WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • 304/558-3505

Joe Manchin III
Governor

May 23, 2007

Received
MAY 31 2007
Greenhorne & O'Mara Inc.

Mr. John Christman, P. E.
Greenhorne and O'Mara, Incorporated
810 Gleneagles Court, Suite 106
Baltimore, Maryland 21286

Dear Mr. Christman:

The West Virginia Division of Highways (WVDOH) has completed its review of the revised Traffic Impact Study received May 3, 2007, regarding the proposed Old Standard LLC development to be constructed in Jefferson County. The results of our review indicate that you have adequately addressed our previous comments and this revised study is hereby approved by the WVDOH.

Prior to undertaking any work within the WVDOH right of way, the developer will need to obtain the proper permits and approvals from the WVDOH. To that end, the developer should apply for the appropriate permit(s) from our District Five Headquarters in Burlington. The recommended highway modifications identified in the approved study should be incorporated into the detailed design plans for the project, as they pertain to the State Highway System.

Thank you for your assistance with this matter. Should you require additional information, please contact Mr. David E. Cramer, P. E., at (304) 558-0191.

Very truly yours,

James E. Sothen

James E. Sothen, P. E.
Deputy State Highway Engineer -
Development

JES:Cc

OLD STANDARD LLC QUARRY

TRAFFIC IMPACT STUDY

Prepared for:

Old Standard LLC

Prepared by:

GREENHORNE & O'MARA
CONSULTING ENGINEERS
810 Gleneagles Court, Suite 106
Baltimore, MD 21286

G&O Reference No. 0952
Original Report Date: November 6, 2006
Revised Report Date: January 16, 2007

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INTRODUCTION

Old Standard LLC Quarry development is a proposed mixed use commercial development to be located along Route 27, south of Route 340 in Jefferson County, West Virginia. Figure 1 shows the site location relative to major roadways in the area. At full buildout, this development will have over 1.8 million square feet of useable commercial space which would consist of office, warehouse, hotel with conference center, and a restaurant land uses. This project is expected to be built out by 2011.

The site is partitioned into two sections due to the presence of the Old Standard Quarry Lake which is located in the middle of the site; one parcel which abuts Route 27 and the other parcel is on the east side of the lake. The proposed site plan includes five access points along Route 27. The northernmost access point will be the main entrance to the part of the site east of the Quarry Lake. The access point just south of the northernmost access will provide access to the Restaurant. Figure 2 presents the general layout of the site.

This report was prepared to assess the potential traffic impacts on adjacent roadways due to traffic generated by this proposed development and to identify required roadway and traffic control improvements. Furthermore, this report also analyzes the impacts of constructing new access points onto Route 27.

Specifically, this study analyzes the projected traffic volumes at the proposed access points as well as at the following intersections:

- US 340/US 340 Alt
- US 340/Route 27
- US 340/Route 230
- Route 27/Route 23
- Route 27/Route 9

For the purposes of this study, three scenarios are considered:

- Existing
- Background – Future traffic conditions without development of the site
- Build-out of Proposed Development – Background with development of the site

II. EXISTING CONDITIONS

A. Roadway Network

The existing roadway network in the vicinity of the site is depicted in Figure 1 and is described as follows:

US 340 is a major four lane regional highway, which runs in an east-west orientation in the study section. This roadway connects Maryland, Virginia, and West Virginia. The posted speed limit in the vicinity of the site is 65 mph. Its intersection with US 340 Alternate is signalized, however, all other intersections in the study area are stop-sign controlled. Intersections along US 340 have auxiliary left and right turn lanes.

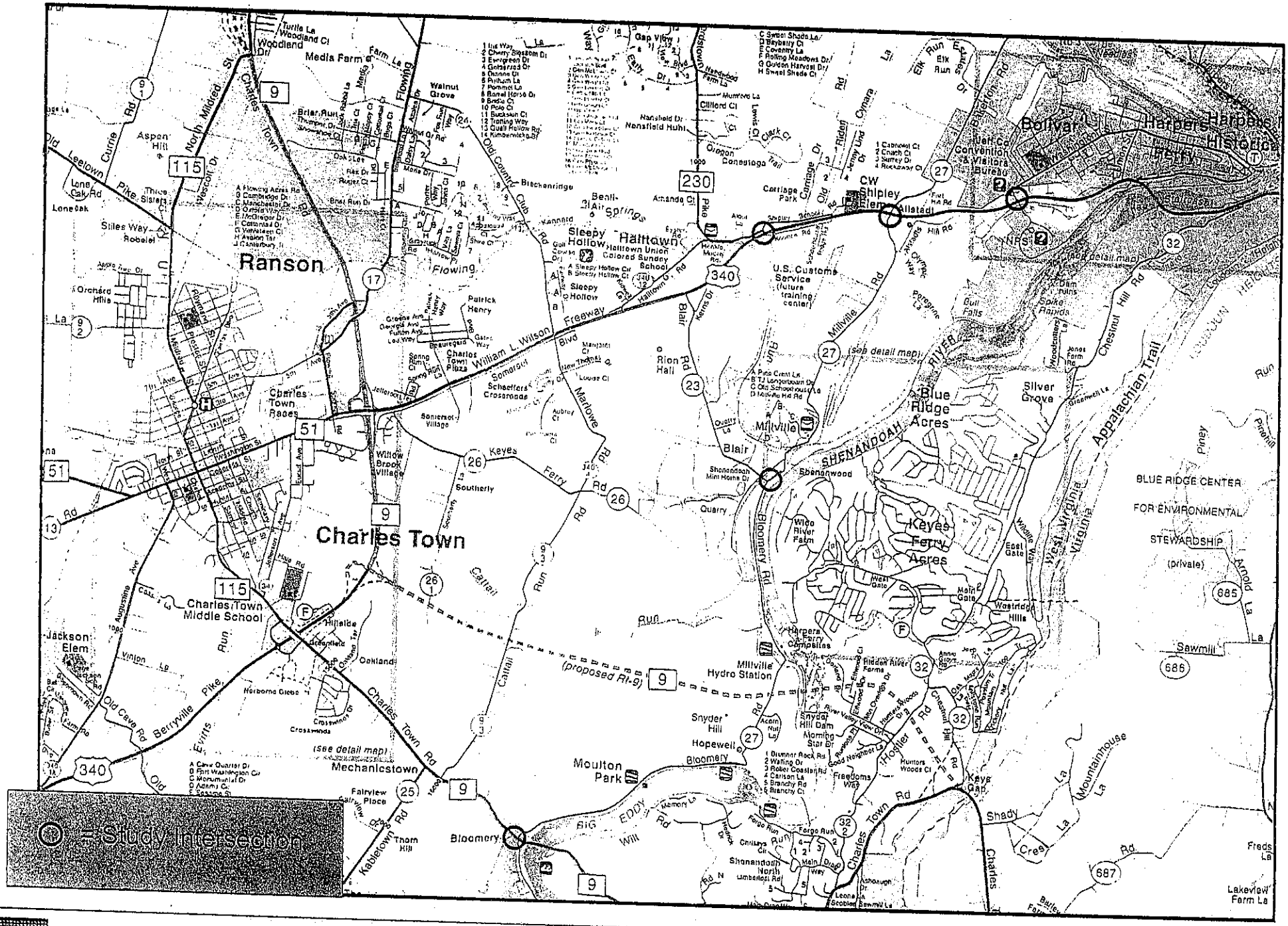


Figure 1. Vicinity Map

Old Standard LLC Quarry Development

A. Site Trip Generation

The number of vehicle-trips generated by the proposed development was estimated based on the rates documented in Trip Generation, by the Institute of Transportation Engineers (ITE), Seventh Edition, 2003. Table 4 presents the estimated peak hour vehicle-trips generated by each land use type for each phase. As shown, this development has the potential to generate approximately 16,230 trips per day of which approximately 2,170 trips would occur during the AM peak hour and 2,095 during the PM peak hour.

Please note that the restaurant is expected to experience passby trips. Per WVDOH guidelines, the passby percentage has been capped at 15%. Also currently, approximately 520,000 square feet is to be classified as "flex-space". However, in order to carry out a conservative analysis, this land use has been assumed to be Office space which typically has higher trip generation.

Table 4. Trip Generation

Development Type	ITE Land	Units	Size		AM Peak			PM Peak		
				Daily	In	Out	Total	In	Out	Total
Hotel**	310	Room	250	1,864	78	50	127	78	69	148
High Turnover Sit-Down Rest	932	Seats	200	966	49	45	94	49	35	84
Office	710	sq. ft.	845,000	6,900	910	124	1,034	174	851	1,025
Warehouse	150	sq. ft.	380,000	1,749	176	39	214	47	140	187
Flex Space*	710	sq. ft.	520000	4,748	617	84	701	112	549	661
Passby (Resturant_832 - 15%)								(6)	(6)	(13)
			Total New Trips	16,227	1,830	342	2,171	454	1,639	2,093

* Assume Flex-space will be future office land use because provides a conservative estimate

** Assuming that the Hotel Land use also has a 50,000 sf conference facility

B. Trip Distribution

The site trip distribution estimates are based on the current traffic patterns, the development's location relative to existing developed/metropolitan areas, and on discussion with WVDOH. Figure 7 presents the trip distribution percentages which are as follows:

- 40 percent oriented to/from the east along US 340
- 28 percent oriented to/from the west along US 340
- 2 percent oriented to/from the north along Route 27
- 10 percent oriented to/from the north/west along Route 230
- 15 percent oriented to/from the south along Route 9
- 5 percent oriented to/from the north along Route 9

C. Traffic Assignment

The weekday AM and PM peak hour site generated trips were assigned to the roadway network per the trip distributions presented above. Figure 8 presents the site trips assigned to the roadway network. Please note that the passby trips have been assigned equally along US 340, thus 50% have been assigned to/from the east and 50% to/from the west.

Overall, at full buildout this development is expected to add approximately 6,500 VPD to US 340 east of Route 27 and approximately 4,550 VPD west of Route 230. Route 230 will experience an increase of approximately 1,620 VPD and Route 9 south of Route 27 will increase approximately 2,430 VPD.

V. FUTURE CONDITIONS WITH PROPOSED DEVELOPMENT

A. *Traffic Conditions*

Site generated traffic volumes (including the passby volumes) from Figure 8 were added to the background volumes from figure 6 to produce the Total Traffic volumes shown on Figure 9.

Figure 10 presents the LOS results and associated lane geometry for the Total Build-out condition. Due to the size of this development, the intersection of US 340/Route 27 will need to signalized and thus a signal has been assumed at this intersection. Furthermore, the intersections of Route 27/Northern Site access and Route 27/Route 9 are also expected to require signalization and thus they have also been analyzed as signalized intersections. Please refer to Figure 8 for the access numbers shown in the table below. The LOS results from the Total Traffic are presented in Table5.

Table 5. Total Traffic LOS Results

Intersection	Background		Total	
	AM Peak	PM Peak	AM Peak	PM Peak
US 340/US 340 Alt	B (15.5)	C (21.9)	B (18.5)	C (25.5)
US 340/Route 27 NB LT SB LT EB LT WB LT ***With signalization***	 f (53.3) f (271.5) a (9.5) b (10.9)	 f (-) f (-) c (18.2) b (11.1)	 D (37.7)	 D (42.7)
US 340/Route 230 NB LT SB LT EB LT ***With signalization***	 c (35.5) f (661.5) a (9.3) B (11.6)	 f (97.9) f (-) c (15.5) A (9.5)	 D (37.4)	 B (13.2)
Route 27/Route 23 NB LT EB LT	 a (-) a (8.8)	 a (-) a (8.9)	 a (-) b (10.8)	 a (-) b (12.2)
Route 9/Route 27 NB LT SB LT EB LT WB LT ***With signalization***	 a (-) a (-) c (16.2) c (16.2)	 a (0.3) a (0.6) f (50.9) f (80.7)	 a (1.5) a (0.1) d (27.7) e (47.3) A (3.6)	 a (1.3) a (0.3) f (119.2) f (-) B (18.1)
Route 27/Northern Access (1)			A (5.5)	D (42.9)
Route 27/Resturant Access (2) SB LT WB LT			 a (8.4) c (17.0)	 a (9.5) c (21.7)
Route 27/Access 3 SB LT WB LT			 a (3.4) c (22.5)	 a (0.6) c (18.4)
Route 27/Access 4 SB LT WB LT			 a (1.9) c (20.7)	 a (0.3) c (14.8)
Route 27/Access 5 SB LT WB LT			 a (-) b (12.5)	 a (-) b (14.5)

X (00.0) = signalized intersection LOS (delay in seconds)
x (00.0) = unsignalized intersection critical movement LOS (delay in seconds)

As can be seen in Table 5, the signalized intersections of US 340/340 Alt, and US 340/Route 230 are expected to operate at LOS D or better during the peak hours. All movement at the unsignalized intersection of Route 27/Route 23 are also expected to operate at LOS B or better during the peak hours. All movements at the site accesses 2 thru 5 are expected to operate at LOS C or better during the peak hours.

As noted previously, the intersections of US 340/Route 27, Route 27/Northern Site Access (1) are expected to meet signal warrants and may need to signalized. Per MUTCD guidelines, a peak hour signal warrant analysis has been conducted and is provided in Appendix F. For planning purposes, and due the lack of turning movement data over an 8 hour period, only the peak hour warrant has been evaluated. However, once this development is occupied, we recommend that data be collected such that at least the 4-hour or 8-hour warrants can be evaluated. The peak hour signal warrant analysis indicates that these intersections will meet signal warrants at buildout. As signalized intersections, they are expected to operate at LOS D or better during the peak hours.

All movements at the unsignalized intersection of Route 9/Route 27 are expected to operate at LOS D or better with the exception of the eastbound and westbound left turn movement which are expected experience long delays during the peak hours. This intersection may meet signal warrants upon the full buildout of the Old Standard LLC Quarry development. If this intersection were to be signalized it is expected to operate at LOS at LOS B or better during the peak hours. A peak our signal warrant analysis was conducted for this intersection. Analysis indicates that this intersection will meet signal warrant at buildout. The signal warrant analysis is attached in Appendix E.

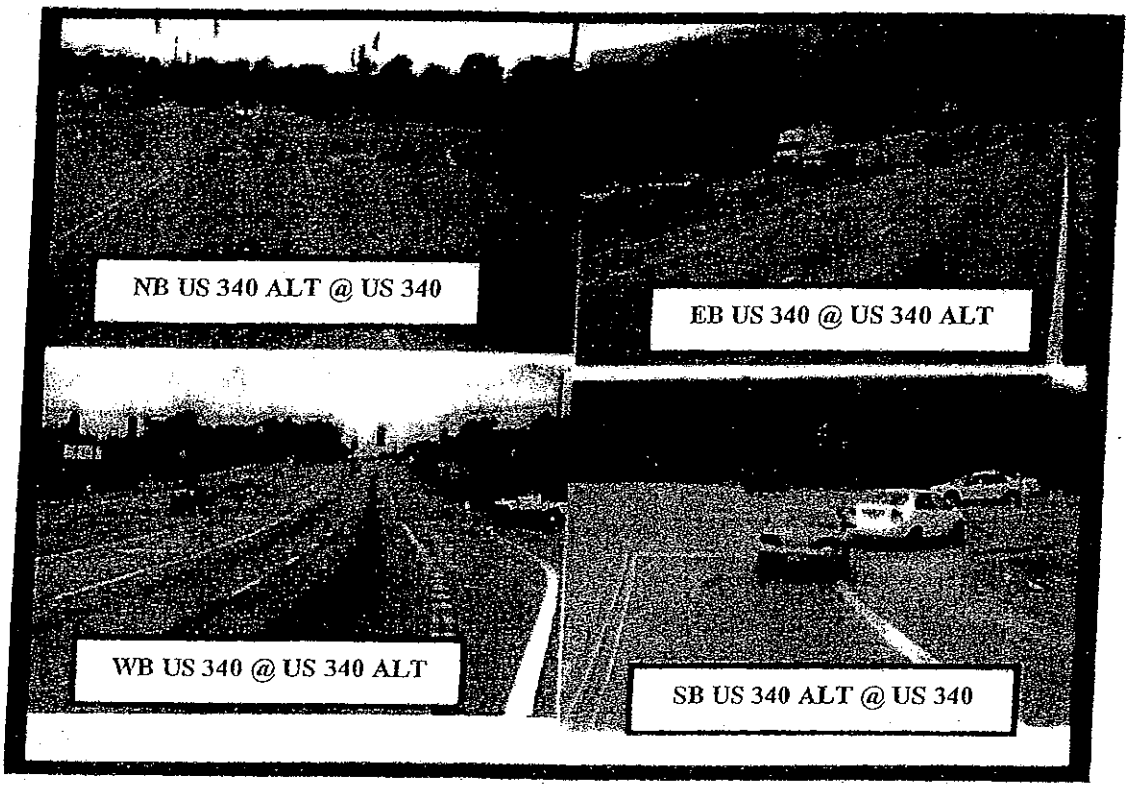
The suggested improvements are outlined below. Please note that the analysis results presented above have assumed that all these improvements are in place. Figure 11 presents the recommended improvements in the study area. Figure 12 provides approximate distances between intersections in the study area.

- US 340/Route 27
  - Signalize this intersection
  - Provide an exclusive northbound left turn lane, a shared left turn-through lane, and an exclusive free flow right turn lane
  - Provide a four lane cross-section along Route 27 between US 340 and the northernmost site access (1)
  - Provide dual westbound left turn lane
  - Provide an exclusive southbound right turn lane and a shared left turn-through lane
  - Provide split phasing on Route 27

- Route 27/Northernmost Site Access (1)
  - Signalize this intersection
  - Provide dual southbound left turn lanes such that the north approach has two left turn lanes and one through lane
  - Provide a northbound right turn lane into the site
  - Provide a four lane cross section for the site access road, such that separate left and right turn lanes can be provided out of the site

- Route 9/Route 27
  - Monitor and signalize this intersection if it meets warrants at the buildout of the site.
  - Provide a separate westbound left turn lane and a shared through right turn lane along westbound Route 27

US 340/US 340ALT



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Weather: Sunny
Counted By: SYLVIA
Town: MILLSVILLE
Other:

File Name : US340@~2
Site Code : 00004444
Start Date : 08/04/2006
Page No : 1

Groups Printed- Unshifted

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08:15 AM	5	1	15	0	21	1	106	3	0	110	5	3	6	0	14	34	155	3	0	192	337
08:30 AM	4	4	13	0	21	2	103	6	0	111	0	4	2	0	6	34	166	2	0	202	340
08:45 AM	7	8	29	0	44	4	134	1	0	139	3	6	2	0	11	26	150	8	0	184	378
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File Name : US340@~2
Site Code : 00004444
Start Date : 08/04/2006
Page No : 2

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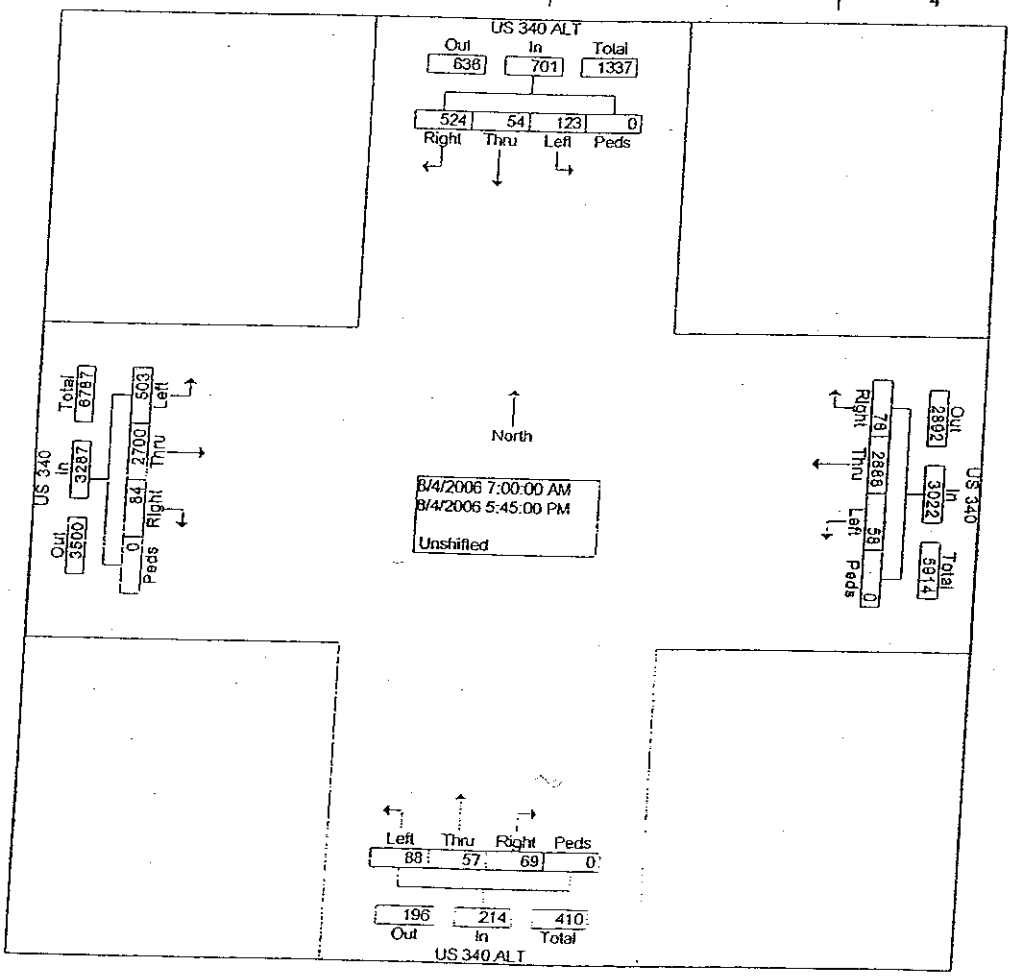

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Intersection 07:00 AM																					
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Percent	22.4	4.8	72.8	0.0		0.6	97.	2.5	0.0		37.5	33.3	29.2	0.0		8.6	90.2	1.2	0.0		
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Peak Factor																					0.983
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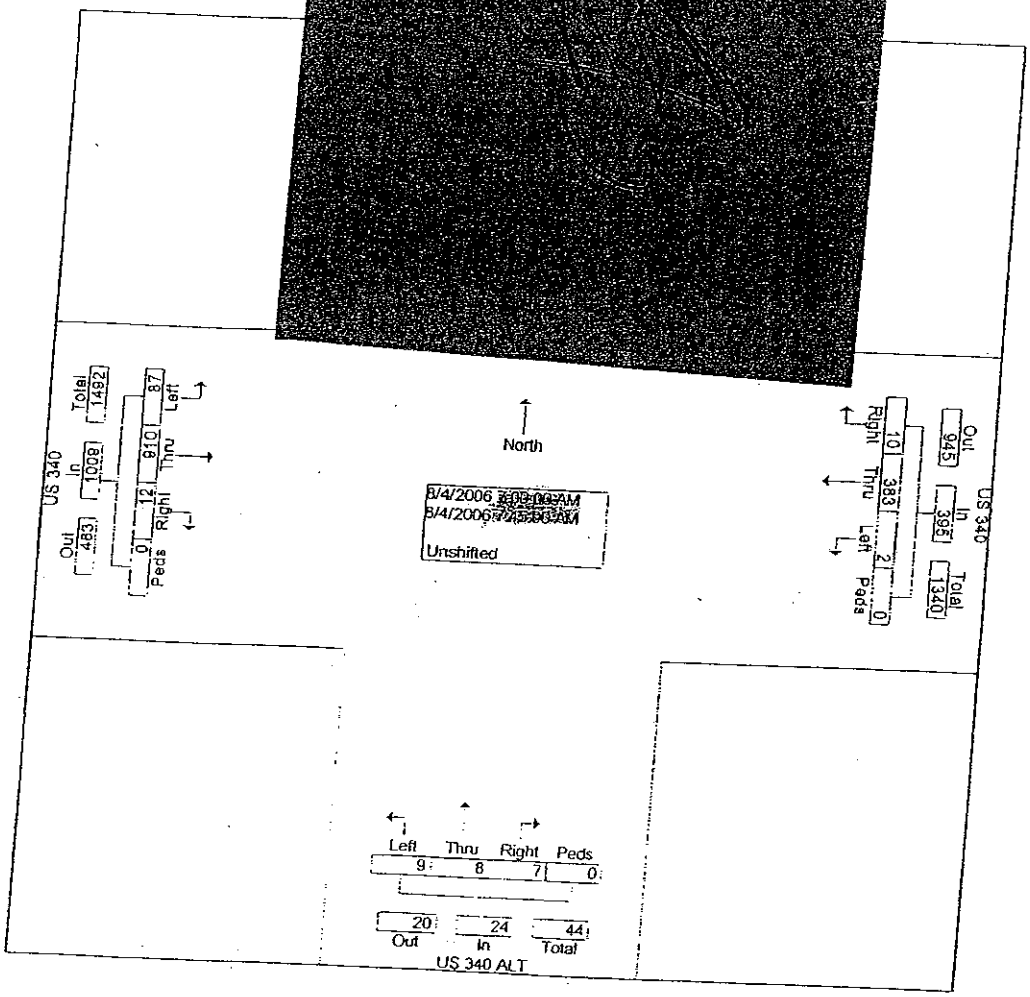
Peak Factor					0.781															0.945	



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Start Date : 08/04/2006
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By Approach	07:00 AM					08:00 AM					07:45 AM					07:00 AM					
Volume	28	6	91	0	125	9	451	11	0	471	14	12	14	0	40	87	910	12	0	1009	
Percent	22.4	4.8	72.8	0.0		1.9	95.8	2.3	0.0		35.0	30.0	35.0	0.0		8.6	90.2	1.2	0.0		
High Int.	07:30 AM					08:45 AM					08:15 AM					07:15 AM					
Volume	8	2	30	0	40	4	134	1	0	139	5	3	6	0	14	21	243	3	0	267	
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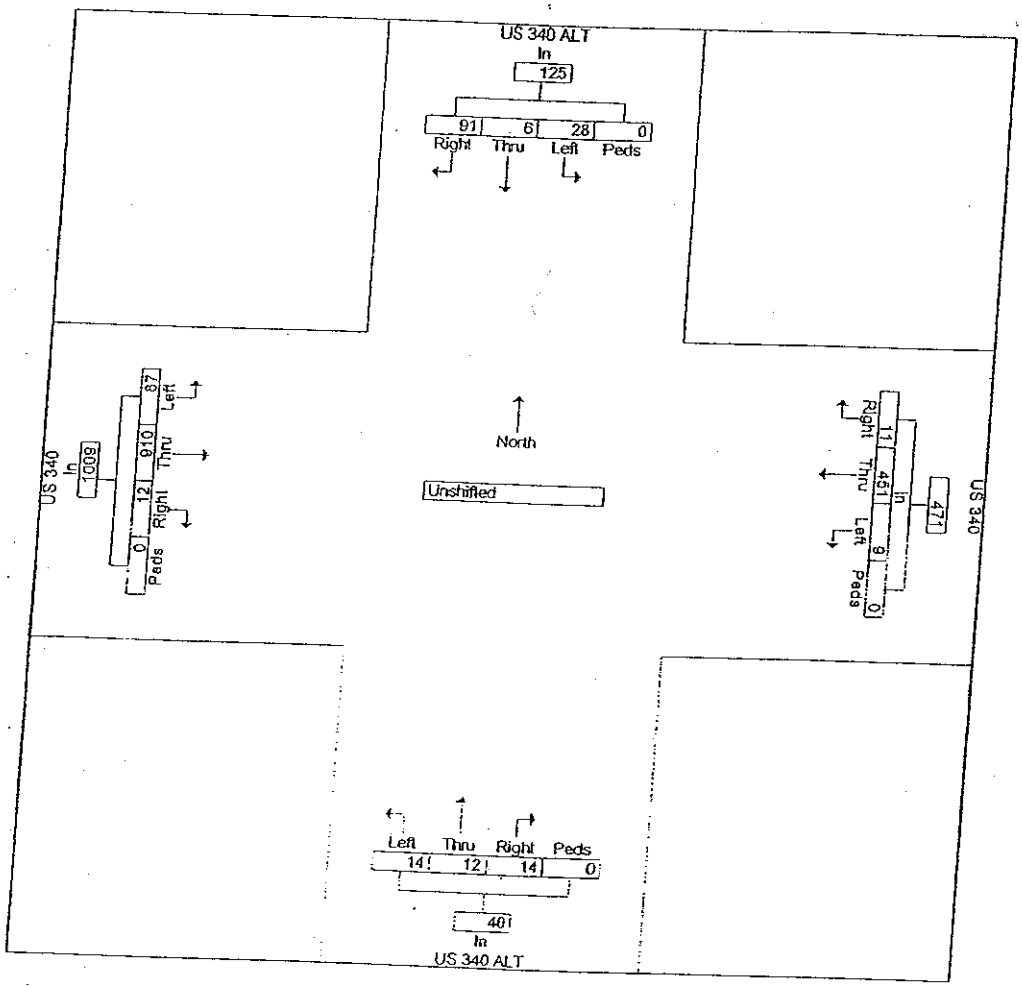

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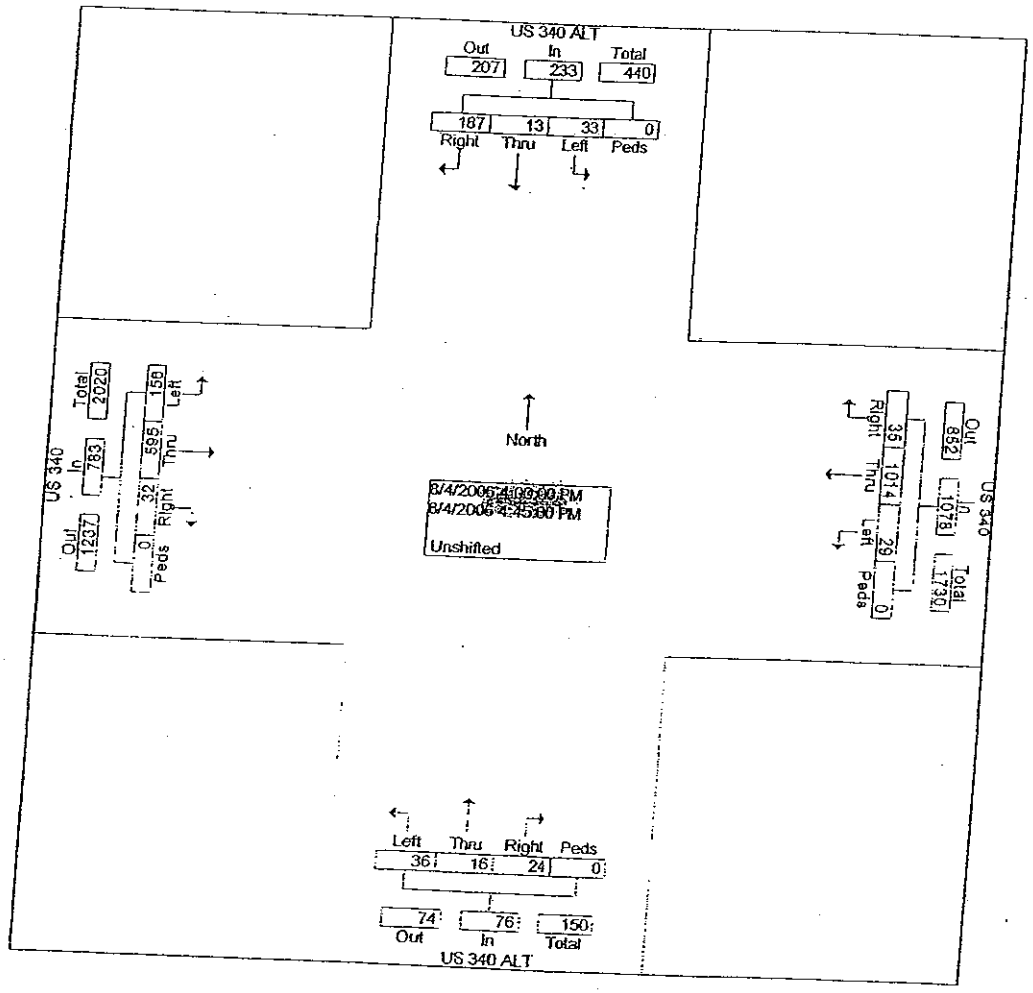
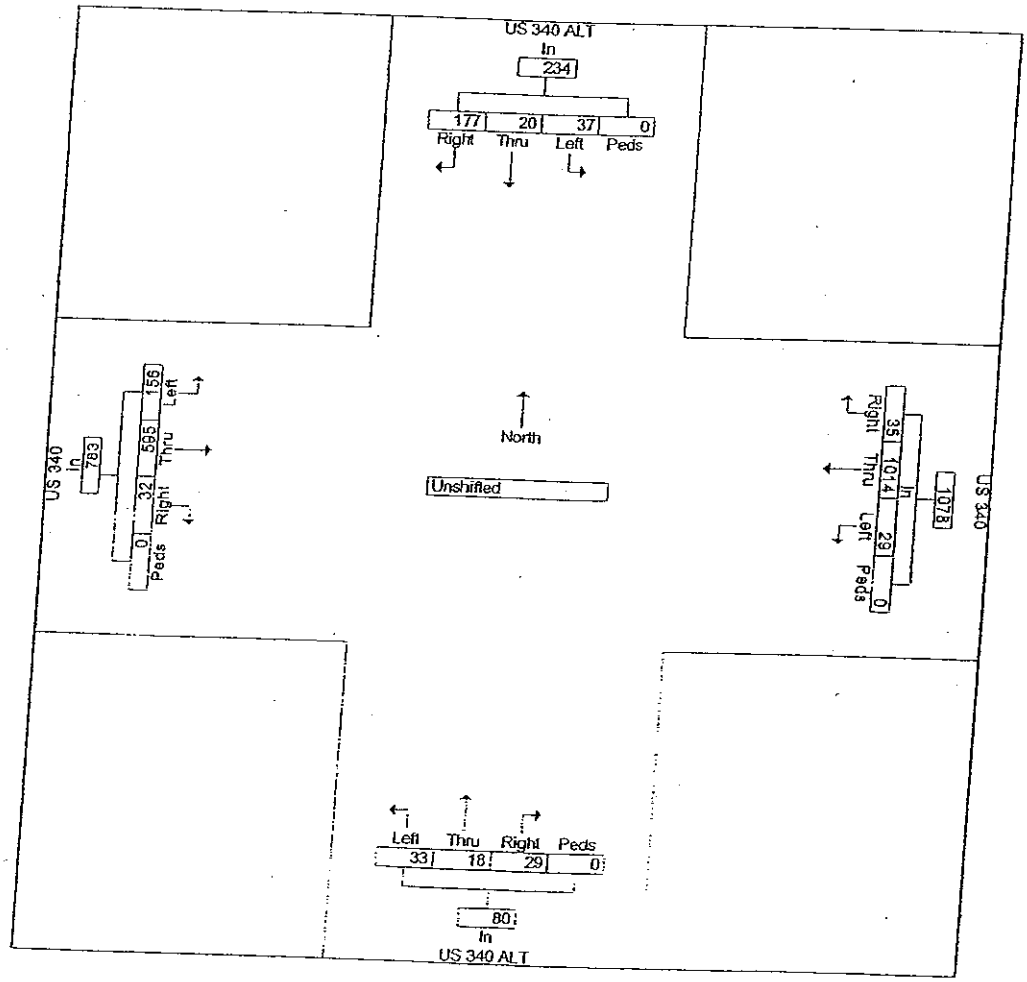
	US 340 ALT From North					US 340 From East					US 340 ALT From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	33	13	187	0	233	29	1014	35	0	1078	36	16	24	0	76	156	595	32	0	783	2170
Percent	14.2	5.6	80.3	0.0		2.7	94.1	3.2	0.0		47.4	21.1	31.6	0.0		19.9	76.0	4.1	0.0		
04:45 Volume	7	1	45	0	53	6	266	8	0	280	8	5	6	0	19	40	173	9	0	222	574
Peak Factor																					0.945
High Int. Volume	04:15 PM 7	5	53	0	65	04:00 PM 8	272	11	0	291	04:15 PM 16	3	9	0	28	04:45 PM 40	173	9	0	222	
Peak Factor					0.896					0.926					0.679					0.882	



