
Memorandum

The City of Traverse City
Engineering Department



TO: Timothy J. Lodge, P.E., City Engineer
FROM: Abhishek Deora, Seasonal Engineering Aide
DATE: Thursday, June 13th, 2017
SUBJECT: 24 Hour Speed and Volume of East Bay Blvd Btw Chippewa and Sequoia

City Engineering performed a 24 hour speed study on East Bay Blvd between Chippewa and Sequoia beginning on Tuesday, June 13th, 2017 concluded Thursday, June 13th, 2017. This memo is to formalize City Engineering's initial data observations and findings with to the speed statistics and volume of vehicular traffic on East Bay Blvd.

The data was gathered using a JAMAR Radar Recorder, this data recorder collects both vehicle speed and volume using radar sensors in both Westbound and Eastbound lanes. The raw data compiled and analyzed using TraxPro and reported vehicle speed count for every hour during the study in the increments of 5 miles per hour. The TraxPro software also compiled a report to be sent Traverse City Police Department to evaluate the possible percentage of enforceable violations. This data is organized into a small colored meter where red means there is a high enforcement potential and green equates to a low amount of speed infractions are occurring. For this report, the enforceable minimum speed a vehicle would need to be traveling is 5 miles per hour over the posted speed limit of 25 miles per hour.

During this 24 hour study, 1615 vehicles were recorded. The average (mean) speed of the 1615 vehicles is 24 miles per hour, with 44.5% of all vehicles traveling at speeds greater than the posted limit of 25 miles per hour. Giving motorist an extra 5 miles per hour over the posted speed limit for enforcement tolerance, the number of vehicles speeding is 12.1%.

Summary (Combined):

- **Mean Speed:** 24 MPH
- **Number of Vehicles above Posted Speed Limit** 44.5%
- **85th Percentile of Speed:** 29 MPH
- **95th Percentile of Speed:** 33 MPH

Enclosed:

Detailed TraxPro Speed Reports (Combined and Directional)
TraxPro Police Enforcement Reports

East Bay Blvd
Btw Chippewa and Sequoia
Speed

Site Code: 00000001
Station ID:
East Bay Blvd
Btw Chippewa and Sequoia
Latitude: 0' 0.0000 South

A=Eastbound

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75	999			
07/11/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	3	15	19	19	7	1	0	0	0	0	0	0	0	0	64	21-30	38
14:00	3	5	32	16	3	1	0	0	0	0	0	0	0	0	60	21-30	48
15:00	4	9	24	11	5	0	0	0	0	0	0	0	0	0	53	20-29	35
16:00	4	18	29	13	0	0	0	0	0	0	0	0	0	0	64	16-25	47
17:00	8	14	27	17	1	0	0	0	0	0	0	0	0	0	67	21-30	44
18:00	4	8	26	14	3	0	0	0	0	0	0	0	0	0	55	21-30	40
19:00	8	7	18	10	2	1	0	0	0	0	0	0	0	0	46	21-30	28
20:00	4	4	19	8	0	0	0	0	0	0	0	0	0	0	35	21-30	27
21:00	2	5	14	8	1	0	0	0	0	0	0	0	0	0	30	21-30	22
22:00	1	0	5	3	0	0	0	0	0	0	0	0	0	0	9	21-30	8
23:00	1	1	3	0	1	0	0	0	0	0	0	0	0	0	6	16-25	4
Total	42	86	216	119	23	3	0	0	0	0	0	0	0	0	489		
Percent	8.6%	17.6%	44.2%	24.3%	4.7%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	17:00	16:00	14:00	13:00	13:00	13:00									17:00		
	8	18	32	19	7	1								67			

East Bay Blvd
Btw Chippewa and Sequoia
Speed

Site Code: 00000001
Station ID:
East Bay Blvd
Btw Chippewa and Sequoia
Latitude: 0' 0.0000 South

