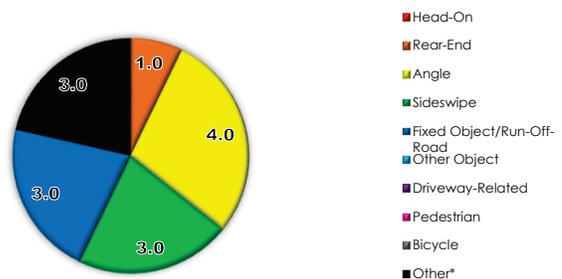
Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	7.20	7.02	14.22
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.65	0.56	1.21
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	7.85	7.58	15.43
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--



Urban/Suburban Arterials: Observed Crashes by Crash Type

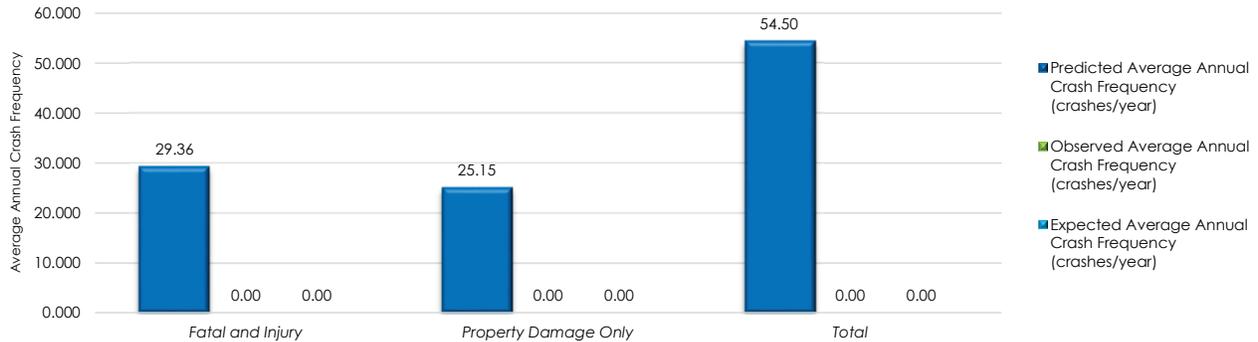


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



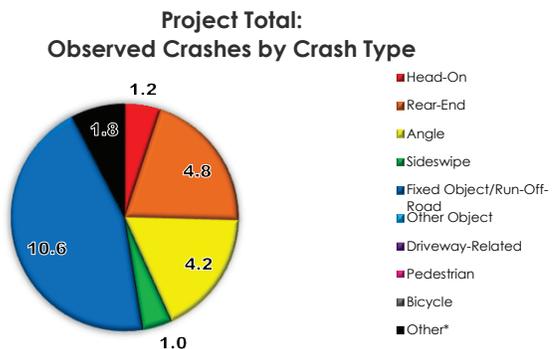
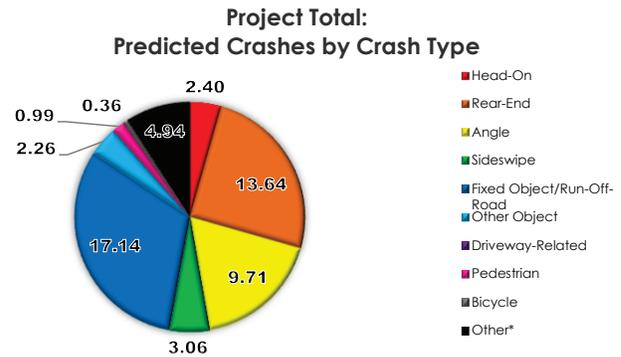
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	29.36	25.15	54.50
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	25.51	22.59	48.10
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.84	2.56	6.40
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	29.36	25.15	54.50
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	10.68	7.96	18.64

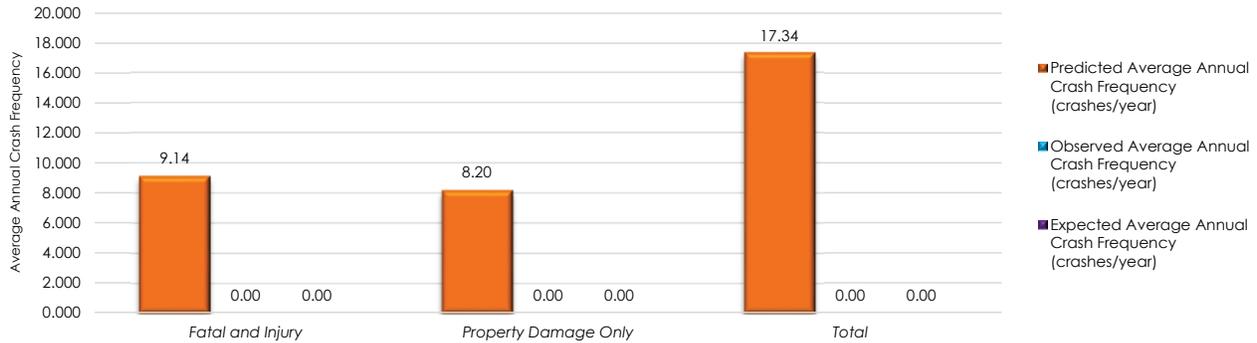


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	9.14	8.20	17.34
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

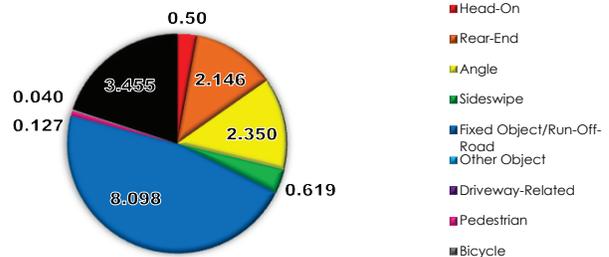
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	8.04	7.36	15.40
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

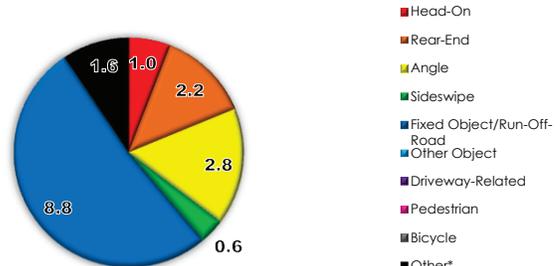
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.09	0.84	1.93
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	9.14	8.20	17.34
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

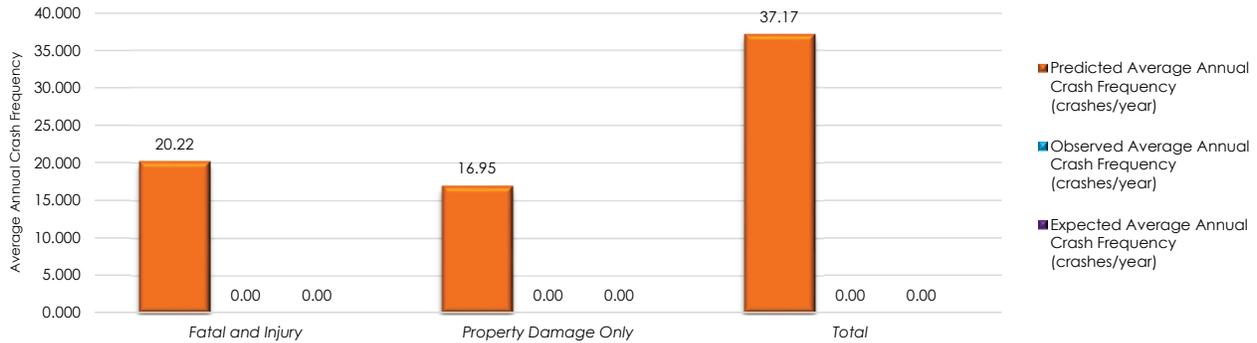


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



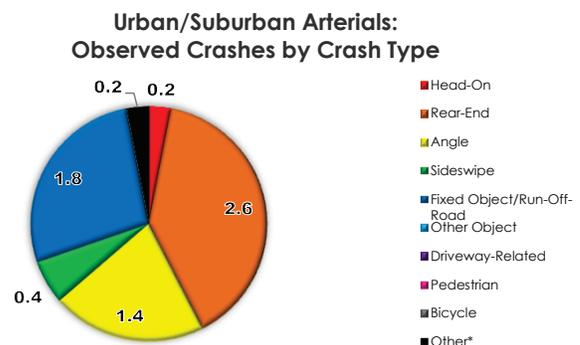
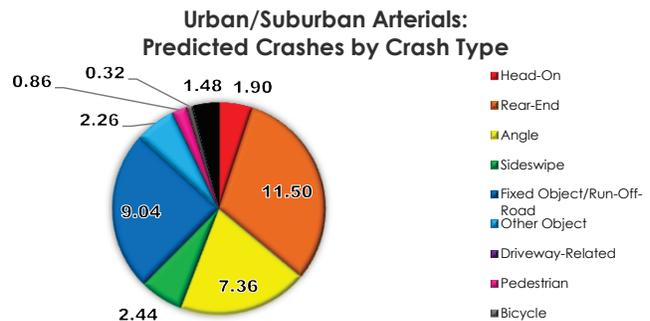
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	20.22	16.95	37.17
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	17.47	15.23	32.70
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.75	1.72	4.47
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	20.22	16.95	37.17
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	10.68	7.96	18.64