Sabra, Wang & Associates Inc
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

File Name : US340@~2
Site Code : 00004444
Start Date : 08/04/2006
Page No : 6

	US 340 ALT From North					US 340 From East					US 340 ALT From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	05:00 PM					04:00 PM					04:15 PM					04:00 PM					
Volume	37	20	177	0	234	29	1014	35	0	1078	33	18	29	0	80	156	595	32	0	783	
Percent	15.8	8.5	75.6	0.0		2.7	94.1	3.2	0.0		41.3	22.5	36.3	0.0		19.9	76.0	4.1	0.0		
High Int.	05:45 PM					04:00 PM					04:15 PM					04:45 PM					
Volume	8	4	60	0	72	8	272	11	0	291	16	3	9	0	28	40	173	9	0	222	
Peak Factor					0.813					0.926					0.714					0.882	



Sabra, Wang & Associates Inc
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

Weather: Sunny
Counted By: SYLVIA
Town: MILLSVILLE
Other:

File Name : US340@~2
Site Code : 00004444
Start Date : 08/04/2006
Page No : 1

Groups Printed- Unshifted - TRUCKS

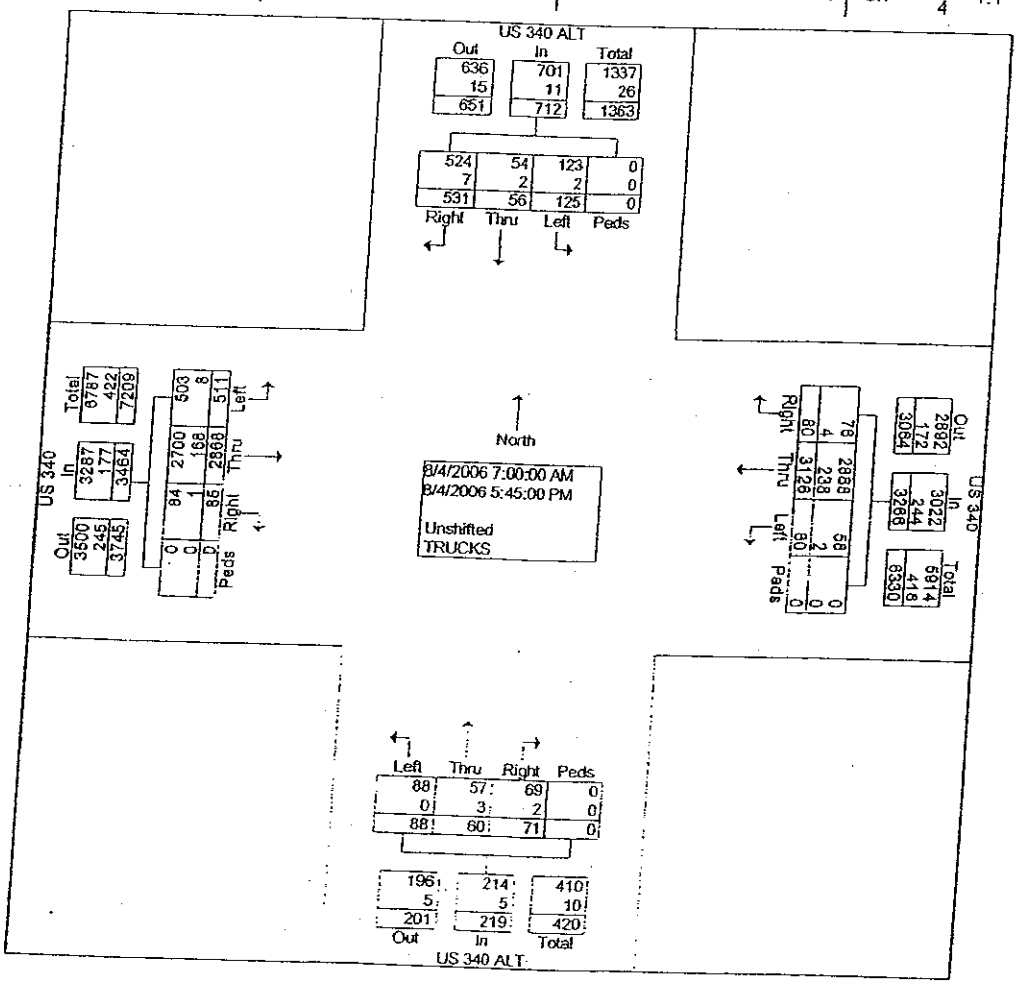
	US 340 ALT From North					US 340 From East					US 340 ALT From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	5	2	21	0	28	0	116	2	0	118	1	2	0	0	3	26	253	4	0	283	432
07:15 AM	10	0	15	0	25	0	99	5	0	104	2	1	3	0	6	21	259	3	0	283	418
07:30 AM	8	2	30	0	40	0	110	2	0	112	2	1	2	0	5	19	237	0	0	256	413
07:45 AM	5	2	27	0	34	2	120	2	0	124	4	5	2	0	11	23	227	5	0	255	424
Total	28	6	93	0	127	2	445	11	0	458	9	9	7	0	25	89	976	12	0	1077	1687
08:00 AM	10	2	12	0	24	2	128	2	0	132	5	0	4	0	9	48	184	5	0	237	402
08:15 AM	5	1	15	0	21	1	127	3	0	131	5	3	7	0	15	34	166	3	0	203	370
08:30 AM	4	4	13	0	21	2	123	7	0	132	0	5	2	0	7	34	174	2	0	210	370
08:45 AM	8	8	30	0	46	4	151	2	0	157	3	6	3	0	12	28	167	8	0	203	418
Total	27	15	70	0	112	9	529	14	0	552	13	14	16	0	43	144	691	18	0	853	1560
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	9	6	44	0	59	8	289	11	0	308	4	2	2	0	8	37	166	8	0	211	586
04:15 PM	7	6	53	0	66	9	252	9	0	270	16	3	9	0	28	40	132	8	0	180	544
04:30 PM	10	2	46	0	58	7	251	7	0	265	8	6	7	0	21	41	143	7	0	191	535
04:45 PM	7	1	45	0	53	6	281	8	0	295	8	6	6	0	20	42	179	9	0	230	598
Total	33	15	188	0	236	30	1073	35	0	1138	36	17	24	0	77	160	620	32	0	812	2263

Sabra, Wang & Associates Inc
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

File Name : US340@~2
Site Code : 00004444
Start Date : 08/04/2006
Page No : 2

Groups Printed- Unshifted - TRUCKS

	US 340 ALT From North					US 340 From East					US 340 ALT From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
05:00 PM	6	6	36	0	48	2	184	2	0	188	1	4	7	0	12	23	117	5	0	145	393
05:15 PM	15	4	46	0	65	7	299	3	0	309	11	4	5	0	20	30	179	6	0	215	609
05:30 PM	8	6	38	0	52	6	299	8	0	313	9	4	5	0	18	30	152	5	0	187	570
05:45 PM	8	4	60	0	72	4	297	7	0	308	9	8	7	0	24	35	133	7	0	175	579
Total	37	20	180	0	237	19	1079	20	0	1118	30	20	24	0	74	118	581	23	0	722	2151
Grand Total	125	56	531	0	712	60	3126	80	0	3266	88	60	71	0	219	511	2868	85	0	3464	7661
Apprch %	17.6	7.9	74.6	0.0		1.8	95.7	2.4	0.0		40.2	27.4	32.4	0.0		14.8	82.8	2.5	0.0		
Total %	1.6	0.7	6.9	0.0	9.3	0.8	40.8	1.0	0.0	42.6	1.1	0.8	0.9	0.0	2.9	6.7	37.4	1.1	0.0	45.2	



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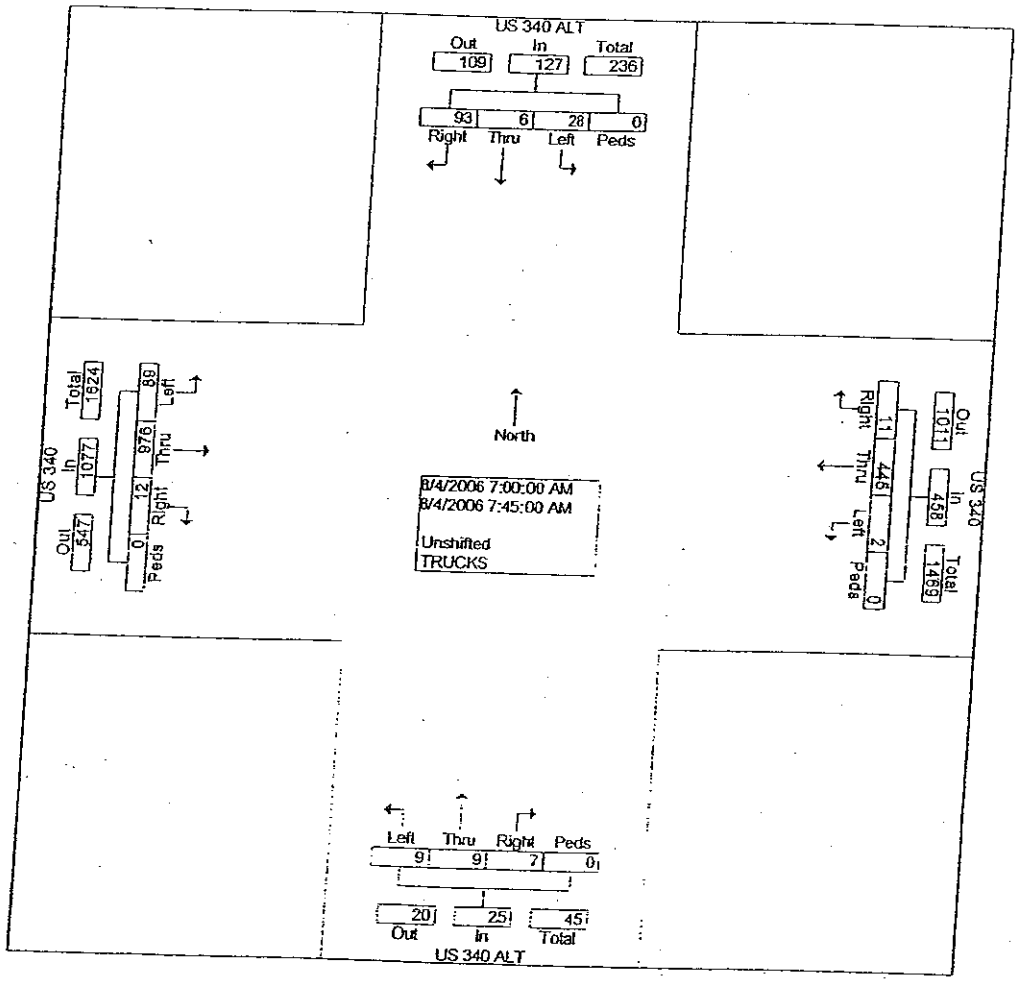
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

File Name : US340@~2
Site Code : 00004444
Start Date : 08/04/2006
Page No : 3

	US 340 ALT From North					US 340 From East					US 340 ALT From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	28	6	93	0	127	2	445	11	0	458	9	9	7	0	25	89	976	12	0	1077	1687
Percent	22.0	4.7	73.2	0.0		0.4	97.2	2.4	0.0		36.0	36.0	28.0	0.0		8.3	90.6	1.1	0.0		
07:00 Volume	5	2	21	0	28	0	116	2	0	118	1	2	0	0	3	26	253	4	0	283	432
Peak Factor																					0.976
High Int.	07:30 AM					07:45 AM					07:45 AM					07:00 AM					
Volume	8	2	30	0	40	2	120	2	0	124	4	5	2	0	11	26	253	4	0	283	
Peak Factor					0.794					0.923					0.568					0.951	



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1504 Joh Avenue
Suite 160
Baltimore, MD 21227

File Name : US340@~2
Site Code : 00004444
Start Date : 08/04/2006
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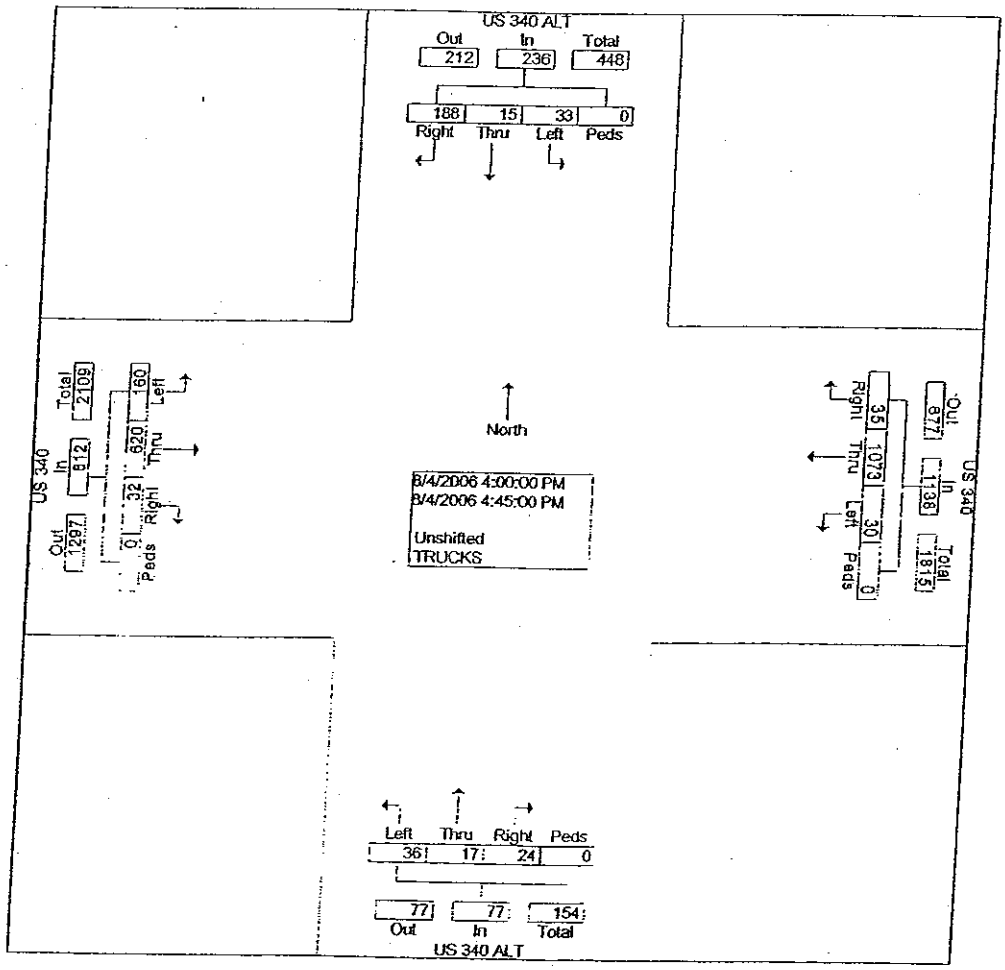
	US 340 ALT From North					US 340 From East					US 340 ALT From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	33	15	188	0	236	30	1073	35	0	1138	36	17	24	0	77	160	620	32	0	812	2263
Percent	14.0	6.4	79.7	0.0		2.6	94.3	3.1	0.0		46.8	22.1	31.2	0.0		19.7	76.4	3.9	0.0		
04:45 Volume	7	1	45	0	53	6	281	8	0	295	8	6	6	0	20	42	179	9	0	230	598
Peak Factor																					0.946
High Int.	04:15 PM					04:00 PM					04:15 PM					04:45 PM					
Volume	7	6	53	0	66	8	289	11	0	308	16	3	9	0	28	42	179	9	0	230	
Peak Factor					0.894					0.924					0.688					0.883	



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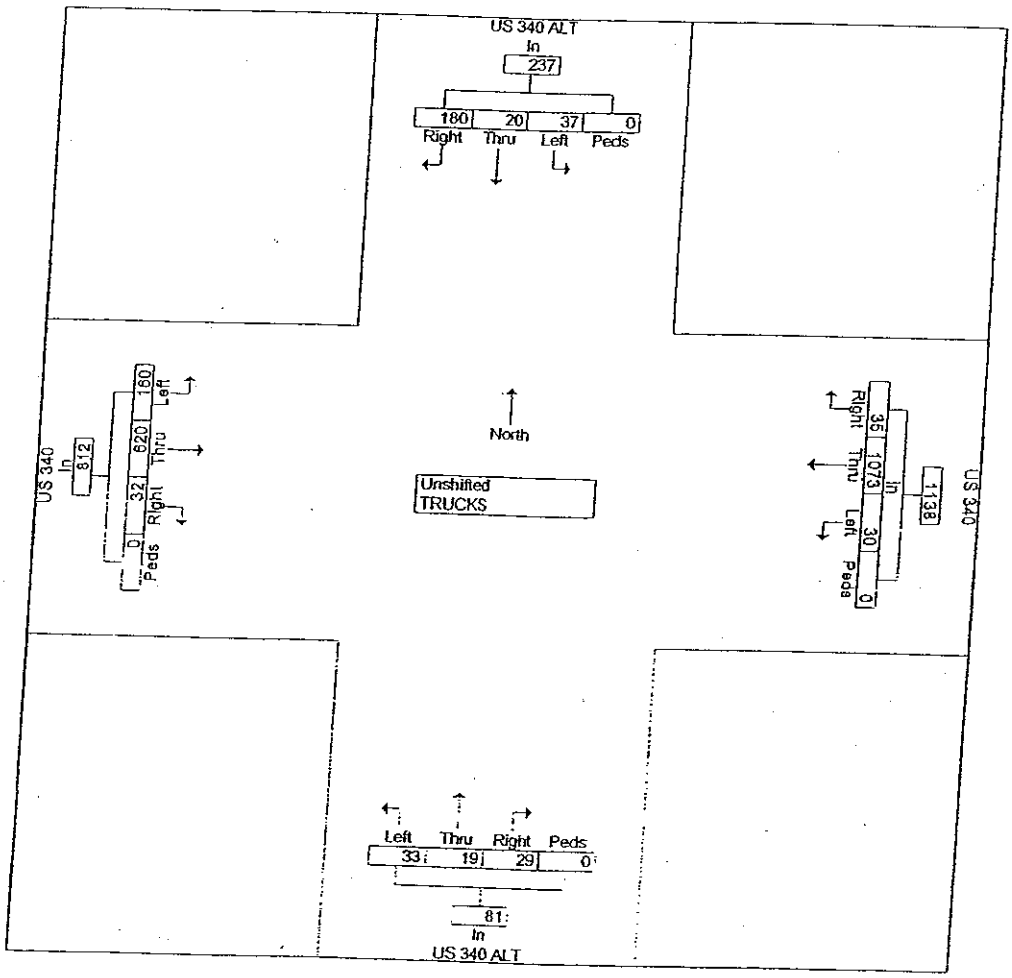
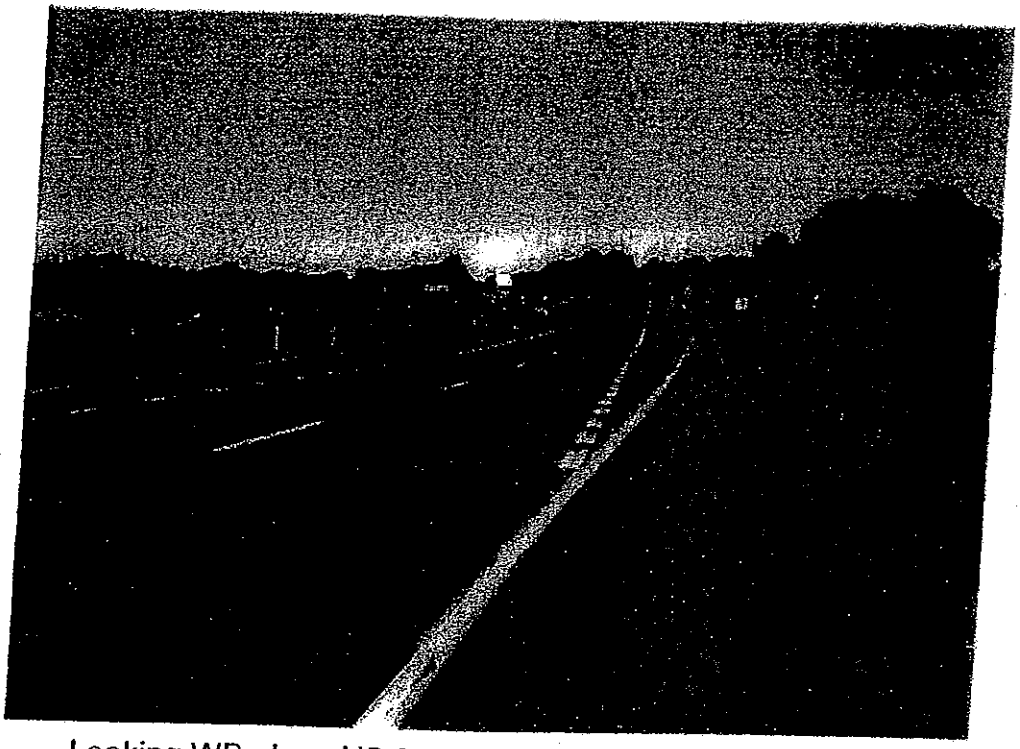
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

File Name : US340@~2
Site Code : 00004444
Start Date : 08/04/2006
Page No : 6

	US 340 ALT From North					US 340 From East					US 340 ALT From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	05:00 PM					04:00 PM					04:15 PM					04:00 PM					
Volume	37	20	180	0	237	30	1073	35	0	1138	33	19	29	0	81	160	620	32	0	812	
Percent	15.6	8.4	75.9	0.0		2.6	94.3	3.1	0.0		40.7	23.5	35.8	0.0		19.7	76.4	3.9	0.0		
High Int.	05:45 PM					04:00 PM					04:15 PM					04:45 PM					
Volume	8	4	60	0	72	8	289	11	0	308	16	3	9	0	28	42	179	9	0	230	
Peak Factor					0.823					0.924					0.723					0.883	



US 340/CR 27



Looking WB along US 340 near its intersection with CR 27

Looking NB along CR 27 at its intersection with US 340

- 27 is 2 lns ⇒ 24' widths
→ no shldrs
- 45mph.

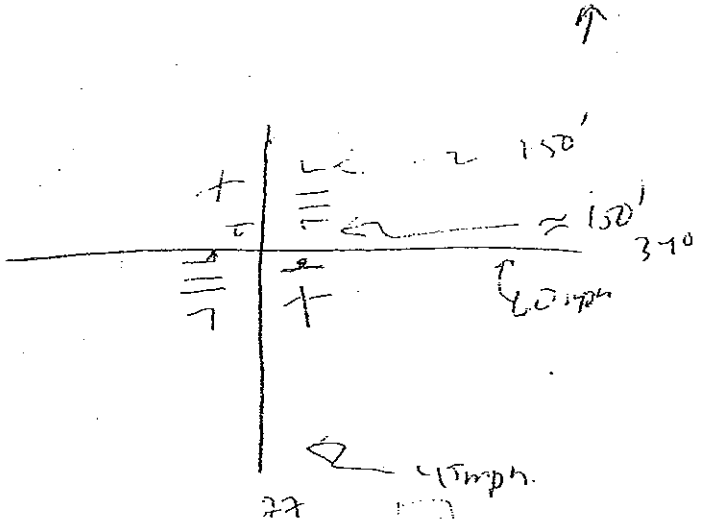
Sabra, Wang & Associates, Inc.
1504 Joh Avenue, Suite 160
Baltimore, Maryland 21227

Weather:SUNNY
Counted By:RICHARD, JEREMY
Town:MILLVILLE
County:JEEFERSON

File Name : US34O@~1
Site Code : 06120802
Start Date : 06/16/2006
Page No : 1

Groups Printed- Unshifted

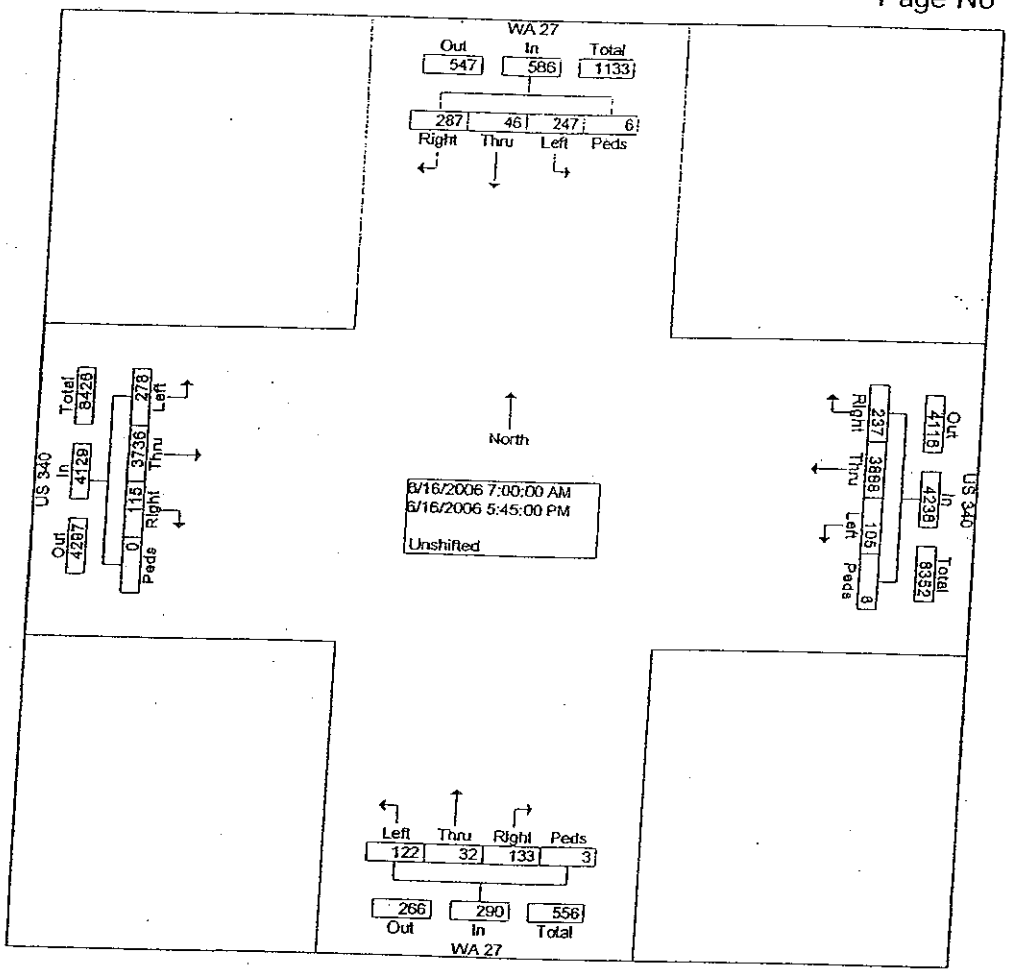
	WA 27 From North					US 340 From East					WA 27 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00	16	1	8	0	25	0	124	1	0	125	3	1	3	0	7	4	222	4	0	230	387
07:15	16	2	6	0	24	0	120	0	0	120	2	0	6	0	8	10	179	2	0	191	343
07:30	16	5	9	0	30	3	135	2	0	140	2	0	6	0	8	25	193	4	0	222	400
07:45	13	1	10	0	24	2	117	1	0	120	4	0	9	0	13	13	164	7	0	184	341
Total	61	9	33	0	103	5	496	4	0	505	11	1	24	0	36	52	758	17	0	827	1471
08:00	12	0	15	0	27	0	143	2	0	145	4	0	3	0	7	7	169	3	0	179	358
08:15	12	2	9	0	23	2	121	2	0	125	8	0	6	0	14	5	142	8	0	155	317
08:30	17	2	14	0	33	4	107	3	0	114	6	1	3	0	10	4	143	4	0	151	308
08:45	9	2	17	1	29	3	145	3	0	151	1	1	1	0	3	5	173	6	0	184	367
Total	50	6	55	1	112	9	516	10	0	535	19	2	13	0	34	21	627	21	0	669	1350
*** BREAK ***																					
15:00	6	1	9	0	16	5	139	5	2	151	8	2	6	0	16	24	193	5	0	222	405
15:15	4	0	13	1	18	5	113	9	2	129	9	4	9	2	24	19	202	8	0	229	400
15:30	10	1	14	3	28	10	221	27	1	259	13	1	12	1	27	19	231	8	0	258	572
15:45	8	1	11	0	20	6	233	16	1	256	9	0	6	0	15	15	242	6	0	263	554
Total	28	3	47	4	82	26	706	57	6	795	39	7	33	3	82	77	868	27	0	972	1931
16:00	16	1	18	0	35	4	286	18	0	308	11	3	7	0	21	12	187	5	0	204	568
16:15	23	5	32	0	60	11	238	16	0	265	10	5	4	0	19	19	160	6	0	185	529
16:30	18	8	29	0	55	11	282	28	0	321	9	0	7	0	16	20	190	6	0	216	608
16:45	16	6	24	1	47	9	294	32	0	335	3	2	6	0	11	18	190	9	0	217	610
Total	73	20	103	1	197	35	1100	94	0	1229	33	10	24	0	67	69	727	26	0	822	2315
17:00	15	3	17	0	35	10	263	17	0	290	7	7	13	0	27	14	183	7	0	204	556
17:15	9	2	14	0	25	5	274	21	0	300	5	1	11	0	17	12	167	2	0	181	523
17:30	5	3	12	0	20	10	287	16	0	313	7	3	8	0	18	17	200	10	0	227	578
17:45	6	0	6	0	12	5	246	18	0	269	1	1	7	0	9	16	206	5	0	227	517
Total	35	8	49	0	92	30	1070	72	0	1172	20	12	39	0	71	59	756	24	0	839	2174
Grand Total	247	46	287	6	586	105	3888	237	6	4236	122	32	133	3	290	278	3736	115	0	4129	9241
Apprch %	42.2	7.8	49.0	1.0		2.5	91.8	5.6	0.1		42.1	11.0	45.9	1.0		6.7	90.5	2.8	0.0		
Total %	2.7	0.5	3.1	0.1	6.3	1.1	42.1	2.6	0.1	45.8	1.3	0.3	1.4	0.0	3.1	3.0	40.4	1.2	0.0	44.7	



