

Appendix B: Transportation
B-2 Accident Summary

**TABLE B-1
ACCIDENT SUMMARY BY DIRECTION BY MILEPOST
TAPPAN ZEE BRIDGE**

Mile Post	WESTBOUND			Total
	2008	2009	2010	
12.9	12	11	11	34
13.0	13	11	11	35
13.1	10	5	7	22
13.2	4	1	5	10
13.3	1	1	0	2
13.4	3	3	2	8
13.5	7	5	3	15
13.6	2	4	0	6
13.7	1	3	0	4
13.8	4	6	4	14
13.9	21	5	3	29
14.0	17	23	12	52
14.1	6	0	6	12
14.2	3	1	4	8
14.3	1	0	2	3
14.4	3	1	1	5
14.5	8	4	6	18
14.6	5	2	4	11
14.7	6	2	3	11
14.8	1	0	3	4
14.9	2	1	1	4
15.0	8	10	18	36
15.1	3	0	0	3
15.2	1	0	4	5
15.3	2	1	3	6
15.4	5	0	3	8
15.5	4	4	3	11
15.6	1	4	2	7
15.7	3	3	1	7
15.8	2	0	2	4
15.9	1	4	2	7
16.0	6	7	5	18
16.1	4	1	2	7
16.2	5	3	5	13
16.3	3	2	1	6
16.4	2	4	4	10
16.5	3	1	1	5
16.6	0	1	3	4
Total	183	134	147	464

Mile Post	EASTBOUND			Total
	2008	2009	2010	
16.6	5	6	3	14
16.5	18	20	10	48
16.4	15	7	9	31
16.3	7	6	7	20
16.2	7	15	9	31
16.1	2	12	7	21
16.0	9	3	3	15
15.9	7	1	3	11
15.8	2	0	2	4
15.7	1	2	2	5
15.6	1	1	0	2
15.5	12	0	2	14
15.4	3	4	3	10
15.3	6	2	6	14
15.2	2	4	5	11
15.1	3	2	4	9
15.0	19	10	6	35
14.9	10	2	0	12
14.8	3	2	2	7
14.7	7	2	4	13
14.6	12	5	3	20
14.5	22	11	14	47
14.4	13	1	3	17
14.3	7	3	11	21
14.2	10	8	5	23
14.1	7	12	6	25
14.0	41	20	23	84
13.9	19	9	8	36
13.8	5	9	12	26
13.7	14	18	15	47
13.6	8	15	6	29
13.5	6	9	8	23
13.4	3	6	3	12
13.3	4	2	5	11
13.2	10	1	6	17
13.1	7	6	6	19
Total	327	236	221	784

3/10 Mile Milepost Segment		AVG AADT 2008-10	AADT/2	All Accidents 2008-2010			
Start	End			Total Acc	Acc Rate (Acc/MVM)	NYS DOT (Acc/MVM)	Ratio
12.9	13.1	133,515	66,757	91	4.15	1.16	3.58
13.0	13.2	133,515	66,757	67	3.06	1.16	2.63
13.1	13.3	133,515	66,757	34	1.55	1.16	1.34
13.2	13.4	133,515	66,757	20	0.91	1.16	0.79
13.3	13.5	133,515	66,757	25	1.14	1.16	0.98
13.4	13.6	133,515	66,757	29	1.32	1.16	1.14
13.5	13.7	133,515	66,757	25	1.14	1.16	0.98
13.6	13.8	133,515	66,757	24	1.09	1.16	0.94
13.7	13.9	133,515	66,757	47	2.14	1.16	1.85
13.8	14.0	133,515	66,757	95	4.33	1.16	3.73
13.9	14.1	133,515	66,757	93	4.24	1.16	3.66
14.0	14.2	133,515	66,757	72	3.28	1.16	2.83
14.1	14.3	133,515	66,757	23	1.05	1.16	0.90
14.2	14.4	133,515	66,757	16	0.73	1.16	0.63
14.3	14.5	133,515	66,757	26	1.19	1.16	1.02
14.4	14.6	133,515	66,757	34	1.55	1.16	1.34
14.5	14.7	133,515	66,757	40	1.82	1.16	1.57
14.6	14.8	133,515	66,757	26	1.19	1.16	1.02
14.7	14.9	133,515	66,757	19	0.87	1.16	0.75
14.8	15.0	133,515	66,757	44	2.01	1.16	1.73
14.9	15.1	133,515	66,757	43	1.96	1.16	1.69
15.0	15.2	133,515	66,757	44	2.01	1.16	1.73
15.1	15.3	133,515	66,757	14	0.64	1.16	0.55
15.2	15.4	133,515	66,757	19	0.87	1.16	0.75
15.3	15.5	133,515	66,757	25	1.14	1.16	0.98
15.4	15.6	133,515	66,757	26	1.19	1.16	1.02
15.5	15.7	133,515	66,757	25	1.14	1.16	0.98
15.6	15.8	133,515	66,757	18	0.82	1.16	0.71
15.7	15.9	133,515	66,757	18	0.82	1.16	0.71
15.8	16.0	133,515	66,757	29	1.32	1.16	1.14
15.9	16.1	133,515	66,757	32	1.46	1.16	1.26
16.0	16.2	133,515	66,757	38	1.73	1.16	1.49
16.1	16.3	133,515	66,757	26	1.19	1.16	1.02
16.2	16.4	133,515	66,757	29	1.32	1.16	1.14
16.3	16.5	133,515	66,757	21	0.96	1.16	0.83
16.4	16.6	133,515	66,757	19	0.87	1.16	0.75