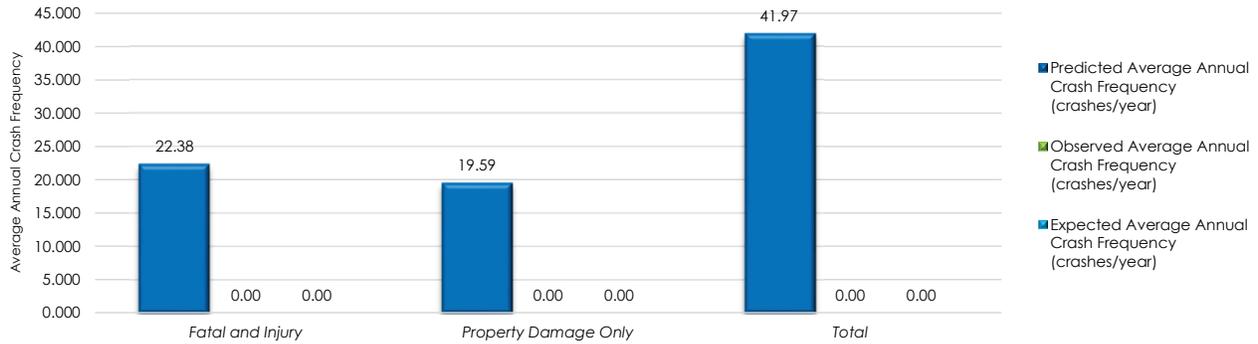


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



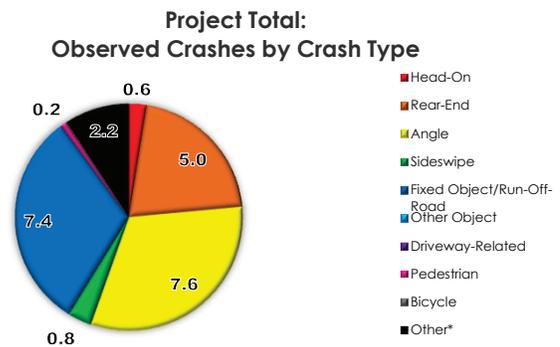
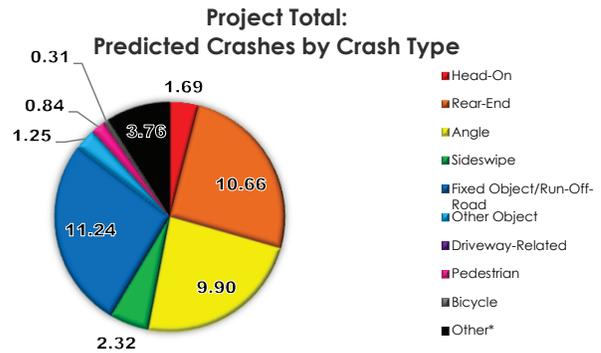
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	22.38	19.59	41.97
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	16.88	14.97	31.85
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.50	4.62	10.12
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	22.38	19.59	41.97
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	7.69	5.80	13.49

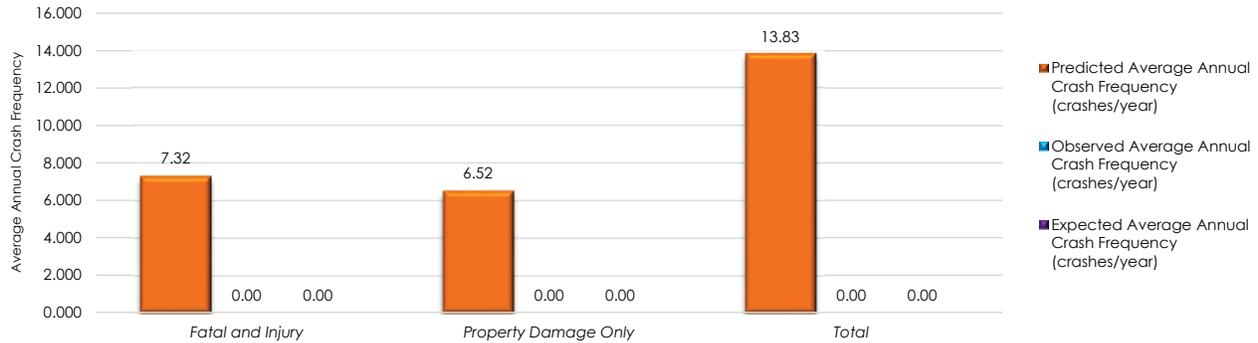


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	7.32	6.52	13.83
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

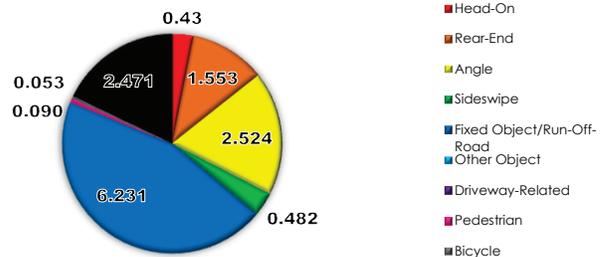
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.53	5.09	10.62
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

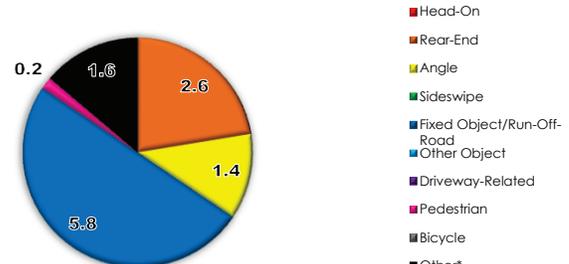
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.79	1.42	3.21
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	7.32	6.52	13.83
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

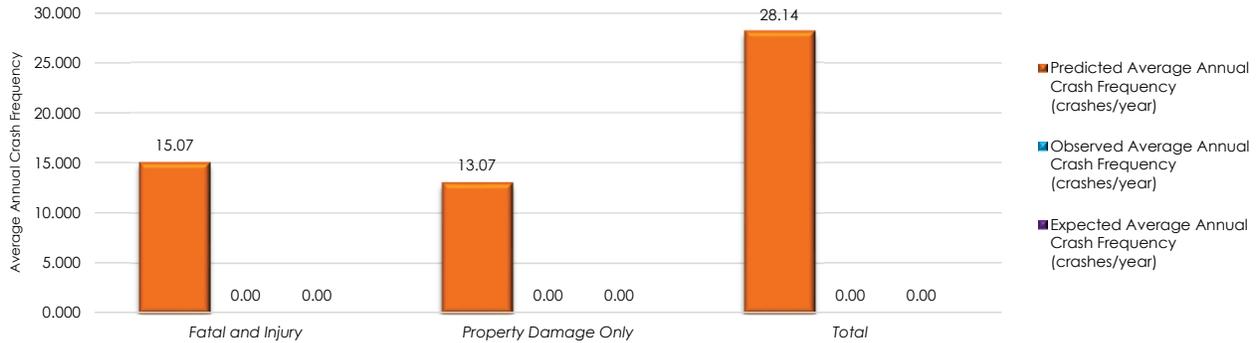


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



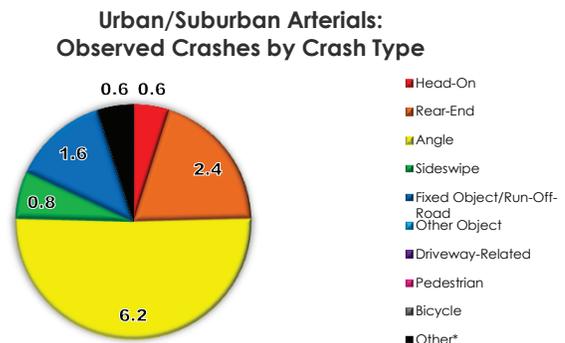
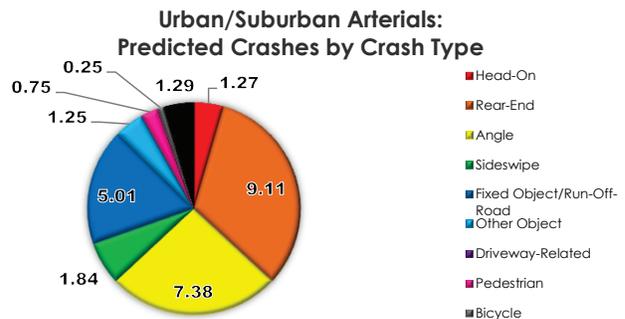
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	15.07	13.07	28.14
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	11.35	9.88	21.23
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.71	3.19	6.91
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	15.07	13.07	28.14
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	7.69	5.80	13.49



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

HSM Analyses

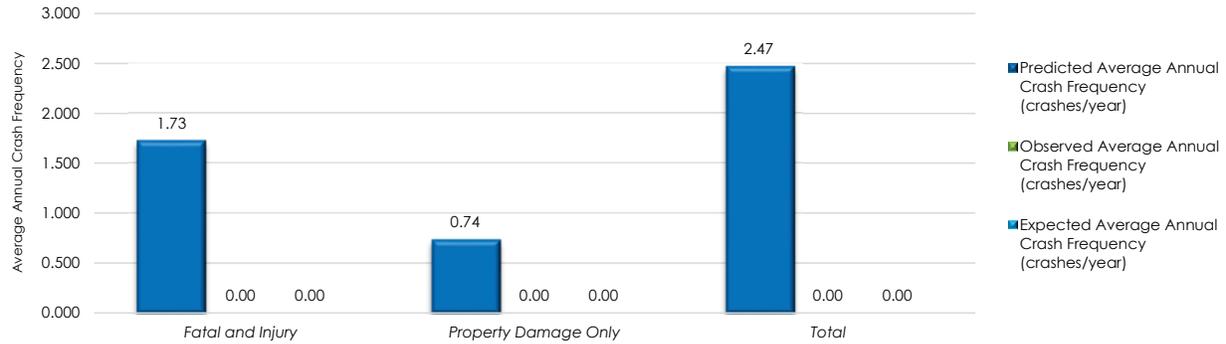
**Year 2050 Build
Build Alternative 1
(US 322 Corridor)**