Sabra, Wang & Associates, Inc.
1504 Joh Avenue, Suite 160
Baltimore, Maryland 21227

Weather:SUNNY
Counted By:RICHARD, JEREMY
Town:MILLVILLE
County:JEEFERSON

File Name : US34O@~1
Site Code : 06120802
Start Date : 06/16/2006
Page No : 2

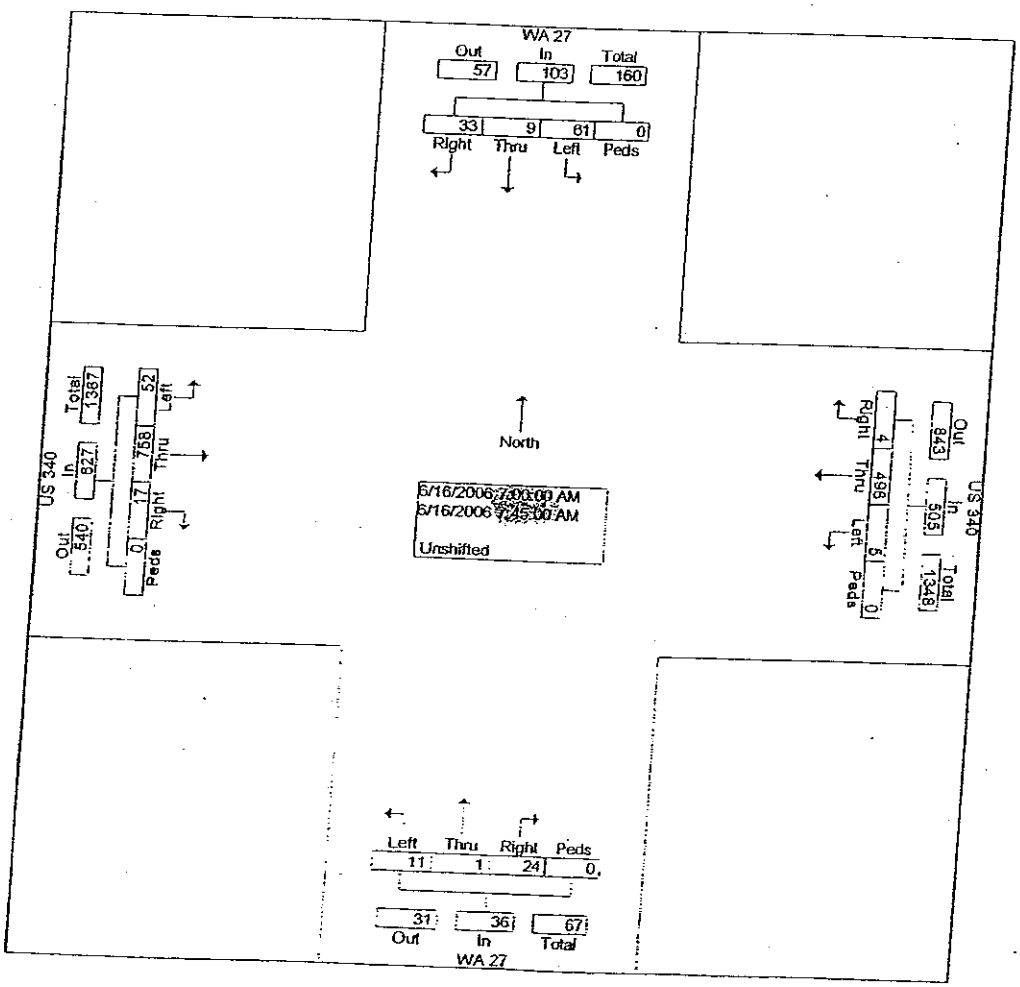


Sabra, Wang & Associates, Inc.
1504 Joh Avenue, Suite 160
Baltimore, Maryland 21227

Weather:SUNNY
Counted By:RICHARD, JEREMY
Town:MILLVILLE
County:JEEFERSON

File Name : US34O@~1
Site Code : 06120802
Start Date : 06/16/2006
Page No : 3

	WA 27 From North					US 340 From East					WA 27 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																					
Intersection	07:00																				
Volume	61	9	33	0	103	5	496	4	0	505	11	1	24	0	36	52	758	17	0	827	1471
Percent	59.2	8.7	32.0	0.0		1.0	98.2	0.8	0.0		30.6	2.8	66.7	0.0		6.3	91.7	2.1	0.0		
Volume	61	9	33	0	103	5	496	4	0	505	11	1	24	0	36	52	758	17	0	827	1471
Volume Peak Factor	16	5	9	0	30	3	135	2	0	140	2	0	6	0	8	25	193	4	0	222	400
High Int.	07:30					07:30															0.919
Volume	16	5	9	0	30	3	135	2	0	140	4	0	9	0	13	07:00					
Peak Factor					0.858					0.902					0.692	4	222	4	0	230	
																				0.899	

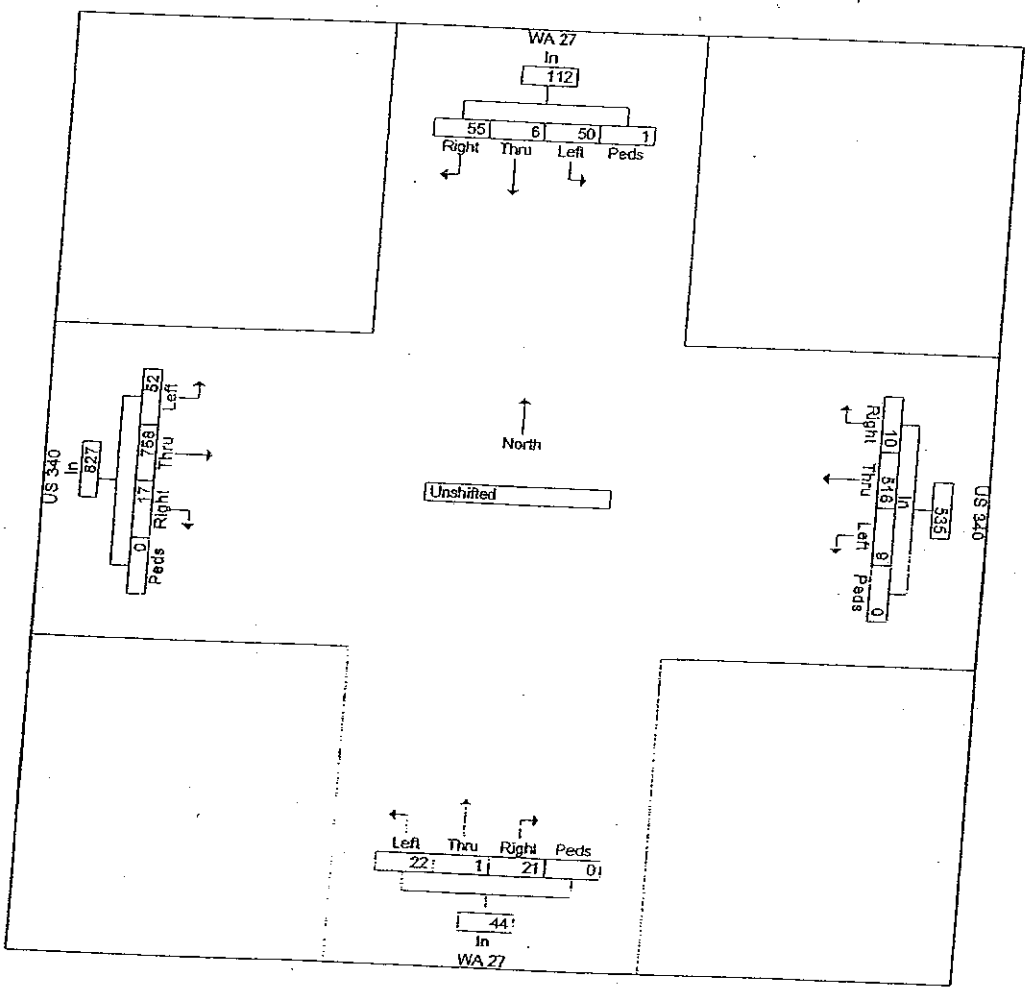


Sabra, Wang & Associates, Inc.
1504 Joh Avenue, Suite 160
Baltimore, Maryland 21227

Weather:SUNNY
Counted By:RICHARD, JEREMY
Town:MILLVILLE
County:JEEFERSON

File Name : US34O@~1
Site Code : 06120802
Start Date : 06/16/2006
Page No : 4

	WA 27 From North					US 340 From East					WA 27 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																					
By Approach	08:00					08:00					07:45					07:00					
Volume	50	6	55	1	112	9	516	10	0	535	22	1	21	0	44	52	758	17	0	827	
Percent	44.6	5.4	49.1	0.9		1.7	96.4	1.9	0.0		50.0	2.3	47.7	0.0		6.3	91.7	2.1	0.0		
High Int.	08:30					08:45					08:15					07:00					
Volume	17	2	14	0	33	3	145	3	0	151	8	0	6	0	14	4	222	4	0	230	
Peak Factor					0.848					0.886					0.786					0.899	



- Provide a separate northbound right turn lane along Route 9.

- Route 27/Resturant Access (2)
  - Provide a Stop-Sign controlled intersection such that Route 27 has the right of way.
  - Provide a separate southbound left turn lane along Route 27

- Route 27/Access 3
  - Provide a Stop-Sign controlled intersection such that Route 27 has the right of way.
  - Provide a separate southbound left turn lane along Route 27
  - Provide separate left and right turn lanes on the site access

- Route 27/Access 4 and Route 27/Access 5
  - Provide Stop-Sign controlled intersections such that Route 27 has the right of way.

The following table shows the applicable turn lane lengths at the study intersections. These were calculated per AASHTO and West Virginia Department of Transportation Division of Highway Design Directive 622:

Table 6. Turn Lane Lengths

Intersection	Lane	Taper (feet)	Decel Length (feet)	Storage (feet)	Total (rounded to nearest 25')
US 340/CR 27	WB Left Turn Lanes	240'	540,	385'	1175'
	NB Left Turn Lane	100'*		412'	525'
	SB Right Turn Lane	100'*		166'	275'
WV 9/CR 27	NB Right Turn Lane	180'	250'	50'	480'
	WB Left Turn Lane	100'*		95'	200'
CR 27/Access 1	SB Left Turn Lanes	100'*		75'	175'
	NB Right Turn Lane	100'		35'	150'
CR 27/Access 2	SB Left Turn Lane	100'		25'	125'
CR 27/Access 3	SB Left Turn Lane	100'		50'	150'

* Assumed 100 feet of taper

VI. SUMMARY AND CONCLUSIONS

Old Standard LLC Quarry is a commercial development proposed in Jefferson County, West Virginia. It is located along the east side of Route 27 and south of US 340. At full buildout this development is expected to have over 1.8 million square feet of usable space. It is proposed to be developed with office space, warehousing, a hotel with conference facility, and a restaurant.

This development proposes 5 access points on Route 27. Due to the presence of the Old Standard Quarry Lake which is present in the middle of the site, the property is divided into to parcels. The eastern parcel will be accessed via the northernmost site access. The restaurant and hotel development will be accessed via an access point located just south of the northernmost access.

The remaining western parcel will be accessed from the three southern access points. Please refer to the conceptual site plan located on Figure 2 for the access point locations. All access points are proposed as full movement intersections.

This development is expected to generate approximately 16,230 trips per day with approximately 2,170 trips during the AM peak hour and 2,080 trips during the PM peakhour.

This region of Jefferson County is expected to experience significant growth over the next few years (3.5% annual). Thus, significant improvement will be needed along Route 27 in order to accommodate the growth expected in this region as wellas to accommodate this development.

The improvements needed at full buildout of the Old Standard LLC Quarry Development are discussed in detail in the body of the report andare graphically depicted in Figure 10.

Overall, the following improvements areneeded at the study area intersections:

- US 340/Route 230
  - Signalize this intersection – it is our understanding that this intersection is to be signalized as part of the Sheridan Subdivision

- US 340/Route 27
  - Signalize this intersection
  - Provide an exclusive northbound left turn lane, a shared left turn-through lane, and an exclusive free flow right turn lane
  - Provide a four lane cross-section along Route 27 between US 340 and the northernmost site access (1)
  - Provide dual westbound left turn lane
  - Provide an exclusive southbound right turn lane and a shared left turn-through lane
  - Provide split phasing on Route 27

- Route 27/Northernmost Site Access (1)
  - Signalize this intersection
  - Provide a dual southbound left turn lanes such that the north approach has two left turn lanes and one through lane
  - Provide a northbound right turn lane into the site
  - Provide a four lane cross section for the site access road, such that separateleft and right turn lanes can be provided out of the site

- Route 9/Route 27
  - Monitor and signalize this intersection if it meets warrants at the buildout of the site.
  - Provide a separate westbound left turn lane and a shared through right turn lane along westbound Route 27
  - Provide a separate northbound right turn lane along Route 9.

- Route 27/Resturant Access (2)
  - Provide a Stop-Sign controlled intersection such that Route 27 has the right of way.
  - Provide a separate southbound left turn lane along Route 27

- Route 27/Access 3

- Provide a Stop-Sign controlled intersection such that Route 27 has the right of way.
- Provide a separate southbound left turn lane along Route 27
- Provide separate left and right turn lanes onthe site access

- Route 27/Access 4 and Route 27/Access 5
  - Provide Stop-Sign controlled intersections such that Route 27 has the right of way.

- Route 27
  - Currently east of Route 9, this roadway only allows one lane of traffic in each direction for approximately 50' over an existing structure which is too narrow to provide two travel lanes. This structure should be widened so that one lane of traffic in each direction can traverse it.

The table below outlines the turn lane lengths at the study intersections:

Intersection	Lane	Taper (feet)	Decel Length (feet)	Storage (feet)	Total (rounded to nearest 25)
US 340/CR 27	WB Left Turn Lanes	240'	540,	385'	1175'
	NB Left Turn Lane	100'*		412'	525'
	SB Right Turn Lane	100'*		166'	275'
WV 9/CR 27	NB Right Turn Lane	180'	250'	50'	480'
	WB Left Turn Lane	100'*		95'	200'
CR 27/Access 1	SB Left Turn Lanes	100'*		75'	175'
	NB Right Turn Lane	100'		35'	150'
CR 27/Access 2	SB Left Turn Lane	100'		25'	125'
CR 27/Access 3	SB Left Turn Lane	100'		50'	150'

* Assumed 100 feet of taper

The proposed Old Standard LLC Quarry Development is expected to have impact on the local roadway network. However, provided that the above mentionedimprovements are implemented, the development can mitigate impacts and provide acceptable LOS at the study intersections.

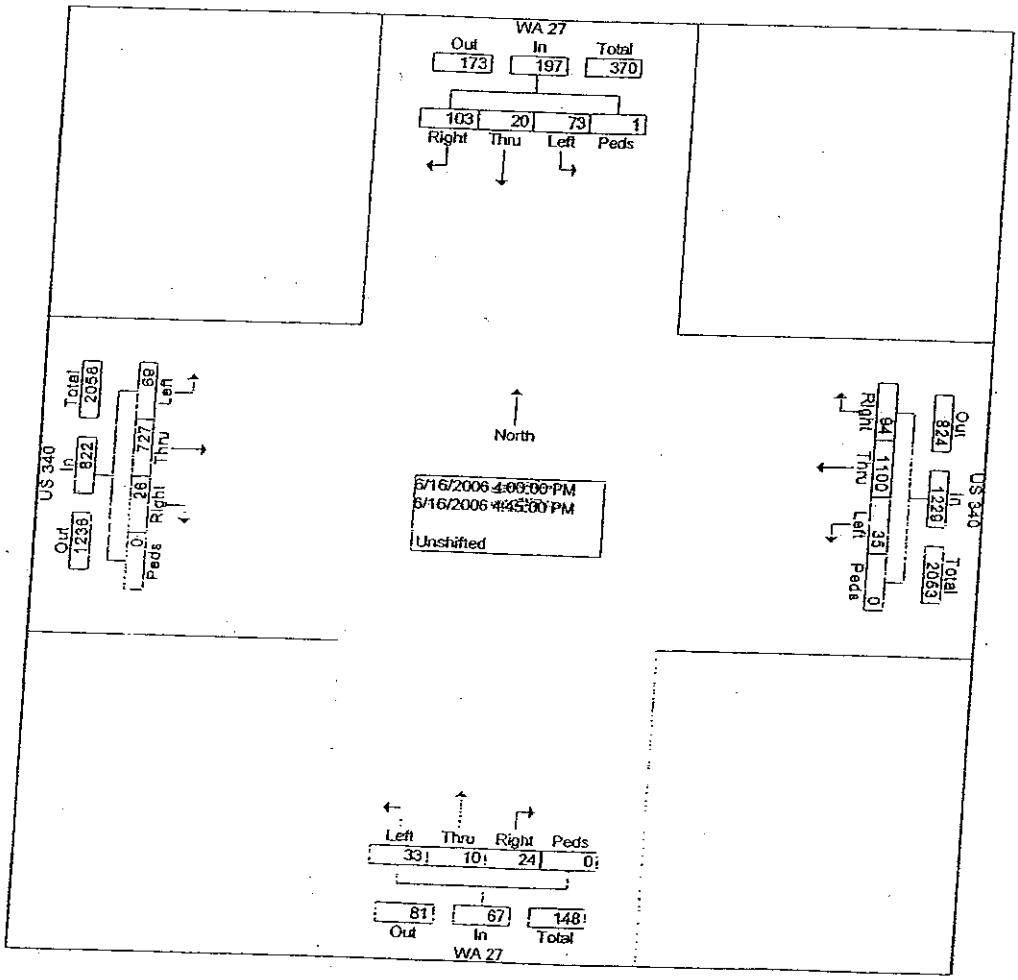
APPENDIX A
TRAFFIC COUNT DATA

Sabra, Wang & Associates, Inc.
1504 Joh Avenue, Suite 160
Baltimore, Maryland 21227

Weather:SUNNY
Counted By:RICHARD, JEREMY
Town:MILLVILLE
County:JEEFERSON

File Name : US34O@~1
Site Code : 06120802
Start Date : 06/16/2006
Page No : 5

	WA 27 From North					US 340 From East					WA 27 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 12:00 to 17:45 - Peak 1 of 1																					
Intersection	16:00																				
Volume	73	20	103	1	197	35	1100	94	0	1229	33	10	24	0	67	69	727	26	0	822	2315
Percent	37.1	10.2	52.3	0.5		2.8	89.5	7.6	0.0		49.3	14.9	35.8	0.0		8.4	88.4	3.2	0.0		
Volume	73	20	103	1	197	35	1100	94	0	1229	33	10	24	0	67	69	727	26	0	822	2315
Volume Peak Factor	16	6	24	1	47	9	294	32	0	335	3	2	6	0	11	18	190	9	0	217	610
High Int.	16:15					16:45					16:00					16:45					0.949
Volume Peak Factor	23	5	32	0	60 0.821	9	294	32	0	335 0.917	11	3	7	0	21 0.798	18	190	9	0	217 0.947	

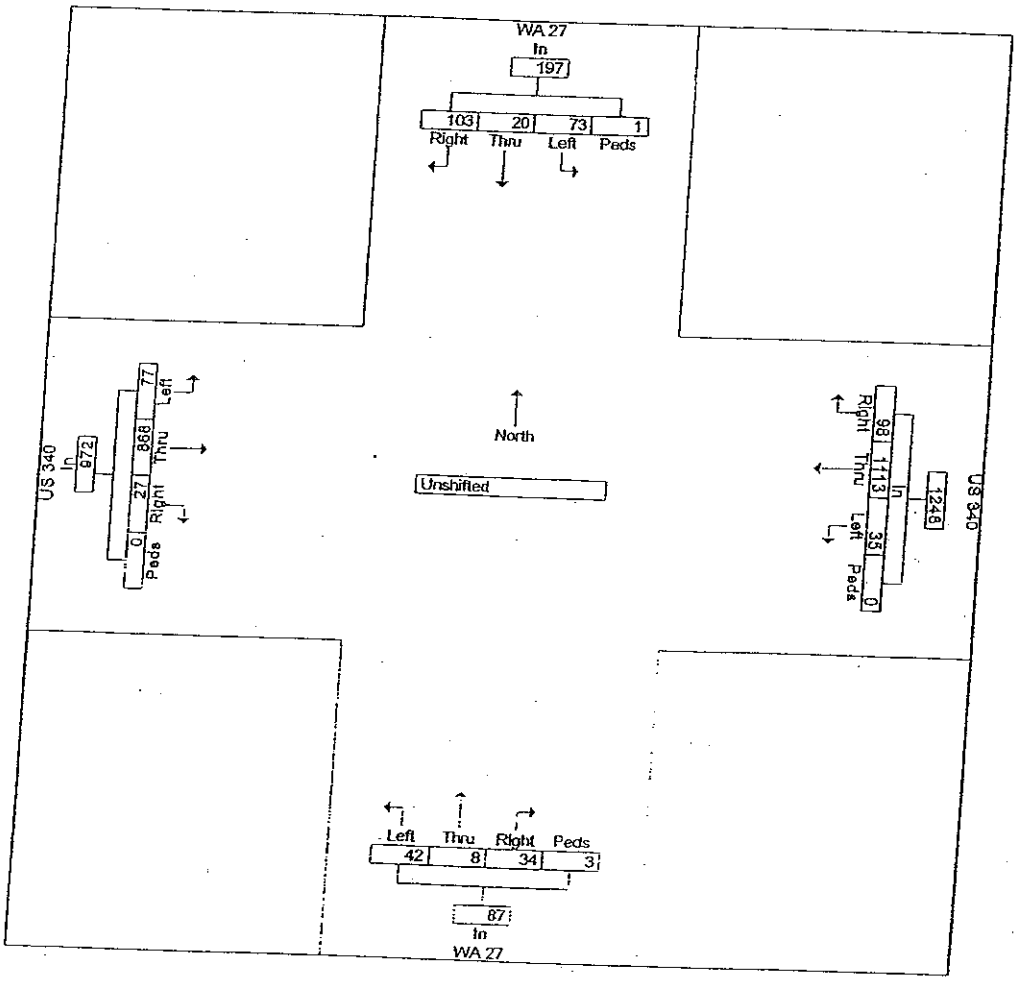


Sabra, Wang & Associates, Inc.
1504 Joh Avenue, Suite 160
Baltimore, Maryland 21227

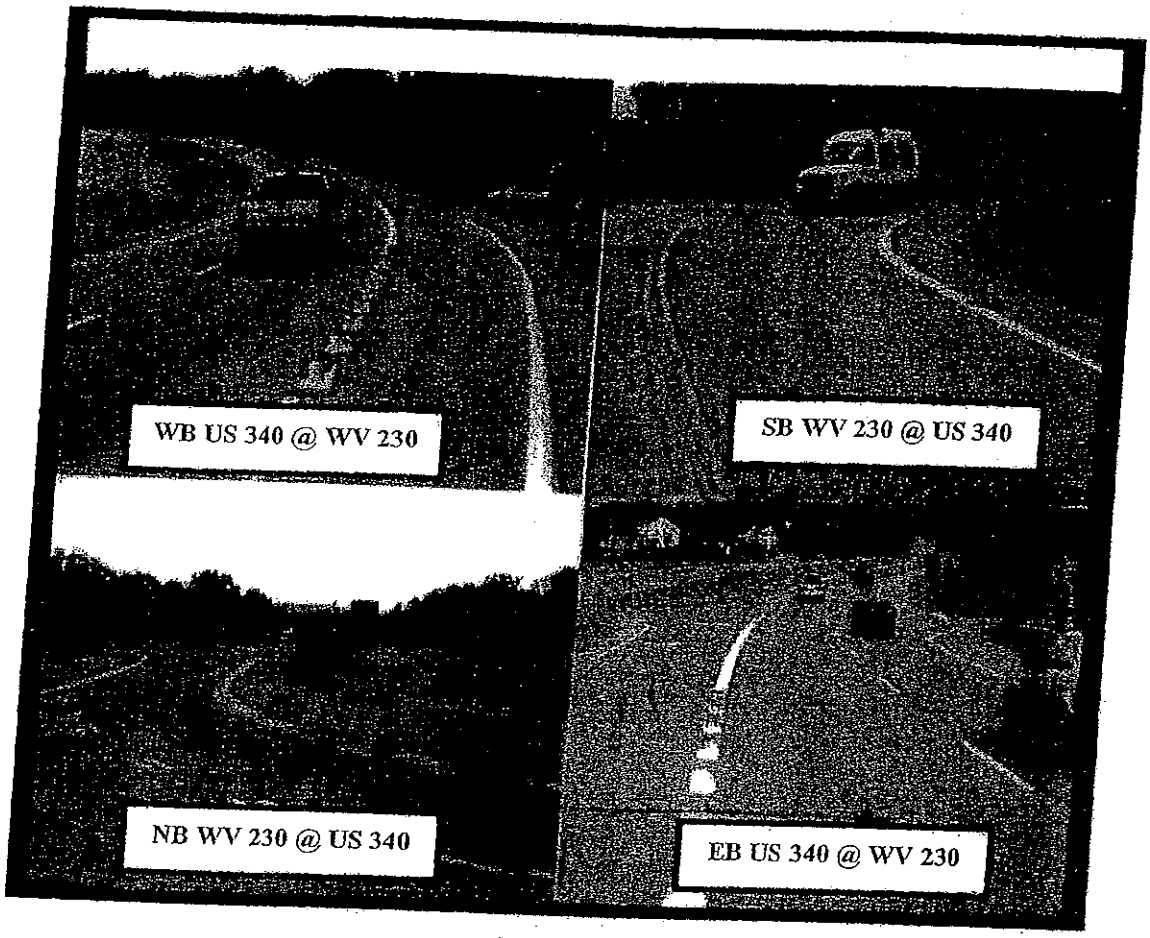
Weather:SUNNY
Counted By:RICHARD, JEREMY
Town:MILLVILLE
County:JEEFERSON

File Name : US34O@~1
Site Code : 06120802
Start Date : 06/16/2006
Page No : 6

	WA 27 From North					US 340 From East					WA 27 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 12:00 to 17:45 - Peak 1 of 1																					
By Approach	16:00					16:30					15:15					15:00					
Volume	73	20	103	1	197	35	1113	98	0	1246	42	8	34	3	87	77	868	27	0	972	
Percent	37.1	10.2	52.3	0.5		2.8	89.3	7.9	0.0		48.3	9.2	39.1	3.4		7.9	89.3	2.8	0.0		
High Int.	16:15					16:45					15:30					15:45					
Volume	23	5	32	0	60	9	294	32	0	335	13	1	12	1	27	15	242	6	0	263	
Peak Factor					0.821					0.930					0.806					0.924	



US 340/WV230



Sabra, Wang & Associates Inc
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

Weather : Sunmny
Counted By: SYLTER
Town: MILLVILLE
County:

File Name : US340@~1
Site Code : 00001111
Start Date : 08/04/2006
Page No : 1

Groups Printed- Unshifted

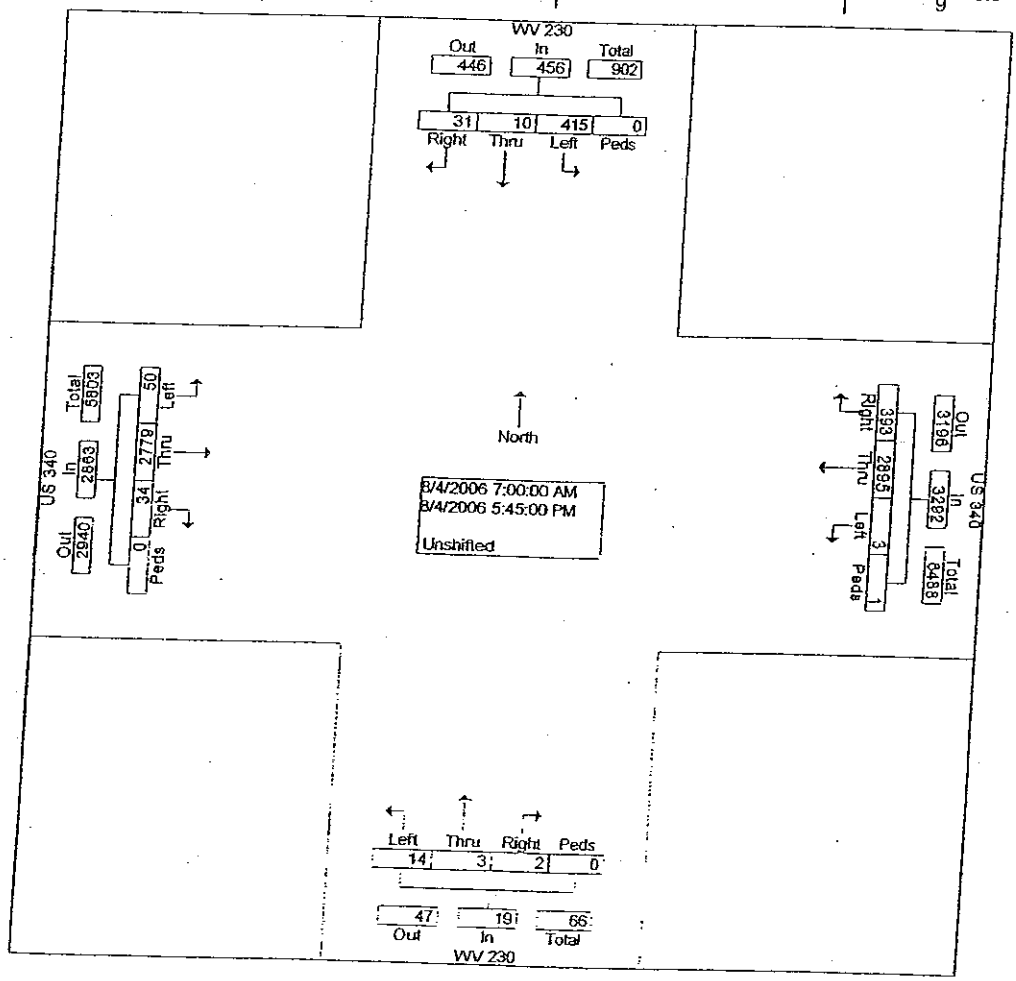
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	56	1	2	0	59	1	105	13	0	119	0	0	0	0	0	4	169	4	0	177	355
07:15 AM	51	0	2	0	53	0	125	10	0	135	0	1	0	0	1	1	178	3	0	182	371
07:30 AM	46	1	1	0	48	0	117	6	0	123	1	0	0	0	1	1	180	3	0	184	356
07:45 AM	34	1	0	0	35	0	111	17	0	128	1	0	0	0	1	1	176	3	0	180	344
Total	187	3	5	0	195	1	458	46	0	505	2	1	0	0	3	7	703	13	0	723	1426
08:00 AM	28	1	3	0	32	0	109	10	0	119	2	0	0	0	2	2	144	5	0	151	304
08:15 AM	22	2	3	0	27	0	115	13	0	128	1	1	0	0	2	9	130	4	0	143	300
08:30 AM	21	0	2	0	23	0	116	8	0	124	1	0	0	0	1	1	144	4	0	149	297
08:45 AM	30	0	3	0	33	0	148	12	0	160	1	0	0	0	1	2	158	3	0	163	357
Total	101	3	11	0	115	0	488	43	0	531	5	1	0	0	6	14	576	16	0	606	1258
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	11	1	1	0	13	0	248	39	0	287	1	0	0	0	1	2	191	3	0	196	497
04:15 PM	16	0	1	0	17	1	228	40	0	269	0	1	0	0	1	2	217	2	0	221	508
04:30 PM	15	1	4	0	20	0	270	34	0	304	0	0	0	0	0	3	193	0	0	196	520
04:45 PM	11	0	3	0	14	1	223	35	0	259	0	0	2	0	2	5	171	0	0	176	451
Total	53	2	9	0	64	2	969	148	0	1119	1	1	2	0	4	12	772	5	0	789	1976

Sabra, Wang & Associates Inc
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

File Name : US340@~1
Site Code : 00001111
Start Date : 08/04/2006
Page No : 2

Groups Printed- Unshifted

	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
05:00 PM	14	0	0	0	14	0	214	33	0	247	3	0	0	0	3	7	214	0	0	221	485
05:15 PM	17	1	0	0	18	0	258	50	1	309	2	0	0	0	2	4	165	0	0	169	498
05:30 PM	24	1	4	0	29	0	258	39	0	297	0	0	0	0	0	4	178	0	0	182	508
05:45 PM	19	0	2	0	21	0	250	34	0	284	1	0	0	0	1	2	171	0	0	173	479
Total	74	2	6	0	82	0	980	156	1	1137	6	0	0	0	6	17	728	0	0	745	1970
Grand Total	415	10	31	0	456	3	2895	393	1	3292	14	3	2	0	19	50	2779	34	0	2863	6630
Apprch %	91.0	2.2	6.8	0.0		0.1	87.9	11.9	0.0		73.7	15.8	10.5	0.0		1.7	97.1	1.2	0.0		
Total %	6.3	0.2	0.5	0.0	6.9	0.0	43.7	5.9	0.0	49.7	0.2	0.0	0.0	0.0	0.3	0.8	41.9	0.5	0.0	43.2	



