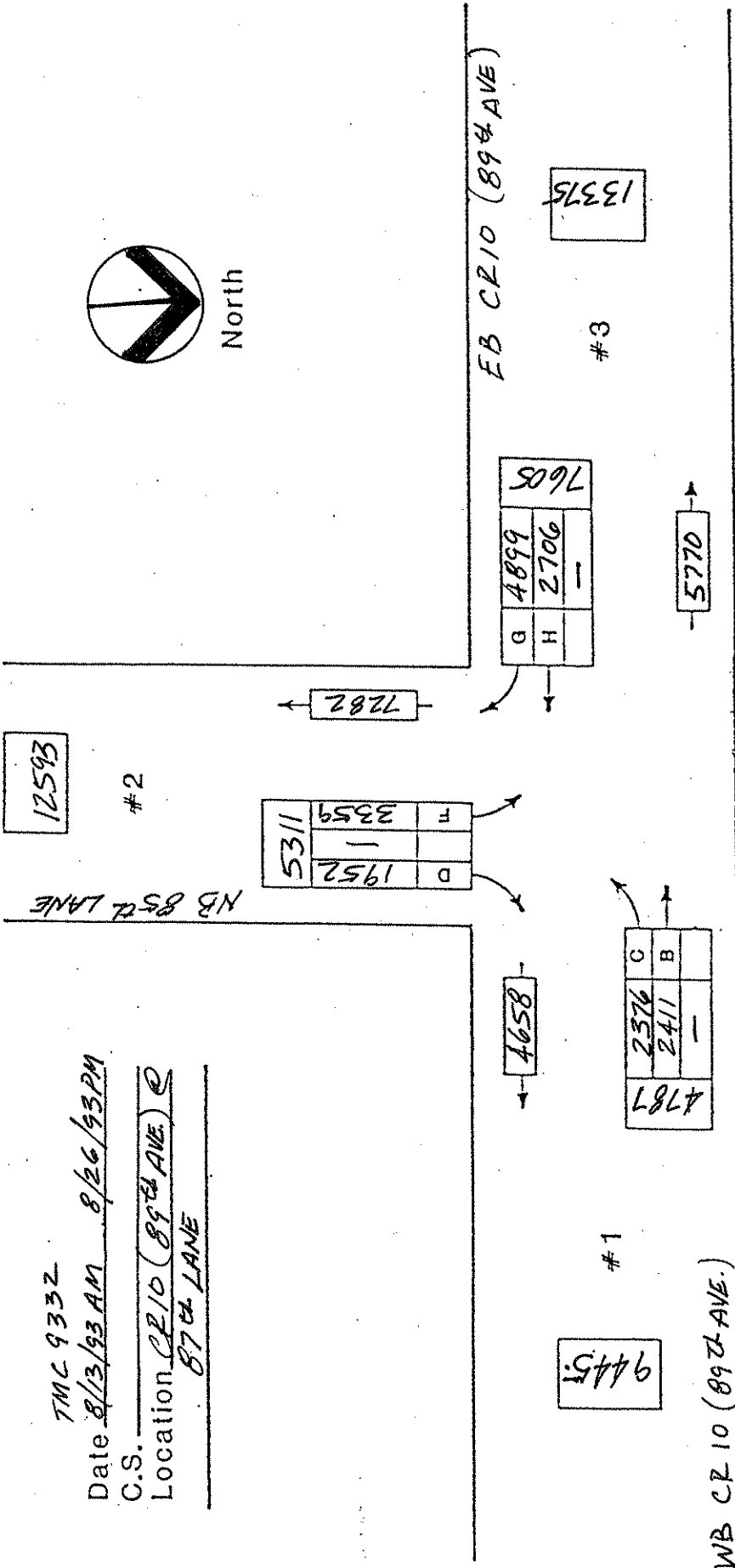
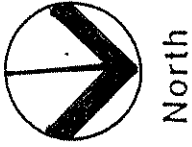


TMC 9332
 Date 8/13/93 AM 8/26/93 PM
 C.S. CR 10 (89th Ave) R
 Location 87th Lane



	LANES OF APPROACH				TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES		
#1	0	1	1		2
#2	1	1	0		2
#3	1	0	1		2
#4	-	-	-		-