A=Eastbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
07/12/17	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	19-28	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	1
05:00	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	21-30	3
06:00	0	1	2	3	2	0	0	0	0	0	0	0	0	0	8	26-35	5
07:00	3	2	15	13	2	1	0	0	0	0	0	0	0	0	36	21-30	28
08:00	1	5	15	19	2	0	0	0	0	0	0	0	0	0	42	21-30	34
09:00	0	1	21	27	5	0	0	0	0	0	0	0	0	0	54	21-30	48
10:00	4	3	24	25	4	0	0	0	0	0	0	0	0	0	60	21-30	49
11:00	1	5	16	15	1	0	0	0	0	0	0	0	0	0	38	21-30	31
12 PM	3	5	20	26	9	0	0	0	0	0	0	0	0	0	63	21-30	46
13:00	3	3	25	17	4	0	0	0	0	0	0	0	0	0	52	21-30	42
14:00	1	7	24	11	3	0	0	0	0	0	0	0	0	0	46	21-30	35
15:00	5	4	21	19	5	1	0	0	0	0	0	0	0	0	55	21-30	40
16:00	3	6	25	16	4	0	0	0	0	0	0	0	0	0	54	21-30	41
17:00	2	5	26	15	2	1	0	0	0	0	0	0	0	0	51	21-30	41
18:00	3	4	13	18	3	0	0	0	0	0	0	0	0	0	41	21-30	31
19:00	1	3	8	13	1	0	0	0	0	0	0	0	0	0	26	21-30	21
20:00	2	4	7	9	1	0	0	0	0	0	0	0	0	0	23	21-30	16
21:00	3	2	6	8	1	0	0	0	0	0	0	0	0	0	20	21-30	14
22:00	0	4	3	4	0	1	0	0	0	0	0	0	0	0	12	21-30	7
23:00	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	15-24	3
Total	35	66	274	262	49	4	0	0	0	0	0	0	0	0	690		
Percent	5.1%	9.6%	39.7%	38.0%	7.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	10:00	08:00	10:00	09:00	09:00	07:00										10:00	
Vol.	4	5	24	27	5	1										60	
PM Peak	15:00	14:00	17:00	12:00	12:00	15:00										12:00	
Vol.	5	7	26	26	9	1										63	

East Bay Blvd
Btw Chippewa and Sequoia
Speed

Site Code: 0000001
Station ID:
East Bay Blvd
Btw Chippewa and Sequoia
Latitude: 0' 0.0000 South

B=Westbond

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
07/11/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	9	15	24	19	9	0	0	0	0	0	0	0	0	0	76	21-30	43
14:00	8	16	23	26	11	1	0	0	0	0	0	0	0	0	85	21-30	49
15:00	1	14	34	30	11	3	0	0	0	0	0	0	0	0	93	21-30	64
16:00	1	15	32	22	2	0	0	0	0	0	0	0	0	0	72	21-30	54
17:00	6	14	25	29	11	1	0	0	0	0	0	0	0	0	86	21-30	54
18:00	3	13	12	23	11	4	0	0	0	0	0	0	0	0	66	21-30	35
19:00	8	7	22	14	10	1	0	0	0	0	0	0	0	0	62	21-30	36
20:00	3	6	17	11	6	1	0	0	0	0	0	0	0	0	44	21-30	28
21:00	1	8	15	8	3	0	0	0	0	0	0	0	0	0	35	21-30	23
22:00	0	0	5	8	1	0	0	0	0	0	0	0	0	0	14	21-30	13
23:00	0	0	1	3	3	1	0	0	0	0	0	0	0	0	8	26-35	6
Total	40	108	210	193	78	12	0	0	0	0	0	0	0	0	641		
Percent	6.2%	16.8%	32.8%	30.1%	12.2%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	13:00	14:00	15:00	15:00	14:00	18:00									15:00		
	9	16	34	30	11	4								93			