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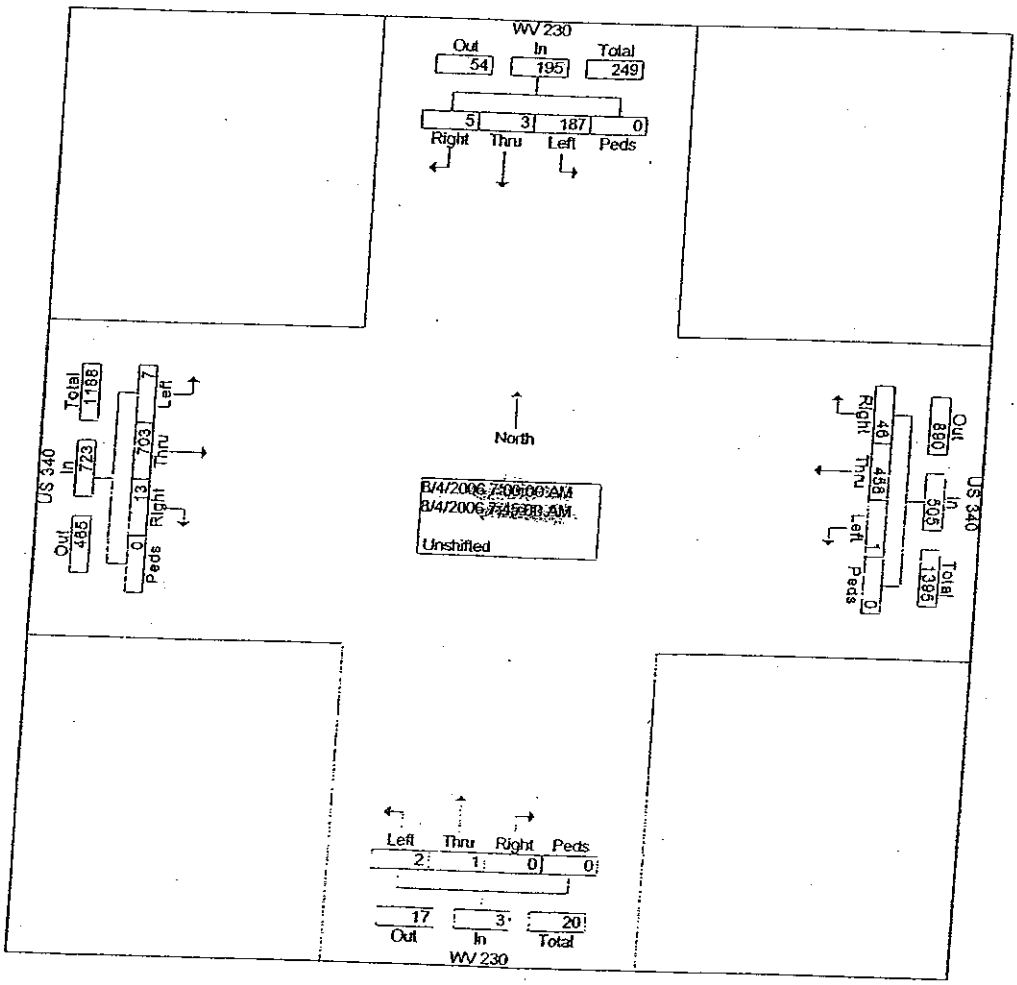
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	187	3	5	0	195	1	458	46	0	505	2	1	0	0	3	7	703	13	0	723	1426
Percent	95.9	1.5	2.6	0.0		0.2	90.7	9.1	0.0		66.7	33.3	0.0	0.0		1.0	97.2	1.8	0.0		
07:15 Volume	51	0	2	0	53	0	125	10	0	135	0	1	0	0	1	1	178	3	0	182	371
Peak Factor																					0.961
High Int. Volume	07:00 AM 56	1	2	0	59	07:15 AM 0	125	10	0	135	07:15 AM 0	1	0	0	1	07:30 AM 1	180	3	0	184	
Peak Factor					0.826					0.935					0.750					0.982	



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File Name : US340@~1
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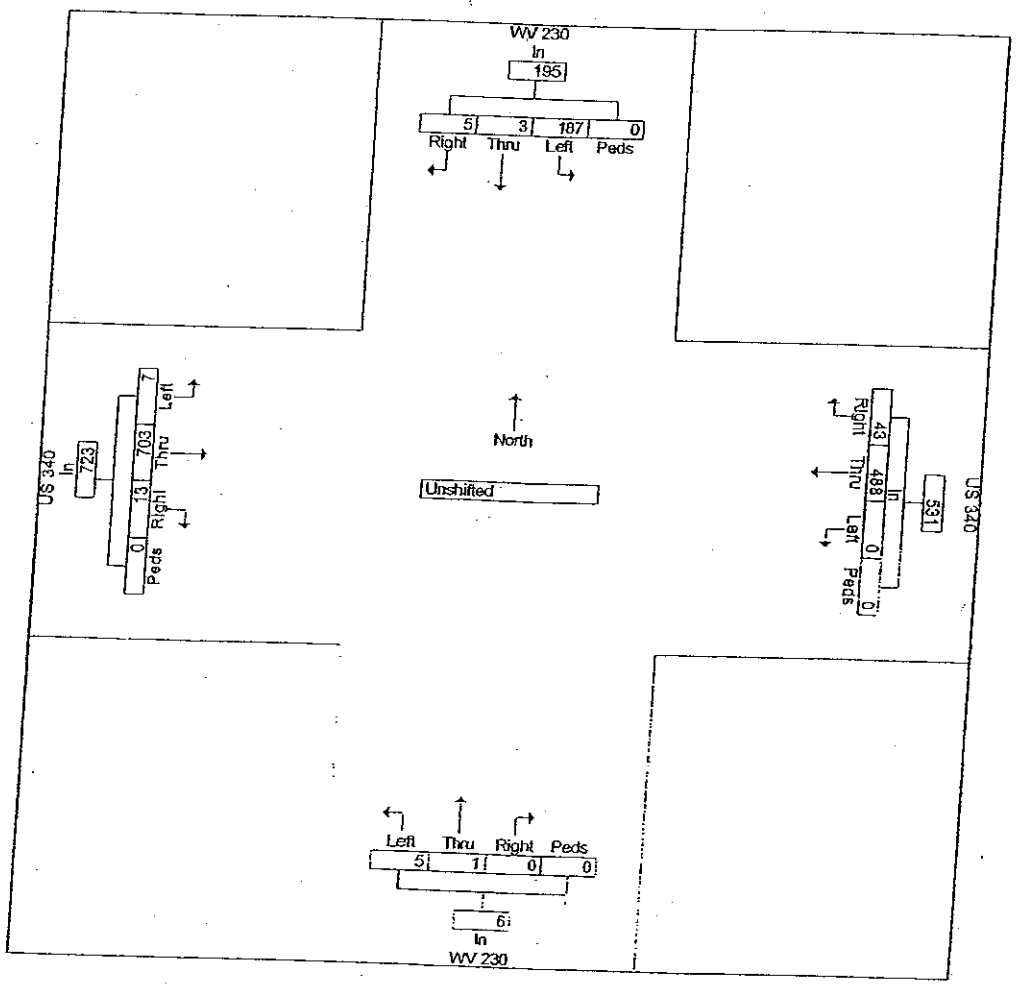
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:45 AM - Peak 1 of 1																					
By Approach	07:00 AM					08:00 AM					07:30 AM					07:00 AM					
Volume	187	3	5	0	195	0	488	43	0	531	5	1	0	0	6	7	703	13	0	723	
Percent	95.9	1.5	2.6	0.0		0.0	91.9	8.1	0.0		83.3	16.7	0.0	0.0		1.0	97.2	1.8	0.0		
High Int.	07:00 AM					08:45 AM					08:00 AM					07:30 AM					
Volume	56	1	2	0	59	0	148	12	0	160	2	0	0	0	2	1	180	3	0	184	
Peak Factor					0.826					0.830					0.750					0.982	



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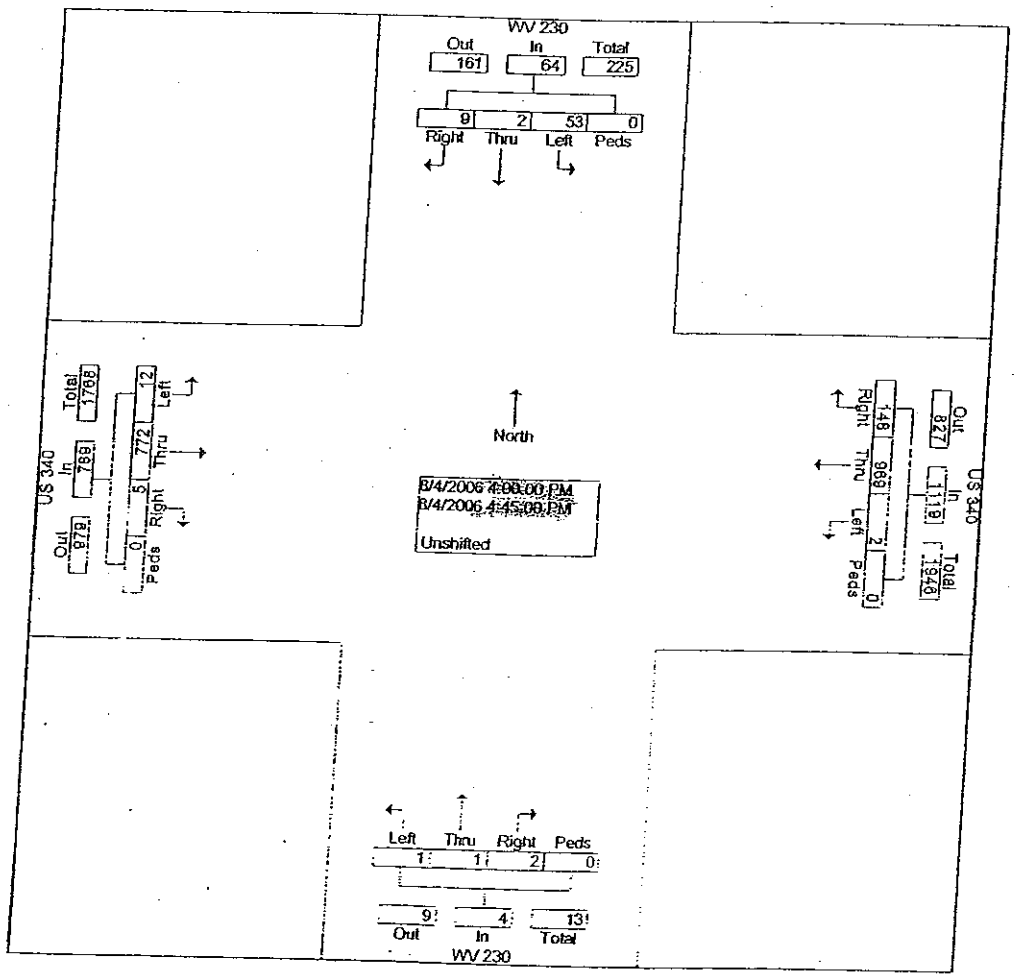
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	53	2	9	0	64	2	969	148	0	1119	1	1	2	0	4	12	772	5	0	789	1976
Percent	82.8	3.1	14.1	0.0		0.2	86.6	13.2	0.0		25.0	25.0	50.0	0.0		1.5	97.8	0.6	0.0		
04:30 Volume	15	1	4	0	20	0	270	34	0	304	0	0	0	0	0	3	193	0	0	196	520
Peak Factor																					0.950
High Int. Volume	04:30 PM 15	1	4	0	20	04:30 PM 0	270	34	0	304	04:45 PM 0	0	2	0	2	04:15 PM 2	217	2	0	221	
Peak Factor					0.800					0.920					0.500					0.893	



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File Name : US340@~1
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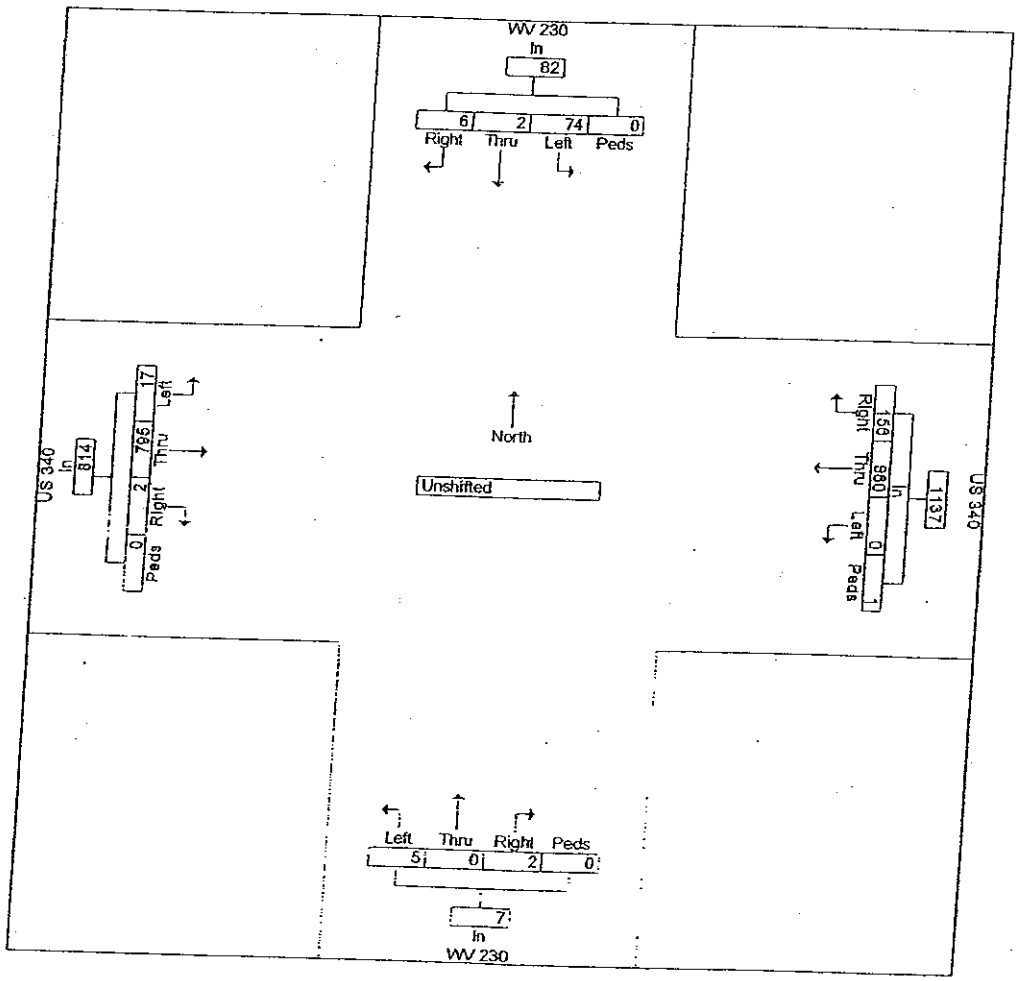
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	05:00 PM					05:00 PM					04:30 PM					04:15 PM					
Volume	74	2	6	0	82	0	980	156	1	1137	5	0	2	0	7	17	795	2	0	814	
Percent	90.2	2.4	7.3	0.0		0.0	86.2	13.7	0.1		71.4	0.0	28.6	0.0		2.1	97.7	0.2	0.0		
High Int.	05:30 PM					05:15 PM					05:00 PM					04:15 PM					
Volume	24	1	4	0	29	0	258	50	1	309	3	0	0	0	3	2	217	2	0	221	
Peak Factor					0.707					0.920					0.583					0.921	



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Weather : Sunmny
Counted By: SYLTER
Town: MILLVILLE
County:

File Name : US340@~1
Site Code : 00001111
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Groups Printed- Unshifted - TRUCKS

	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	56	1	2	0	59	1	123	14	0	138	0	0	0	0	0	4	184	4	0	192	389
07:15 AM	51	0	2	0	53	0	139	10	0	149	0	1	0	0	1	1	194	3	0	198	401
07:30 AM	48	1	1	0	50	0	133	6	0	139	1	0	0	0	1	1	197	3	0	201	391
07:45 AM	34	1	0	0	35	0	128	19	0	147	1	0	0	0	1	1	199	3	0	203	386
Total	189	3	5	0	197	1	523	49	0	573	2	1	0	0	3	7	774	13	0	794	1567
08:00 AM	29	1	3	0	33	0	134	10	0	144	2	0	0	0	2	2	154	5	0	161	340
08:15 AM	22	2	4	0	28	0	139	14	0	153	1	1	0	0	2	10	145	4	0	159	342
08:30 AM	23	0	2	0	25	0	135	12	0	147	1	0	0	0	1	1	161	4	0	166	339
08:45 AM	31	0	3	0	34	0	167	13	0	180	1	0	0	0	1	3	181	3	0	187	402
Total	105	3	12	0	120	0	575	49	0	624	5	1	0	0	6	16	641	16	0	673	1423
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	11	1	1	0	13	0	258	39	0	297	1	0	0	0	1	2	206	3	0	211	522
04:15 PM	16	0	1	0	17	1	241	40	0	282	0	1	0	0	1	2	225	2	0	229	529
04:30 PM	15	1	4	0	20	0	290	39	0	329	0	0	0	0	0	3	199	0	0	202	551
04:45 PM	11	0	3	0	14	1	239	36	0	276	0	0	2	0	2	6	194	0	0	200	492
Total	53	2	9	0	64	2	1028	154	0	1184	1	1	2	0	4	13	824	5	0	842	2094

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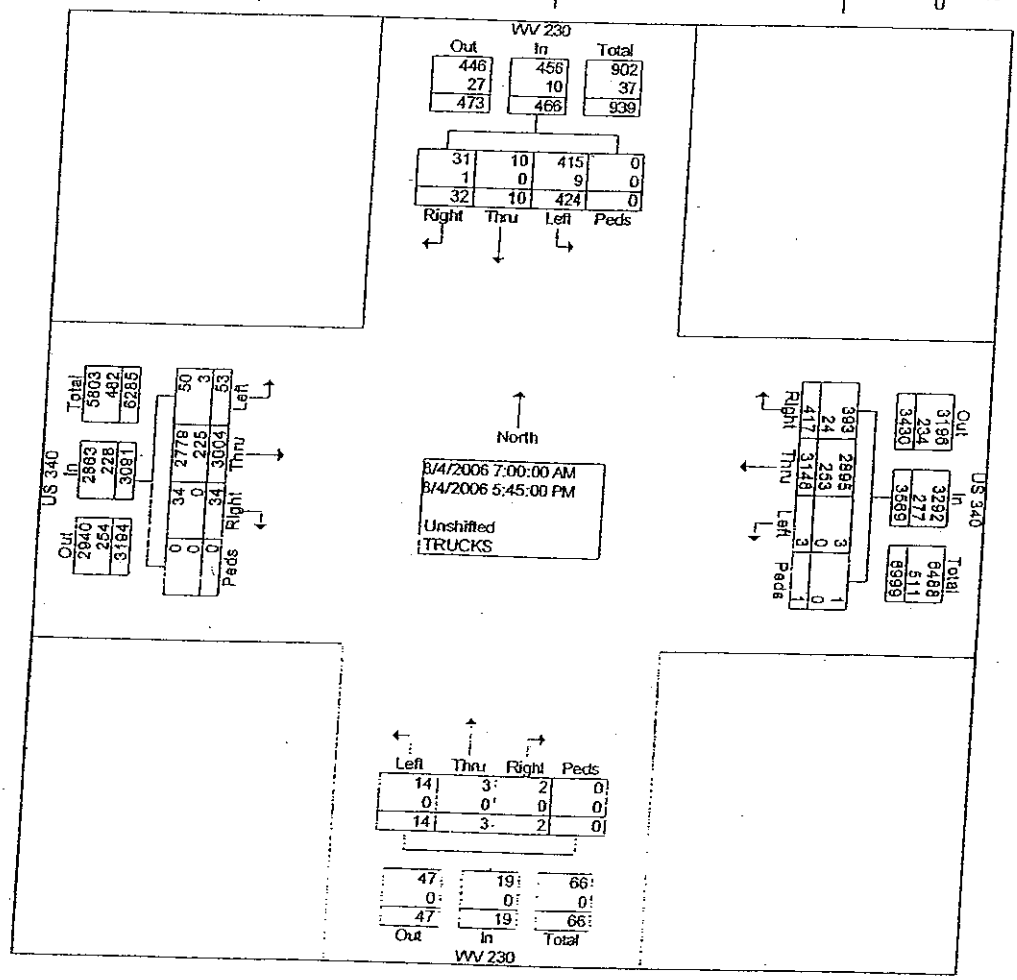
Groups Printed- Unshifted - TRUCKS

	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
05:00 PM	15	0	0	0	15	0	222	35	0	257	3	0	0	0	3	7	221	0	0	228	503
05:15 PM	17	1	0	0	18	0	270	51	1	322	2	0	0	0	2	4	177	0	0	181	523
05:30 PM	25	1	4	0	30	0	270	43	0	313	0	0	0	0	0	4	187	0	0	191	534
05:45 PM	20	0	2	0	22	0	260	36	0	296	1	0	0	0	1	2	180	0	0	182	501
Total	77	2	6	0	85	0	1022	165	1	1188	6	0	0	0	6	17	765	0	0	782	2061
Grand Total	424	10	32	0	466	3	3148	417	1	3569	14	3	2	0	19	53	3004	34	0	3091	7145
Apprch %	91.0	2.1	6.9	0.0		0.1	88.2	11.7	0.0		73.7	15.8	10.5	0.0		1.7	97.2	1.1	0.0		
Total %	5.9	0.1	0.4	0.0	6.5	0.0	44.1	5.8	0.0	50.0	0.2	0.0	0.0	0.0	0.3	0.7	42.0	0.5	0.0	43.3	



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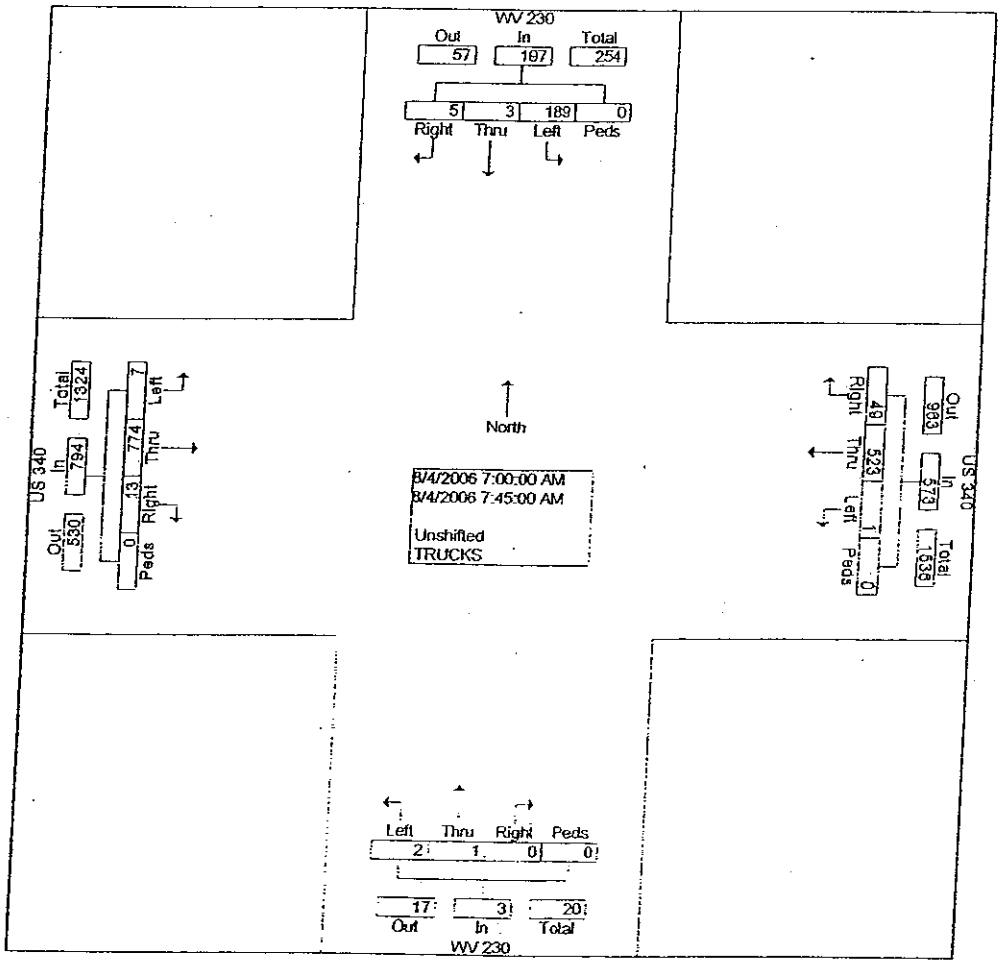
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	189	3	5	0	197	1	523	49	0	573	2	1	0	0	3	7	774	13	0	794	1567
Percent	95.9	1.5	2.5	0.0		0.2	91.3	8.6	0.0		66.7	33.3	0.0	0.0		0.9	97.5	1.6	0.0		
07:15 Volume	51	0	2	0	53	0	139	10	0	149	0	1	0	0	1	1	194	3	0	198	401
Peak Factor																					0.977
High Int.	07:00 AM					07:15 AM					07:15 AM					07:45 AM					
Volume	56	1	2	0	59	0	139	10	0	149	0	1	0	0	1	1	199	3	0	203	
Peak Factor					0.835					0.961					0.750					0.978	



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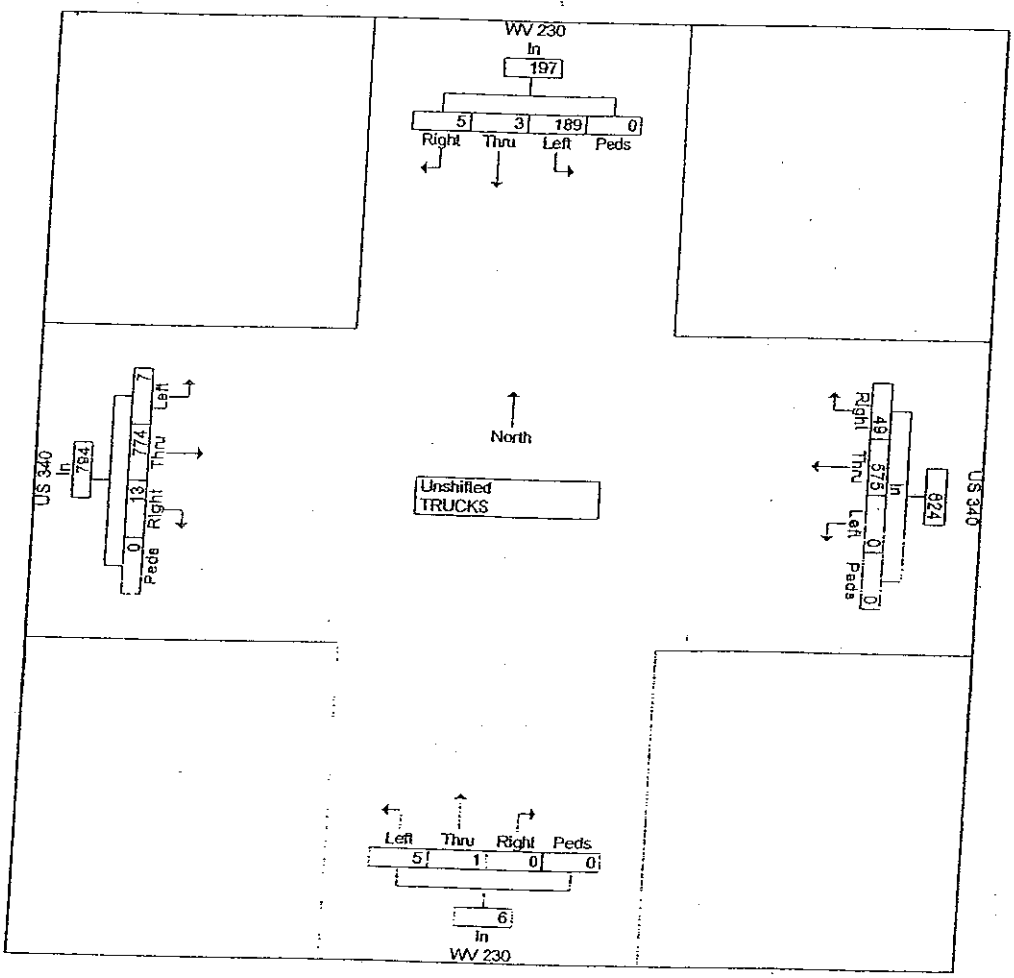
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:45 AM - Peak 1 of 1																					
By Approach	07:00 AM					08:00 AM					07:30 AM					07:00 AM					
Volume	189	3	5	0	197	0	575	49	0	624	5	1	0	0	6	7	774	13	0	794	
Percent	95.9	1.5	2.5	0.0		0.0	92.1	7.9	0.0		83.3	16.7	0.0	0.0		0.9	97.5	1.6	0.0		
High Int.	07:00 AM					08:45 AM					08:00 AM					07:45 AM					
Volume	56	1	2	0	59	0	167	13	0	180	2	0	0	0	2	1	199	3	0	203	
Peak Factor					0.835					0.867					0.750					0.978	



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File Name : US340@~1
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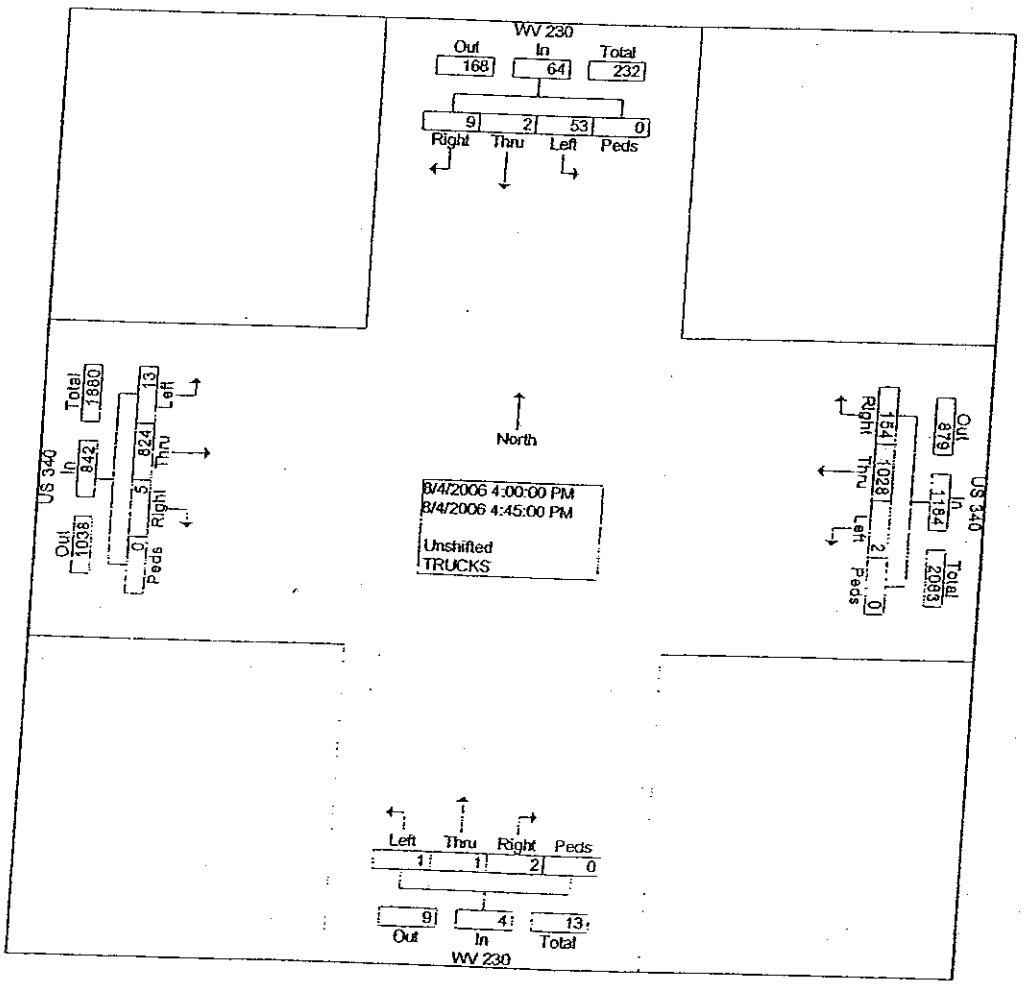
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	53	2	9	0	64	2	1028	154	0	1184	1	1	2	0	4	13	824	5	0	842	2094
Percent	82.8	3.1	14.1	0.0		0.2	86.8	13.0	0.0		25.0	25.0	50.0	0.0		1.5	97.9	0.6	0.0		
04:30 Volume	15	1	4	0	20	0	290	39	0	329	0	0	0	0	0	3	199	0	0	202	551
Peak Factor																					0.950
High Int.	04:30 PM					04:30 PM					04:45 PM					04:15 PM					
Volume	15	1	4	0	20	0	290	39	0	329	0	0	2	0	2	2	225	2	0	229	
Peak Factor					0.800					0.900					0.500					0.919	