AVG = 1.39

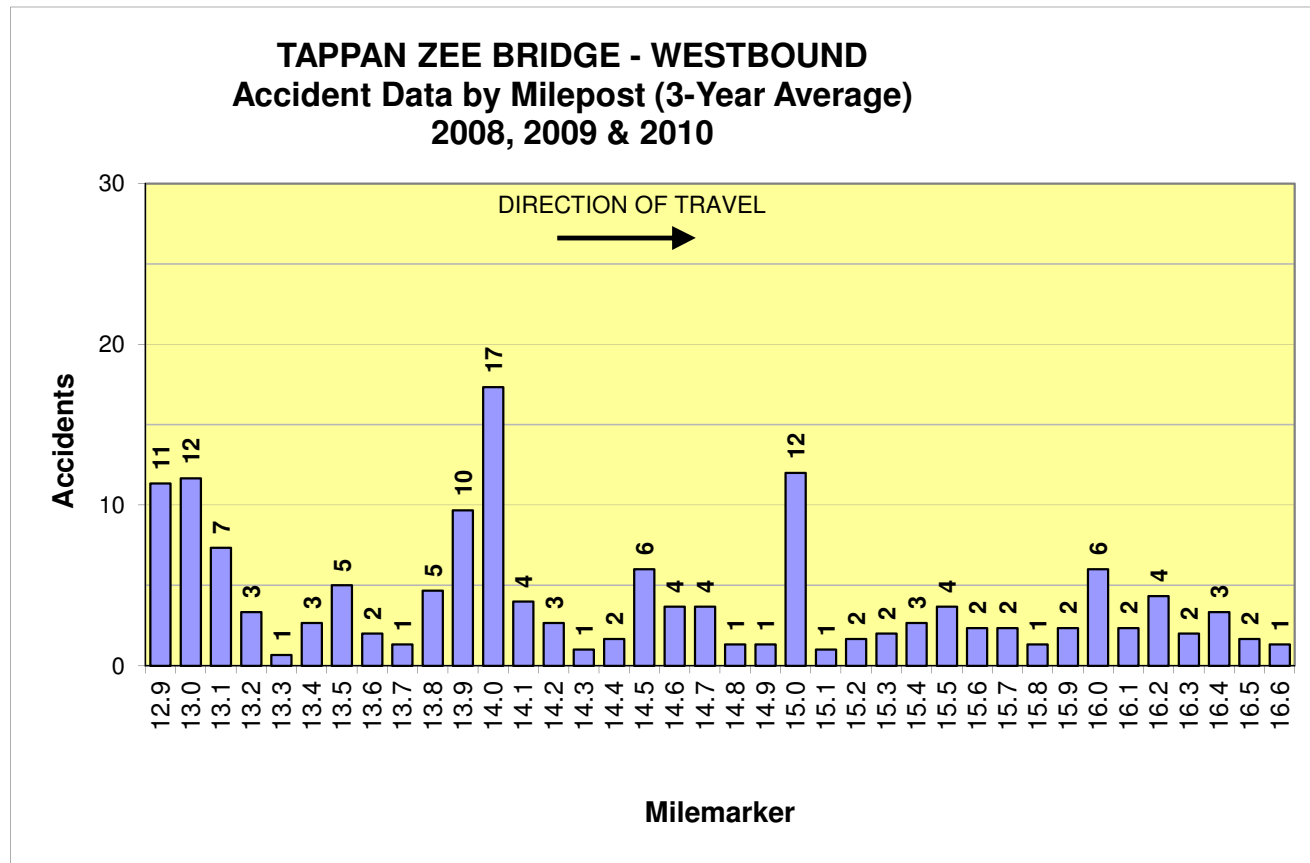
3/10 Mile Milepost Segment		AVG AADT 2008-10	AADT/2	All Accidents 2008-2010			
Start	End			Total Acc	Acc Rate (Acc/MVM)	NYS DOT (Acc/MVM)	Ratio
16.6	16.4	133,515	66,757	93	4.24	1.16	3.66
16.5	16.3	133,515	66,757	99	4.51	1.16	3.89
16.4	16.2	133,515	66,757	82	3.74	1.16	3.22
16.3	16.1	133,515	66,757	72	3.28	1.16	2.83
16.2	16.0	133,515	66,757	67	3.06	1.16	2.63
16.1	15.9	133,515	66,757	47	2.14	1.16	1.85
16.0	15.8	133,515	66,757	30	1.37	1.16	1.18
15.9	15.7	133,515	66,757	20	0.91	1.16	0.79
15.8	15.6	133,515	66,757	11	0.50	1.16	0.43
15.7	15.5	133,515	66,757	21	0.96	1.16	0.83
15.6	15.4	133,515	66,757	26	1.19	1.16	1.02
15.5	15.3	133,515	66,757	38	1.73	1.16	1.49
15.4	15.2	133,515	66,757	35	1.60	1.16	1.38
15.3	15.1	133,515	66,757	34	1.55	1.16	1.34
15.2	15.0	133,515	66,757	55	2.51	1.16	2.16
15.1	14.9	133,515	66,757	56	2.55	1.16	2.20
15.0	14.8	133,515	66,757	54	2.46	1.16	2.12
14.9	14.7	133,515	66,757	32	1.46	1.16	1.26
14.8	14.6	133,515	66,757	40	1.82	1.16	1.57
14.7	14.5	133,515	66,757	80	3.65	1.16	3.14
14.6	14.4	133,515	66,757	84	3.83	1.16	3.30
14.5	14.3	133,515	66,757	85	3.88	1.16	3.34
14.4	14.2	133,515	66,757	61	2.78	1.16	2.40
14.3	14.1	133,515	66,757	69	3.15	1.16	2.71
14.2	14.0	133,515	66,757	132	6.02	1.16	5.19
14.1	13.9	133,515	66,757	145	6.61	1.16	5.70
14.0	13.8	133,515	66,757	146	6.66	1.16	5.74
13.9	13.7	133,515	66,757	109	4.97	1.16	4.28
13.8	13.6	133,515	66,757	102	4.65	1.16	4.01
13.7	13.5	133,515	66,757	99	4.51	1.16	3.89
13.6	13.4	133,515	66,757	64	2.92	1.16	2.52
13.5	13.3	133,515	66,757	46	2.10	1.16	1.81
13.4	13.2	133,515	66,757	40	1.82	1.16	1.57
13.3	13.1	133,515	66,757	47	2.14	1.16	1.85