Output Summary									
General Information									
Project description:	State College Area Connector SR 0322 (ALT 1)								
Analyst:	HAK	Date:	3/15/2022	Area type:	Rural				
First year of analysis:	0								
Last year of analysis:	0								
Crash Data Description									
Freeway segments	Segment crash data available?	No	First year of crash data:						
	Project-level crash data available?	No	Last year of crash data:						
Ramp segments	Segment crash data available?	No	First year of crash data:						
	Project-level crash data available?	No	Last year of crash data:						
Ramp terminals	Segment crash data available?	No	First year of crash data:						
	Project-level crash data available?	No	Last year of crash data:						
Estimated Crash Statistics									
Crashes for Entire Facility		Total	K	A	B	C	PDO		
Estimated number of crashes during Study Period, crashes:		29.2	0.5	1.3	5.1	5.9	16.5		
Estimated average crash freq. during Study Period, crashes/yr:		29.2	0.5	1.3	5.1	5.9	16.5		
Crashes by Facility Component		Nbr. Sites	Total	K	A	B	C	PDO	
Freeway segments, crashes:		8	26.9	0.5	1.2	4.7	5.1	15.4	
Ramp segments, crashes:		4	0.4	0.0	0.0	0.1	0.1	0.2	
Crossroad ramp terminals, crashes:		4	1.9	0.0	0.0	0.2	0.7	0.9	
Crashes for Entire Facility by Year		Year	Total	K	A	B	C	PDO	
Estimated number of crashes during the Study Period, crashes:		0	29.2	0.5	1.3	5.1	5.9	16.5	
		1							
		2							
		3							
		4							
		5							
		6							
		7							
		8							
		9							
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		18							
		19							
		20							
		21							
		22							
23									
Distribution of Crashes for Entire Facility									
Crash Type	Crash Type Category	Estimated Number of Crashes During the Study Period							
		Total	K	A	B	C	PDO		
Multiple vehicle	Head-on crashes:	0.1	0.0	0.0	0.0	0.0	0.0		
	Right-angle crashes:	0.8	0.0	0.0	0.2	0.3	0.3		
	Rear-end crashes:	5.0	0.1	0.3	1.1	1.4	2.1		
	Sideswipe crashes:	2.3	0.0	0.1	0.4	0.4	1.5		
	Other multiple-vehicle crashes:	0.5	0.0	0.0	0.1	0.1	0.2		
	Total multiple-vehicle crashes:	8.7	0.2	0.4	1.7	2.3	4.1		
Single vehicle	Crashes with animal:	0.9	0.0	0.0	0.0	0.0	0.8		
	Crashes with fixed object:	12.3	0.2	0.5	1.9	2.0	7.8		
	Crashes with other object:	1.8	0.0	0.0	0.1	0.1	1.5		
	Crashes with parked vehicle:	0.5	0.0	0.0	0.1	0.1	0.3		
	Other single-vehicle crashes:	5.1	0.1	0.3	1.3	1.4	2.1		
	Total single-vehicle crashes:	20.6	0.3	0.8	3.3	3.6	12.5		
Total crashes:		29.2	0.5	1.3	5.1	5.9	16.5		

Project Safety Performance Summary Report

Project Description State College Area Connector
 Date 7/7/2021
 Analysis Year 2050
 Analysis Type Predicted Only (No Crash Data Analysis)
 Facility Type(s) Rural Two-Lane Roads

Summary of Average Safety Performance for the Project (crashes/year)



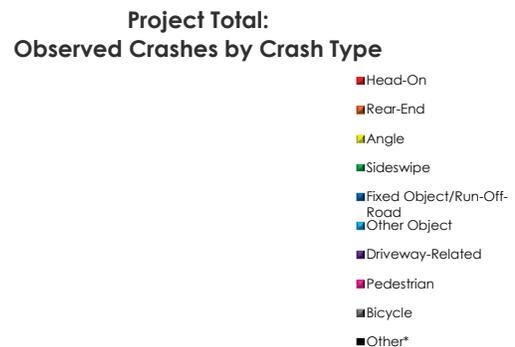
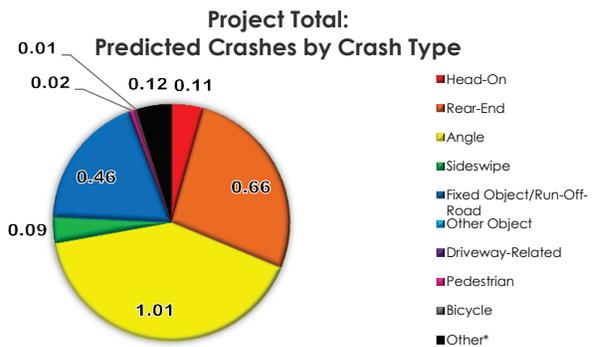
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	1.73	0.74	2.47
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

<u>Segments</u>	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.20	0.16	0.36
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

<u>Intersections</u>	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.53	0.58	2.10
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

<u>Total</u>	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.73	0.74	2.47
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

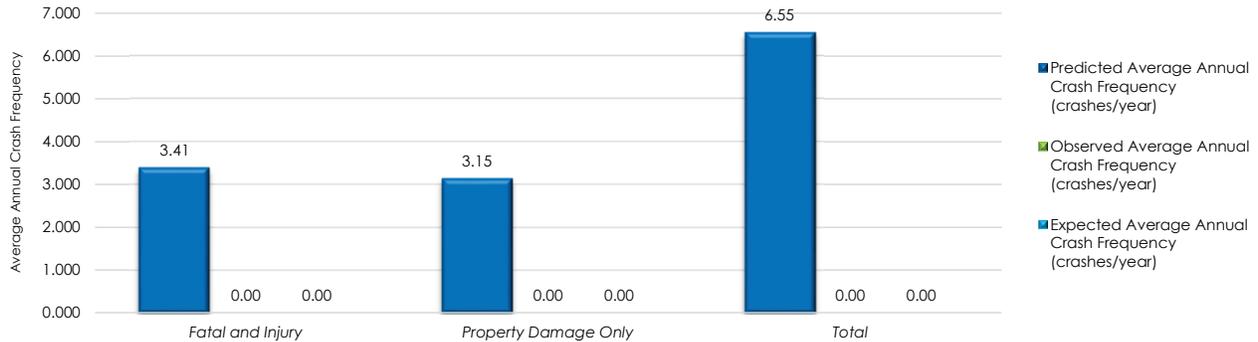


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



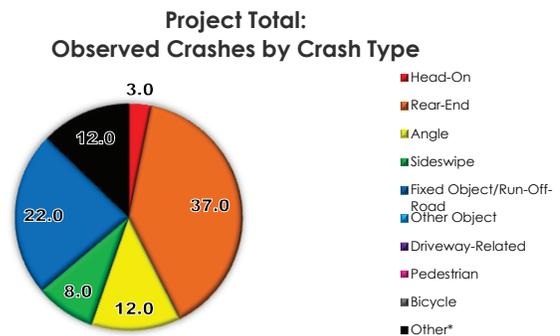
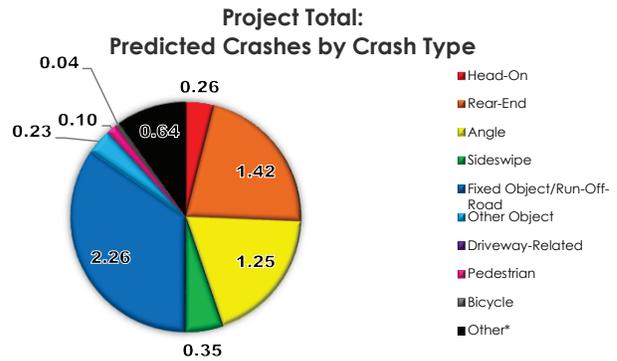
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	3.41	3.15	6.55
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.87	2.82	5.69
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.53	0.33	0.86
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.41	3.15	6.55
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

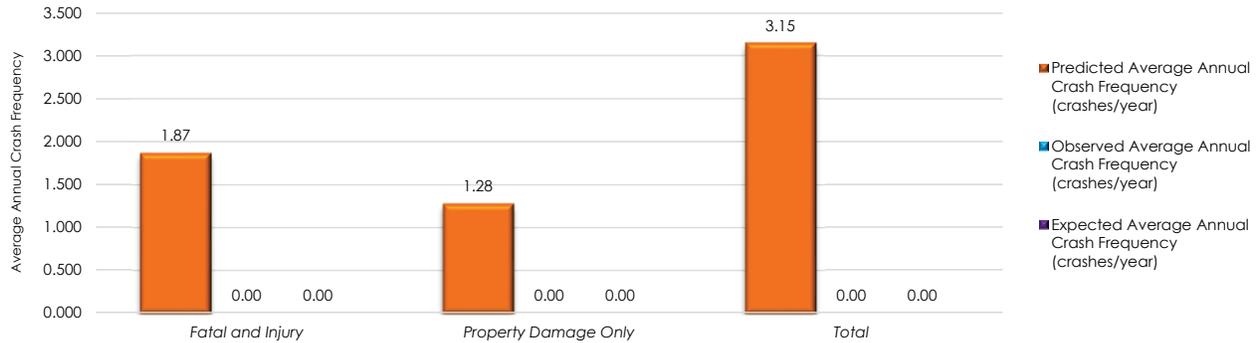


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	1.87	1.28	3.15
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

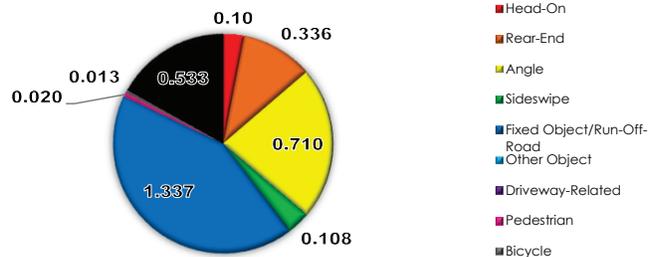
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.34	0.95	2.29
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

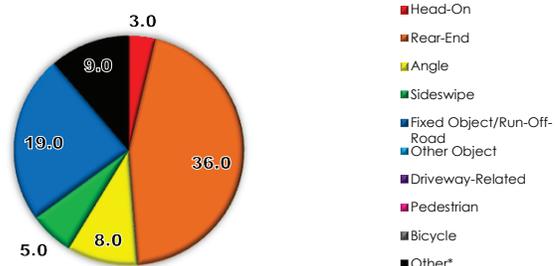
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.53	0.33	0.86
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.87	1.28	3.15
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