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File Name : US340@~1
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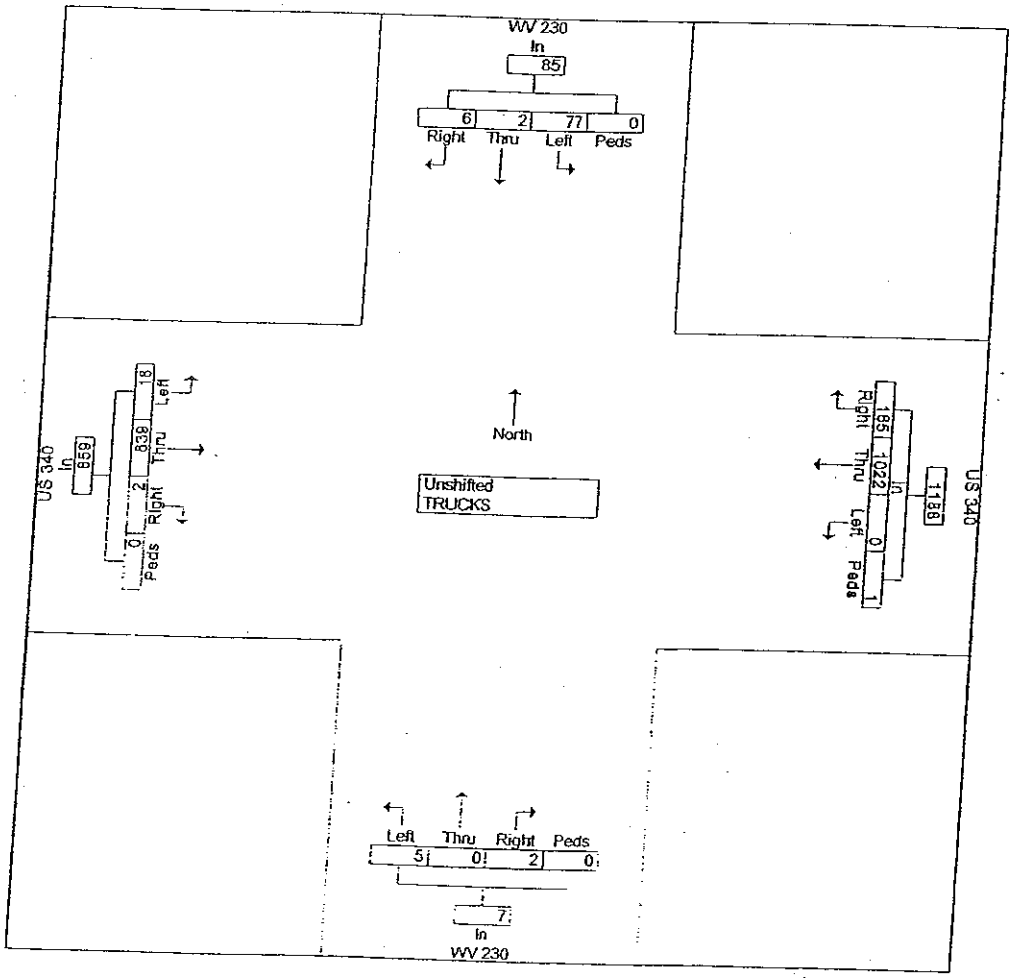
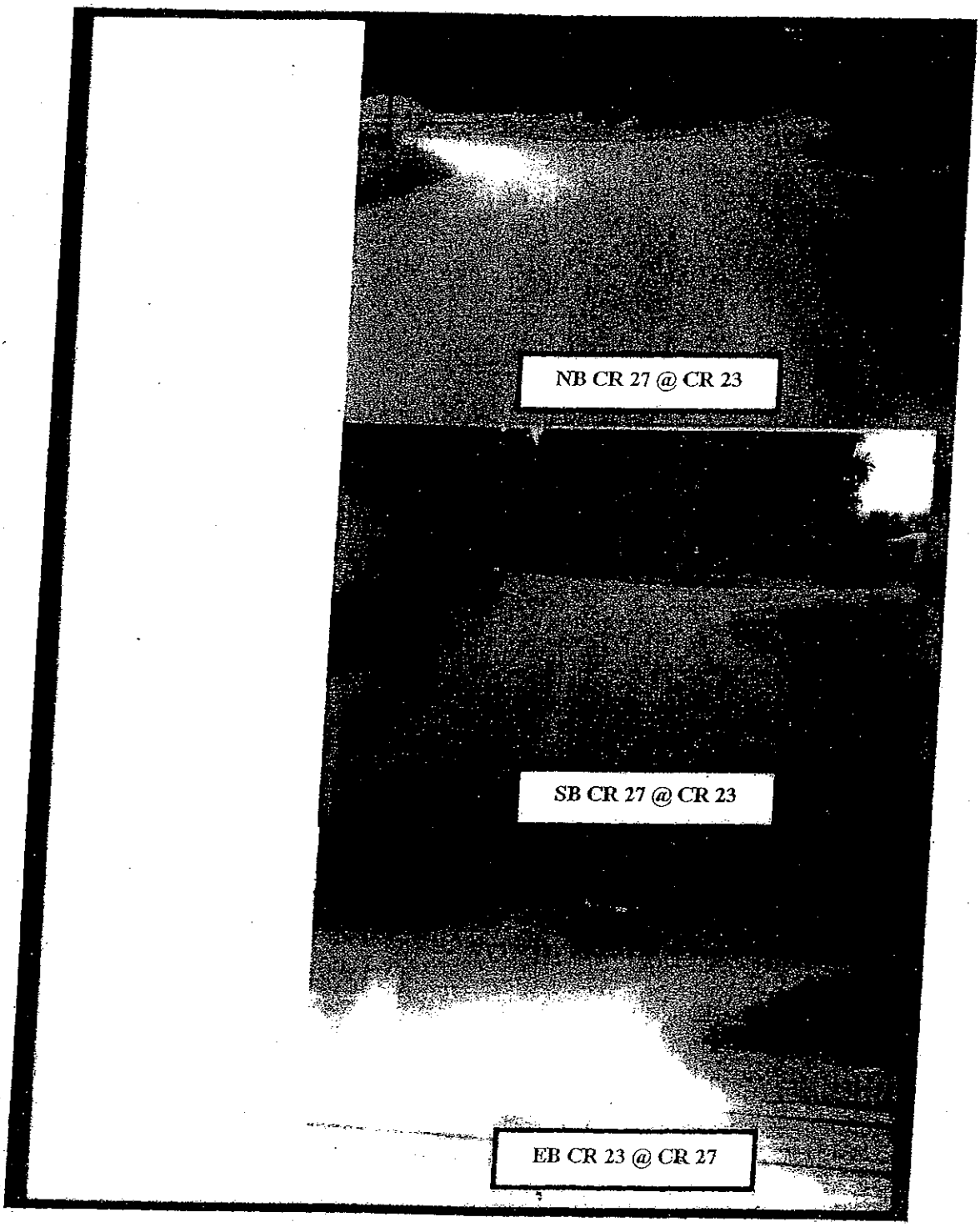
	WV 230 From North					US 340 From East					WV 230 From South					US 340 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	05:00 PM					05:00 PM					04:30 PM					04:15 PM					
Volume	77	2	6	0	85	0	1022	165	1	1188	5	0	2	0	7	18	839	2	0	859	
Percent	90.6	2.4	7.1	0.0		0.0	86.0	13.9	0.1		71.4	0.0	28.6	0.0		2.1	97.7	0.2	0.0		
High Int.	05:30 PM					05:15 PM					05:00 PM					04:15 PM					
Volume	25	1	4	0	30	0	270	51	1	322	3	0	0	0	3	2	225	2	0	229	
Peak Factor					0.708					0.922					0.583					0.938	



CR 27/CR23



Sabra, Wang & Associates Inc
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

Weather: Sunny
Counted By: RICHARD
Town: Millsville
Other:

File Name : CR23@C~1
Site Code : 00002222
Start Date : 08/04/2006
Page No : 1

Groups Printed- Unshifted

	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3	4
07:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	2	0	5	8
07:30 AM	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	4	3	0	7	16
07:45 AM	0	0	1	0	1	1	12	0	0	13	0	0	0	0	0	1	5	4	0	10	24
Total	0	0	2	0	2	2	23	0	0	25	0	0	0	0	0	2	13	10	0	25	52
08:00 AM	0	0	0	0	0	2	17	0	0	19	0	0	0	0	0	1	3	4	0	8	27
08:15 AM	0	0	1	0	1	1	11	0	0	12	0	0	0	0	0	1	3	3	0	7	20
08:30 AM	0	0	2	0	2	0	5	1	0	6	2	0	0	0	2	2	3	1	0	6	16
08:45 AM	0	0	0	0	0	1	2	0	0	3	2	1	0	0	3	0	2	1	0	3	9
Total	0	0	3	0	3	4	35	1	0	40	4	1	0	0	5	4	11	9	0	24	72
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	2	0	2	1	5	0	0	6	11	1	2	0	14	2	11	1	0	14	36
04:15 PM	0	0	3	0	3	1	8	0	0	9	2	0	1	0	3	2	7	0	0	9	24
04:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	2	10	0	0	12	16
04:45 PM	0	0	1	0	1	0	4	0	0	4	3	1	1	0	5	0	3	0	0	3	13
Total	0	0	6	0	6	2	21	0	0	23	16	2	4	0	22	6	31	1	0	38	89

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File Name : CR23@C~1
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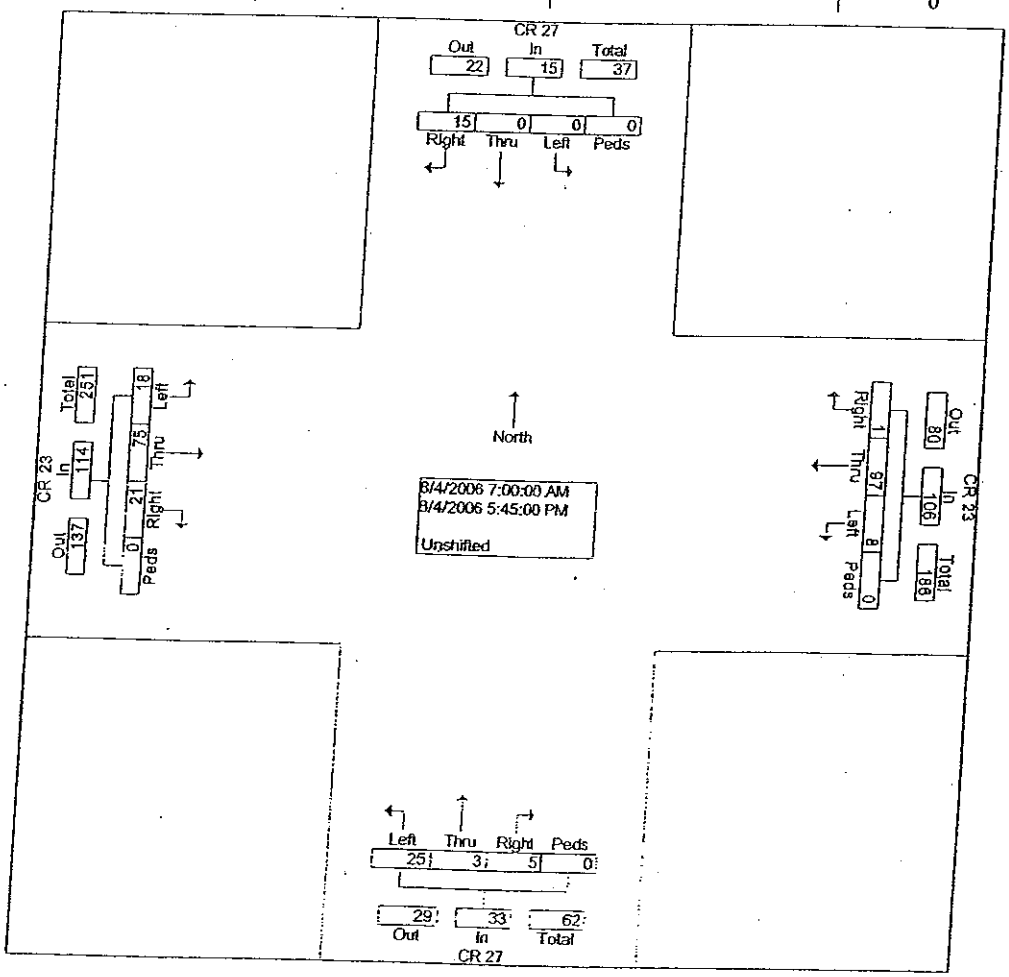
Page No : 2

Groups Printed- Unshifted

	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
05:00 PM	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	0	1	0	0	1	8
05:15 PM	0	0	0	0	0	0	3	0	0	3	3	0	0	0	3	1	4	0	0	5	11
05:30 PM	0	0	2	0	2	0	4	0	0	4	1	0	1	0	2	4	8	1	0	13	21
05:45 PM	0	0	2	0	2	0	5	0	0	5	0	0	0	0	0	1	7	0	0	8	15
Total	0	0	4	0	4	0	18	0	0	18	5	0	1	0	6	6	20	1	0	27	55
Grand Total	0	0	15	0	15	8	97	1	0	106	25	3	5	0	33	18	75	21	0	114	268
Apprch %	0.0	0.0	100.0	0.0		7.5	91.5	0.9	0.0		75.8	9.1	15.2	0.0		15.8	65.8	18.4	0.0		
Total %	0.0	0.0	5.6	0.0	5.6	3.0	36.2	0.4	0.0	39.6	9.3	1.1	1.9	0.0	12.3	6.7	28.0	7.8	0.0	42.5	



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File Name : CR23@C~1
Site Code : 00002222
Start Date : 08/04/2006
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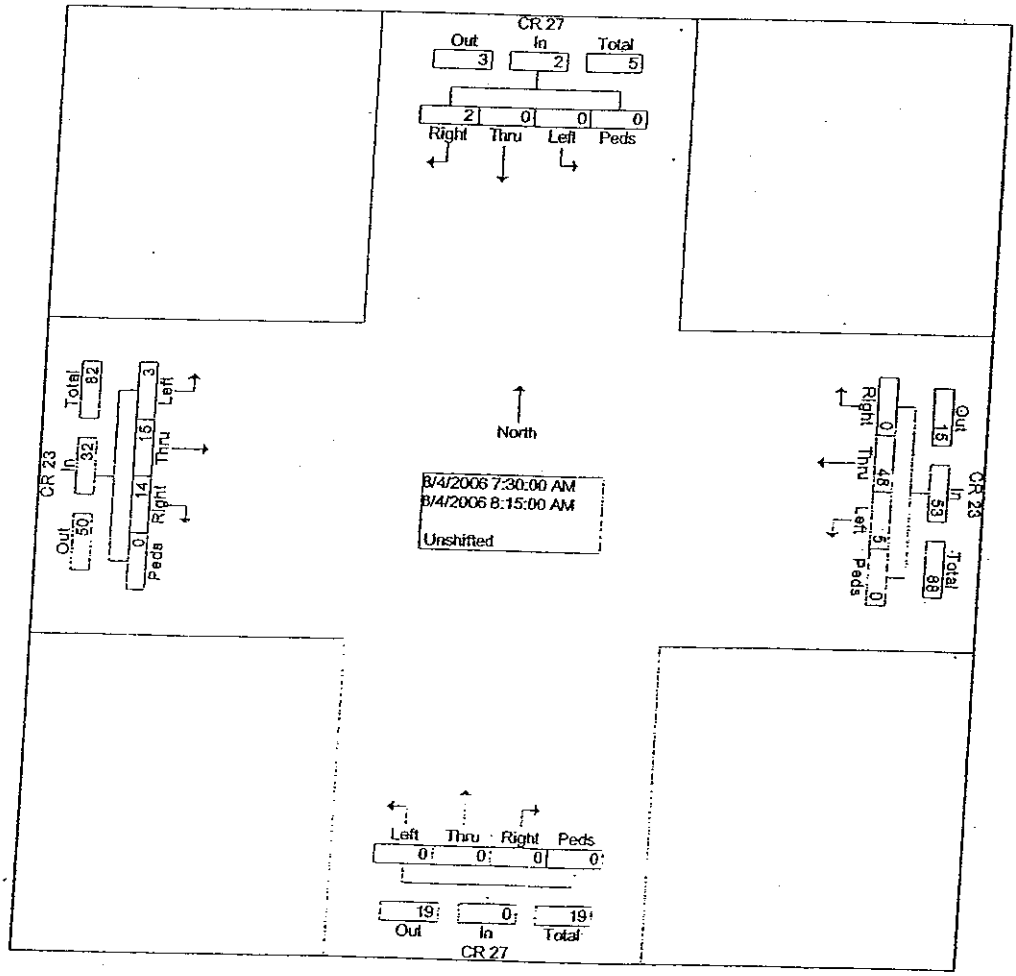
	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	0	0	2	0	2	5	48	0	0	53	0	0	0	0	0	3	15	14	0	32	87
Percent	0.0	0.0	100.0	0.0		9.4	90.6	0.0	0.0		0.0	0.0	0.0	0.0		9.4	46.9	43.8	0.0		
08:00 Volume	0	0	0	0	0	2	17	0	0	19	0	0	0	0	0	1	3	4	0	8	27
Peak Factor																					0.806
High Int. Volume	07:45 AM 0	0	1	0	1	08:00 AM 2	17	0	0	19	6:45:00 AM 0	0	0	0	0	07:45 AM 1	5	4	0	10	
Peak Factor					0.500					0.697										0.800	



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File Name : CR23@C~1
Site Code : 00002222
Start Date : 08/04/2006
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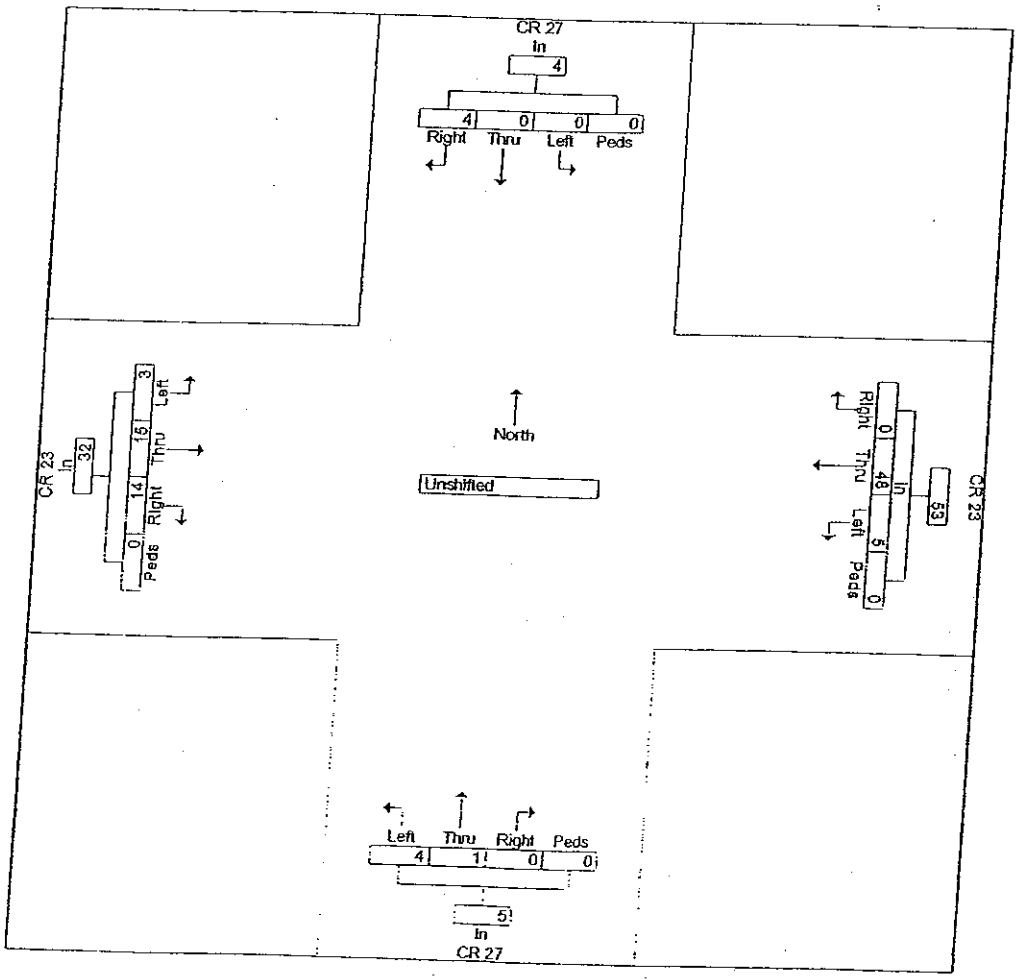
	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:15 AM - Peak 1 of 1																					
By Approach	07:45 AM					07:30 AM					08:00 AM					07:30 AM					
Volume	0	0	4	0	4	5	48	0	0	53	4	1	0	0	5	3	15	14	0	32	
Percent	0.0	0.0	100.0	0.0		9.4	90.6	0.0	0.0		80.0	20.0	0.0	0.0		9.4	46.9	43.8	0.0		
High Int.	08:30 AM					08:00 AM					08:45 AM					07:45 AM					
Volume	0	0	2	0	2	2	17	0	0	19	2	1	0	0	3	1	5	4	0	10	
Peak Factor					0.500					0.697					0.417					0.800	



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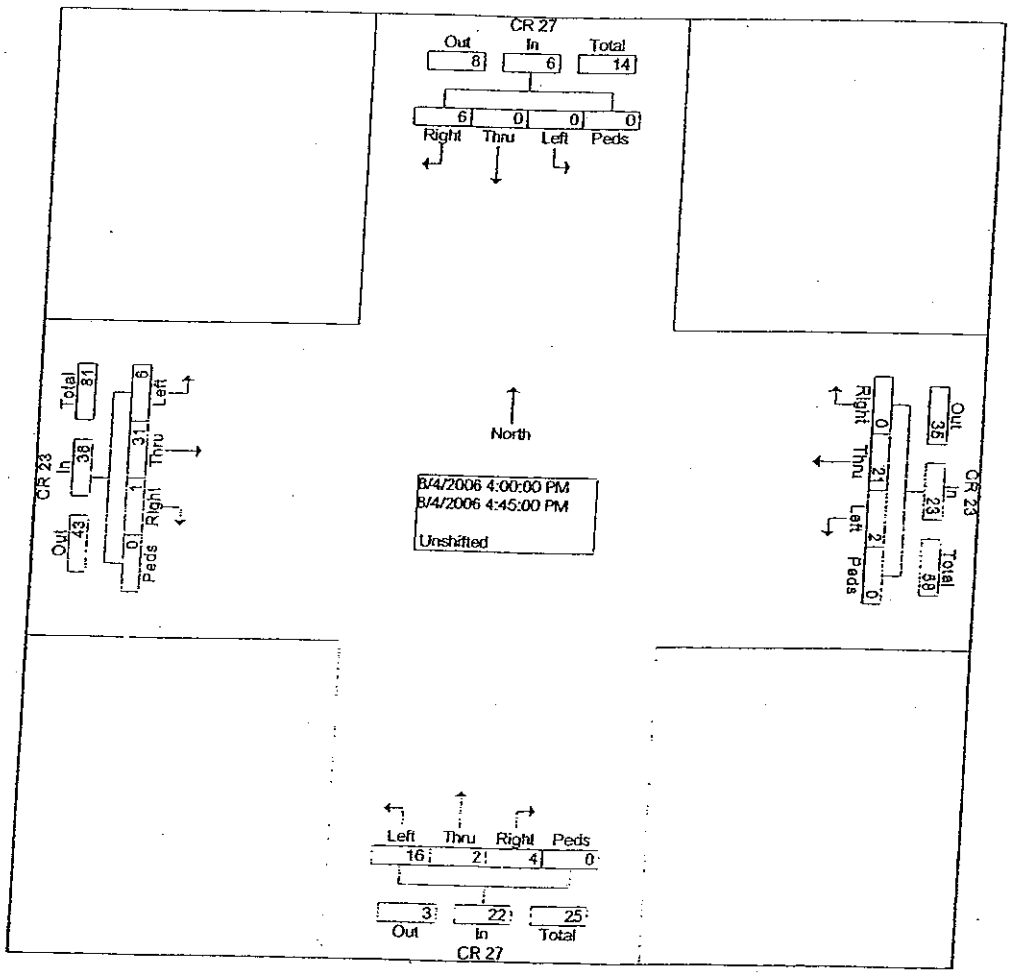
File Name : CR23@C~1
Site Code : 00002222
Start Date : 08/04/2006
Page No : 5

	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	0	0	6	0	6	2	21	0	0	23	16	2	4	0	22	6	31	1	0	38	89
Percent	0.0	0.0	100.0	0.0		8.7	91.3	0.0	0.0		72.7	9.1	18.2	0.0		15.8	81.6	2.6	0.0		
04:00 Volume	0	0	2	0	2	1	5	0	0	6	11	1	2	0	14	2	11	1	0	14	36
Peak Factor																					0.618
High Int.	04:15 PM					04:15 PM					04:00 PM					04:00 PM					
Volume	0	0	3	0	3	1	8	0	0	9	11	1	2	0	14	2	11	1	0	14	
Peak Factor					0.500					0.639					0.393					0.679	



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File Name : CR23@C~1
Site Code : 00002222
Start Date : 08/04/2006
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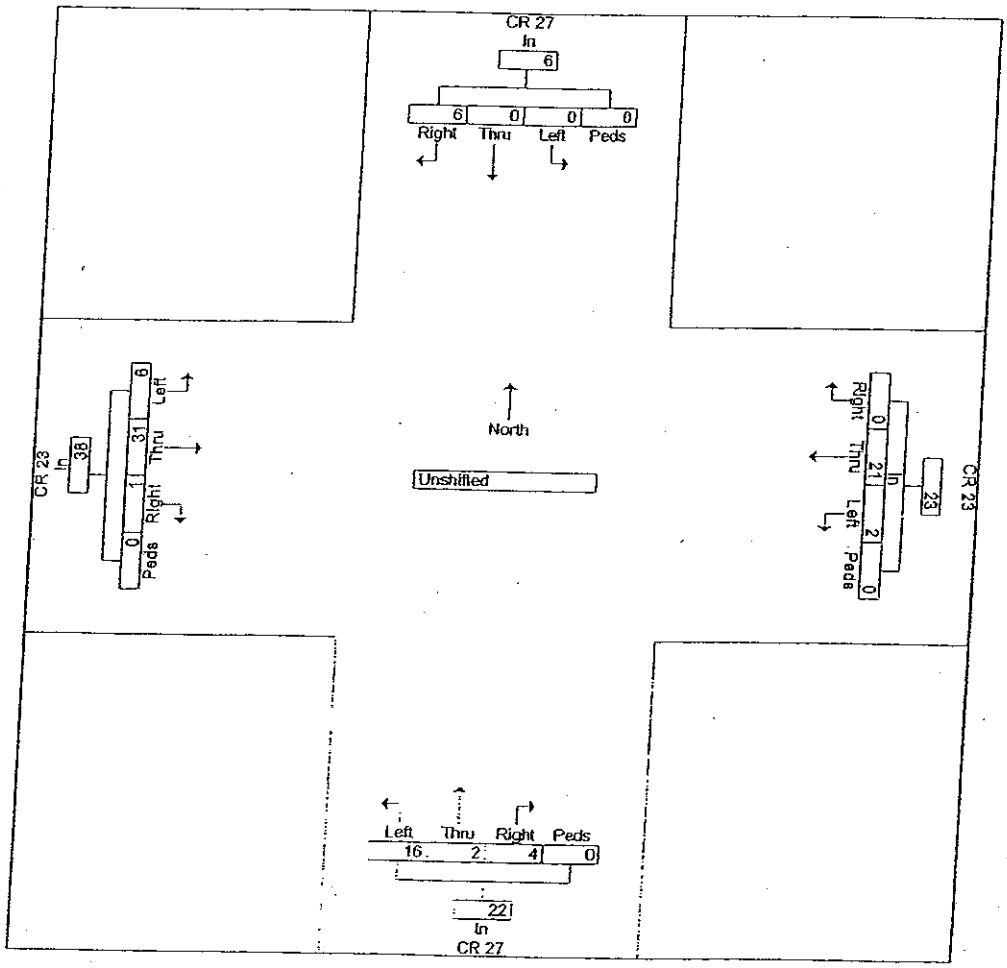
	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	04:00 PM					04:00 PM					04:00 PM					04:00 PM					
Volume	0	0	6	0	6	2	21	0	0	23	16	2	4	0	22	6	31	1	0	38	
Percent	0.0	0.0	100.0	0.0		8.7	91.3	0.0	0.0		72.7	9.1	18.2	0.0		15.8	81.6	2.6	0.0		
High Int.	04:15 PM					04:15 PM					04:00 PM					04:00 PM					
Volume	0	0	3	0	3	1	8	0	0	9	11	1	2	0	14	2	11	1	0	14	
Peak Factor					0.500					0.639					0.393					0.679	



Sabra, Wang & Associates Inc
1504 Joh Avenue
Suite 160
Baltimore, MD 21227

Weather: Sunny
Counted By: RICHARD
Town: Millsville
Other:

File Name : CR23@C~1
Site Code : 00002222
Start Date : 08/04/2006
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Groups Printed- TRUCKS

	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
07:15 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	3
07:30 AM	0	0	1	0	1	0	0	0	0	0	1	1	0	0	2	0	2	2	0	4	7
07:45 AM	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	0	1	4	0	5	8
Total	0	0	4	0	4	0	0	0	0	0	3	2	0	0	5	0	4	7	0	11	20
08:00 AM	0	0	1	0	1	0	0	0	0	0	4	1	0	0	5	0	0	5	0	5	11
08:15 AM	0	0	0	0	0	1	0	0	0	1	7	0	0	0	7	0	0	4	0	4	12
08:30 AM	0	0	1	0	1	0	0	0	0	0	3	1	0	0	4	0	1	3	0	4	9
08:45 AM	0	0	1	0	1	2	0	0	0	2	3	0	1	0	4	0	0	6	0	6	13
Total	0	0	3	0	3	3	0	0	0	3	17	2	1	0	20	0	1	18	0	19	45
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	0	0	1	0	1	5
04:15 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3
04:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	1	0	1	3
Total	0	0	2	0	2	0	2	0	0	2	6	0	0	0	6	0	0	2	0	2	12

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File Name : CR23@C~1
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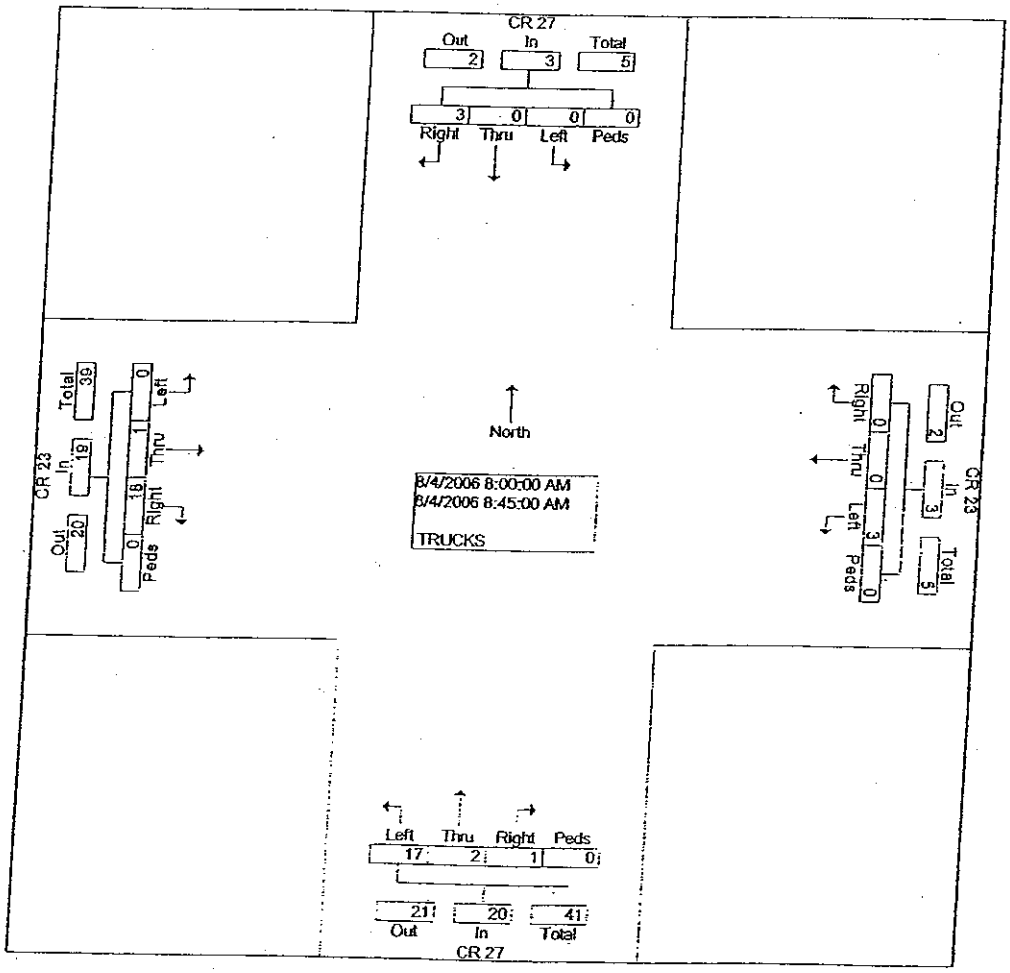
Start Time	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:00 AM to 09:15 AM - Peak 1 of 1																					
Intersection 08:00 AM																					
Volume	0	0	3	0	3	3	0	0	0	3	17	2	1	0	20	0	1	18	0	19	45
Percent	0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		85.0	10.0	5.0	0.0		0.0	5.3	94.7	0.0		
08:45 Volume	0	0	1	0	1	2	0	0	0	2	3	0	1	0	4	0	0	6	0	6	13
Peak Factor																					0.865
High Int. 08:00 AM						08:45 AM					08:15 AM					08:45 AM					
Volume	0	0	1	0	1	2	0	0	0	2	7	0	0	0	7	0	0	6	0	6	
Peak Factor					0.750					0.375					0.714					0.792	