AVG = 2.57

TAPPAN ZEE BRIDGE

ACCIDENT DATA BY MILEPOST - WESTBOUND

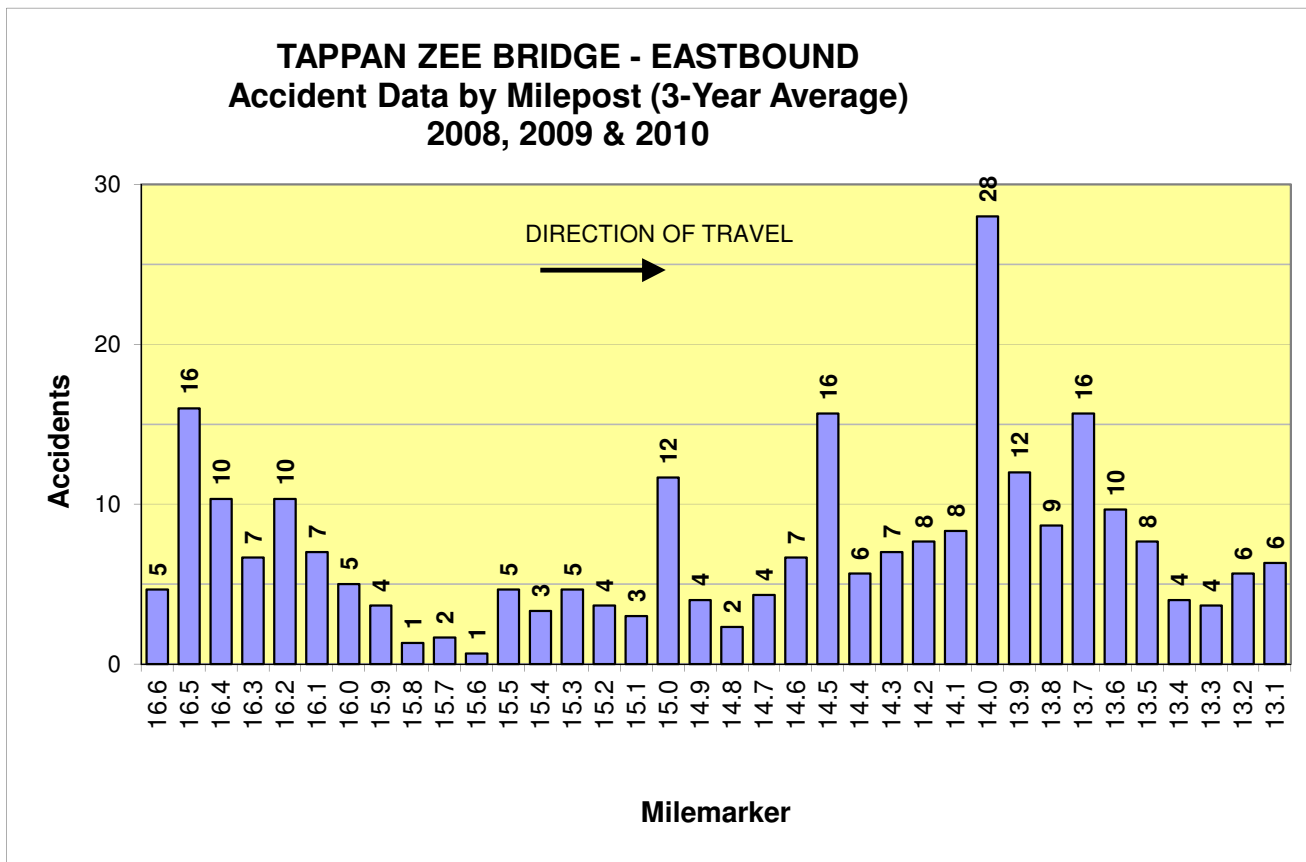
Milepost	2008	2009	2010	AVG
12.9	12	11	11	11
13.0	13	11	11	12
13.1	10	5	7	7
13.2	4	1	5	3
13.3	1	1	0	1
13.4	3	3	2	3
13.5	7	5	3	5
13.6	2	4	0	2
13.7	1	3	0	1
13.8	4	6	4	5
13.9	21	5	3	10
14.0	17	23	12	17
14.1	6	0	6	4
14.2	3	1	4	3
14.3	1	0	2	1
14.4	3	1	1	2
14.5	8	4	6	6
14.6	5	2	4	4
14.7	6	2	3	4
14.8	1	0	3	1
14.9	2	1	1	1
15.0	8	10	18	12
15.1	3	0	0	1
15.2	1	0	4	2
15.3	2	1	3	2
15.4	5	0	3	3
15.5	4	4	3	4
15.6	1	4	2	2
15.7	3	3	1	2
15.8	2	0	2	1
15.9	1	4	2	2
16.0	6	7	5	6
16.1	4	1	2	2
16.2	5	3	5	4
16.3	3	2	1	2
16.4	2	4	4	3
16.5	3	1	1	2
16.6	0	1	3	1
Total	183	134	147	155