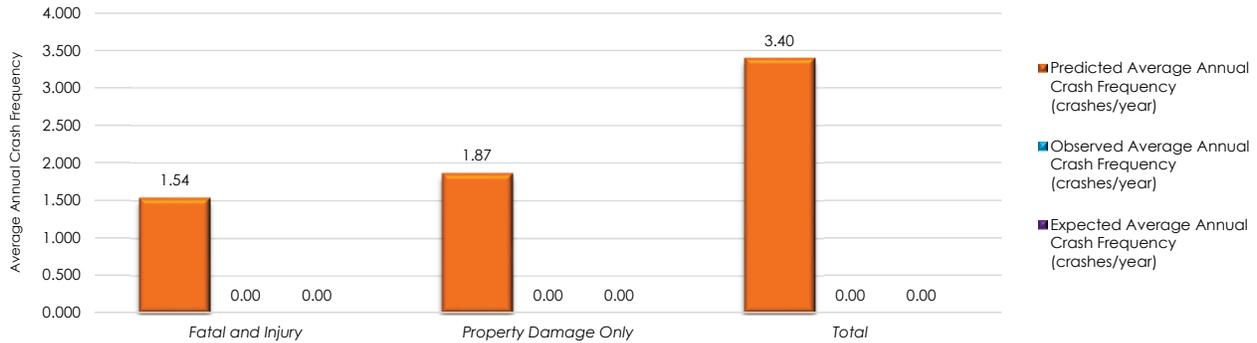


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



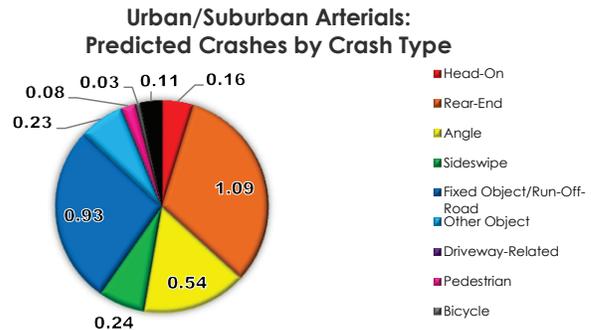
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	1.54	1.87	3.40
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

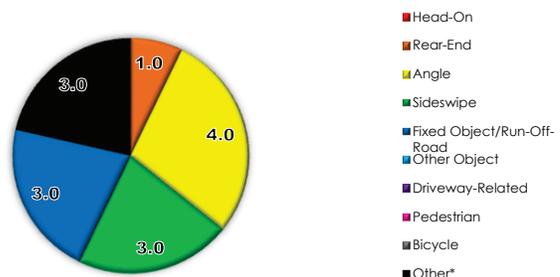
Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.54	1.87	3.40
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.54	1.87	3.40
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--



Urban/Suburban Arterials: Observed Crashes by Crash Type

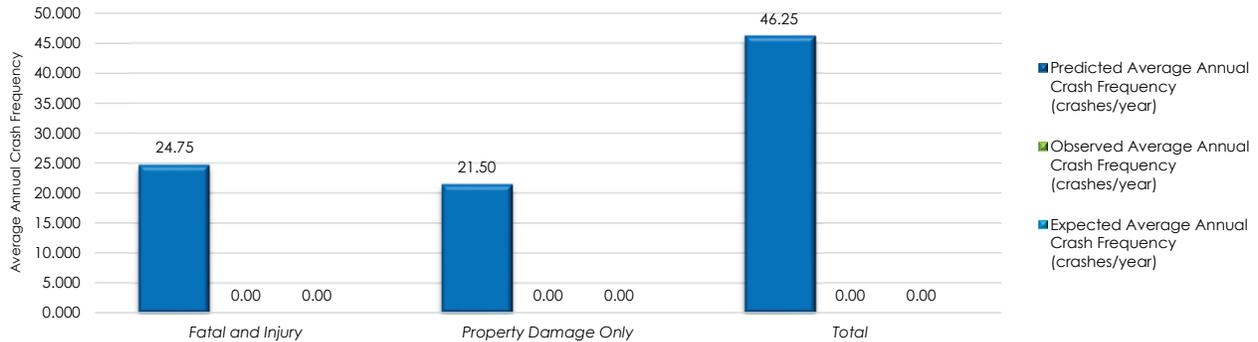


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



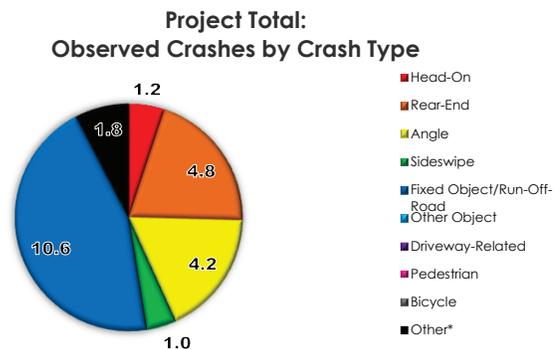
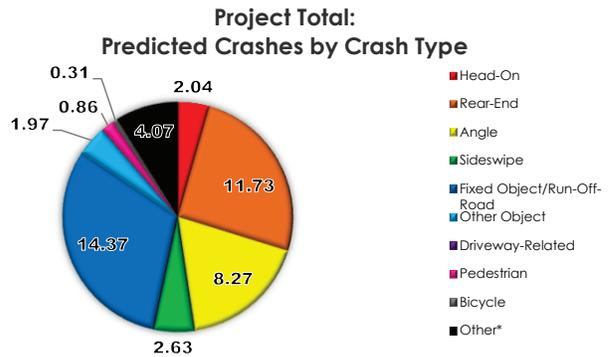
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	24.75	21.50	46.25
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	21.42	19.42	40.84
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.33	2.08	5.41
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	24.75	21.50	46.25
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	9.25	7.17	16.42

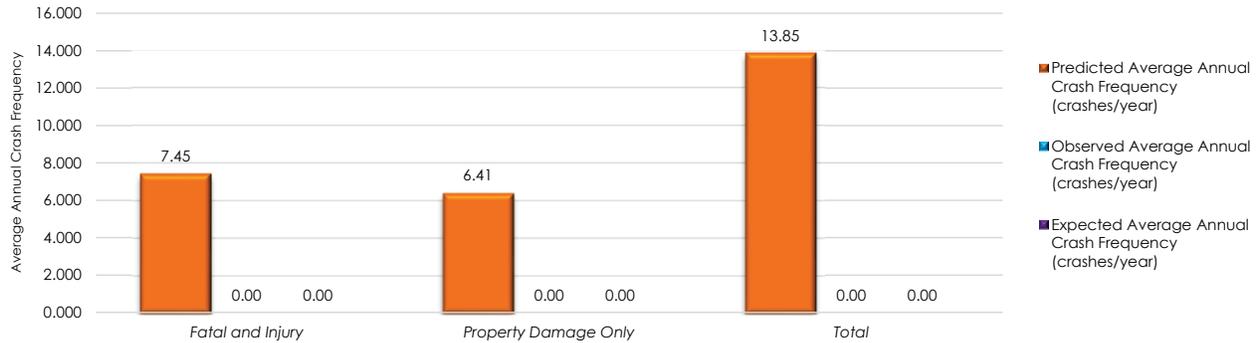


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	7.45	6.41	13.85
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

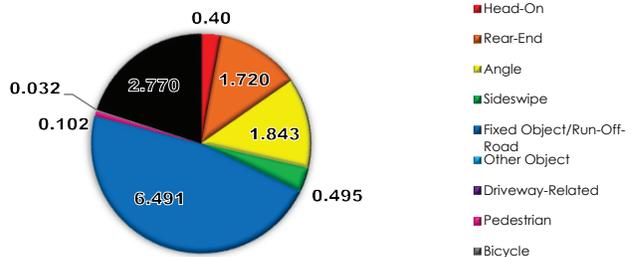
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	6.54	5.81	12.35
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

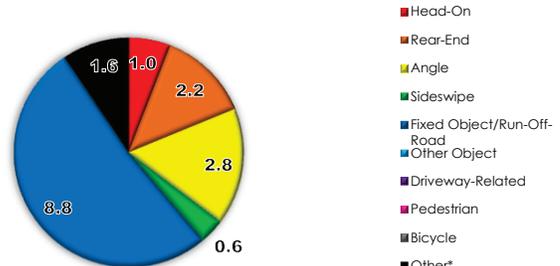
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.90	0.60	1.50
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	7.45	6.41	13.85
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

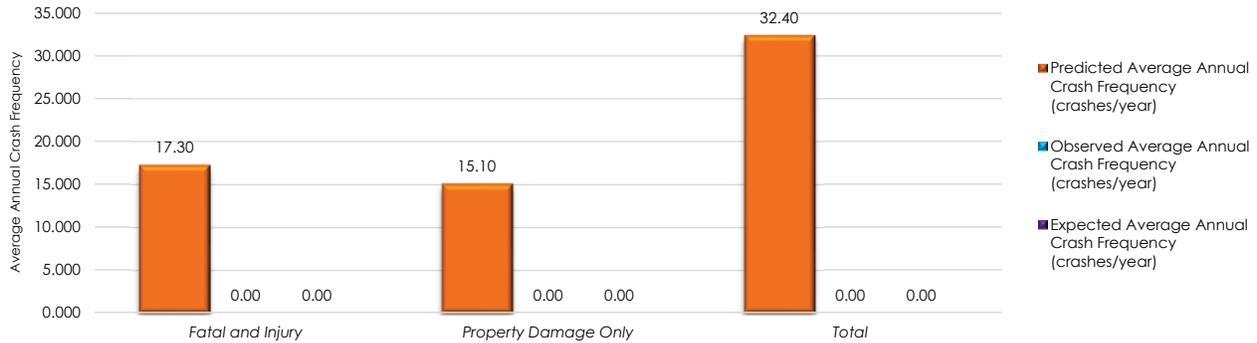


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



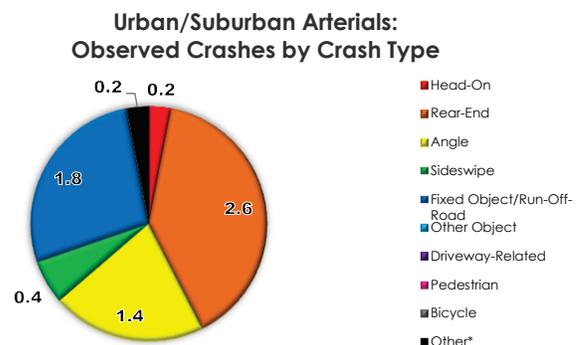
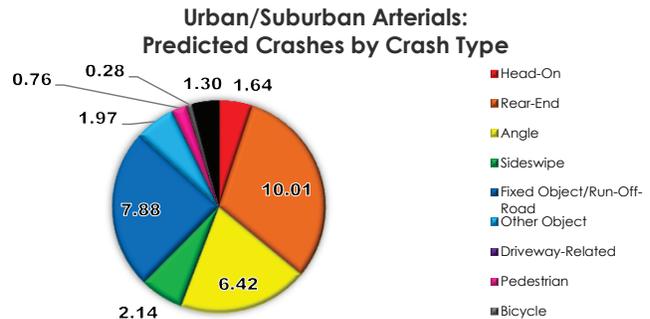
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	17.30	15.10	32.40
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	14.87	13.61	28.49
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.43	1.48	3.91
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	17.30	15.10	32.40
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	9.25	7.17	16.42