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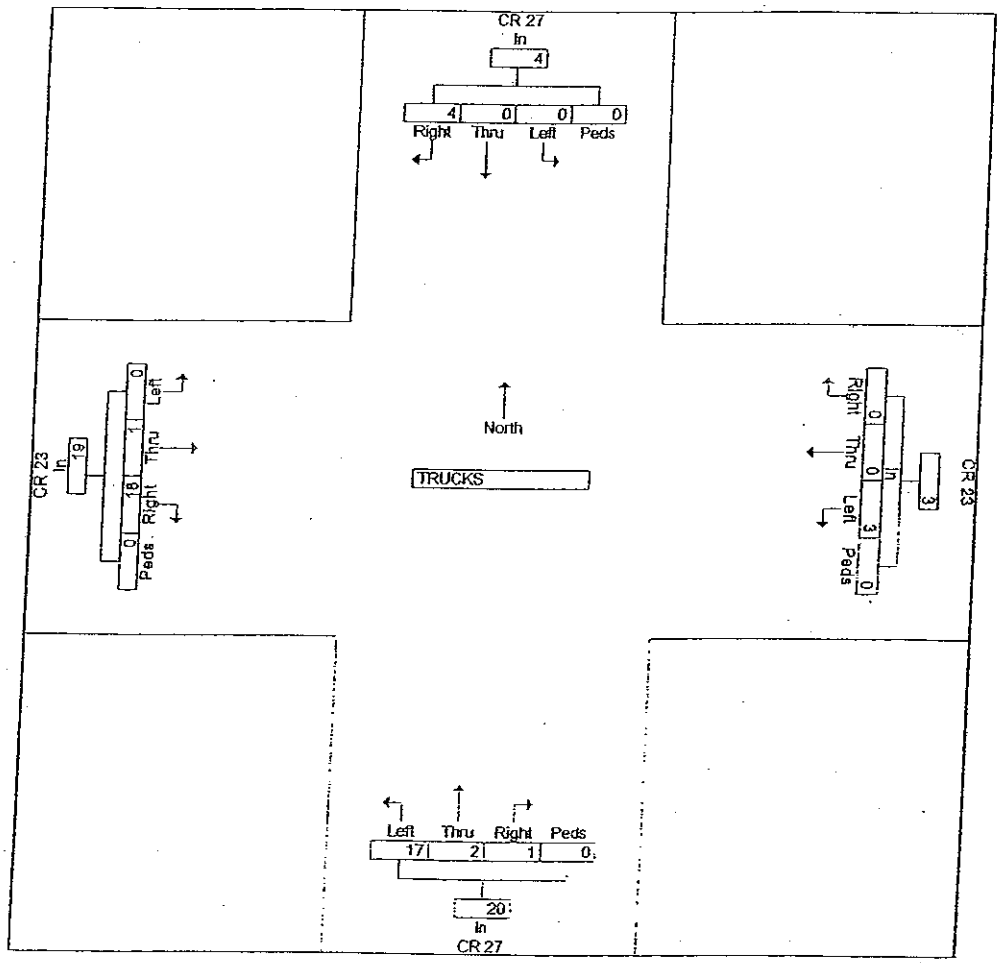
	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:15 AM - Peak 1 of 1																					
By Approach	07:00 AM					08:00 AM					08:00 AM					08:00 AM					
Volume	0	0	4	0	4	3	0	0	0	3	17	2	1	0	20	0	1	18	0	19	
Percent	0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		85.0	10.0	5.0	0.0		0.0	5.3	94.7	0.0		
High Int.	07:00 AM					08:45 AM					08:15 AM					08:45 AM					
Volume	0	0	1	0	1	2	0	0	0	2	7	0	0	0	7	0	0	6	0	6	
Peak Factor					1.000					0.375					0.714					0.792	



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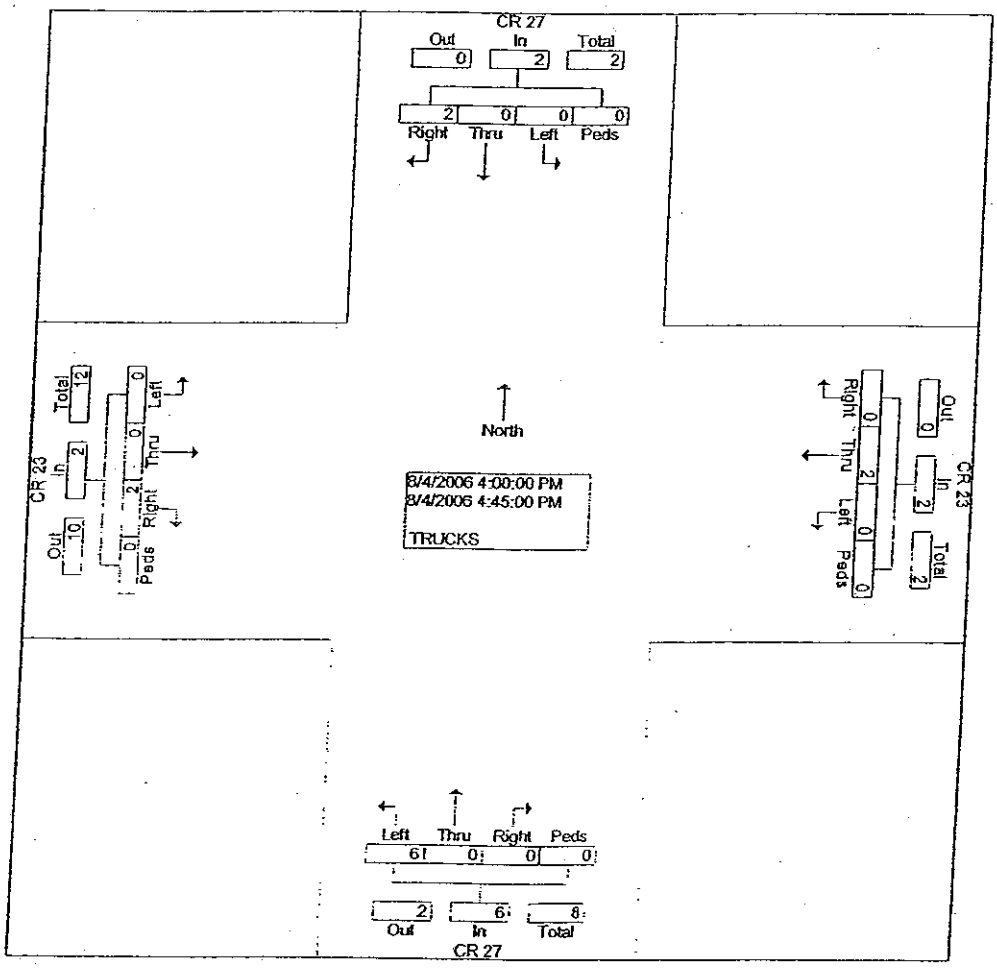
	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection 04:00 PM																					
Volume	0	0	2	0	2	0	2	0	0	2	6	0	0	0	6	0	0	2	0	2	12
Percent	0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
04:00 Volume	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	0	0	1	0	1	5
Peak Factor																					0.600
High Int. 04:00 PM						04:15 PM					04:00 PM					04:00 PM					
Volume	0	0	1	0	1	0	1	0	0	1	3	0	0	0	3	0	0	1	0	1	
Peak Factor					0.500					0.500					0.500					0.500	



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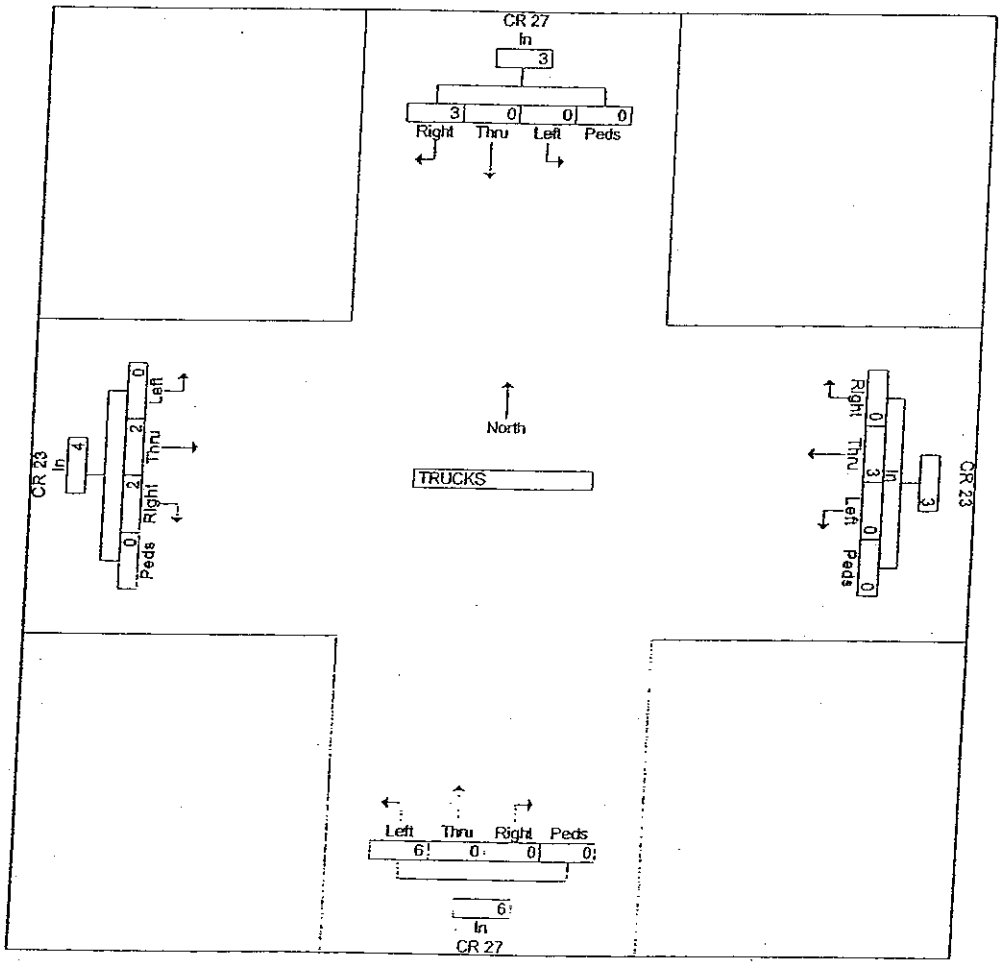
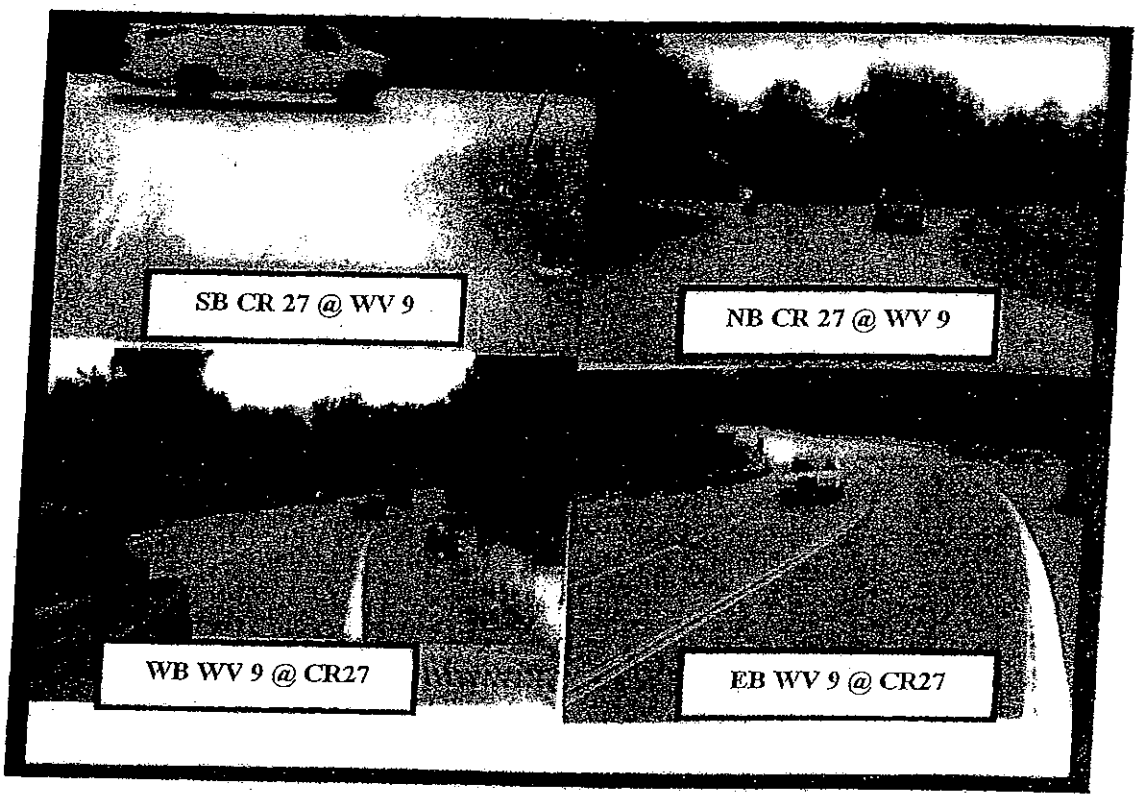
	CR 27 From North					CR 23 From East					CR 27 From South					CR 23 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	05:00 PM					04:15 PM					04:00 PM					04:45 PM					
Volume	0	0	3	0	3	0	3	0	0	3	6	0	0	0	6	0	2	2	0	4	
Percent	0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		
High Int.	05:00 PM					04:15 PM					04:00 PM					04:45 PM					
Volume	0	0	1	0	1	0	1	0	0	1	3	0	0	0	3	0	0	1	0	1	
Peak Factor					0.750					0.750					0.500					1.000	



CR 27/ WV 9



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Weather: Sunny
Counted By: JEREMY
Town: Millsville
Other:

File Name : CR23@W-1
Site Code : 00003333
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Groups Printed- Unshifted

	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	1	1	0	0	2	0	21	0	0	21	0	0	0	0	0	1	24	0	0	25	48
07:15 AM	0	0	1	0	1	0	29	0	0	29	1	0	1	0	2	0	34	1	0	35	67
07:30 AM	1	1	1	0	3	0	37	1	0	38	1	0	1	0	2	1	48	1	0	50	93
07:45 AM	0	1	0	0	1	0	47	1	0	48	2	0	2	0	4	1	59	2	0	62	115
Total	2	3	2	0	7	0	134	2	0	136	4	0	4	0	8	3	165	4	0	172	323
08:00 AM	1	0	1	0	2	0	59	1	0	60	3	0	2	0	5	2	65	4	0	71	138
08:15 AM	2	1	1	0	4	0	67	2	0	69	2	0	3	0	5	2	93	1	0	96	174
08:30 AM	4	3	4	0	11	0	87	3	0	90	2	0	1	0	3	1	73	4	0	78	182
08:45 AM	3	0	0	0	3	0	73	6	0	79	2	0	0	0	2	0	79	1	0	80	164
Total	10	4	6	0	20	0	286	12	0	298	9	0	6	0	15	5	310	10	0	325	658
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	5	2	7	0	14	2	153	3	0	158	2	1	1	0	4	4	69	1	0	74	250
04:15 PM	7	1	3	0	11	0	174	16	0	190	2	0	0	0	2	4	79	4	0	87	290
04:30 PM	3	0	6	0	9	4	109	6	0	119	0	0	0	0	0	1	71	0	0	72	200
04:45 PM	5	0	4	0	9	3	190	16	0	209	5	1	0	0	6	5	66	4	0	75	299
Total	20	3	20	0	43	9	626	41	0	676	9	2	1	0	12	14	285	9	0	308	1039

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File Name : CR23@W~1
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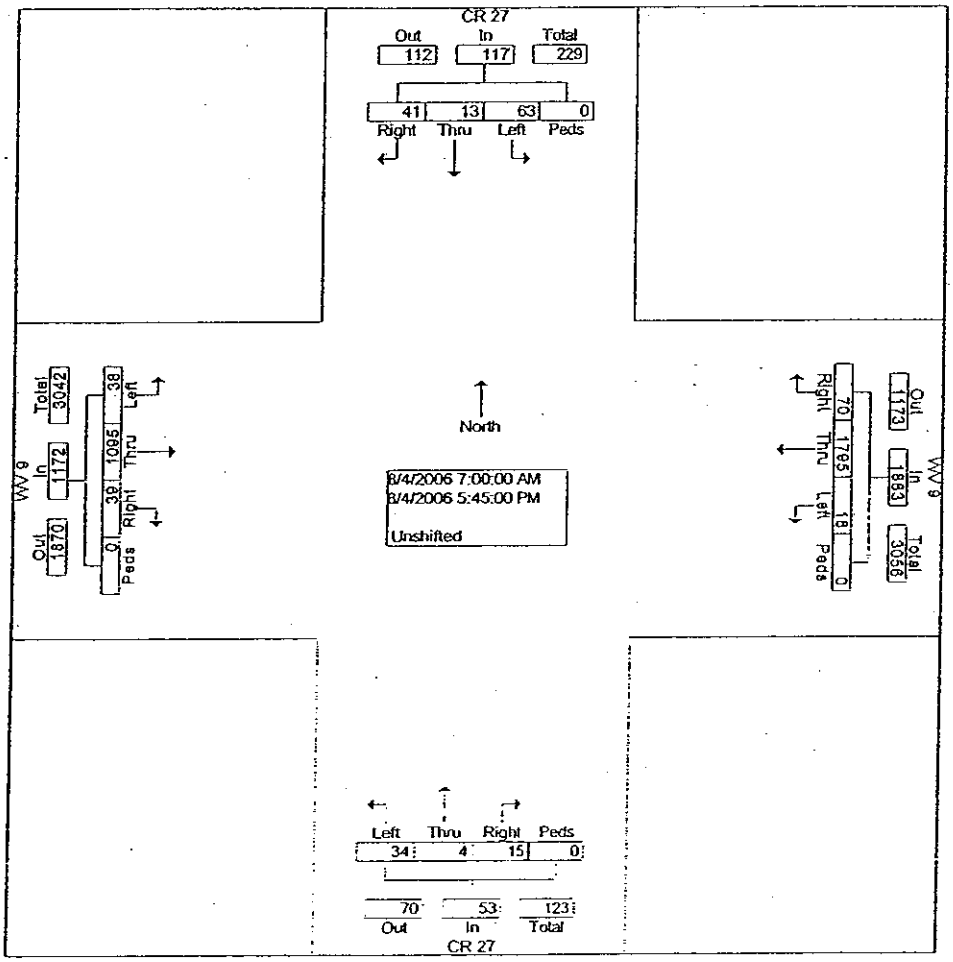
Groups Printed- Unshifted

	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
05:00 PM	5	3	1	0	9	2	155	2	0	159	1	0	1	0	2	3	75	5	0	83	253
05:15 PM	6	0	4	0	10	0	174	6	0	180	1	1	1	0	3	3	86	2	0	91	284
05:30 PM	8	0	3	0	11	7	208	2	0	217	5	0	0	0	5	6	84	4	0	94	327
05:45 PM	12	0	5	0	17	0	212	5	0	217	5	1	2	0	8	4	90	5	0	99	341
Total	31	3	13	0	47	9	749	15	0	773	12	2	4	0	18	16	335	16	0	367	1205
Grand Total	63	13	41	0	117	18	1795	70	0	1883	34	4	15	0	53	38	1095	39	0	1172	3225
Apprch %	53.8	11.1	35.0	0.0		1.0	95.3	3.7	0.0		64.2	7.5	28.3	0.0		3.2	93.4	3.3	0.0		
Total %	2.0	0.4	1.3	0.0	3.6	0.6	55.7	2.2	0.0	58.4	1.1	0.1	0.5	0.0	1.6	1.2	34.0	1.2	0.0	36.3	



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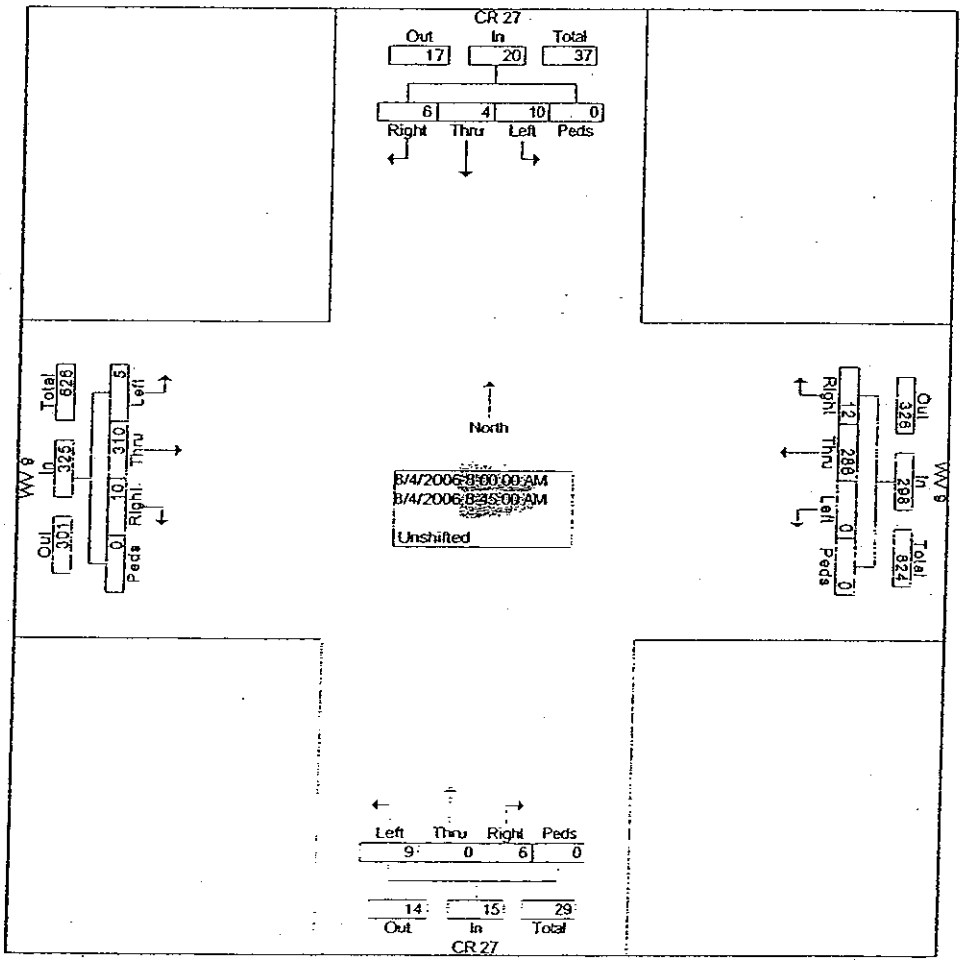
	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:30 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	10	4	6	0	20	0	286	12	0	298	9	0	6	0	15	5	310	10	0	325	658
Percent	50.0	20.0	30.0	0.0		0.0	96.0	4.0	0.0		60.0	0.0	40.0	0.0		1.5	95.4	3.1	0.0		
08:30 Volume	4	3	4	0	11	0	87	3	0	90	2	0	1	0	3	1	73	4	0	78	182
Peak Factor																					0.904
High Int.	08:30 AM					08:30 AM					08:00 AM					08:15 AM					
Volume	4	3	4	0	11	0	87	3	0	90	3	0	2	0	5	2	93	1	0	96	
Peak Factor					0.455					0.828					0.750					0.846	



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File Name : CR23@W~1
Site Code : 00003333
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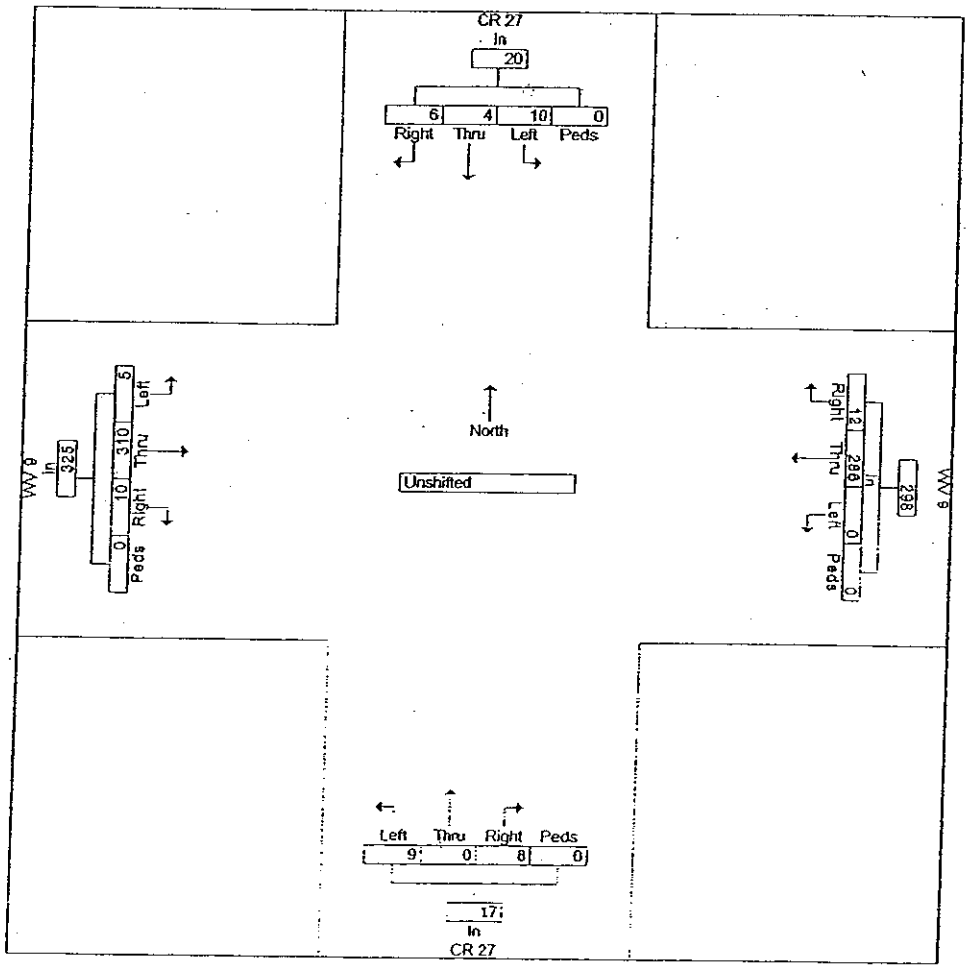
	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:30 AM - Peak 1 of 1																					
By Approach	08:00 AM					08:00 AM					07:45 AM					08:00 AM					
Volume	10	4	6	0	20	0	286	12	0	298	9	0	8	0	17	5	310	10	0	325	
Percent	50.0	20.0	30.0	0.0		0.0	96.0	4.0	0.0		52.9	0.0	47.1	0.0		1.5	95.4	3.1	0.0		
High Int.	08:30 AM					08:30 AM					08:00 AM					08:15 AM					
Volume	4	3	4	0	11	0	87	3	0	90	3	0	2	0	5	2	93	1	0	96	
Peak Factor					0.455					0.828					0.850					0.846	



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File Name : CR23@W~1
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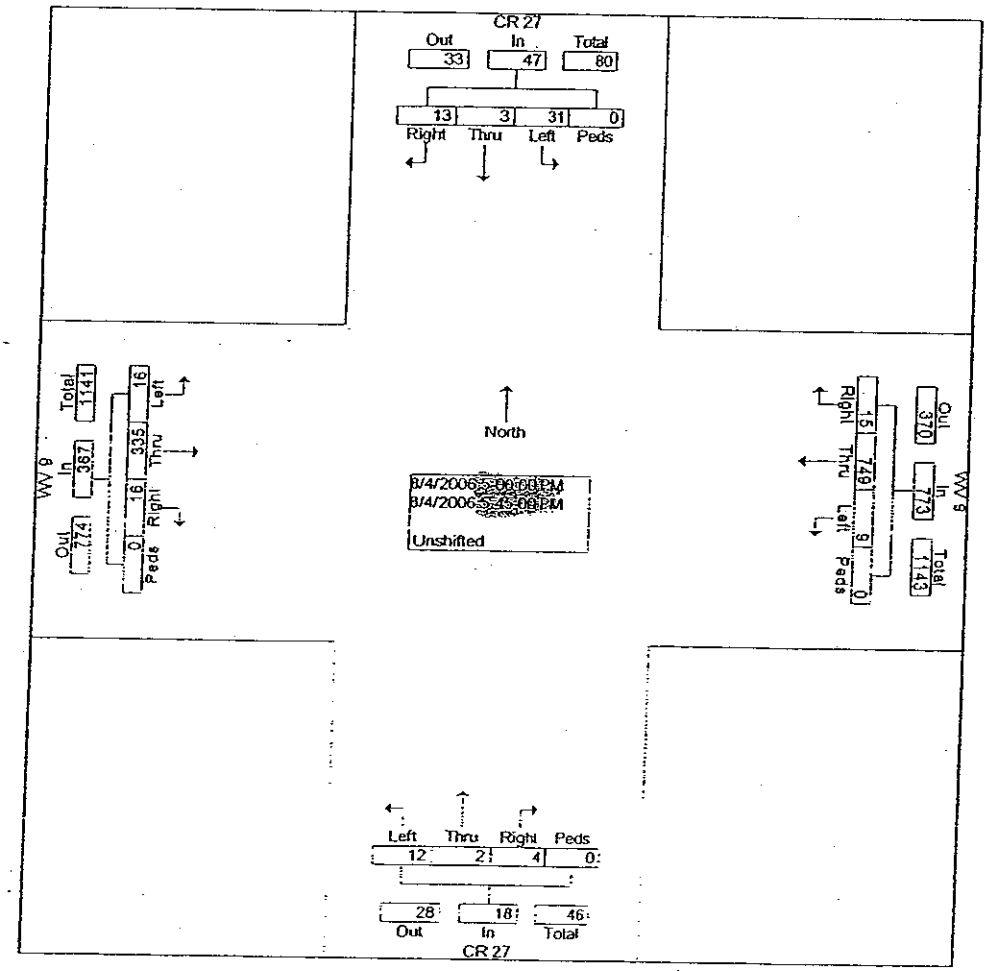
	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	31	3	13	0	47	9	749	15	0	773	12	2	4	0	18	16	335	16	0	367	1205
Percent	66.0	6.4	27.7	0.0		1.2	96.9	1.9	0.0		66.7	11.1	22.2	0.0		4.4	91.3	4.4	0.0		
05:45 Volume	12	0	5	0	17	0	212	5	0	217	5	1	2	0	8	4	90	5	0	99	341
Peak Factor																					0.883
High Int.	05:45 PM					05:30 PM					05:45 PM					05:45 PM					
Volume	12	0	5	0	17	7	208	2	0	217	5	1	2	0	8	4	90	5	0	99	
Peak Factor					0.691					0.891					0.563					0.927	