East Bay Blvd
Btw Chippewa and Sequoia
Speed

Site Code: 00000001
Station ID:
East Bay Blvd
Btw Chippewa and Sequoia
Latitude: 0' 0.0000 South

B=Westbond

Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace	Number
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999		Speed	in Pace
07/12/17	0	0	1	0	2	0	0	0	0	0	0	0	0	0	3	24-33	2
01:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	24-33	2
02:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3	10-19	2
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	2	1	1	0	1	0	0	0	0	0	0	0	0	0	5	16-25	2
06:00	1	8	2	1	0	0	0	0	0	0	0	0	0	0	12	15-24	10
07:00	0	4	8	6	1	0	0	0	0	0	0	0	0	0	19	20-29	14
08:00	2	8	8	14	3	0	0	0	0	0	0	0	0	0	35	21-30	22
09:00	5	5	13	3	4	0	0	0	0	0	0	0	0	0	30	16-25	18
10:00	4	4	13	16	4	2	0	0	0	0	0	0	0	0	43	21-30	29
11:00	3	7	10	19	8	1	0	0	0	0	0	0	0	0	48	21-30	29
12 PM	1	7	11	24	12	1	0	0	0	0	0	0	0	0	56	24-33	36
13:00	5	9	17	24	11	3	1	0	0	0	0	0	0	0	70	21-30	41
14:00	3	4	19	30	12	0	0	0	0	0	0	0	0	0	68	21-30	49
15:00	10	11	23	22	4	0	0	0	0	0	0	0	0	0	70	21-30	45
16:00	4	9	23	27	20	1	0	0	0	0	0	0	0	0	84	21-30	50
17:00	3	9	31	33	13	0	0	0	0	0	0	0	0	0	89	21-30	64
18:00	6	5	9	20	12	0	0	0	0	0	0	0	0	0	52	26-35	32
19:00	8	8	10	18	9	2	0	0	0	0	0	0	0	0	55	21-30	28
20:00	7	13	10	15	2	1	0	0	0	0	0	0	0	0	48	20-29	25
21:00	3	7	12	7	6	0	0	0	0	0	0	0	0	0	35	16-25	19
22:00	0	3	6	7	1	1	0	0	0	0	0	0	0	0	18	21-30	13
23:00	0	1	0	1	2	2	0	0	0	0	0	0	0	0	6	29-38	4
Total	67	125	227	288	129	14	1	0	0	0	0	0	0	0	851		
Percent	7.9%	14.7%	26.7%	33.8%	15.2%	1.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	06:00	09:00	11:00	11:00	10:00									11:00		
Vol.	5	8	13	19	8	2									48		
PM Peak	15:00	20:00	17:00	17:00	16:00	13:00	13:00								17:00		
Vol.	10	13	31	33	20	3	1								89		

East Bay Blvd
Btw Chippewa and Sequoia
Speed

Site Code: 00000001
Station ID:
East Bay Blvd
Btw Chippewa and Sequoia
Latitude: 0' 0.0000 South

A=Eastbound, B=Westbound

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75	999			
07/11/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	12	30	43	38	16	1	0	0	0	0	0	0	0	0	140	21-30	81
14:00	11	21	55	42	14	2	0	0	0	0	0	0	0	0	145	21-30	97
15:00	5	23	58	41	16	3	0	0	0	0	0	0	0	0	146	21-30	99
16:00	5	33	61	35	2	0	0	0	0	0	0	0	0	0	136	21-30	96
17:00	14	28	52	46	12	1	0	0	0	0	0	0	0	0	153	21-30	98
18:00	7	21	38	37	14	4	0	0	0	0	0	0	0	0	121	21-30	75
19:00	16	14	40	24	12	2	0	0	0	0	0	0	0	0	108	21-30	64
20:00	7	10	36	19	6	1	0	0	0	0	0	0	0	0	79	21-30	55
21:00	3	13	29	16	4	0	0	0	0	0	0	0	0	0	65	21-30	45
22:00	1	0	10	11	1	0	0	0	0	0	0	0	0	0	23	21-30	21
23:00	1	1	4	3	4	1	0	0	0	0	0	0	0	0	14	20-29	7
Total	82	194	426	312	101	15	0	0	0	0	0	0	0	0	1130		
Percent	7.3%	17.2%	37.7%	27.6%	8.9%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	19:00	16:00	16:00	17:00	13:00	18:00									17:00		
	16	33	61	46	16	4									153		