Anoka County Highway Dept.
 Traffic Volume and Turning
 Movement Study

ANOKA COUNTY HIGHWAY DEPARTMENT
 TRAFFIC ENGINEERING SECTION
 TRAFFIC VOLUME AND
 TURNING MOVEMENT STUDY

Site Code : 93320202
 Start Date: 08/25/93
 File I.D. : TMC93321
 Page : 1

WEATHER: CLEAR/70 CLEAR/75
 Counter : TDC EIGHT
 Counted by Naomi/Eileen

Vehicle group 1

Date	Southbound				WB CR 10 (89TH AVE) Westbound				NB 87TH LANE Northbound				EB CR 10 (89TH AVE) Eastbound				Vehicle Total	Other Total	
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left			
08/25/93																			
06:00	0	0	0	0	1	0	13	11	0	3	0	1	1	10	8	0	46	2	
06:15	0	0	0	0	0	0	12	13	2	4	0	6	2	19	26	0	80	4	
06:30	0	0	0	0	0	0	27	5	2	3	0	2	2	13	23	0	73	4	
06:45	0	0	0	0	1	0	18	20	3	7	0	4	1	33	26	0	108	5	
Hr Total	0	0	0	0	2	0	70	49	7	17	0	13	6	75	83	0	307	15	
07:00	0	0	0	0	2	0	16	13	1	8	0	7	2	27	31	0	102	5	
07:15	0	0	0	0	1	0	19	21	1	6	0	11	0	38	37	0	132	2	
07:30	0	0	0	0	1	0	21	24	1	12	0	8	2	47	37	0	149	4	
07:45	0	0	0	0	2	0	25	16	2	10	0	13	1	51	45	0	160	5	
Hr Total	0	0	0	0	6	0	81	74	5	36	0	39	5	163	150	0	543	16	
08:00	0	0	0	0	0	0	18	22	3	11	0	13	2	36	36	0	136	5	
08:15	0	0	0	0	4	0	20	24	4	3	0	10	2	46	28	0	131	10	
08:30	0	0	0	0	1	0	25	23	1	16	0	20	1	55	34	0	173	3	
08:45	0	0	0	0	0	0	36	27	0	14	0	23	4	66	40	0	206	4	
Hr Total	0	0	0	0	5	0	99	96	8	44	0	66	9	203	138	0	646	22	
09:00	0	0	0	0	2	0	34	29	3	20	0	38	3	93	31	0	245	8	
09:15	0	0	0	0	1	0	34	45	1	15	0	26	2	80	25	0	225	4	
09:30	0	0	0	0	1	0	38	43	1	20	0	27	1	98	40	0	266	3	
09:45	0	0	0	0	1	0	39	47	1	23	0	30	2	115	29	0	283	4	
Hr Total	0	0	0	0	5	0	145	164	6	78	0	121	8	386	125	0	1019	19	
10:00	0	0	0	0	0	0	33	45	2	23	0	35	5	124	33	0	293	7	
10:15	0	0	0	0	2	0	32	47	3	24	0	49	4	101	41	0	294	9	
10:30	0	0	0	0	0	0	37	59	2	28	0	48	4	106	43	0	321	6	
10:45	0	0	0	0	2	0	34	60	0	23	0	54	1	125	39	0	335	3	
Hr Total	0	0	0	0	4	0	136	211	7	98	0	186	14	456	156	0	1243	25	
11:00	0	0	0	0	1	0	36	56	2	30	0	58	3	147	34	0	361	6	
11:15	0	0	0	0	2	0	47	66	2	54	0	71	5	144	43	0	425	9	
11:30	0	0	0	0	1	0	49	50	1	39	0	75	2	129	70	0	412	4	
11:45	0	0	0	0	3	0	48	53	1	47	0	77	2	137	38	0	400	6	
Hr Total	0	0	0	0	7	0	180	225	6	170	0	281	12	557	185	0	1598	25	
12:00	0	0	0	0	0	0	62	76	4	49	0	78	2	120	52	0	437	6	
12:15	0	0	0	0	0	0	45	54	0	59	0	61	3	107	49	0	375	4	
12:30	0	0	0	0	2	0	38	65	2	38	0	69	1	132	54	0	396	4	
12:45	0	0	0	0	1	0	44	54	2	56	0	74	1	135	64	0	427	4	
Hr Total	0	0	0	0	3	0	189	249	8	202	0	282	7	494	219	0	1635	18	