TAPPAN ZEE BRIDGE

ACCIDENT DATA BY MILEPOST - EASTBOUND

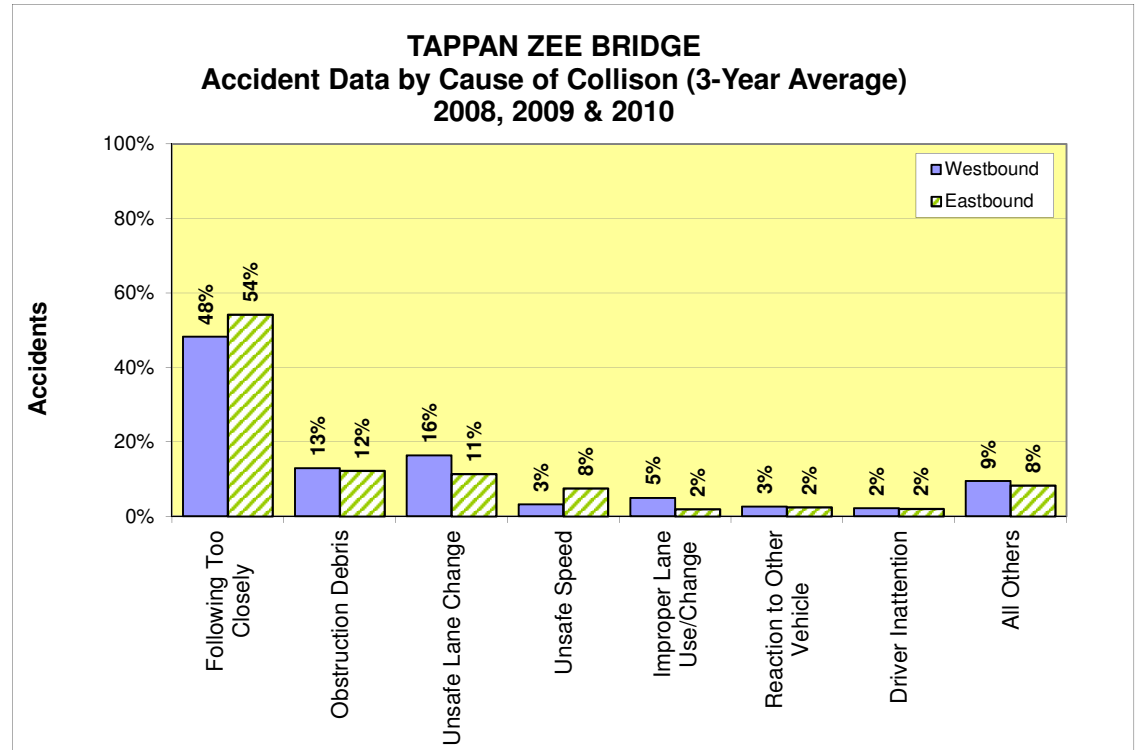
Milepost	2008	2009	2010	AVG
16.6	5	6	3	5
16.5	18	20	10	16
16.4	15	7	9	10
16.3	7	6	7	7
16.2	7	15	9	10
16.1	2	12	7	7
16.0	9	3	3	5
15.9	7	1	3	4
15.8	2	0	2	1
15.7	1	2	2	2
15.6	1	1	0	1
15.5	12	0	2	5
15.4	3	4	3	3
15.3	6	2	6	5
15.2	2	4	5	4
15.1	3	2	4	3
15.0	19	10	6	12
14.9	10	2	0	4
14.8	3	2	2	2
14.7	7	2	4	4
14.6	12	5	3	7
14.5	22	11	14	16
14.4	13	1	3	6
14.3	7	3	11	7
14.2	10	8	5	8
14.1	7	12	6	8
14.0	41	20	23	28
13.9	19	9	8	12
13.8	5	9	12	9
13.7	14	18	15	16
13.6	8	15	6	10
13.5	6	9	8	8
13.4	3	6	3	4
13.3	4	2	5	4
13.2	10	1	6	6
13.1	7	6	6	6
Total	327	236	221	261