East Bay Blvd
Btw Chippewa and Sequoia
Speed

Site Code: 00000001
Station ID:
East Bay Blvd
Btw Chippewa and Sequoia
Latitude: 0' 0.0000 South

A=Eastbound, B=Westbond

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75	999			
07/12/17	0	0	1	1	2	0	0	0	0	0	0	0	0	0	4	24-33	3
01:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	24-33	2
02:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3	10-19	2
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	1
05:00	2	1	1	3	1	0	0	0	0	0	0	0	0	0	8	26-35	4
06:00	1	9	4	4	2	0	0	0	0	0	0	0	0	0	20	16-25	13
07:00	3	6	23	19	3	1	0	0	0	0	0	0	0	0	55	21-30	42
08:00	3	13	23	33	5	0	0	0	0	0	0	0	0	0	77	21-30	56
09:00	5	6	34	30	9	0	0	0	0	0	0	0	0	0	84	21-30	64
10:00	8	7	37	41	8	2	0	0	0	0	0	0	0	0	103	21-30	78
11:00	4	12	26	34	9	1	0	0	0	0	0	0	0	0	86	21-30	60
12 PM	4	12	31	50	21	1	0	0	0	0	0	0	0	0	119	21-30	81
13:00	8	12	42	41	15	3	1	0	0	0	0	0	0	0	122	21-30	83
14:00	4	11	43	41	15	0	0	0	0	0	0	0	0	0	114	21-30	84
15:00	15	15	44	41	9	1	0	0	0	0	0	0	0	0	125	21-30	85
16:00	7	15	48	43	24	1	0	0	0	0	0	0	0	0	138	21-30	91
17:00	5	14	57	48	15	1	0	0	0	0	0	0	0	0	140	21-30	105
18:00	9	9	22	38	15	0	0	0	0	0	0	0	0	0	93	21-30	60
19:00	9	11	18	31	10	2	0	0	0	0	0	0	0	0	81	21-30	49
20:00	9	17	17	24	3	1	0	0	0	0	0	0	0	0	71	21-30	41
21:00	6	9	18	15	7	0	0	0	0	0	0	0	0	0	55	21-30	33
22:00	0	7	9	11	1	2	0	0	0	0	0	0	0	0	30	21-30	20
23:00	0	2	2	1	2	2	0	0	0	0	0	0	0	0	9	31-40	4
Total	102	191	501	550	178	18	1	0	0	0	0	0	0	0	1541		
Percent	6.6%	12.4%	32.5%	35.7%	11.6%	1.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	10:00	08:00	10:00	10:00	09:00	10:00									10:00		
Vol.	8	13	37	41	9	2									103		
PM Peak	15:00	20:00	17:00	12:00	16:00	13:00	13:00								17:00		
Vol.	15	17	57	50	24	3	1								140		