WEATHER: CLEAR/70 CLEAR/75
 Counter : TDC EIGHT
 Counted by Naomi/Eileen

ANOKA COUNTY HIGHWAY DEPARTMENT
 TRAFFIC ENGINEERING SECTION
 TRAFFIC VOLUME AND
 TURNING MOVEMENT STUDY

Site Code : 93320202
 Start Date: 08/25/93
 File I.D. : TMC9332
 Page : 2

Vehicle group 1

Date	Southbound			WB CR 10 (89TH AVE) Westbound			NB 87TH LANE Northbound			EB CR 10 (89TH AVE) Eastbound			Vehicle Total	Other Total				
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left			Other	Right	Thru	Left
08/25/93																		
13:00	0	0	0	0	0	0	39	51	2	47	0	84	4	136	49	0	406	6
13:15	0	0	0	0	2	0	48	63	0	63	0	81	4	112	45	0	412	6
13:30	0	0	0	0	1	0	40	58	5	49	0	84	8	126	47	0	404	14
13:45	0	0	0	0	3	0	48	57	0	52	0	67	3	126	55	0	405	6
Hr Total	0	0	0	0	6	0	175	229	7	211	0	316	19	500	196	0	1627	32
14:00	0	0	0	0	1	0	45	54	0	28	1	51	1	74	42	0	295	2
14:15	0	0	0	0	2	0	45	37	1	28	0	51	3	68	44	0	273	6
14:30	0	0	0	0	0	0	42	34	2	22	1	49	2	72	46	0	266	4
14:45	0	0	0	0	1	0	35	37	1	37	0	55	4	69	43	0	276	6
Hr Total	0	0	0	0	4	0	167	162	4	115	2	206	10	283	175	0	1110	18
15:00	0	0	0	0	0	0	40	32	2	33	1	54	3	74	49	2	285	5
15:15	0	0	0	0	0	0	46	30	2	30	0	70	4	68	56	0	300	6
15:30	0	0	0	0	4	0	48	39	0	28	1	63	2	62	60	0	301	6
15:45	0	0	0	0	0	0	65	32	2	33	0	85	3	74	50	0	339	5
Hr Total	0	0	0	0	4	0	199	133	6	124	2	272	12	278	215	2	1225	22
16:00	0	0	0	0	1	0	44	32	0	47	0	90	1	81	57	0	351	2
16:15	0	0	0	0	0	1	59	45	1	39	0	86	1	55	41	0	326	2
16:30	0	0	0	0	2	0	80	53	2	36	0	94	0	64	50	0	377	4
16:45	0	0	0	0	1	0	61	72	1	39	0	101	0	83	56	0	412	2
Hr Total	0	0	0	0	4	1	244	202	4	161	0	371	2	283	204	0	1466	10
17:00	0	0	0	0	0	0	56	51	1	46	1	109	2	53	57	0	373	3
17:15	0	0	0	0	1	0	59	51	2	54	0	90	1	63	39	0	356	4
17:30	0	0	0	0	0	0	61	43	1	43	0	92	0	70	56	0	365	1
17:45	0	0	0	0	1	0	42	44	1	47	0	75	0	101	40	0	349	2
Hr Total	0	0	0	0	2	0	218	189	5	190	1	366	3	287	192	0	1443	10
18:00	0	0	0	0	0	0	38	28	1	34	1	62	0	64	38	0	265	1
18:15	0	0	0	0	1	1	37	47	1	28	1	52	0	57	47	0	270	2
18:30	0	0	0	0	2	0	42	35	1	51	1	64	0	85	47	0	325	3
18:45	0	0	0	0	1	0	45	37	2	36	0	44	0	76	40	0	278	3
Hr Total	0	0	0	0	4	1	162	147	5	149	3	222	0	282	172	0	1138	9
19:00	0	0	0	0	0	0	33	32	0	32	0	45	0	78	47	0	267	0
19:15	0	0	0	0	0	0	23	29	0	38	0	61	0	77	43	0	271	0
19:30	0	0	0	0	0	0	33	26	1	25	0	57	0	62	51	0	254	1
19:45	0	0	0	0	0	0	29	28	0	31	0	69	0	79	33	0	269	0
Hr Total	0	0	0	0	0	0	118	115	1	126	0	232	0	296	174	0	1061	1

WEATHER: CLEAR/70 CLEAR/75
 Counter : TDC EIGHT
 Counted by Naomi/Eileen

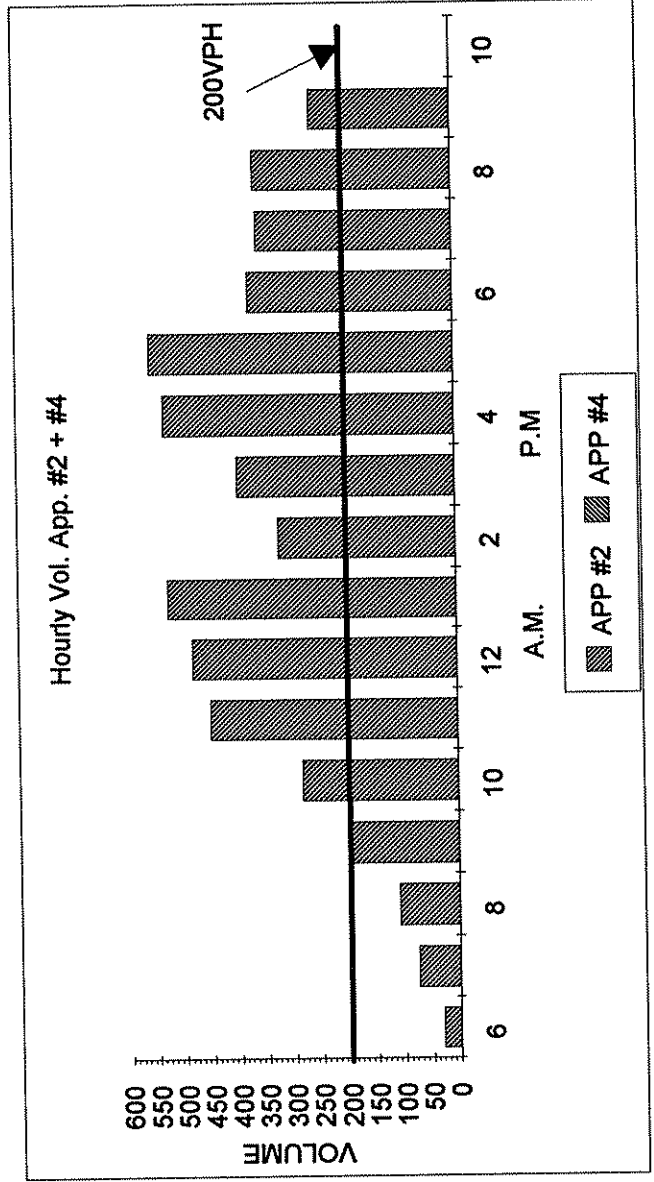
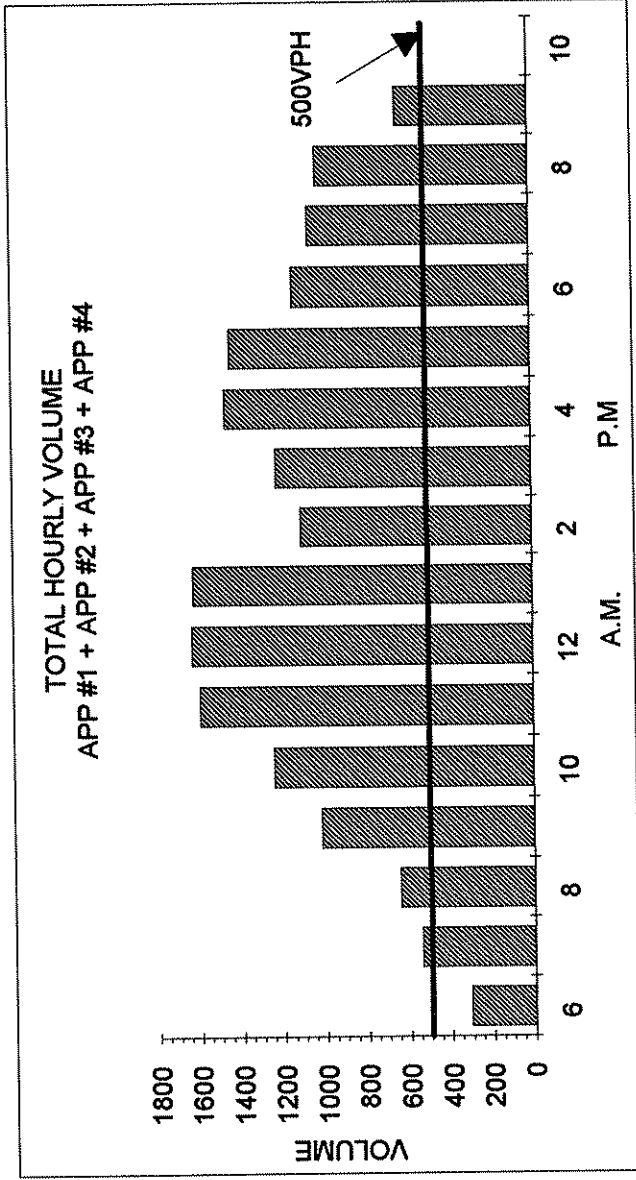
ANOKA COUNTY HIGHWAY DEPARTMENT
 TRAFFIC ENGINEERING SECTION
 TRAFFIC VOLUME AND
 TURNING MOVEMENT STUDY