TAPPAN ZEE BRIDGE

ACCIDENT DATA BY CAUSE OF COLLISION

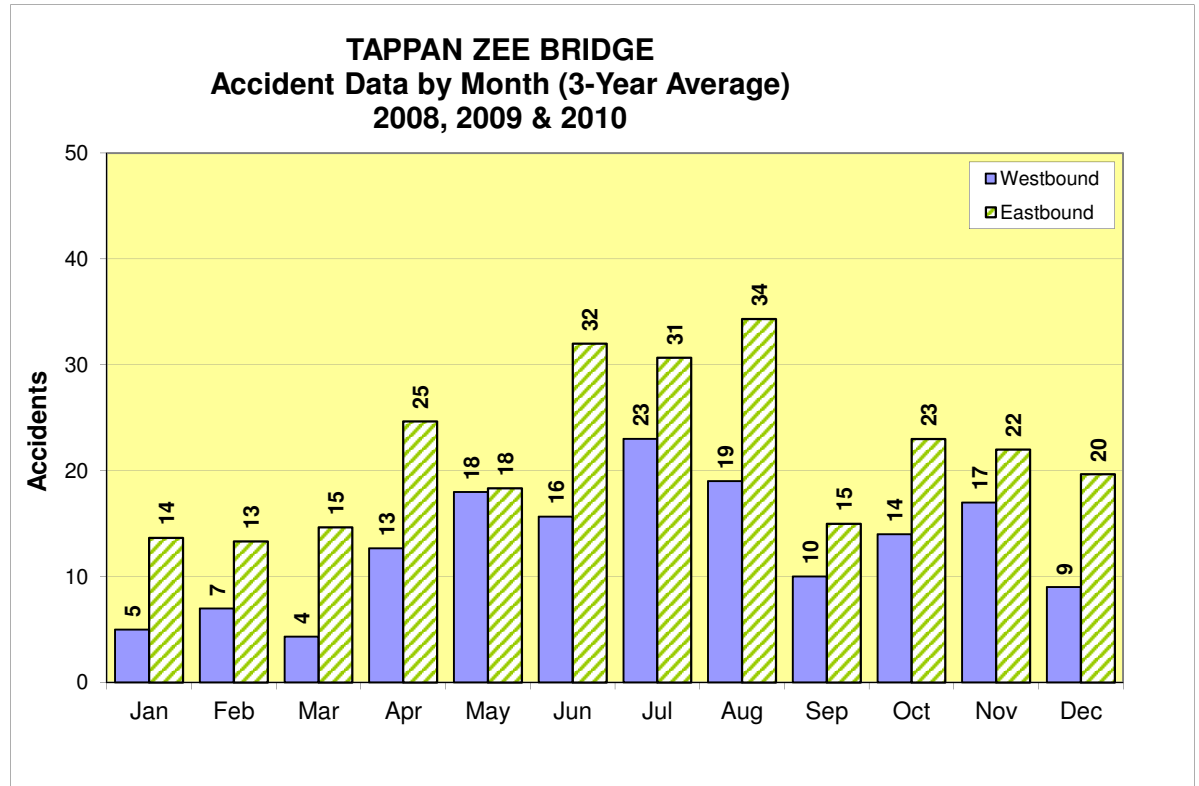
Cause of Collision	WB	%	EB	%	TOT	%
Following Too Closely	224	48%	425	54%	649	52%
Obstruction Debris	60	13%	96	12%	156	13%
Unsafe Lane Change	76	16%	89	11%	165	13%
Unsafe Speed	15	3%	59	8%	74	6%
Improper Lane Use/Change	23	5%	15	2%	38	3%
Reaction to Other Vehicle	12	3%	19	2%	31	2%
Driver Inattention	10	2%	16	2%	26	2%
All Others	44	9%	65	8%	109	9%
Total	464	100%	784	100%	1248	100%