Speed Enforcement Evaluator

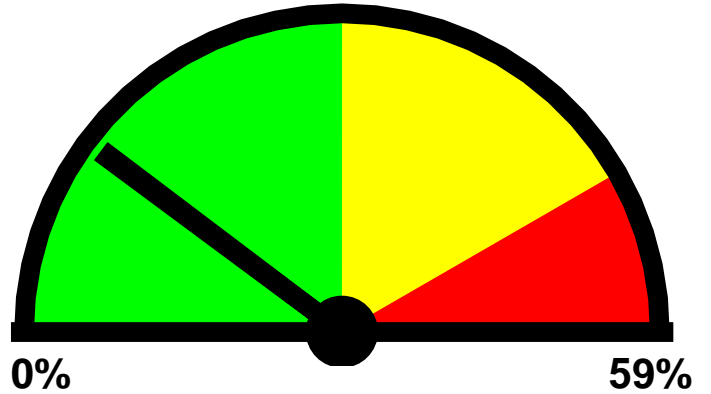
Location:
East Bay Blvd

Total Percentage of Enforceable Violations

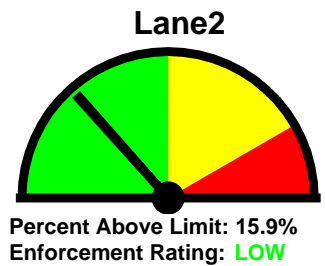
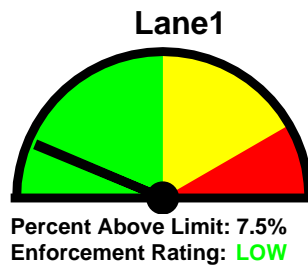
Closest Cross Street:
Btw Chippewa and Sequoia

Analysis Dates:
Tuesday, July 11, 2017
Thursday, July 13, 2017

Equipment Used:



Posted Speed Limit: 25 MPH
Enforcement Tolerance: 5 MPH
Enforcement Limit: 31 MPH & Up
Percentage Above Limit: 12.1%
Enforcement Rating: **LOW**



Combined

1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65
0	10	139	403	986	923	302	37	1	0	0	0	0	0

85 percentile = 29

Lane1

1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65
0	7	48	158	525	427	87	8	0	0	0	0	0	0

85 percentile = 28

Lane2

1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65
0	3	91	245	461	496	215	29	1	0	0	0	0	0

85 percentile = 30

East Bay Blvd
Btw Chippewa and Sequoia
Volume

Site Code: 0000001
Station ID:

Latitude: 0' 0.0000 South

Start Time	10-Jul-17 Mon	11-Jul-17 Tue	12-Jul-17 Wed	13-Jul-17 Thu	14-Jul-17 Fri	Weekday Average	15-Jul-17 Sat	16-Jul-17 Sun
12:00 AM	*	*	4	10	*	7	*	*
01:00	*	*	2	3	*	2	*	*
02:00	*	*	3	4	*	4	*	*
03:00	*	*	1	1	*	1	*	*
04:00	*	*	1	5	*	3	*	*
05:00	*	*	8	5	*	6	*	*
06:00	*	*	20	13	*	16	*	*
07:00	*	*	55	70	*	62	*	*
08:00	*	*	77	59	*	68	*	*
09:00	*	*	84	*	*	84	*	*
10:00	*	*	103	*	*	103	*	*
11:00	*	*	86	*	*	86	*	*
12:00 PM	*	*	119	*	*	119	*	*
01:00	*	140	122	*	*	131	*	*
02:00	*	145	114	*	*	130	*	*
03:00	*	146	125	*	*	136	*	*
04:00	*	136	138	*	*	137	*	*
05:00	*	153	140	*	*	146	*	*
06:00	*	121	93	*	*	107	*	*
07:00	*	108	81	*	*	94	*	*
08:00	*	79	71	*	*	75	*	*
09:00	*	65	55	*	*	60	*	*
10:00	*	23	30	*	*	26	*	*
11:00	*	14	9	*	*	12	*	*
Total	0	1130	1541	170	0		0	0
Percentage	0.0%	70.0%	95.4%	10.5%	0.0%		0.0%	0.0%
AM Peak	-	-	10:00	07:00	-	-	-	-
Vol.	-	-	103	70	-	-	-	-
PM Peak	-	17:00	17:00	-	-	-	-	-
Vol.	-	153	140	-	-	-	-	-
Total		1130	1541					