Site Code : 93320202
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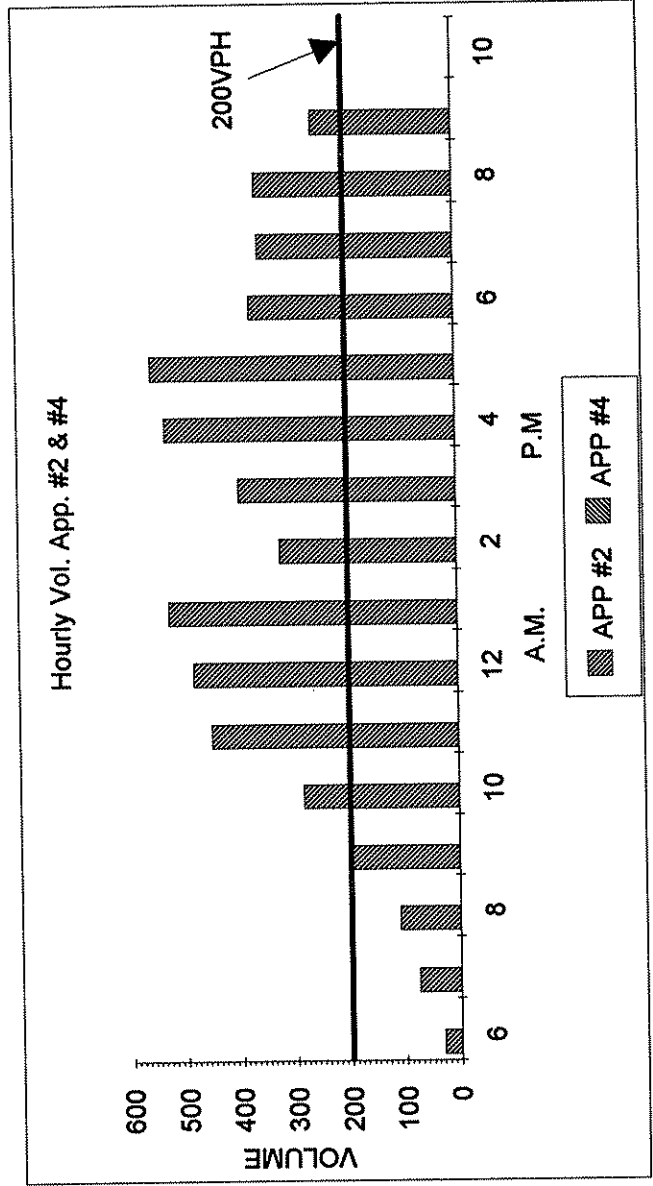
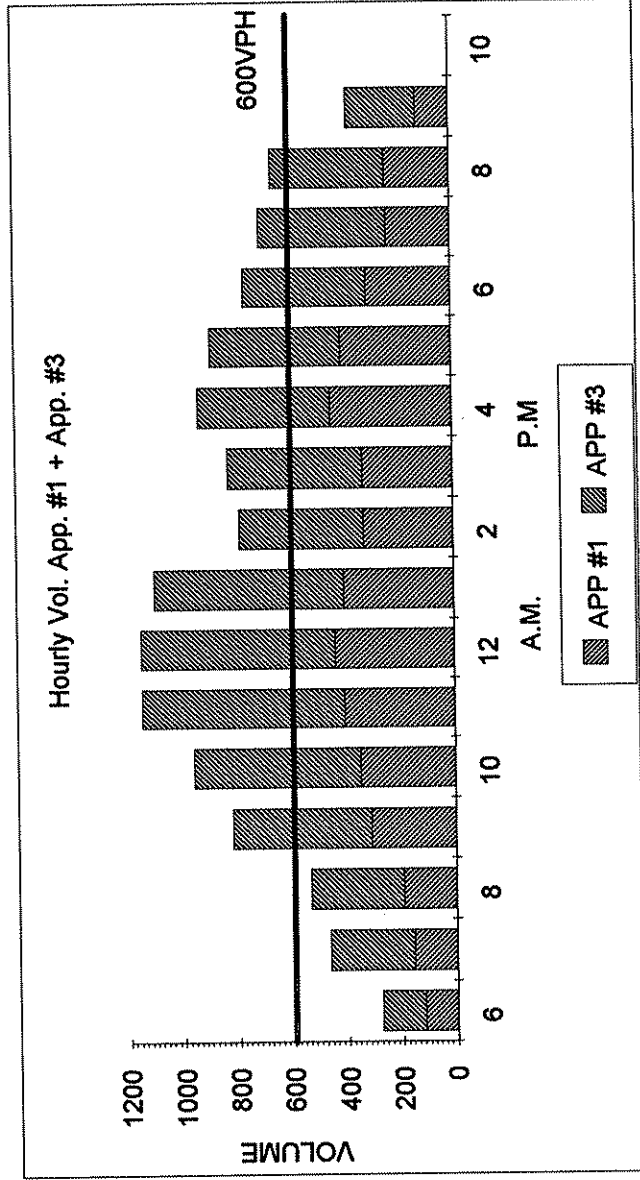
Vehicle group 1