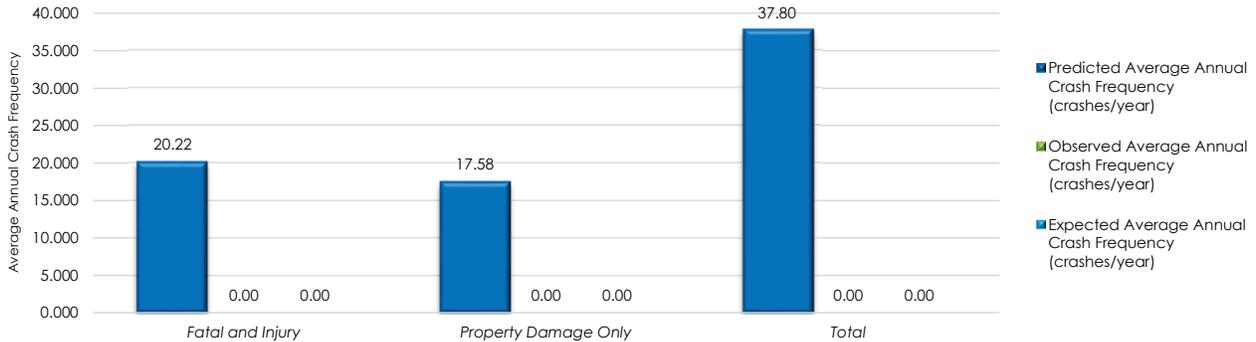


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



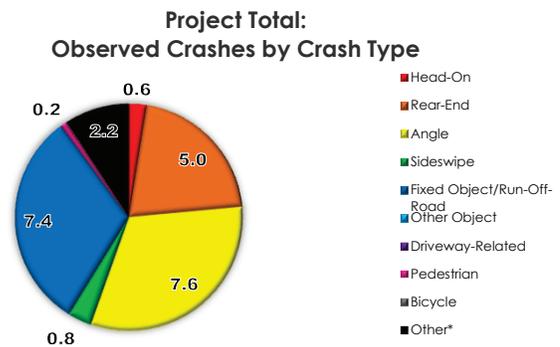
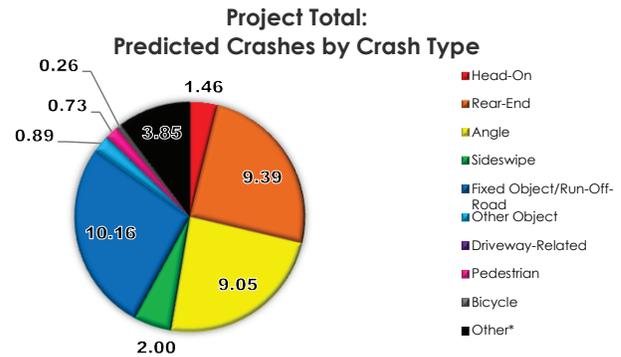
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	20.22	17.58	37.80
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	14.29	13.17	27.46
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.93	4.41	10.34
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	20.22	17.58	37.80
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	6.15	4.74	10.89

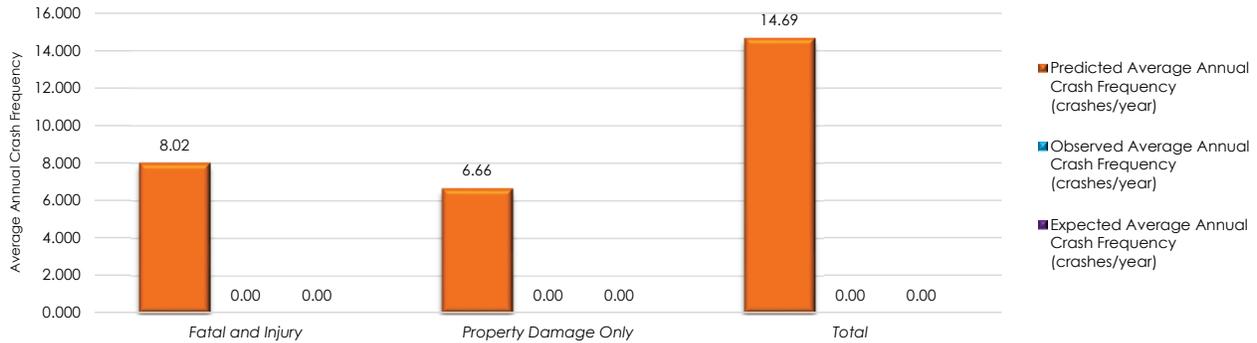


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	8.02	6.66	14.69
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

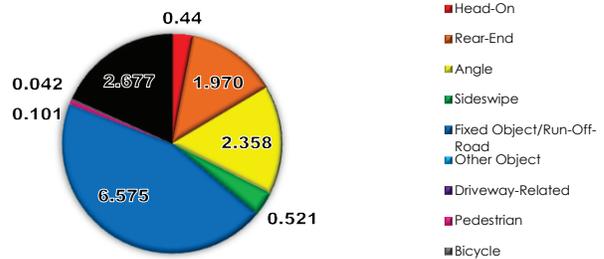
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	6.09	5.60	11.70
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

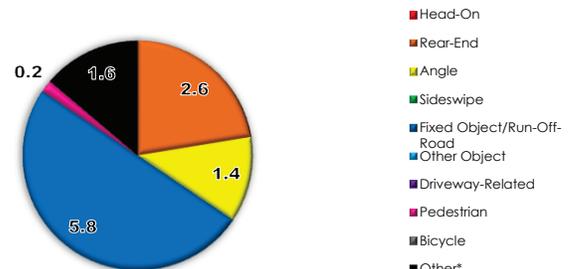
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.93	1.06	2.99
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	8.02	6.66	14.69
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

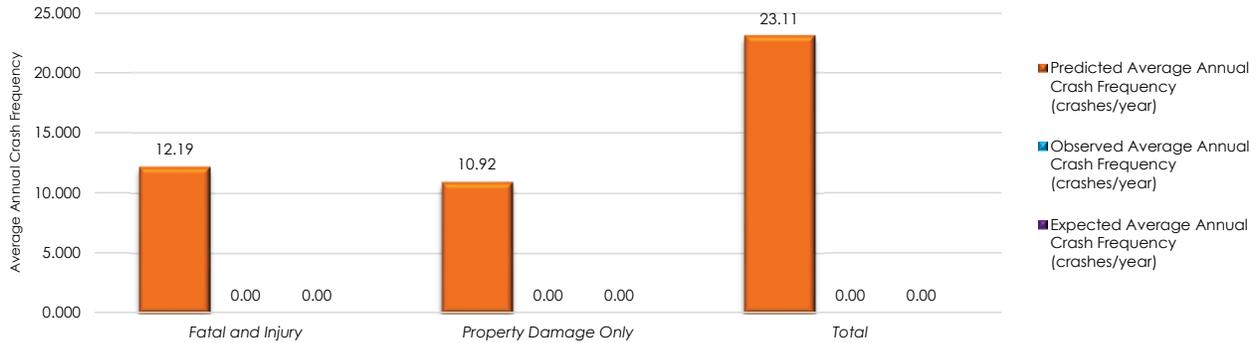


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



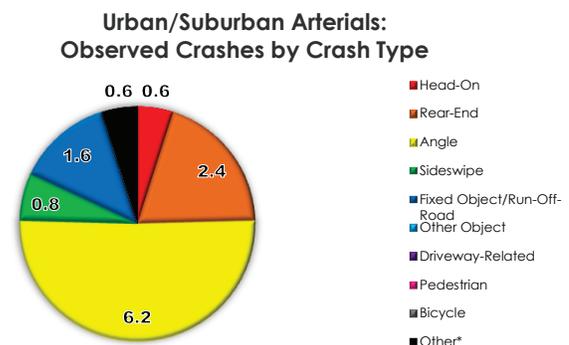
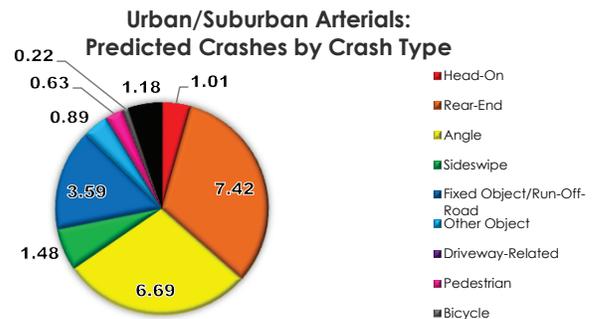
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	12.19	10.92	23.11
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	8.20	7.56	15.76
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.99	3.35	7.35
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	12.19	10.92	23.11
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	6.15	4.74	10.89