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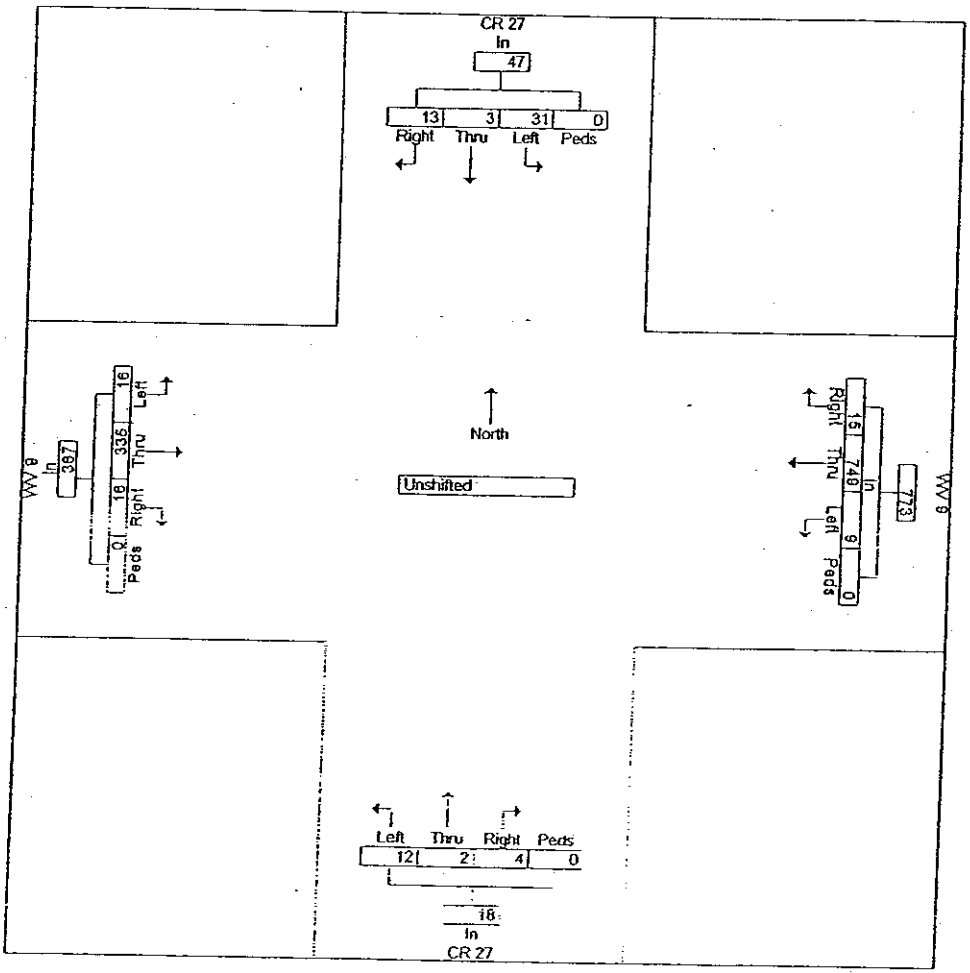
Suite 160
Baltimore, MD 21227

File Name : CR23@W~1
Site Code : 00003333
Start Date : 08/04/2006
Page No : 6

	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	05:00 PM					05:00 PM					05:00 PM					05:00 PM					
Volume	31	3	13	0	47	9	749	15	0	773	12	2	4	0	18	16	335	16	0	367	
Percent	66.0	6.4	27.7	0.0		1.2	96.9	1.9	0.0		66.7	11.1	22.2	0.0		4.4	91.3	4.4	0.0		
High Int.	05:45 PM					05:30 PM					05:45 PM					05:45 PM					
Volume	12	0	5	0	17	7	208	2	0	217	5	1	2	0	8	4	90	5	0	99	
Peak Factor					0.691					0.891					0.563					0.927	



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Weather: Sunny
Counted By: JEREMY
Town: Millsville
Other:

File Name : CR23@W~1
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Groups Printed- TRUCKS

	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
07:15 AM	1	1	0	0	2	1	2	1	0	4	0	0	1	0	1	1	3	1	0	5	12
07:30 AM	1	1	2	0	4	1	3	2	0	6	1	1	1	0	3	0	5	1	0	6	19
07:45 AM	2	2	3	0	7	0	5	1	0	6	1	0	1	0	2	2	4	0	0	6	21
Total	4	4	6	0	14	2	11	4	0	17	2	1	3	0	6	3	13	2	0	18	55
08:00 AM	2	1	4	0	7	1	7	2	0	10	2	1	1	0	4	3	7	1	0	11	32
08:15 AM	0	1	3	0	4	0	5	1	0	6	2	0	1	0	3	0	7	1	0	8	21
08:30 AM	1	1	4	0	6	1	5	1	0	7	2	1	0	0	3	1	7	1	0	9	25
08:45 AM	1	2	2	0	5	1	7	2	0	10	3	1	1	0	5	0	4	0	0	4	24
Total	4	5	13	0	22	3	24	6	0	33	9	3	3	0	15	4	25	3	0	32	102
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	1	1	0	0	2	0	4	0	0	4	0	0	0	0	0	0	3	1	0	4	10
04:15 PM	0	1	1	0	2	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	8
04:30 PM	1	0	1	0	2	0	7	0	0	7	0	1	0	0	1	0	3	0	0	3	13
04:45 PM	0	0	1	0	1	1	4	0	0	5	1	1	0	0	2	0	2	0	0	2	10
Total	2	2	3	0	7	1	18	0	0	19	1	2	1	0	4	0	10	1	0	11	41

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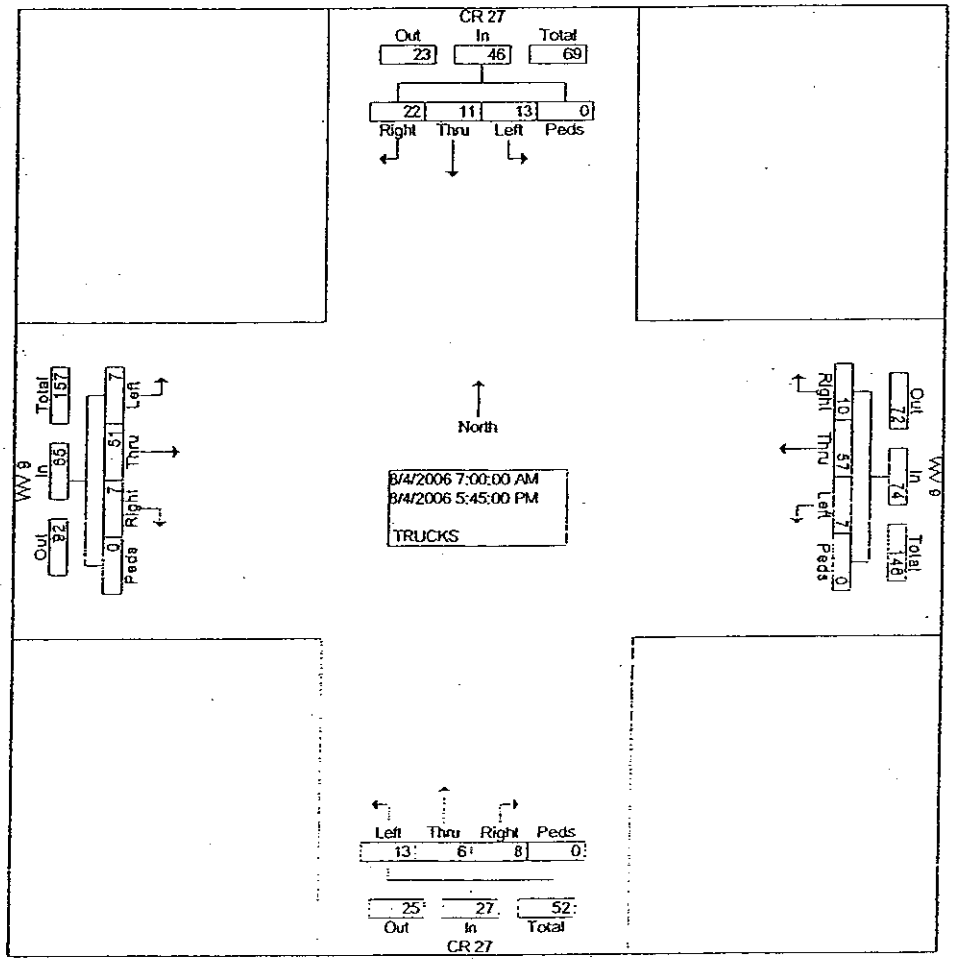
Groups Printed- TRUCKS

	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
05:00 PM	1	0	0	0	1	0	3	0	0	3	0	0	1	0	1	0	2	1	0	3	8
05:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
05:30 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
05:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	3	0	0	0	3	1	4	0	0	5	1	0	1	0	2	0	3	1	0	4	14
Grand Total	13	11	22	0	46	7	57	10	0	74	13	6	8	0	27	7	51	7	0	65	212
Apprch %	28.3	23.9	47.8	0.0		9.5	77.0	13.5	0.0		48.1	22.2	29.6	0.0		10.8	78.5	10.8	0.0		
Total %	6.1	5.2	10.4	0.0	21.7	3.3	26.9	4.7	0.0	34.9	6.1	2.8	3.8	0.0	12.7	3.3	24.1	3.3	0.0	30.7	



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Site Code : 00003333
Start Date : 08/04/2006
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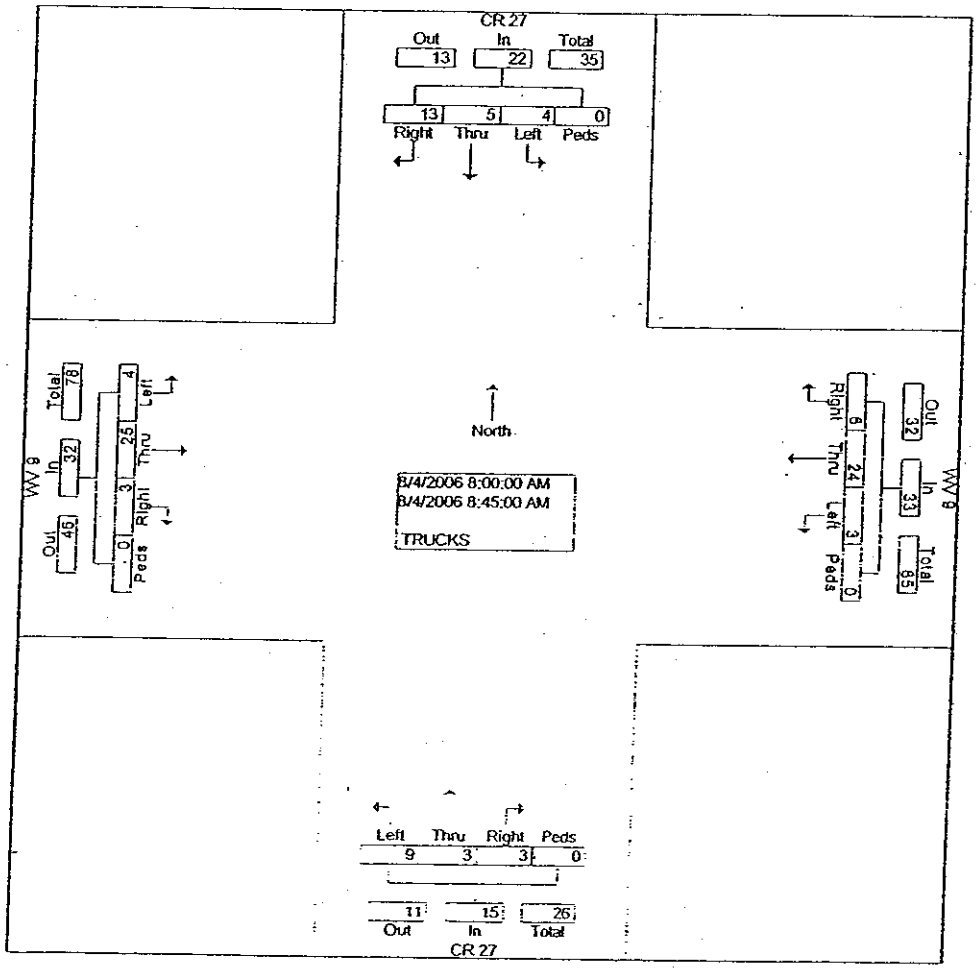
	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:30 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	4	5	13	0	22	3	24	6	0	33	9	3	3	0	15	4	25	3	0	32	102
Percent	18.2	22.7	59.1	0.0		9.1	72.7	18.2	0.0		60.0	20.0	20.0	0.0		12.5	78.1	9.4	0.0		
08:00 Volume	2	1	4	0	7	1	7	2	0	10	2	1	1	0	4	3	7	1	0	11	32
Peak Factor																					0.797
High Int.	08:00 AM					08:00 AM					08:45 AM					08:00 AM					
Volume	2	1	4	0	7	1	7	2	0	10	3	1	1	0	5	3	7	1	0	11	
Peak Factor					0.786					0.825					0.750					0.727	



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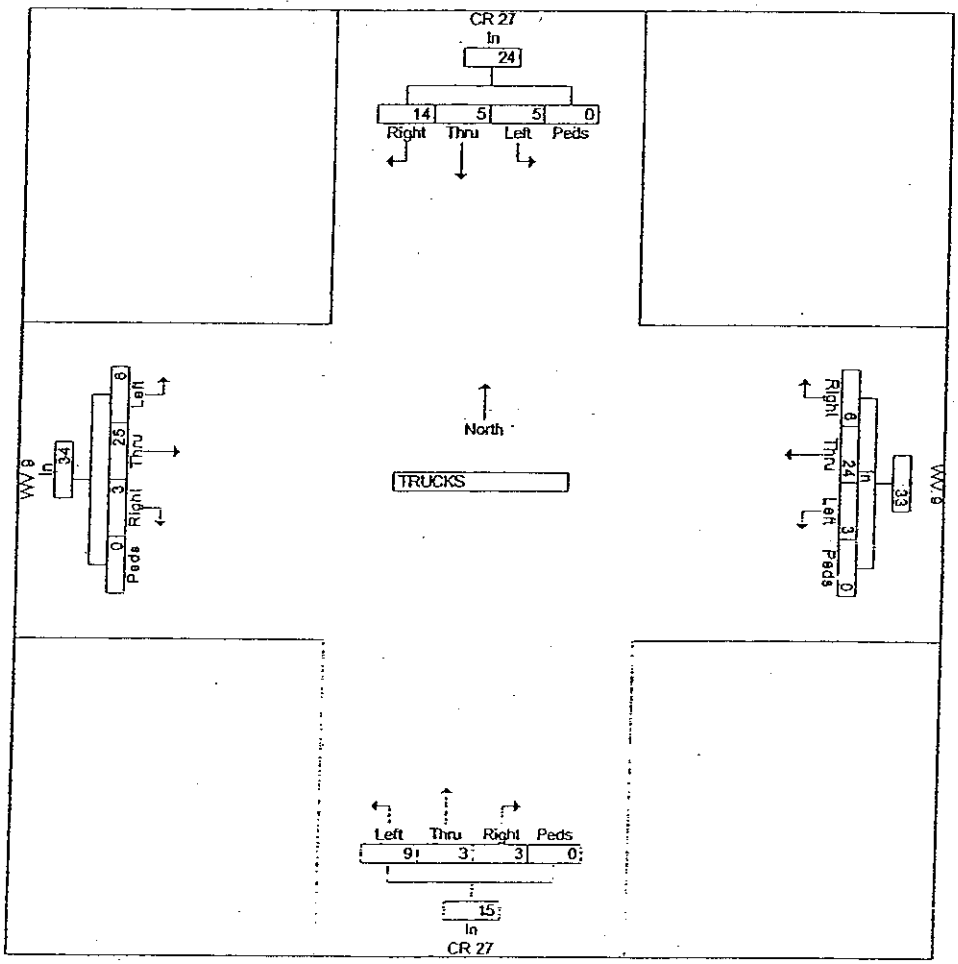
	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:30 AM - Peak 1 of 1																					
By Approach	07:45 AM					08:00 AM					08:00 AM					07:45 AM					
Volume	5	5	14	0	24	3	24	6	0	33	9	3	3	0	15	6	25	3	0	34	
Percent	20.8	20.8	58.3	0.0		9.1	72.7	18.2	0.0		60.0	20.0	20.0	0.0		17.6	73.5	8.8	0.0		
High Int.	07:45 AM					08:00 AM					08:45 AM					08:00 AM					
Volume	2	2	3	0	7	1	7	2	0	10	3	1	1	0	5	3	7	1	0	11	
Peak Factor					0.857					0.825					0.750					0.773	



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File Name : CR23@W~1
Site Code : 00003333
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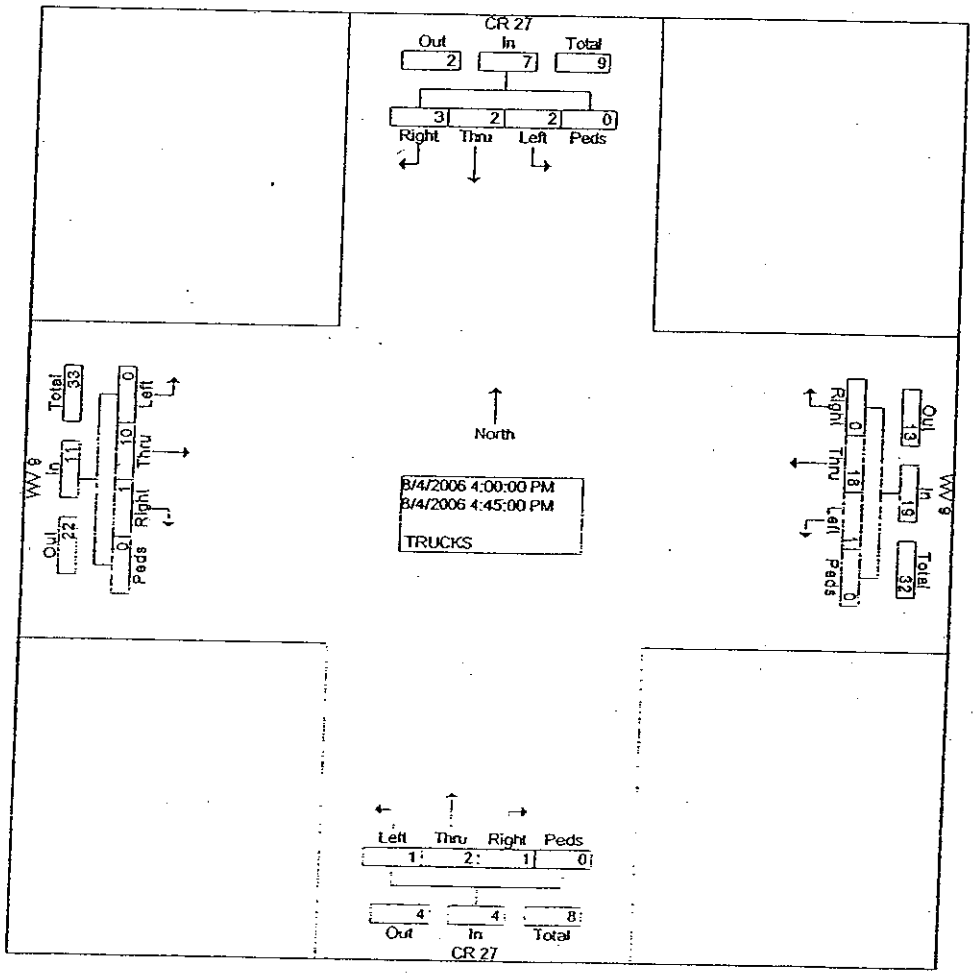
	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	2	2	3	0	7	1	18	0	0	19	1	2	1	0	4	0	10	1	0	11	41
Percent	28.6	28.6	42.9	0.0		5.3	94.7	0.0	0.0		25.0	50.0	25.0	0.0		0.0	90.9	9.1	0.0		
04:30 Volume	1	0	1	0	2	0	7	0	0	7	0	1	0	0	1	0	3	0	0	3	13
Peak Factor																					0.788
High Int.	04:00 PM					04:30 PM					04:45 PM					04:00 PM					
Volume	1	1	0	0	2	0	7	0	0	7	1	1	0	0	2	0	3	1	0	4	
Peak Factor					0.875					0.679					0.500					0.688	



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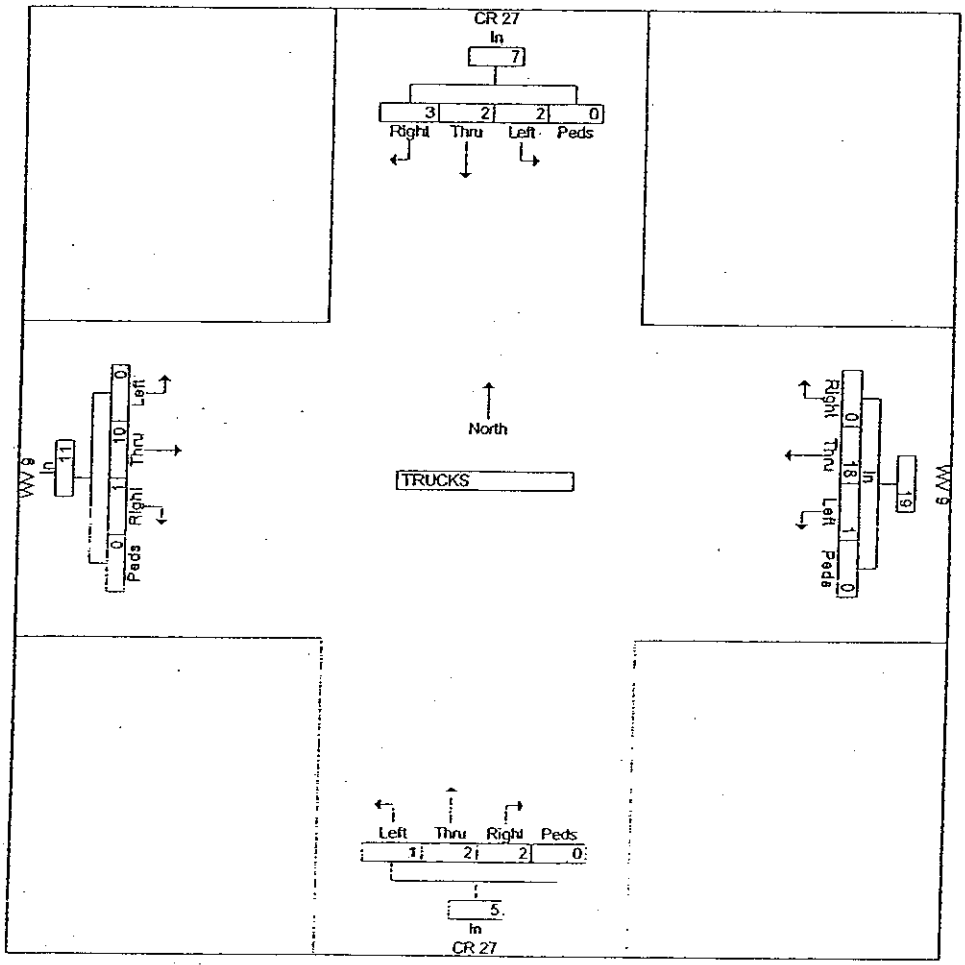
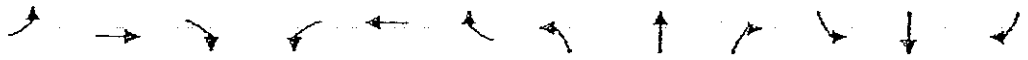
	CR 27 From North					WV 9 From East					CR 27 From South					WV 9 From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	04:00 PM					04:00 PM					04:15 PM					04:00 PM					
Volume	2	2	3	0	7	1	18	0	0	19	1	2	2	0	5	0	10	1	0	11	
Percent	28.6	28.6	42.9	0.0		5.3	94.7	0.0	0.0		20.0	40.0	40.0	0.0		0.0	90.9	9.1	0.0		
High Int.	04:00 PM					04:30 PM					04:45 PM					04:00 PM					
Volume	1	1	0	0	2	0	7	0	0	7	1	1	0	0	2	0	3	1	0	4	
Peak Factor					0.875					0.679					0.625					0.688	



APPENDIX B
EXISTING LOS ANALYSIS WORKSHEETS

HCM Signalized Intersection Capacity Analysis
2: RT 340 & RT 340 alt

10/9/2006



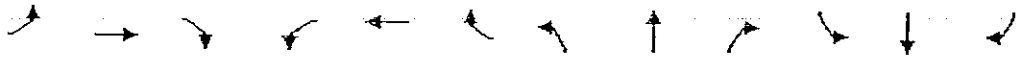
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	910	10	5	385	10	10	10	5	30	5	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00		0.99	
Satd. Flow (prot)	1770	3533		1770	3539	1583		1817	1583		1661	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.88	1.00		0.94	
Satd. Flow (perm)	1770	3533		1770	3539	1583		1646	1583		1578	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	989	11	5	418	11	11	11	5	33	5	98
RTOR Reduction (vph)	0	1	0	0	0	7	0	0	3	0	66	0
Lane Group Flow (vph)	92	999	0	5	418	4	0	22	2	0	70	0
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	4.7	20.1		1.0	16.4	16.4		16.4	16.4		16.4	
Effective Green, g (s)	5.7	21.1		2.0	17.4	17.4		17.4	17.4		17.4	
Actuated g/C Ratio	0.11	0.40		0.04	0.33	0.33		0.33	0.33		0.33	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	192	1420		67	1173	525		546	525		523	
v/s Ratio Prot	c0.05	c0.28		0.00	0.12							
v/s Ratio Perm						0.00		0.01	0.00		c0.04	
v/c Ratio	0.48	0.70		0.07	0.36	0.01		0.04	0.00		0.13	
Uniform Delay, d1	22.0	13.1		24.4	13.3	11.8		11.9	11.7		12.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.9	1.6		0.5	0.2	0.0		0.1	0.0		0.5	
Delay (s)	23.9	14.7		24.8	13.5	11.8		12.0	11.8		12.8	
Level of Service	C	B		C	B	B		B	B		B	
Approach Delay (s)		15.5			13.6			12.0			12.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	52.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Existing AM Peak

HCM Unsignalized Intersection Capacity Analysis
3: RT 340 & RT 27

10/9/2006



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	760	15	5	495	5	10	1	25	60	10	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	826	16	5	538	5	11	1	27	65	11	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	543			842			1258	1489	413	1098	1500	269
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	543			842			1258	1489	413	1098	1500	269
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			99			90	99	95	57	90	95
cM capacity (veh/h)	1022			789			107	115	588	151	108	729

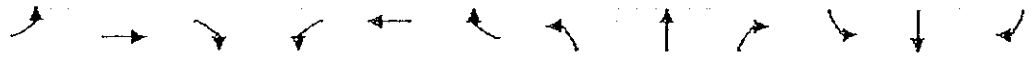
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	54	413	413	10	269	269	38	39	114	
Volume Left	54	0	0	0	5	0	0	0	11	65
Volume Right	0	0	0	16	0	0	0	27	38	49
cSH	1022	1700	1700	1700	789	1700	1700	1700	249	197
Volume to Capacity	0.05	0.24	0.24	0.01	0.01	0.16	0.16	0.00	0.16	0.58
Queue Length 95th (ft)	4	0	0	0	1	0	0	0	14	79
Control Delay (s)	8.7	0.0	0.0	0.0	9.6	0.0	0.0	0.0	22.1	45.8
Lane LOS	A				A				C	E
Approach Delay (s)	0.5				0.1				22.1	45.8
Approach LOS									C	E

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Existing AM Peak

HCM Unsignalized Intersection Capacity Analysis
23: RT 340 & WV 230

10/9/2006



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	705	15	0	460	45	5	1	0	185	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	766	16	0	500	49	5	1	0	201	5	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	549			783			1043	1334	391	895	1293	250
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	549			783			1043	1334	391	895	1293	250
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			97	99	100	14	97	99
cM capacity (veh/h)	1017			831			172	152	608	283	161	750

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	5	511	272	250	250	49	5	212
Volume Left	5	0	0	0	0	0	5	201
Volume Right	0	0	16	0	0	49	0	5
cSH	1017	1700	1700	1700	1700	1700	172	235
Volume to Capacity	0.01	0.30	0.16	0.15	0.15	0.03	0.04	0.90
Queue Length 95th (ft)	0	0	0	0	0	0	3	190
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	0.0	26.8	80.3
Lane LOS	A						D	F
Approach Delay (s)	0.1		0.0				26.8	80.3
Approach LOS							D	F

Intersection Summary			
Average Delay	11.1		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Existing AM Peak

HCM Unsignalized Intersection Capacity Analysis
14: RT 23 & RT 27

10/9/2006

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	5	5	50	15	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	5	5	54	16	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	90	24	33			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	90	24	33			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	908	1052	1579			

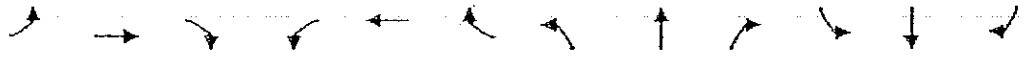
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	5	60	33
Volume Left	0	5	0
Volume Right	5	0	16
cSH	1052	1579	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.4	0.7	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	0.7	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

Existing AM Peak

HCM Unsignalized Intersection Capacity Analysis
28: WV 27 & WV 9

10/9/2006



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	10	0	5	10	5	5	0	285	10	5	310	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	5	11	5	5	0	310	11	5	337	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	677	674	342	674	677	315	348			321		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	677	674	342	674	674	315	348			321		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	99	97	99	99	100			100		
cM capacity (veh/h)	359	378	700	364	375	726	1211			1239		

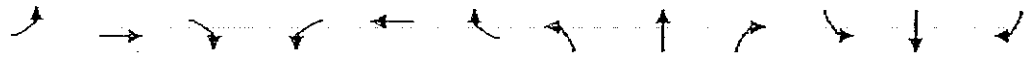
Direction, Lane	EB 1	WB 1	NB 1	SB 1
Volume Total	16	22	321	353
Volume Left	11	11	0	5
Volume Right	5	5	11	11
cSH	429	419	1211	1239
Volume to Capacity	0.04	0.05	0.00	0.00
Queue Length 95th (ft)	3	4	0	0
Control Delay (s)	13.7	14.1	0.0	0.2
Lane LOS	B	B		A
Approach Delay (s)	13.7	14.1	0.0	0.2
Approach LOS	B	B		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

Existing AM Peak.

HCM Signalized Intersection Capacity Analysis
2: RT 340 & RT 340 alt

10/9/2006



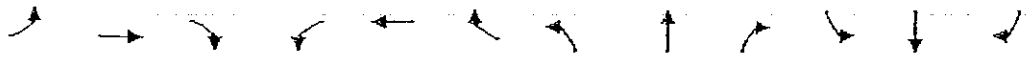
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	595	30	30	1015	35	35	15	25	35	15	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00		0.99	
Satd. Flow (prot)	1770	3513		1770	3539	1583		1799	1583		1652	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.78	1.00		0.95	
Satd. Flow (perm)	1770	3513		1770	3539	1583		1446	1583		1586	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	647	33	33	1103	38	38	16	27	38	16	201
RTOR Reduction (vph)	0	5	0	0	0	23	0	0	19	0	135	0
Lane Group Flow (vph)	168	675	0	33	1103	15	0	54	8	0	120	0
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	7.0	29.0		2.6	24.6	24.6		18.0	18.0		18.0	
Effective Green, g (s)	8.0	30.0		2.6	24.6	24.6		18.0	18.0		18.0	
Actuated g/C Ratio	0.13	0.48		0.04	0.39	0.39		0.29	0.29		0.29	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	226	1684		74	1391	622		416	455		456	
v/s Ratio Prot	c0.09	0.19		0.02	c0.31							
v/s Ratio Perm						0.01		0.04	0.00		c0.08	
v/c Ratio	0.74	0.40		0.45	0.79	0.02		0.13	0.02		0.26	
Uniform Delay, d1	26.3	10.5		29.3	16.8	11.6		16.5	16.0		17.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	12.4	0.2		4.2	3.2	0.0		0.6	0.1		1.4	
Delay (s)	38.7	10.7		33.5	19.9	11.7		17.1	16.0		18.6	
Level of Service	D	B		C	B	B		B	B		B	
Approach Delay (s)		16.2			20.1			16.8			18.6	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Existing PM Peak

HCM Unsignalized Intersection Capacity Analysis
3: RT 340 & RT 27

10/9/2006



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	725	25	35	1100	95	35	10	25	75	20	105
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	788	27	38	1196	103	38	11	27	82	22	114
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1299			815			1739	2315	394	1851	2239	598
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1299			815			1739	2315	394	1851	2239	598
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			95			0	64	96	0	36	74
cM capacity (veh/h)	529			808			18	30	606	27	43	746

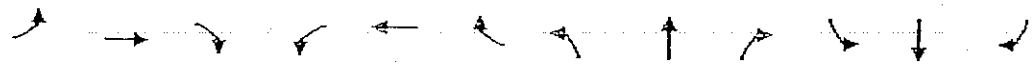
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	76	394	394	27	598	598	103	76	218	218
Volume Left	76	0	0	0	38	0	0	0	38	82
Volume Right	0	0	0	27	0	0	0	103	27	0
cSH	529	1700	1700	1700	808	1700	1700	1700	30	56
Volume to Capacity	0.14	0.23	0.23	0.02	0.05	0.35	0.35	0.06	2.55	3.86
Queue Length 95th (ft)	12	0	0	0	4	0	0	0	224	Err
Control Delay (s)	12.9	0.0	0.0	0.0	9.7	0.0	0.0	0.0	981.8	Err
Lane LOS	B				A				F	F
Approach Delay (s)	1.1			0.3					981.8	Err
Approach LOS									F	F

Intersection Summary			
Average Delay	892.1		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

Existing PM Peak.