Date	Southbound			WB CR 10 (89TH AVE) Westbound			NB 87TH LANE Northbound			EB CR 10 (89TH AVE) Eastbound			Vehicle Total	Other Total				
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left						
08/25/93																		
20:00	0	0	0	0	0	0	35	27	0	33	0	48	0	65	48	0	256	0
20:15	0	0	0	0	1	0	38	23	0	35	0	61	0	55	43	0	255	1
20:30	0	0	0	0	0	0	50	26	0	32	0	68	0	64	52	0	292	0
20:45	0	0	0	0	0	0	32	8	0	35	1	50	0	49	44	0	219	0
Hr Total	0	0	0	0	1	0	155	84	0	135	1	227	0	233	187	0	1022	1
21:00	0	0	0	0	0	0	24	15	0	36	0	55	0	34	38	0	202	0
21:15	0	0	0	0	0	0	14	5	0	23	0	34	0	25	35	0	136	0
21:30	0	0	0	0	0	0	12	11	0	18	0	42	0	30	32	0	145	0
21:45	0	0	0	0	0	0	23	16	0	19	2	28	0	34	30	0	152	0
Hr Total	0	0	0	0	0	0	73	47	0	96	2	159	0	123	135	0	635	0
TOTAL	0	0	0	0	57	2	2411	2376	79	1952	11	3359	107	4899	2706	2	17718	243