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

HSM Analyses

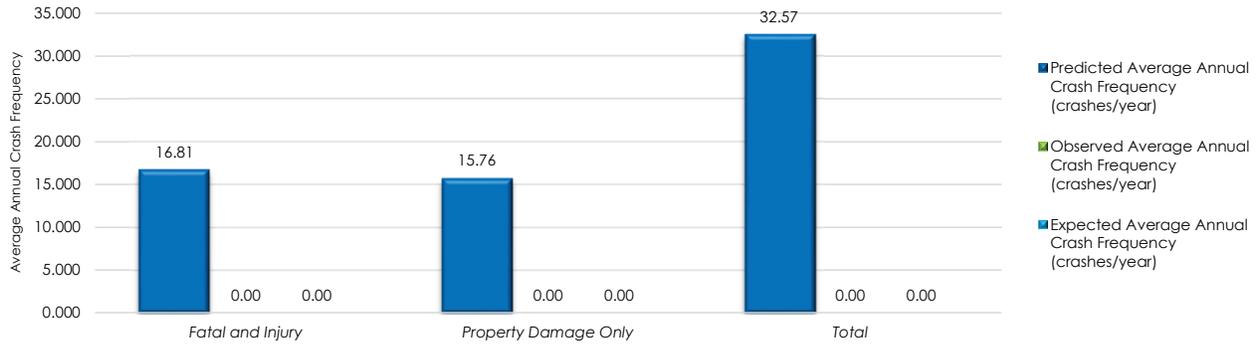
**Year 2050 Build
Build Alternative 2
(PA 144 Corridor)**

Output Summary									
General Information									
Project description:	State College Area Connector SR 0144 (ALT 2)								
Analyst:	HAK	Date:	3/15/2022	Area type:	Rural				
First year of analysis:	0								
Last year of analysis:	0								
Crash Data Description									
Freeway segments	Segment crash data available?	No	First year of crash data:						
	Project-level crash data available?	No	Last year of crash data:						
Ramp segments	Segment crash data available?	No	First year of crash data:						
	Project-level crash data available?	No	Last year of crash data:						
Ramp terminals	Segment crash data available?	No	First year of crash data:						
	Project-level crash data available?	No	Last year of crash data:						
Estimated Crash Statistics									
Crashes for Entire Facility		Total	K	A	B	C	PDO		
Estimated number of crashes during Study Period, crashes:		23.5	0.4	1.0	4.2	5.2	12.7		
Estimated average crash freq. during Study Period, crashes/yr:		23.5	0.4	1.0	4.2	5.2	12.7		
Crashes by Facility Component		Nbr. Sites	Total	K	A	B	C	PDO	
Freeway segments, crashes:		7	20.1	0.4	0.9	3.6	3.9	11.2	
Ramp segments, crashes:		4	0.4	0.0	0.0	0.1	0.1	0.2	
Crossroad ramp terminals, crashes:		4	3.0	0.0	0.1	0.4	1.2	1.3	
Crashes for Entire Facility by Year		Year	Total	K	A	B	C	PDO	
Estimated number of crashes during the Study Period, crashes:		0	23.5	0.4	1.0	4.2	5.2	12.7	
		1							
		2							
		3							
		4							
		5							
		6							
		7							
		8							
		9							
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		16							
		17							
		18							
		19							
		20							
		21							
		22							
23									
Distribution of Crashes for Entire Facility									
Crash Type	Crash Type Category	Estimated Number of Crashes During the Study Period							
		Total	K	A	B	C	PDO		
Multiple vehicle	Head-on crashes:	0.1	0.0	0.0	0.0	0.0	0.0		
	Right-angle crashes:	1.0	0.0	0.0	0.2	0.5	0.3		
	Rear-end crashes:	4.2	0.1	0.2	0.9	1.4	1.7		
	Sideswipe crashes:	1.7	0.0	0.1	0.2	0.3	1.1		
	Other multiple-vehicle crashes:	0.3	0.0	0.0	0.1	0.1	0.2		
	Total multiple-vehicle crashes:	7.3	0.1	0.3	1.4	2.2	3.2		
Single vehicle	Crashes with animal:	0.7	0.0	0.0	0.0	0.0	0.6		
	Crashes with fixed object:	9.7	0.2	0.4	1.5	1.7	5.9		
	Crashes with other object:	1.4	0.0	0.0	0.1	0.1	1.2		
	Crashes with parked vehicle:	0.4	0.0	0.0	0.1	0.1	0.2		
	Other single-vehicle crashes:	4.1	0.1	0.3	1.1	1.1	1.6		
	Total single-vehicle crashes:	16.2	0.3	0.7	2.8	3.0	9.5		
Total crashes:		23.5	0.4	1.0	4.2	5.2	12.7		

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



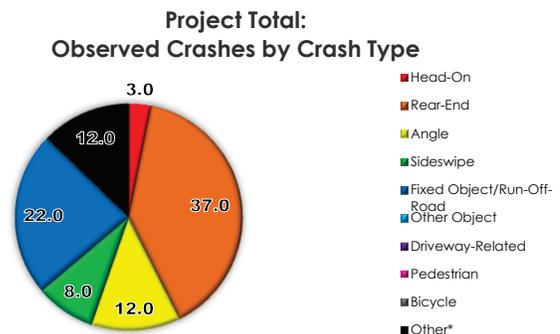
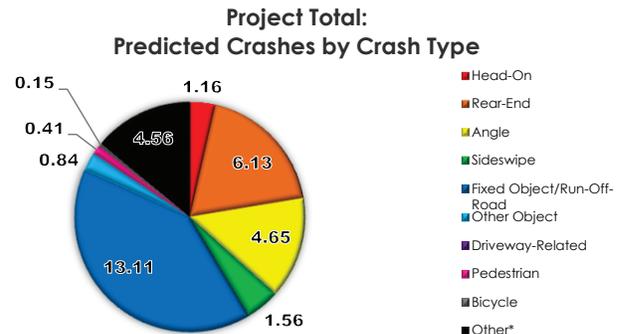
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	16.81	15.76	32.57
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	15.89	15.11	31.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.92	0.64	1.57
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	16.81	15.76	32.57
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

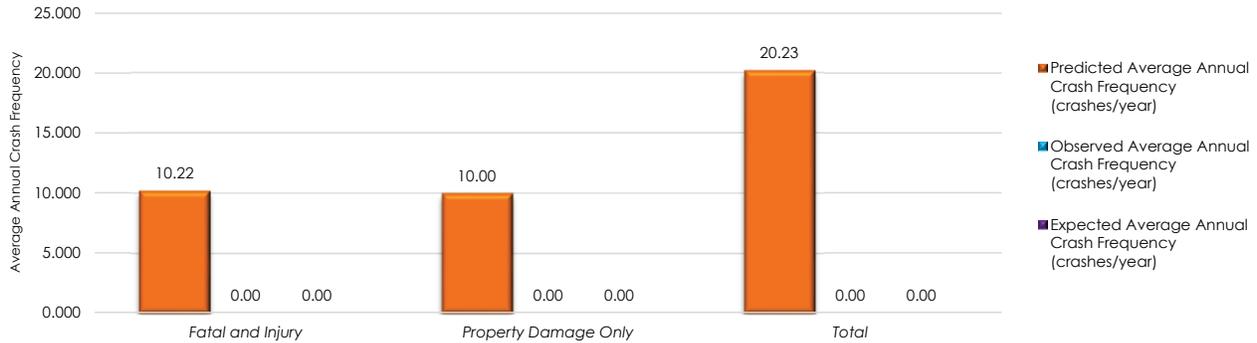


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	10.22	10.00	20.23
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

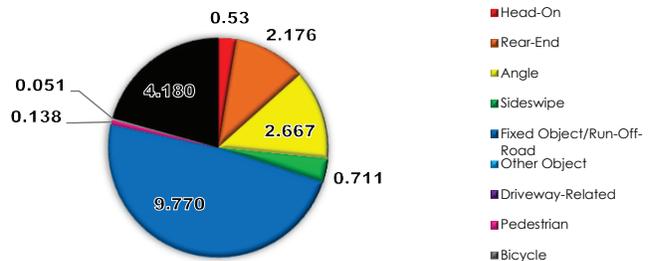
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	9.30	9.36	18.66
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

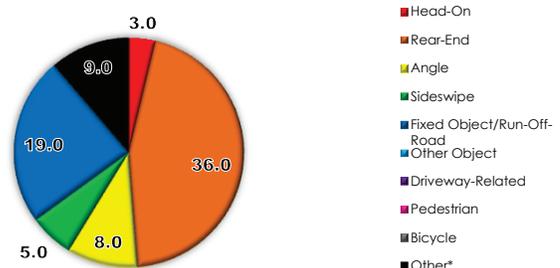
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.92	0.64	1.57
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	10.22	10.00	20.23
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

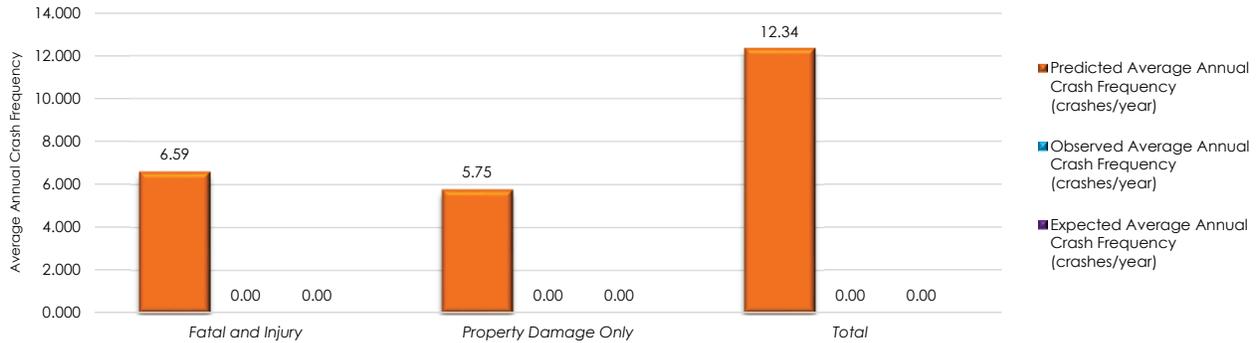


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



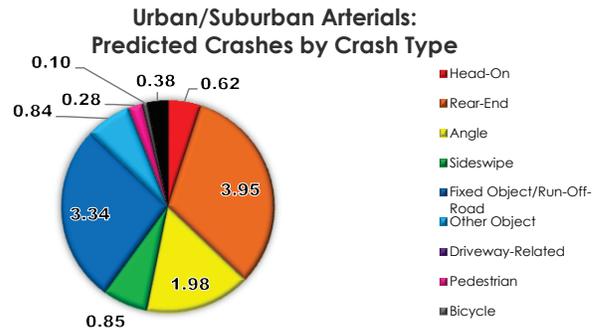
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	6.59	5.75	12.34
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