TAPPAN ZEE BRIDGE

ACCIDENT DATA BY MONTH

MO	WESTBOUND				EASTBOUND			
	2008	2009	2010	AVG	2008	2009	2010	AVG
Jan	7	7	1	5	16	12	13	14
Feb	9	3	9	7	17	5	18	13
Mar	9	3	1	4	21	12	11	15
Apr	22	5	11	13	26	25	23	25
May	22	15	17	18	22	19	14	18
Jun	15	15	17	16	39	36	21	32
Jul	23	17	29	23	41	31	20	31
Aug	19	21	17	19	50	19	34	34
Sep	9	10	11	10	20	15	10	15
Oct	14	13	15	14	24	25	20	23
Nov	23	15	13	17	26	20	20	22
Dec	11	10	6	9	25	17	17	20
TOT	183	134	147	155	327	236	221	261



TAPPAN ZEE BRIDGE

ACCIDENT DATA AND OVERALL TRAFFIC INCIDENTS

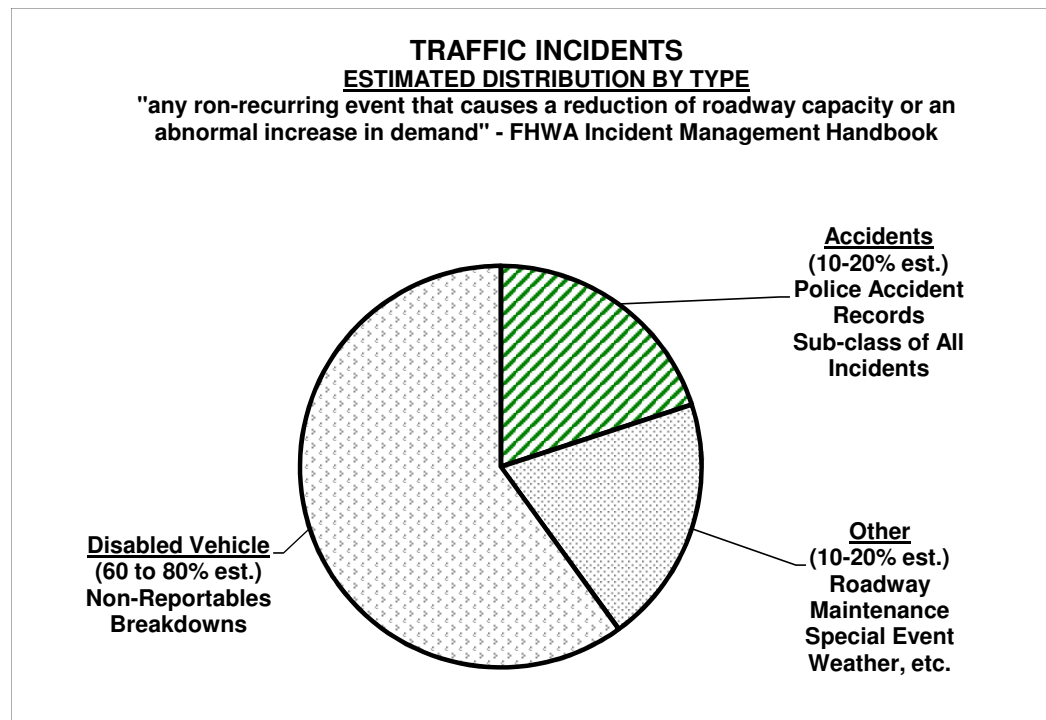
ASSUME ACCIDENTS MAKE UP APPROXIMATELY 1/3 OF ALL TRAFFIC INCIDENTS ON TAPPAN ZEE BRIDGE

POTENTIAL REMEDIES TO REDUCE INCIDENTS

1. Improve Physical Design (ex. Non-Standard Features)
2. Improve Progression of Traffic Flow (ex. Ramp Metering)
3. Provide Driver Feedback (ex. ITS)
4. Improve Incident Response Management (ex. CCTV)
5. Implement More Aggressive Enforcement of Traffic Laws
6. Continue/Expand Driver Education Programs for Young Drivers (ex. MADD)

IMPROVING PHYSICAL DESIGN - POTENTIAL OPTIONS

Pavement Distress
Deficient Lane Markings
Limited or No Acceleration/Deceleration Lanes
Limited or Poor Sight Distances
Combined Horizontal/Vertical Curve Alignment
Poor Lighting/Limited Visibility
Inadequate Guiderails/Concrete Barriers
Narrow Lane Widths
Ineffective Signage (ITS)
Limited or No Shoulders or Run-Off Areas
Limited Turning Radii
Improvements to Retroreflectivity
Ineffective Chevrons/Gore Design
Sun or Glare Issues
Inappropriate Speed Limit
Heavy Vehicles
Landscaping