TMC9332 STOP WARRANT STUDY



TMC9332 SIGNAL WARRANT 1 STUDY



TMC9332 SIGNAL WARRANT 2 STUDY

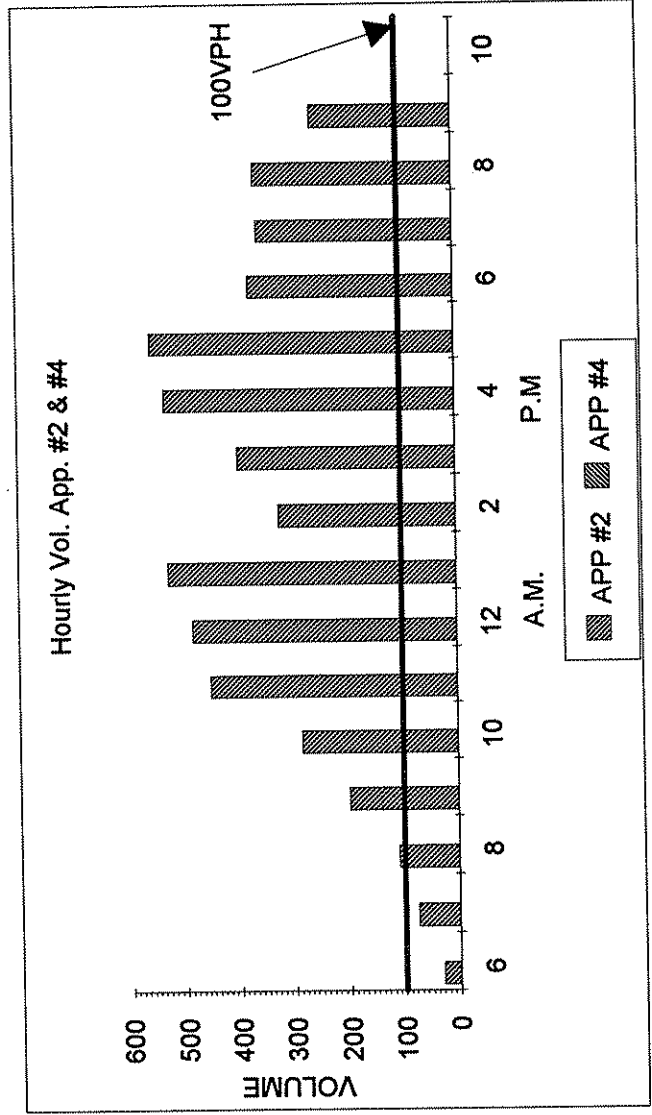
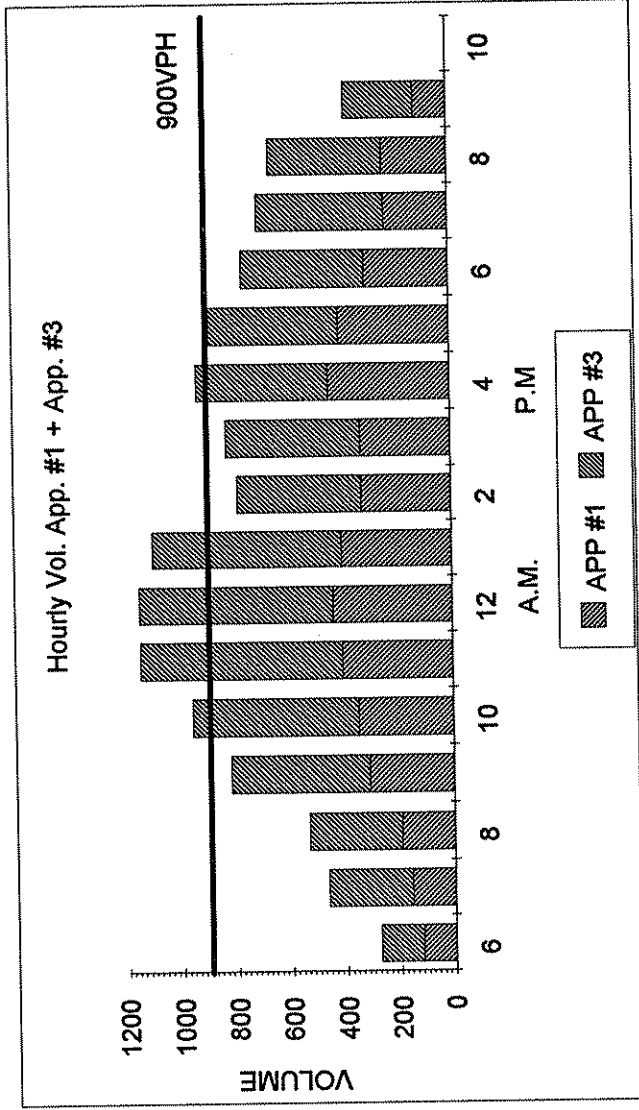
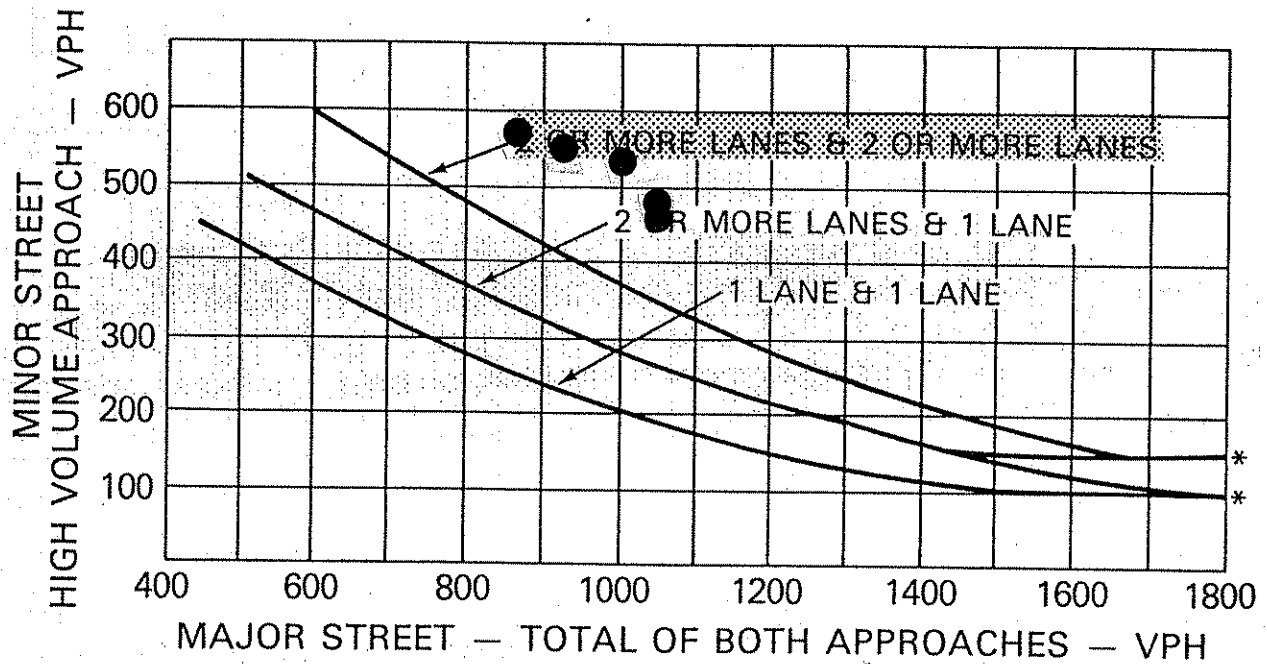