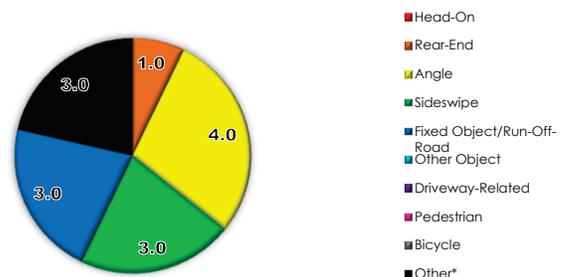
Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	6.59	5.75	12.34
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	6.59	5.75	12.34
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--



Urban/Suburban Arterials: Observed Crashes by Crash Type

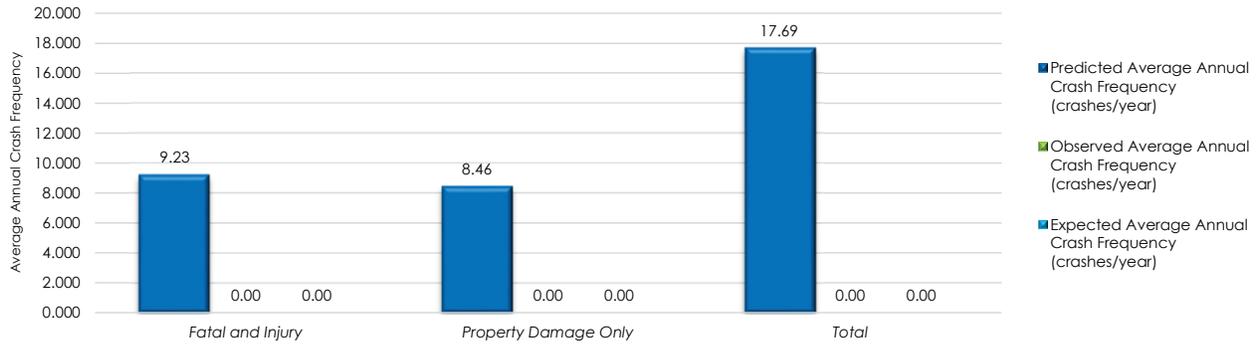


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



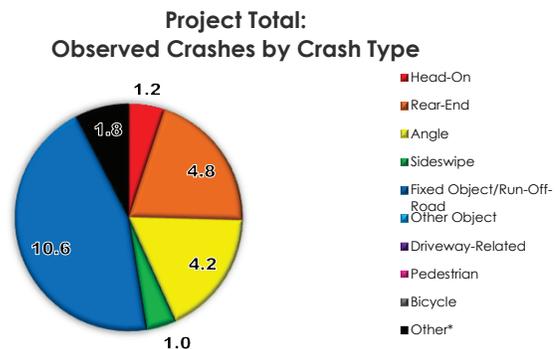
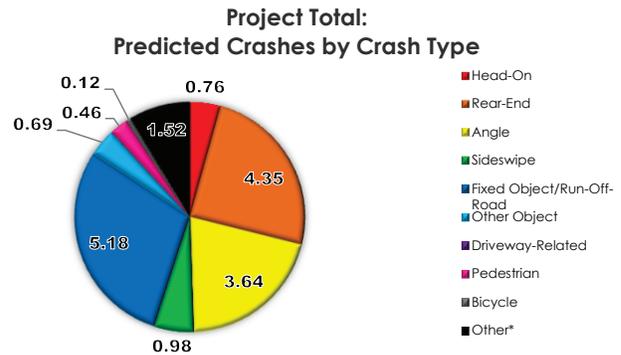
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	9.23	8.46	17.69
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	7.17	7.26	14.42
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.06	1.21	3.26
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	9.23	8.46	17.69
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	3.34	2.92	6.26

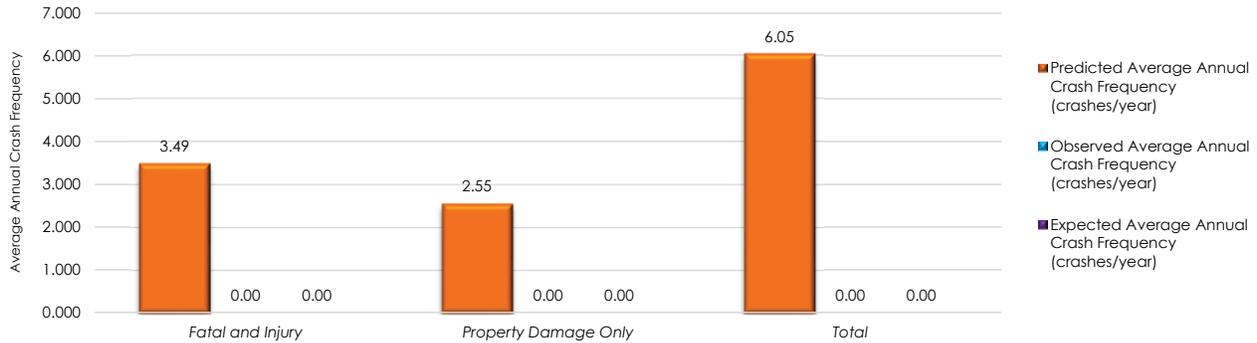


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	3.49	2.55	6.05
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

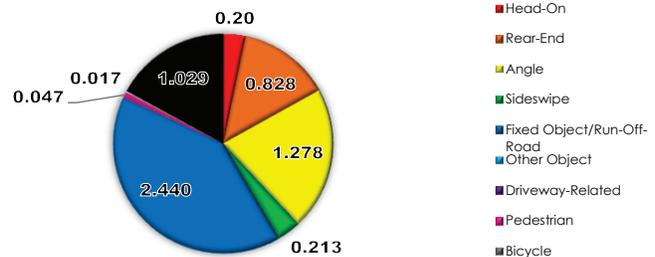
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	2.59	1.96	4.55
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

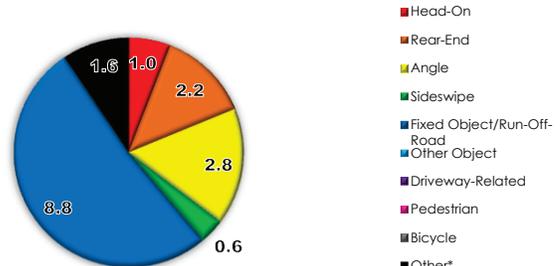
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	0.91	0.59	1.50
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	3.49	2.55	6.05
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

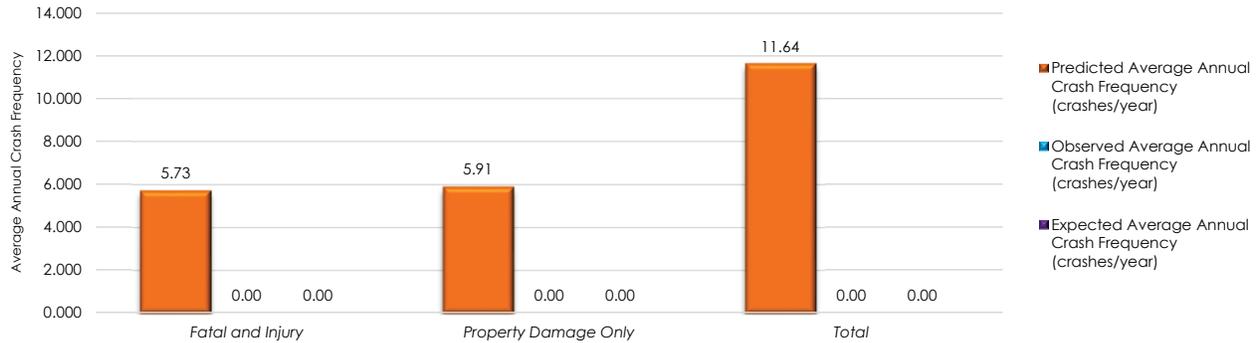


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



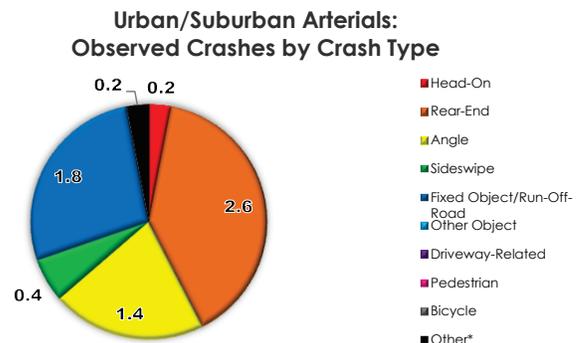
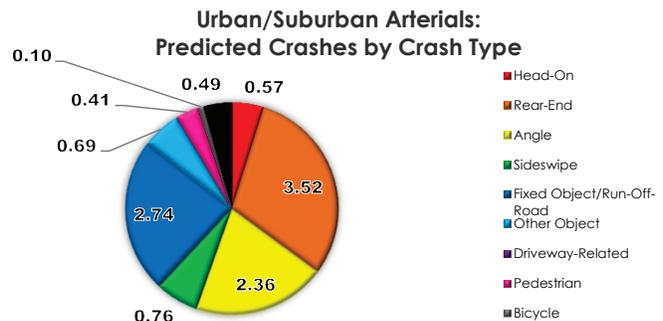
Urban/Suburban Arterial Totals	<i>Fatal and Injury Crashes</i>	<i>Property Damage Only Crashes</i>	<i>Total Crashes</i>
Predicted Average Annual Crash Frequency	5.73	5.91	11.64
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

<u>Segments</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	4.58	5.30	9.88
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

<u>Intersections</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	1.15	0.61	1.76
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

<u>Total</u>	<i>Fatal and Injury</i>	<i>Property Damage Only</i>	<i>Total</i>
Predicted Average Annual Crash Frequency (crashes/yr)	5.73	5.91	11.64
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	3.34	2.92	6.26