TAPPAN ZEE BRIDGE

ACCIDENT DATA BY PEAK HOUR FOR STUDY AREA (ASSUME CRASHES ARE ONLY 1/3 OFF ALL TRAFFIC INCIDENTS)

2008 WESTBOUND DIRECTION

PM Peak 32 1 Accident every 8.1 days during peak
48 1 Accident every 5.4 days during peak

TIME	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
12:00 AM	0	1	2	1	2	0	1	7
1:00 AM	0	0	0	0	0	0	0	0
2:00 AM	0	0	1	0	0	0	2	3
3:00 AM	0	0	0	0	0	0	1	1
4:00 AM	0	0	0	2	0	1	0	3
5:00 AM	0	0	1	0	1	0	2	4
6:00 AM	0	0	2	1	1	0	1	5
7:00 AM	0	1	1	2	0	0	3	7
8:00 AM	1	2	1	1	2	4	1	12
9:00 AM	1	2	1	0	0	1	0	5
10:00 AM	0	0	3	3	0	1	0	7
11:00 AM	1	1	1	2	0	1	1	7
12:00 PM	2	1	1	0	1	1	1	7
1:00 PM	6	4	1	0	0	3	2	16
2:00 PM	2	3	1	3	1	0	1	11
3:00 PM	1	2	1	0	2	2	2	10
4:00 PM	1	0	1	3	4	7	0	16
5:00 PM	3	0	1	1	7	1	3	16
6:00 PM	0	2	1	3	1	4	0	11
7:00 PM	1	0	1	1	1	2	0	6
8:00 PM	1	0	1	2	1	3	6	14
9:00 PM	0	0	0	2	2	2	0	6
10:00 PM	0	0	0	1	1	5	0	7
11:00 PM	1	0	1	0	0	0	0	2
TOTAL	21	19	23	28	27	38	27	183

2009 WESTBOUND DIRECTION

PM Peak 32 1 Accident every 8.1 days during peak
48 1 Accident every 5.4 days during peak

TIME	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
12:00 AM	1	3	0	2	1	3	0	10
1:00 AM	0	0	0	0	0	0	1	1
2:00 AM	0	0	0	0	0	0	1	1
3:00 AM	0	0	0	0	0	0	0	0
4:00 AM	1	0	1	0	0	0	0	2
5:00 AM	0	0	0	0	0	1	0	1
6:00 AM	0	0	0	0	1	0	0	1
7:00 AM	1	1	1	1	0	0	1	5
8:00 AM	0	0	0	0	1	0	1	2
9:00 AM	0	1	1	1	0	0	1	4
10:00 AM	1	0	0	0	1	1	2	5
11:00 AM	3	1	1	2	1	4	1	13
12:00 PM	3	1	2	1	2	0	1	10
1:00 PM	1	0	2	1	0	2	2	8
2:00 PM	1	1	1	0	1	2	1	7
3:00 PM	2	3	2	4	0	2	0	13
4:00 PM	1	4	0	0	1	4	0	10
5:00 PM	1	1	0	7	0	4	0	13
6:00 PM	1	1	0	0	2	6	0	10
7:00 PM	0	2	0	0	1	1	1	5
8:00 PM	0	0	0	1	0	0	0	1
9:00 PM	1	1	0	0	0	0	0	2
10:00 PM	0	1	0	1	0	2	1	5
11:00 PM	0	0	2	1	0	1	0	4
TOTAL	18	21	13	22	12	33	14	133

2010 WESTBOUND DIRECTION

PM Peak 33 1 Accident every 7.9 days during peak
49 1 Accident every 5.3 days during peak

TIME	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
12:00 AM	2	2	0	2	0	1	1	8
1:00 AM	1	0	0	0	0	0	0	1
2:00 AM	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0
4:00 AM	2	0	0	1	0	0	0	3
5:00 AM	0	1	0	0	0	0	0	1
6:00 AM	1	0	2	2	0	0	0	5
7:00 AM	0	0	0	0	2	0	0	2
8:00 AM	0	3	0	0	4	1	0	8
9:00 AM	0	1	1	0	0	0	3	5
10:00 AM	3	3	1	0	1	3	1	12
11:00 AM	2	0	0	2	0	0	1	5
12:00 PM	6	1	2	0	0	3	3	15
1:00 PM	1	4	0	0	0	3	2	10
2:00 PM	2	1	1	0	1	1	0	6
3:00 PM	1	0	1	5	3	2	2	14
4:00 PM	0	1	1	1	2	4	0	9
5:00 PM	5	3	0	2	2	6	3	21
6:00 PM	0	0	1	2	2	3	0	8
7:00 PM	1	0	1	1	1	1	0	5
8:00 PM	1	0	0	0	0	0	1	2
9:00 PM	0	2	0	1	0	1	0	4
10:00 PM	0	0	0	1	0	0	0	1
11:00 PM	1	0	0	0	0	0	0	1
TOTAL	29	22	11	20	18	29	17	146