FIGURE 4-5. PEAK HOUR VOLUME WARRANT



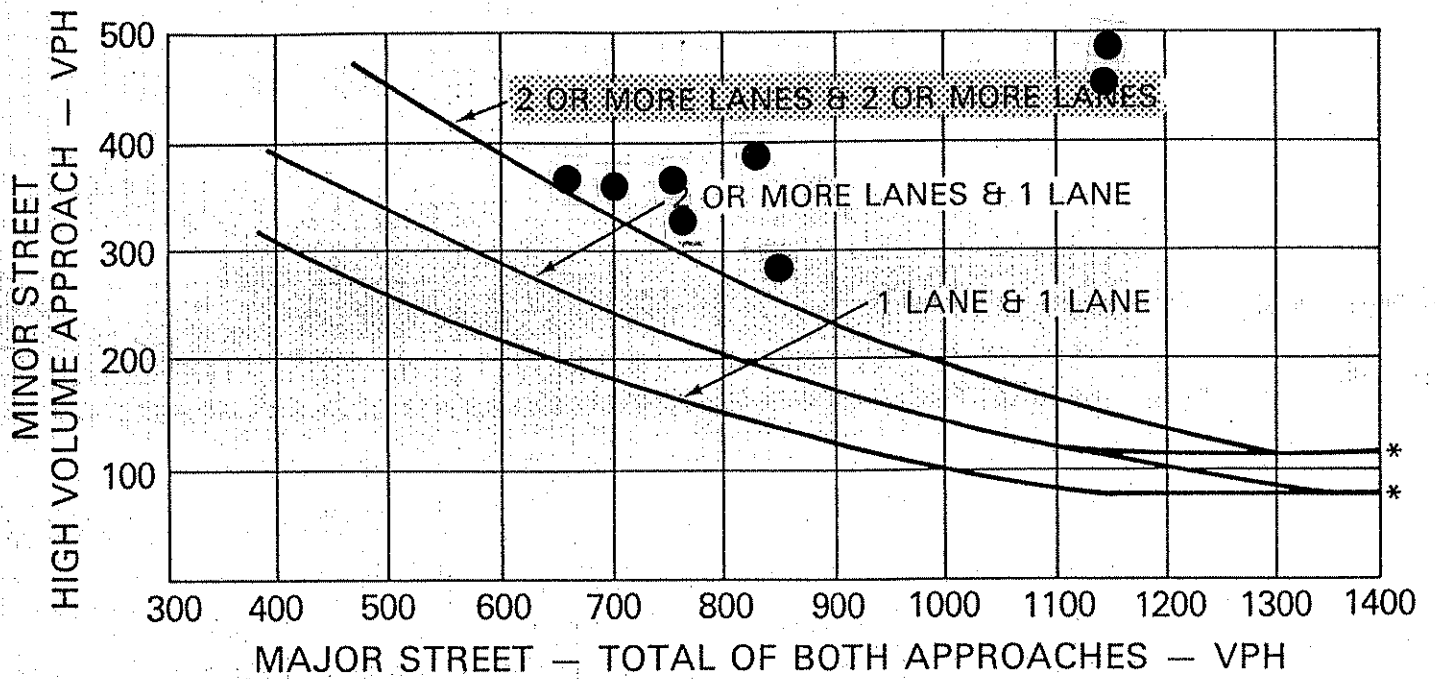
*NOTE: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

● = VOLUMES WHICH EXCEED THE THRESHOLD AND ARE REPRESENTED ON THE GRAPH.

★ = VOLUMES WHICH EXCEED THE THRESHOLD BUT CANNOT BE REPRESENTED ON THE GRAPH.

TIME	MAJOR STREETS (VPH)	MINOR STREET (VPH)
6-7 am	277	30
7-8 am	468	75
8-9 am	536	110
9-10 am	820	199
10-11 am	959	284
● 11-12 pm	1147	451
● 12-1 pm	1151	484
● 1-2 pm	1100	527
2-3 pm	787	321
3-4 pm	825	396
● 4-5 pm	933	532
● 5-6 pm	886	556
6-7 pm	763	371
7-8 pm	703	358
8-9 pm	659	362
9-10 pm	378	255

FIGURE 4-7. FOUR HOUR VOLUME WARRANT



*NOTE: 115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

● = VOLUMES WHICH EXCEED THE THRESHOLD AND ARE REPRESENTED ON THE GRAPH.