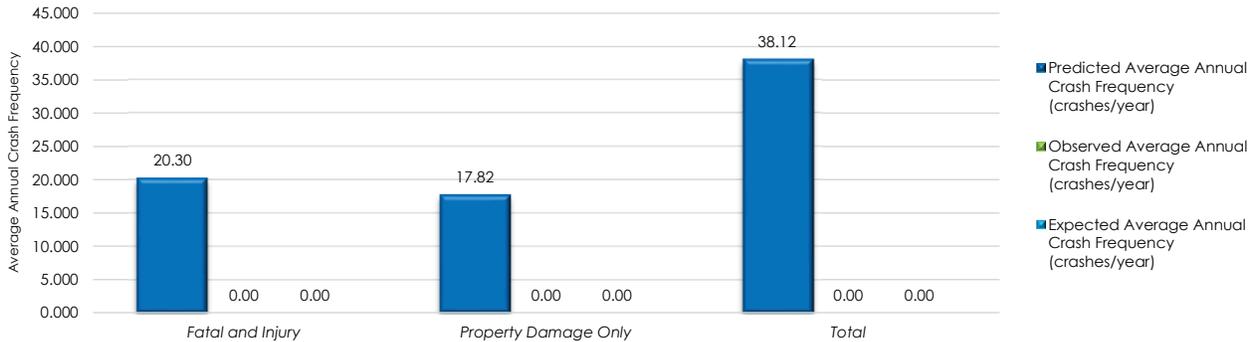


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Project Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



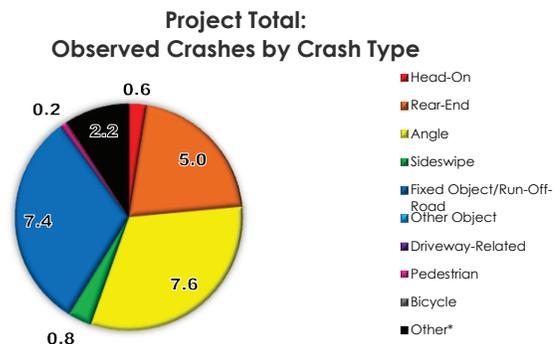
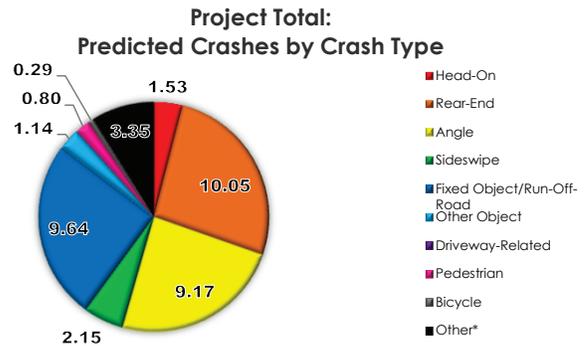
Project Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	20.30	17.82	38.12
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Total Project Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	15.14	13.58	28.72
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.16	4.24	9.40
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	20.30	17.82	38.12
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	7.29	5.56	12.86

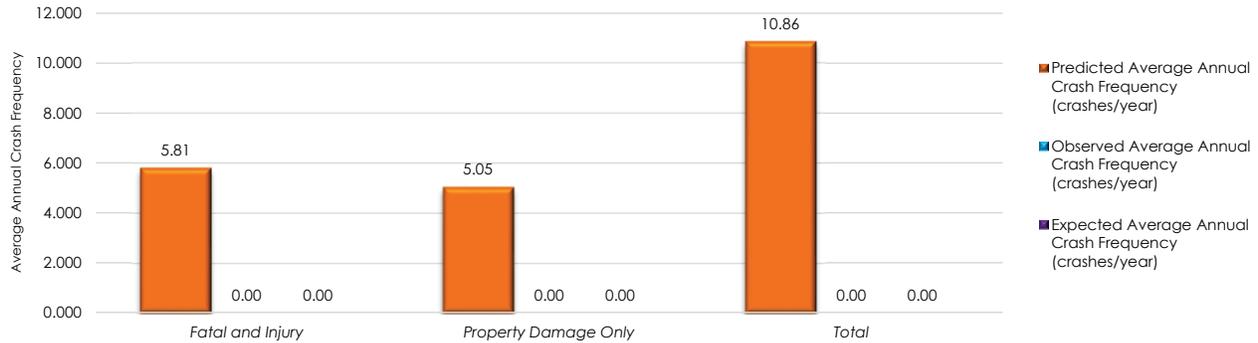


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Rural Two-Lane Roads Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



Rural Two-Lane Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	5.81	5.05	10.86
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

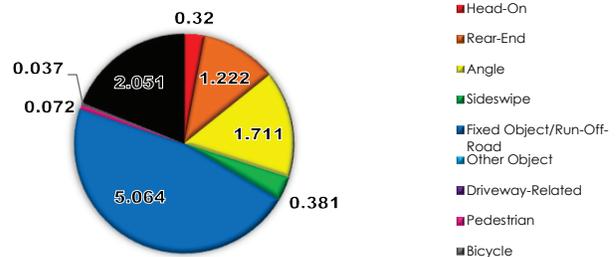
Rural Two-Lane Roads Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	4.69	4.23	8.92
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

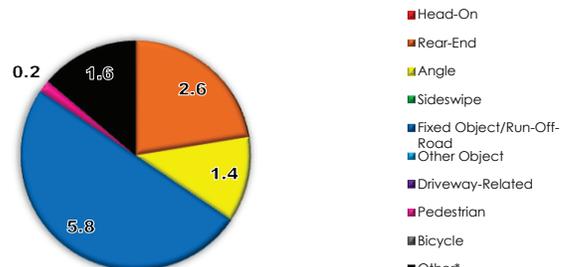
Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	1.12	0.82	1.94
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	5.81	5.05	10.86
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	--	--	--

Rural Two-Lane Roads: Predicted Crashes by Crash Type



Rural Two-Lane Roads: Observed Crashes by Crash Type

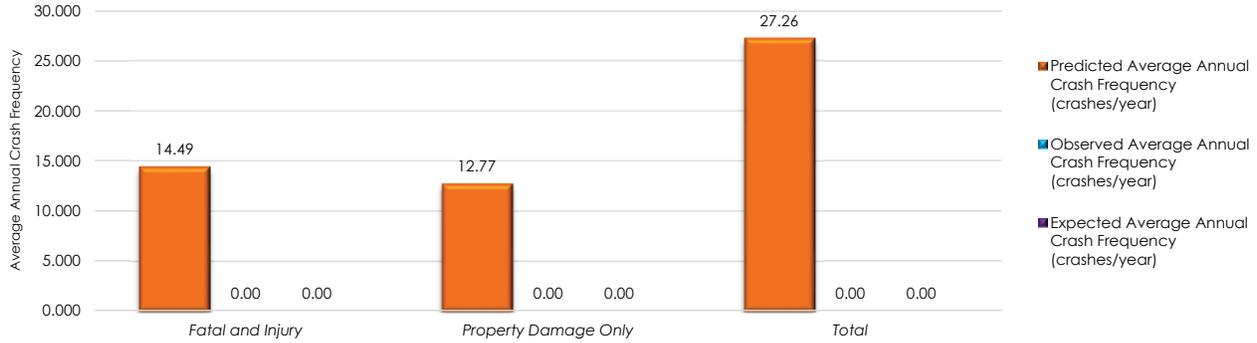


*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes

Urban/Suburban Arterials Safety Performance Summary Report

Project Description: State College Area Connector
 Date: 3/15/2022
 Analysis Year: 2050
 Analysis Type: Predicted Only (No Crash Data Analysis)
 Facility Type(s): Rural Two-Lane Roads, and Urban/Suburban Arterials

Summary of Average Safety Performance for the Project (crashes/year)



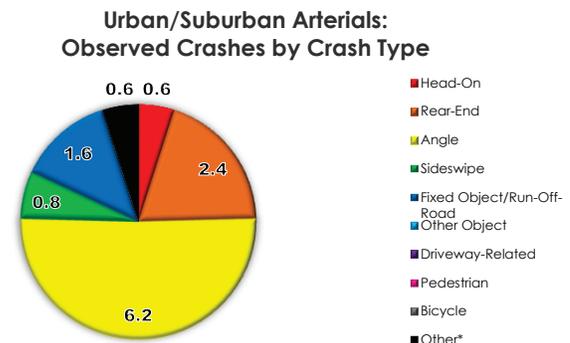
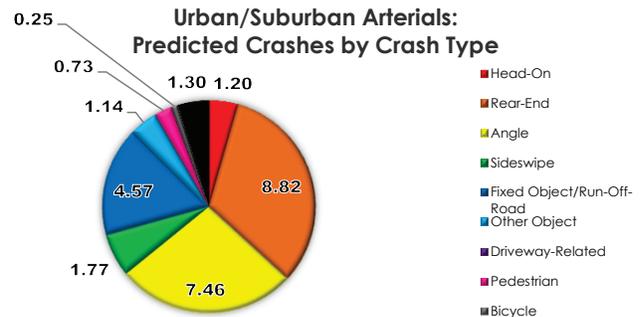
Urban/Suburban Arterial Totals	Fatal and Injury Crashes	Property Damage Only Crashes	Total Crashes
Predicted Average Annual Crash Frequency	14.49	12.77	27.26
Observed Average Annual Crash Frequency	0.00	0.00	0.00
Expected Average Annual Crash Frequency	--	--	--
Potential for Safety Improvement (PSI)	--	--	--

Urban/Suburban Arterials Summary

Segments	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	10.45	9.35	19.80
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Intersections	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	4.04	3.42	7.46
Observed Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A
Expected Average Annual Crash Frequency (crashes/yr)	N/A	N/A	N/A

Total	Fatal and Injury	Property Damage Only	Total
Predicted Average Annual Crash Frequency (crashes/yr)	14.49	12.77	27.26
Observed Average Annual Crash Frequency (crashes/yr)	0.00	0.00	0.00
Expected Average Annual Crash Frequency (crashes/yr)	7.29	5.56	12.86



*Note: "Other Crashes" include animal, overturn, parked vehicle, noncollisions, and other single-/multiple-vehicle crashes