2008 EASTBOUND DIRECTION

AM Peak 59 1 Accident every 4.4 days during peak
88 1 Accident every 2.9 days during peak

TIME	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
12:00 AM	0	0	1	0	2	0	1	4
1:00 AM	1	0	0	0	1	0	0	2
2:00 AM	0	0	0	1	0	0	2	3
3:00 AM	0	0	0	0	0	2	0	2
4:00 AM	0	0	3	0	1	1	1	6
5:00 AM	0	0	0	0	2	1	1	4
6:00 AM	0	4	0	3	5	3	0	15
7:00 AM	1	2	6	5	2	3	1	20
8:00 AM	0	1	5	6	10	4	0	26
9:00 AM	3	5	0	3	3	4	1	19
10:00 AM	3	4	2	2	4	5	3	23
11:00 AM	0	1	1	3	5	0	1	11
12:00 PM	3	3	2	1	6	2	0	17
1:00 PM	3	2	3	3	2	4	4	21
2:00 PM	2	2	1	4	3	6	2	20
3:00 PM	2	2	3	2	7	5	3	24
4:00 PM	3	2	5	4	4	3	0	21
5:00 PM	2	4	6	6	7	6	0	31
6:00 PM	4	1	2	3	5	3	4	22
7:00 PM	1	1	1	4	3	2	0	12
8:00 PM	2	3	1	2	0	1	0	9
9:00 PM	1	0	1	1	1	2	1	7
10:00 PM	0	0	0	2	1	0	0	3
11:00 PM	0	0	1	2	1	1	0	5
TOTAL	31	37	44	57	75	58	25	327

2009 EASTBOUND DIRECTION

AM PEAK 54 1 Accident every 4.8 days during peak
81 1 Accident every 3.2 days during peak

TIME	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
12:00 AM	0	0	6	2	1	2	2	13
1:00 AM	0	0	0	1	0	1	1	3
2:00 AM	0	0	0	0	0	0	0	0
3:00 AM	2	0	1	0	0	1	0	4
4:00 AM	1	1	0	0	0	0	0	2
5:00 AM	1	2	1	0	0	0	0	4
6:00 AM	0	2	1	5	1	3	0	12
7:00 AM	2	5	6	5	3	1	2	24
8:00 AM	0	6	5	4	5	0	3	23
9:00 AM	0	1	2	5	5	1	0	14
10:00 AM	0	1	1	3	4	2	0	11
11:00 AM	0	1	1	1	0	3	1	7
12:00 PM	1	0	2	2	2	2	2	11
1:00 PM	2	0	0	0	0	1	0	3
2:00 PM	0	2	0	1	4	7	3	17
3:00 PM	0	3	1	4	1	8	2	19
4:00 PM	1	2	0	1	3	6	1	14
5:00 PM	0	2	2	5	2	10	1	22
6:00 PM	0	4	1	0	1	5	2	13
7:00 PM	0	0	1	0	1	5	6	13
8:00 PM	0	0	0	0	2	0	1	3
9:00 PM	1	0	0	0	0	0	1	2
10:00 PM	1	0	0	0	0	0	0	1
11:00 PM	0	0	0	0	0	1	0	1
TOTAL	12	32	31	39	35	59	28	236

2010 EASTBOUND DIRECTION

AM PEAK 40 1 Accident every 6.5 days during peak
60 1 Accident every 4.3 days during peak

TIME	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
12:00 AM	1	1	0	1	0	3	1	7
1:00 AM	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	1	1
4:00 AM	0	0	0	0	0	0	0	0
5:00 AM	0	1	1	3	0	0	0	5
6:00 AM	1	0	4	0	2	2	0	9
7:00 AM	0	5	2	5	6	2	0	20
8:00 AM	1	1	2	1	3	2	0	10
9:00 AM	0	3	3	3	1	1	1	12
10:00 AM	3	0	1	1	1	1	1	8
11:00 AM	4	1	2	1	3	0	3	14
12:00 PM	2	3	0	2	2	0	1	10
1:00 PM	0	1	0	0	2	5	6	14
2:00 PM	1	1	0	1	3	3	0	9
3:00 PM	2	1	1	0	9	2	2	17
4:00 PM	1	1	2	1	7	6	2	20
5:00 PM	2	1	3	1	4	13	1	25
6:00 PM	0	4	1	0	3	4	1	13
7:00 PM	0	0	1	0	2	0	2	5
8:00 PM	0	0	0	2	0	0	2	4
9:00 PM	0	1	0	0	1	0	1	3
10:00 PM	0	0	1	1	1	0	3	6
11:00 PM	0	1	0	1	1	1	0	4
TOTAL	18	26	24	24	51	45	28	216