★ = VOLUMES WHICH EXCEED THE THRESHOLD BUT CANNOT BE REPRESENTED ON THE GRAPH.

TIME	MAJOR STREETS (VPH)	MINOR STREET (VPH)
6-7 am	277	30
7-8 am	468	75
8-9 am	536	110
9-10 am	820	199
10-11 am	959	284
11-12 pm	1147	451
12-1 pm	1151	484
1-2 pm	1100	527
2-3 pm	787	321
3-4 pm	825	396
4-5 pm	933	532
5-6 pm	886	556
6-7 pm	763	371
7-8 pm	703	358
8-9 pm	659	362
9-10 pm	378	255



NORTH

COUNT LOCATION: CR 10 (89 TH AVE) @ 87 TH LANE

DATE: 8/13/93

APP. #1=

APP. #2=WB CR 10
(89 TH AVE)

APP. #3=NB 87 TH LANE

APP. #4=EB CR 10
(89 TH AVE)

APP.
#2

APP.
#1

APP.
#3

APP.
#4

- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
- A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
 - B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.
 - C. BUSES- A HEAVY VEHICLE INVOLVED IN THE TRANSPORTATION OF GROUPS OF PEOPLE.

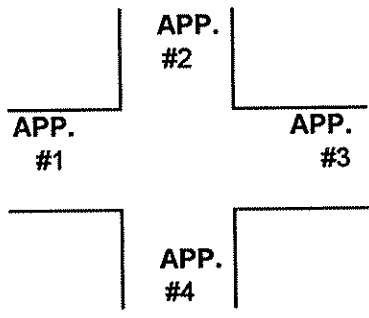
TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
6:00-6:15AM						1		1
6:15-6:30						1		3
6:30-6:45						1		3
6:45-7:00						2		3
HOURLY TOTAL								15
7:00-7:15						1		4
7:15-7:30						1		1
7:30-7:45				1	1	3		1
7:45-8:00				2	2	3		2
HOURLY TOTAL					3			16
8:00-8:15						2		3
8:15-8:30						9		1
8:30-8:45		1				3		
8:45-9:00			1		1	2		2
HOURLY TOTAL					1			22
9:00-9:15						6		3
9:15-9:30						1		3
9:30-9:45			3	3	6	2		1
9:45-10:00						3		1
HOURLY TOTAL					6			20
10:00-10:15						7		
10:15-10:30						9		
10:30-10:45						5		1
10:45-11:00				2	2	1		1
HOURLY TOTAL					2			24
11:00-11:15						4		2
11:15-11:30				2	2	8	1	
11:30-11:45						4		
11:45-12:00				9	9	5		1
HOURLY TOTAL					11			25
12:00-12:15						5		1
12:15-12:30		8			8	3		
12:30-12:45						4		
12:45-1:00		1		2	3	2		1
HOURLY TOTAL					11			16
1:00-1:15				1	1	4		3
1:15-1:30						5		
1:30-1:45		4		3	7	10	1	1
1:45-2:00						2		2
HOURLY TOTAL					8			28



COUNT LOCATION: CR 10 (89 TH AVE) @ 87 TH LANE

DATE: 8/26/93

APP. #1=
 APP. #2=WB CR 10 (89 THLANE)
 APP. #3=NB 87 TH LANE
 APP. #4=EB CR 10 (89 THLANE)



HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
 A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
 B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.
 C. BUSES- A HEAVY VEHICLE INVOLVED IN THE TRANSPORTATION OF GROUPS OF PEOPLE.

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
2:00-2:15PM							1	1
2:15-2:30						5		3
2:30-2:45						3		
2:45-3:00			1	2	3	5		1
HOURLY TOTAL					3	HOURLY TOTAL		19
3:00-3:15						3		1
3:15-3:30				1	1	5		3
3:30-3:45				1	1	6		
3:45-4:00						4		2
HOURLY TOTAL					2	HOURLY TOTAL		24
4:00-4:15						1		1
4:15-4:30								1
4:30-4:45						1		3
4:45-5:00								2
HOURLY TOTAL						HOURLY TOTAL		9
5:00-5:15								2
5:15-5:30		1			1	1		3
5:30-5:45								1
5:45-6:00								2
HOURLY TOTAL					1	HOURLY TOTAL		9
6:00-6:15				2	2			1
6:15-6:30								2
6:30-6:45				3	3			3
6:45-7:00				4	4			2
HOURLY TOTAL					9	HOURLY TOTAL		8
7:00-7:15								
7:15-7:30								
7:30-7:45						1		
7:45-8:00								
HOURLY TOTAL						HOURLY TOTAL		1
8:00-8:15								
8:15-8:30		1	2		3	1		
8:30-8:45								
8:45-9:00								
HOURLY TOTAL					3	HOURLY TOTAL		1
9:00-9:15								
9:15-9:30								
9:30-9:45								
9:45-10:00								
HOURLY TOTAL						HOURLY TOTAL		