HCM Unsignalized Intersection Capacity Analysis
23: RT 340 & WV 230

10/9/2006



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	770	5	0	970	150	2	1	0	55	5	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	837	5	0	1054	163	2	1	0	60	5	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1217			842			1402	2079	421	1495	1918	527
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1217			842			1402	2079	421	1495	1918	527
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			98	98	100	27	92	98
cM capacity (veh/h)	569			789			90	52	581	82	65	496

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	11	558	279	527	527	163	3	76	26
Volume Left	11	0	0	0	0	0	2	60	
Volume Right	0	0	5	0	0	163	0	11	
cSH	569	1700	1700	1700	1700	1700	72	92	
Volume to Capacity	0.02	0.33	0.17	0.31	0.31	0.10	0.05	0.83	
Queue Length 95th (ft)	1	0	0	0	0	0	3	111	
Control Delay (s)	11.5	0.0	0.0	0.0	0.0	0.0	57.2	133.3	
Lane LOS	B						F	F	
Approach Delay (s)	0.1		0.0				57.2	133.3	
Approach LOS							F	F	

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

Existing PM Peak.

HCM Unsignalized Intersection Capacity Analysis
14: RT 23 & RT 27

10/9/2006

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	15	5	5	20	30	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	5	5	22	33	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	66	33	34			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66	33	34			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	936	1040	1578			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	27	27	34
Volume Left	16	5	0
Volume Right	5	0	1
cSH	960	1578	1700
Volume to Capacity	0.02	0.00	0.02
Queue Length 95th (ft)	2	0	0
Control Delay (s)	8.8	1.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	1.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	15.4%	ICU Level of Service	A
Analysis Period (min)	15		

Existing PM Peak.

HCM Unsignalized Intersection Capacity Analysis
28: WV 27 & WV 9

10/9/2006

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	10	2	5	30	5	15	10	750	150	15	335	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	2	5	33	5	16	11	815	163	16	364	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1342	1405	372	1330	1332	897	380			978		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1342	1405	372	1330	1332	897	380			978		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	98	99	74	96	95	99			98		
cM capacity (veh/h)	117	135	674	126	149	339	1178			705		

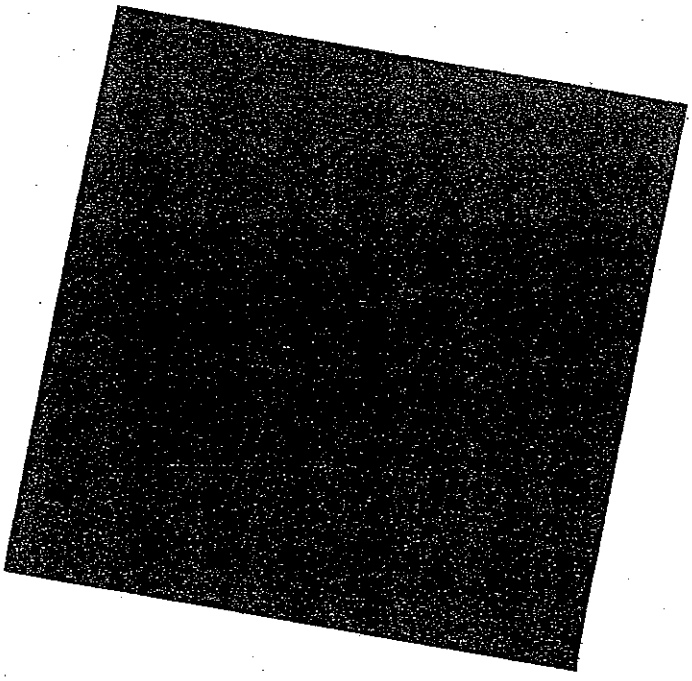
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	54	989	397
Volume Left	11	33	11	16
Volume Right	5	16	163	16
cSH	157	158	1178	705
Volume to Capacity	0.12	0.34	0.01	0.02
Queue Length 95th (ft)	10	35	1	2
Control Delay (s)	30.9	39.2	0.3	0.7
Lane LOS	D	E	A	A
Approach Delay (s)	30.9	39.2	0.3	0.7
Approach LOS	D	E		

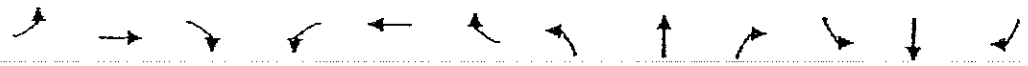
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

Existing PM Peak

APPENDIX C
BACKGROUND DEVELOPMENTS TRIP ASSIGNEMENTS

APPENDIX D
BACKGROUND LOS ANALYSIS WORKSHEETS





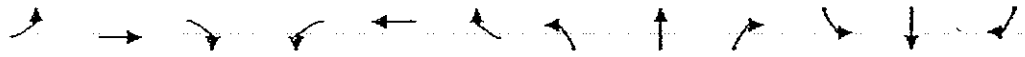
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	1075	10	5	515	10	10	10	5	35	5	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00		0.99	
Satd. Flow (prot)	1770	3534		1770	3539	1583		1817	1583		1658	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.87	1.00		0.94	
Satd. Flow (perm)	1770	3534		1770	3539	1583		1629	1583		1572	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	1168	11	5	560	11	11	11	5	38	5	120
RTOR Reduction (vph)	0	1	0	0	0	7	0	0	3	0	83	0
Lane Group Flow (vph)	120	1178	0	5	560	4	0	22	2	0	60	0
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	6.0	25.6		0.7	18.3	18.3		16.2	16.2		16.2	
Effective Green, g (s)	7.0	24.6		1.7	19.3	19.3		17.2	17.2		17.2	
Actuated g/C Ratio	0.13	0.44		0.03	0.35	0.35		0.31	0.31		0.31	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	223	1566		54	1231	550		505	491		487	
v/s Ratio Prot	c0.07	c0.33		0.00	c0.16							
v/s Ratio Perm						0.00		0.01	0.00		c0.05	
v/c Ratio	0.54	0.75		0.09	0.45	0.01		0.04	0.00		0.12	
Uniform Delay, d1	22.7	12.9		26.2	14.0	11.8		13.4	13.2		13.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	2.5	2.1		0.7	0.3	0.0		0.2	0.0		0.7	
Delay (s)	25.2	15.0		26.9	14.4	11.8		13.6	13.2		14.7	
Level of Service	C	B		C	B	B		B	B		B	
Approach Delay (s)		15.9			14.4			13.5			14.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	1010	20	5	650	5	10	5	30	70	10	45
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	1098	22	5	707	5	11	5	33	76	11	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	712			1120			1668	1973	549	1454	1989	353
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	712			1120			1668	1973	549	1454	1989	353
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			99			76	90	93	0	80	92
cM capacity (veh/h)	884			620			146	56	480	178	54	618

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	76	549	549	22	5	353	353	5	49	116	24	60
Volume Left	76	0	0	0	5	0	0	0	11	76		
Volume Right	0	0	0	22	0	0	0	5	33	49		
cSH	884	1700	1700	1700	620	1700	1700	1700	121	103		
Volume to Capacity	0.09	0.32	0.32	0.01	0.01	0.21	0.21	0.00	0.40	1.02		
Queue Length 95th (ft)	7	0	0	0	1	0	0	0	43	237		
Control Delay (s)	9.5	0.0	0.0	0.0	10.9	0.0	0.0	0.0	53.3	271.5		
Lane LOS	A				B				F	F		
Approach Delay (s)	0.6			0.1					53.3	271.5		
Approach LOS									F	F		

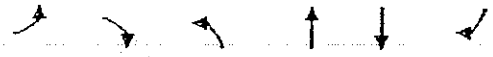
Intersection Summary					
Average Delay	19.2				
Intersection Capacity Utilization	55.1%	ICU Level of Service		B	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	950	20	0	610	70	5	1	5	265	5	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.94			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.98			0.96	
Satd. Flow (prot)	1770	3528			3539	1583		1710			1757	
Flt Permitted	0.28	1.00			1.00	1.00		0.87			0.75	
Satd. Flow (perm)	514	3528			3539	1583		1522			1368	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	1033	22	0	663	76	5	1	5	288	5	38
RTOR Reduction (vph)	0	2	0	0	0	46	0	3	0	0	9	0
Lane Group Flow (vph)	16	1053	0	0	663	30	0	4	0	0	324	0
Turn Type	pm+pt					Perm	Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4					8	2			6		
Actuated Green, G (s)	24.4	24.4			18.8	18.8		16.1			16.1	
Effective Green, g (s)	25.4	25.4			19.8	19.8		17.1			17.1	
Actuated g/C Ratio	0.50	0.50			0.39	0.39		0.34			0.34	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	298	1774			1388	621		515			463	
v/s Ratio Prot	0.00	c0.30			0.19			0.00			c0.24	
v/s Ratio Perm	0.03					0.02		0.01				
v/c Ratio	0.05	0.59			0.48	0.05		0.01			0.70	
Uniform Delay, d1	6.8	8.9			11.5	9.5		11.1			14.5	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.1	0.5			0.3	0.0		0.0			4.5	
Delay (s)	6.9	9.4			11.7	9.5		11.1			19.0	
Level of Service	A	A			B	A		B			B	
Approach Delay (s)		9.4			11.5			11.1			19.0	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

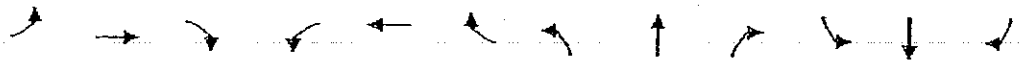
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	950	20	0	610	70	5	1	5	265	5	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	1033	22	0	663	76	5	1	5	288	5	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	739		1054				1448	1815	527	1218	1750	332
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	739		1054				1448	1815	527	1218	1750	332
tC, single (s)	4.1		4.1				7.5	6.5	6.9	7.6	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2		2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98		100				93	99	99	0	93	94
cM capacity (veh/h)	863		656				81	76	496	182	83	662
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	517	538	0	332	407	5	1	5	288	5	38
Volume Left	16	0	0	0	0	0	5	288				
Volume Right	0	0	22	0	0	76	5	38				
cSH	863	1700	1700	1700	1700	1700	130	143				
Volume to Capacity	0.02	0.30	0.32	0.00	0.20	0.24	0.09	2.31				
Queue Length 95th (ft)	1	0	0	0	0	0	7	699				
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	0.0	35.5	661.5				
Lane LOS	A						E	F				
Approach Delay (s)	0.1		0.0				35.5	661.5				
Approach LOS							E	F				
Intersection Summary												
Average Delay	102.1											
Intersection Capacity Utilization	57.3%		ICU Level of Service				B					
Analysis Period (min)	15											



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	5	60	20	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	65	22	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	109	33	43			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109	33	43			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	100			
cM capacity (veh/h)	885	1041	1565			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	11	71	43	43
Volume Left	5	5	0	
Volume Right	5	0	22	
cSH	957	1565	1700	
Volume to Capacity	0.01	0.00	0.03	
Queue Length 95th (ft)	1	0	0	
Control Delay (s)	8.8	0.6	0.0	
Lane LOS	A	A		
Approach Delay (s)	8.8	0.6	0.0	
Approach LOS	A			

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕			↕	
Volume (veh/h)	10			5		5	10		5	5	340	10	5	370	10
Sign Control					Stop			Stop			Free			Free	
Grade					0%			0%			0%			0%	
Peak Hour Factor	0.92			0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11			5	5	5	11	5	5	5	370	11	5	402	11
Pedestrians															
Lane Width (ft)															
Walking Speed (ft/s)															
Percent Blockage															
Right turn flare (veh)															
Median type											None			None	
Median storage veh)															
Upstream signal (ft)															
pX, platoon unblocked															
vC, conflicting volume	812			810		408	812		810	375		413	380		
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	812			810		408	812		810	375		413	380		
tC, single (s)	7.1			6.5		6.2	7.1		6.5	6.2		4.1	4.1		
tC, 2 stage (s)															
tF (s)	3.5			4.0		3.3	3.5		4.0	3.3		2.2	2.2		
p0 queue free %	96			98		99	96		98	99		100	100		
cM capacity (veh/h)	289			311		644	289		311	674		1146	1178		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	21	380	418
Volume Left	11	11	5	5
Volume Right	5	5	11	11
cSH	342	344	1146	1178
Volume to Capacity	0.06	0.06	0.00	0.00
Queue Length 95th (ft)	5	5	0	0
Control Delay (s)	16.2	16.2	0.2	0.2
Lane LOS	C	C	A	A
Approach Delay (s)	16.2	16.2	0.2	0.2
Approach LOS	C	C		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	820	35	35	1340	40	40	15	30	40	20	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.99	
Satd. Flow (prot)	1770	3518		1770	3539	1583		1797	1583		1652	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.47	1.00		0.95	
Satd. Flow (perm)	1770	3518		1770	3539	1583		874	1583		1580	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	891	38	38	1457	43	43	16	33	43	22	250
RTOR Reduction (vph)	0	3	0	0	0	20	0	0	26	0	152	0
Lane Group Flow (vph)	207	926	0	38	1457	23	0	59	7	0	163	0
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actual Green, G (s)	11.0	59.2		5.4	46.6	46.6		16.2	16.2		16.2	
Effective Green, g (s)	15.0	51.2		5.4	41.6	41.6		17.2	17.2		17.2	
Actuated g/C Ratio	0.17	0.60		0.06	0.49	0.48		0.20	0.20		0.20	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	309	2099		111	1716	768		175	317		317	
v/s Ratio Prot	0.12	0.26		0.02	c0.41							
v/s Ratio Perm						0.01		0.07	0.00		c0.10	
v/c Ratio	0.67	1.04		0.34	0.85	0.03		0.34	0.02		0.51	
Uniform Delay, d1	33.1	9.5		38.5	19.4	11.6		29.4	27.5		30.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	5.4	0.1		1.8	4.1	0.0		5.1	0.1		5.9	
Delay (s)	38.5	9.6		40.3	23.6	11.6		34.5	27.7		36.4	
Level of Service	D	A		D	C	B		C	C		D	
Approach Delay (s)		14.9			23.6			32.1			36.4	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM Average Control Delay	21.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	85.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	980	30	40	1450	115	40	10	30	90	25	135
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	1065	33	43	1576	125	43	11	33	98	27	147
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1701			1098			2296	3049	533	2429	2957	788
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1701			1098			2296	3049	533	2429	2957	788
tC, single (s)												
tC, 2 stage (s)												
tF (s)												
p0 queue free %	74			93			0	0	93	0	0	56
cM capacity (veh/h)												

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	98	0	0	0	43	0	0	0	43	98		
Volume Left	98	0	0	0	43	0	0	0	43	98		
Volume Right	0	0	0	0	0	0	0	0	0	0		
cSH	370	1700	1700	1700	632	1700	1700	1700	0	0		
Volume to Capacity	0.26	0.00	0.00	0.00	0.07	0.00	0.00	0.00	Err	Err		
Queue Length 95th (ft)	26	0	0	0	6	0	0	0	Err	Err		
Control Delay (s)	18.2	0.0	0.0	0.0	11.1	0.0	0.0	0.0	Err	Err		
Lane LOS	C				B				F	F		
Approach Delay (s)	1.5			0.3					Err	Err		
Approach LOS									F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1040	5	0	1305	230	5	0	5	95	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.93			0.97	
Flt Protected	0.95	1.00			1.00	1.00		0.98			0.96	
Satd. Flow (prot)	1770	3537			3539	1583		1695			1740	
Flt Permitted	0.14	1.00			1.00	1.00		0.86			0.78	
Satd. Flow (perm)	255	3537			3539	1583		1491			1404	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1130	5	0	1418	250	5	0	5	103	5	33
RTOR Reduction (vph)	0	0	0	0	0	124	0	4	0	0	21	0
Lane Group Flow (vph)	38	1135	0	0	1418	126	0	5	0	0	120	0
Turn Type	pm+pt					Perm	Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4					8	2			6		
Actuated g/C Ratio	0.63	0.63			0.51	0.51		0.21			0.21	
Effective Green, g (s)	31.5	31.5			25.2	25.2		10.4			10.4	
Actuated g/C Ratio	0.63	0.63			0.51	0.51		0.21			0.21	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	231	2233			1787	799		311			293	
v/s Ratio Prot	0.01	c0.32			c0.40						c0.07	
v/s Ratio Perm	0.10					0.08		0.00			c0.09	
v/c Ratio	0.16	0.51			0.79	0.16		0.02			0.41	
Uniform Delay, d1	6.7	5.0			10.2	6.6		15.7			17.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.3	0.2			2.5	0.1		0.0			0.9	
Delay (s)	7.1	5.2			12.7	6.7		15.7			18.0	
Level of Service	A	A			B	A		B			B	
Approach Delay (s)		5.2			11.8			15.7			18.0	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	49.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	1040	5	0	1305	230	5	0	5	95	5	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	1130	5	0	1418	250	5	0	5	103	5	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1668			1136			1954	2878	568	2065	2630	709
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1668			1136			1954	2878	568	2065	2630	709
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			100			79	100	99	0	74	91
cM capacity (veh/h)	91			611			26	0	466	29	2	376

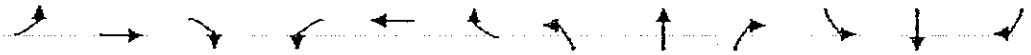
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2	SB 3
Volume Total	38	754	382	709	709	250	10	103	5	33
Volume Left	38	0	0	0	0	0	5	103		
Volume Right	0	0	5	0	0	250	5	0	5	33
cSH	381	1700	1700	1700	1700	1700	49	36		
Volume to Capacity	0.10	0.44	0.22	0.42	0.42	0.15	0.22	3.04		
Queue Length 95th (ft)	8	0	0	0	0	0	18	Err		
Control Delay (s)	15.5	0.0	0.0	0.0	0.0	0.0	97.9	Err		
Lane LOS	C						F	F		
Approach Delay (s)	0.5		0.0				97.9	Err		
Approach LOS							F	F		

Intersection Summary			
Average Delay	472.4		
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	20	5	5	25	35	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	5	5	27	38	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	79	41	43			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79	41	43			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	921	1036	1565			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	27	30	43
Volume Left	22	5	0
Volume Right	5	0	5
cSH	941	1565	1700
Volume to Capacity	0.03	0.00	0.03
Queue Length 95th (ft)	2	0	0
Control Delay (s)	8.9	1.2	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	1.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	10	5	5	35	5	20	10	890	180	20	400	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	5	5	38	5	22	11	967	196	22	435	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1601	1674	446	1584	1587	1065	457			1163		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1601	1674	446	1584	1587	1065	457			1163		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			7.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			3.5		
p0 queue free %	85	94	99	52	95	92	99			96		
cM capacity (veh/h)	77	91	613	80	109	270	1104			201		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	65	1174	478
Volume Left	11	38	11	22
Volume Right	5	22	196	22
cSH	100	107	1104	601
Volume to Capacity	0.22	0.61	0.01	0.04
Queue Length 95th (ft)	19	74	1	3
Control Delay (s)	50.9	80.7	0.3	1.0
Lane LOS	F	F	A	A
Approach Delay (s)	50.9	80.7	0.3	1.0
Approach LOS	F	F		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

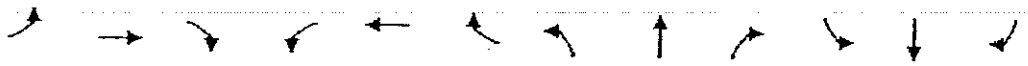
APPENDIX E
TOTAL LOS ANALYSIS WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	1215	10	5	1245	10	10	10	5	35	5	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00		1.00	
Flt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00		0.99	
Satd. Flow (prot)	1770	3535		1770	3539	1583		1817	1583		1658	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.88	1.00		0.94	
Satd. Flow (perm)	1770	3535		1770	3539	1583		1633	1583		1569	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	1321	11	5	1353	11	11	11	5	38	5	120
RTOR Reduction (vph)	0	0	0	0	0	6	0	0	4	0	85	0
Lane Group Flow (vph)	120	1332	0	5	1353	5	0	22	0	0	78	0
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	6.8	45.3		0.7	40.2	40.2		21.6	21.6		21.6	
Effective Green, g (s)	7.8	47.3		1.7	41.2	41.2		22.6	22.6		22.6	
Actuated g/C Ratio	0.09	0.57		0.02	0.49	0.49		0.27	0.27		0.27	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	165	2000		36	1744	780		441	428		424	
v/s Ratio Prot	c0.07	0.38		0.00	0.38							
v/s Ratio Perm						0.00		0.01	0.00		c0.05	
v/c Ratio	0.73	0.67		0.14	0.78	0.01		0.05	0.00		0.18	
Uniform Delay, d1	36.9	12.6		40.2	17.4	10.8		22.6	22.3		23.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	14.8	0.8		1.8	2.2	0.0		0.2	0.0		0.9	
Delay (s)	51.6	13.5		42.0	19.6	10.8		22.8	22.3		24.4	
Level of Service	D	B		D	B	B		C	C		C	
Approach Delay (s)		16.6			19.6			22.7			24.4	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

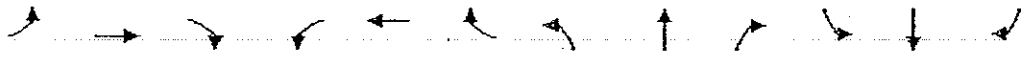
HCM Signalized Intersection Capacity Analysis
3: RT 340 & RT 27

1/16/2007



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	1010	710	735	650	5	135	15	170	70	50	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00		0.97	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1701	1583		1810	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1701	1583		1810	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	1098	772	799	707	5	147	16	185	76	54	49
RTOR Reduction (vph)	0	0	151	0	0	2	0	0	0	0	0	44
Lane Group Flow (vph)	76	1098	621	799	707	3	147	16	185	0	130	5
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		Free	Split		Perm
Protected Phases	7	4	2	3	8	6	2	2		6	6	
Permitted Phases			4			8			Free			6
Actuated Green, G (s)	7.9	39.8	55.2	31.5	63.4	76.7	15.4	15.4	120.0		13.3	13.3
Effective Green, g (s)	8.9	40.8	57.2	32.5	64.4	78.7	16.4	16.4	120.0		14.3	13.3
Actuated g/C Ratio	0.07	0.34	0.48	0.27	0.54	0.66	0.14	0.14	1.00		0.12	0.11
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	131	1203	807	930	1899	1038	230	232	1583		216	175
v/s Ratio Prot	c0.04	0.31	0.15	c0.23	0.20	0.00	0.09	0.01			c0.07	
v/s Ratio Perm			0.29			0.00			0.12			0.00
v/c Ratio	0.58	0.91	0.77	0.86	0.37	0.00	0.64	0.07	0.12		0.60	0.03
Uniform Delay, d1	53.7	37.9	26.0	41.6	16.1	7.1	47.0	47.0	0.0		50.1	47.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.4	10.6	4.5	8.0	0.1	0.0	4.2	4.2	0.2		4.7	0.1
Delay (s)	60.1	48.5	30.4	49.5	16.2	7.1	51.2	51.2	0.2		54.8	47.7
Level of Service	E	D	C	D	B	A	D	D	A		D	D
Approach Delay (s)		41.8			33.8			24.0			52.9	
Approach LOS		D			C			C			D	

Intersection Summary				
HCM Average Control Delay	37.7	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	81.4%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	1455	20	0	700	105	5	1	5	450	5	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.94			0.99	
Flt Protected	0.95	1.00			1.00	1.00		0.98			0.96	
Satd. Flow (prot)	1770	3532			3539	1583		1740			1764	
Flt Permitted	0.95	1.00			1.00	1.00		0.87			0.74	
Satd. Flow (perm)	1770	3532			3539	1583		1526			1357	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	1582	22	0	761	114	5	1	5	489	5	38
RTOR Reduction (vph)	0	2	0	0	0	67	0	3	0	0	2	0
Lane Group Flow (vph)	16	1602	0	0	761	47	0	8	0	0	530	0
Turn Type	Prot					Perm	Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	9.2	58.0			49.6	49.6		55.0			55.0	
Effective Green, g (s)	4.2	59.0			50.8	50.8		56.0			56.0	
Actuated g/C Ratio	0.03	0.48			0.41	0.41		0.46			0.46	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	60	1694			1462	654		695			618	
v/s Ratio Prot	0.01	c0.45			0.22							
v/s Ratio Perm						0.03		0.01			c0.39	
v/c Ratio	0.27	0.95			0.52	0.07		0.01			0.86	
Uniform Delay, d1	57.9	30.5			27.0	21.8		18.3			29.9	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	2.4	11.4			0.3	0.0		0.0			11.3	
Delay (s)	60.3	41.9			27.3	21.9		18.4			41.2	
Level of Service	E	D			C	C		B			D	
Approach Delay (s)		42.1			26.6			18.4			41.2	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM Average Control Delay	37.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	123.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	5	430	85	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	467	92	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	582	103	114			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	582	103	114			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	100			
cM capacity (veh/h)	474	952	1475			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	10	472	114	
Volume Left	5	5	0	
Volume Right	5	0	22	
cSH	633	1475	1700	
Volume to Capacity	0.02	0.00	0.07	
Queue Length 95th (ft)	1	0	0	
Control Delay (s)	10.8	0.1	0.0	
Lane LOS	B	A		
Approach Delay (s)	10.8	0.1	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↰	↱		↔		↰	↦	
Volume (vph)	100	370	10	5	340	285	10	5	5	60	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		1.00			1.00	0.85		0.97		1.00	0.92	
Flt Protected		0.99			1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)		1838			1862	1583		1757		1770	1723	
Flt Permitted		0.86			0.99	1.00		1.00		1.00	1.00	
Satd. Flow (perm)		1605			1852	1583		1803		1863	1723	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	402	11	5	370	310	11	5	5	65	5	5
RTOR Reduction (vph)	0	1	0	0	0	116	0	5	0	0	5	0
Lane Group Flow (vph)	0	521	0	0	375	194	0	16	0	65	5	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2		2	4			8		
Actuated Green, G (s)		17.1			17.1	17.1		2.2		2.2	2.2	
Effective Green, g (s)		17.1			17.1	17.1		2.2		2.2	2.2	
Actuated g/C Ratio		0.63			0.63	0.63		0.08		0.08	0.08	
Clearance Time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		1005			1160	992		145		150	139	
v/s Ratio Prot											0.00	
v/s Ratio Perm		c0.32			0.20	0.12		0.01		c0.03		
v/c Ratio		0.52			0.32	0.20		0.11		0.43	0.04	
Uniform Delay, d1		2.8			2.4	2.2		11.6		12.0	11.6	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.2	0.1		0.3		2.0	0.1	
Delay (s)		3.3			2.6	2.3		12.0		14.0	11.7	
Level of Service		A			A	A		B		B	B	
Approach Delay (s)		3.3			2.4			12.0			13.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	3.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	27.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	25	120	200	205	815	680
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	3.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	3433	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.59	1.00
Satd. Flow (perm)	1770	1583	1863	1583	2116	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	130	217	223	886	739
RTOR Reduction (vph)	0	118	0	33	0	0
Lane Group Flow (vph)	27	12	217	190	886	739
Turn Type		Perm		pm+ov	pm+pt	
Protected Phases	8		2	3	1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	7.6	7.6	55.8	64.4	72.4	72.4
Effective Green, g (s)	8.6	8.6	56.8	65.4	73.4	73.4
Actuated g/C Ratio	0.10	0.10	0.63	0.73	0.82	0.82
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	169	151	1176	1221	1925	1519
v/s Ratio Prot	0.02		c0.12	0.01	c0.26	c0.40
v/s Ratio Perm		0.01		0.11	0.31	
v/c Ratio	0.16	0.08	0.18	0.16	0.46	0.49
Uniform Delay, d1	37.4	37.1	6.9	3.8	2.2	2.5
Progression Factor	1.00	1.00	1.00	1.00	0.91	0.83
Incremental Delay, d2	0.4	0.2	0.3	0.1	0.1	0.5
Delay (s)	37.8	37.3	7.3	3.9	2.1	2.6
Level of Service	D	D	A	A	A	A
Approach Delay (s)	37.4		5.5		2.4	
Approach LOS	D		A		A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	75	330	25	100	605
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	82	359	27	109	658
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						693
pX, platoon unblocked	0.88					
vC, conflicting volume	1247	372			386	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	372			386	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	88			91	
cM capacity (veh/h)	161	674			1173	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	102	109	359	658
Volume Left	22	109	0	0
Volume Right	82	0	0	0
cSH	403	1173	1700	1700
Volume to Capacity	0.25	0.09	0.21	0.39
Queue Length 95th (ft)	25	8	0	0
Control Delay (s)	17.0	8.4	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	17.0	1.2		
Approach LOS	C			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
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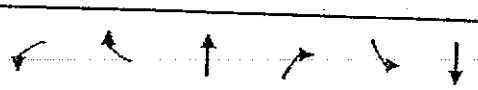
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	50	305	25	325	300
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	54	332	27	353	326
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1378	345			359	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1378	345			359	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	92			71	
cM capacity (veh/h)	113	698			1200	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	22	54	359	353	326	
Volume Left	22	0	0	353	0	
Volume Right	0	54	27	0	0	
cSH	113	698	1700	1200	1700	
Volume to Capacity	0.19	0.08	0.21	0.29	0.19	
Queue Length 95th (ft)	17	6	0	31	0	
Control Delay (s)	44.5	10.6	0.0	9.2	0.0	
Lane LOS	E	B		A		
Approach Delay (s)	20.3		0.0	4.8		
Approach LOS	C					

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	25	305	50	215	105
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	27	332	54	234	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	940	359			386	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	940	359			386	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	96			80	
cM capacity (veh/h)	234	686			1172	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	32	386	288	349
Volume Left	5	0	0	234
Volume Right	27	54	0	115
cSH	234	686	1700	1173
Volume to Capacity	0.02	0.04	0.23	0.20
Queue Length 95th (ft)	2	3	0	19
Control Delay (s)	20.7	10.5	0.0	6.6
Lane LOS	C	B		A
Approach Delay (s)	12.2	0.0		6.6
Approach LOS	B			

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	10	5	350	85	5	105
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	5	380	92	5	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	552	427			473	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	552	427			473	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	493	628			1089	

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	16	97	472	97	120
Volume Left	11	0	0	5	
Volume Right	5	5	92	0	
cSH	493	628	1700	1089	
Volume to Capacity	0.02	0.01	0.28	0.00	
Queue Length 95th (ft)	2	1	0	0	
Control Delay (s)	12.5	10.8	0.0	0.4	
Lane LOS	B	B		A	
Approach Delay (s)	11.9		0.0	0.4	
Approach LOS	B				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	1475	35	35	1525	40	40	5	30	40	20	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.99	
Satd. Flow (prot)	1770	3527		1770	3539	1583		1783	1583		1652	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.36	1.00		0.95	
Satd. Flow (perm)	1770	3527		1770	3539	1583		672	1583		1581	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	1603	38	38	1658	43	43	5	33	43	22	250
RTOR Reduction (vph)	0	1	0	0	0	14	0	0	27	0	109	0
Lane Group Flow (vph)	207	1640	0	38	1658	29	43	5	6	43	205	0
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8		8	4		
Actuated Green, G (s)	19.0	82.2		5.2	68.4	68.4		22.6	22.6		22.6	
Effective Green, g (s)	19.0	82.2		5.2	68.4	68.4		22.6	22.6		22.6	
Actuated g/C Ratio	0.16	0.67		0.04	0.56	0.56		0.19	0.19		0.19	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	276	2376		75	1984	888		124	293		293	
v/s Ratio Prot	c0.12	0.46		0.02	c0.47							
v/s Ratio Perm						0.02		0.07	0.00		c0.13	
v/c Ratio	0.75	0.69		0.51	0.84	0.03		0.35	0.02		0.70	
Uniform Delay, d1	49.2	12.1		57.1	22.2	12.0		43.6	40.7		46.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	10.9	0.9		5.3	3.2	0.0		8.9	0.1		13.2	
Delay (s)	60.1	13.0		62.4	25.4	12.0		52.5	40.8		59.8	
Level of Service	E	B		E	C	B		D	D		E	
Approach Delay (s)		18.3			25.9			47.7			59.8	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	122.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	980	205	225	1445	115	665	45	685	90	35	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0		4.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	1.00		1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00		0.97	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1696	1583		1798	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1696	1583		1798	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	1065	223	245	1571	125	723	49	745	98	38	147
RTOR Reduction (vph)	0	0	80	0	0	46	0	0	0	0	0	82
Lane Group Flow (vph)	98	1065	143	245	1571	79	383	389	745	0	185	65
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		Free	Split		Perm
Protected Phases	5	2	8	1	6	7	3	8		4	4	
Permitted Phases			2			6			Free			4
Actuated Green, G (s)	6.0	46.4	74.9	11.6	52.0	65.5	28.5	28.5	120.0		13.5	13.5
Effective Green, g (s)	7.0	47.4	76.9	12.6	53.0	67.5	29.5	29.5	120.0		14.5	13.5
Actuated g/C Ratio	0.06	0.39	0.64	0.10	0.44	0.56	0.25	0.25	1.00		0.12	0.11
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	103	1398	1014	360	1563	943	413	417	1583		217	178
v/s Ratio Prot	c0.06	0.30	0.03	0.07	c0.44	0.01	0.23	c0.23			c0.08	
v/s Ratio Perm			0.06			0.04			0.47			0.04
v/c Ratio	0.95	0.76	0.14	0.68	1.01	0.08	0.93	0.93	0.47		0.85	0.37
Uniform Delay, d1	56.3	31.4	8.5	51.8	33.5	12.0	44.2	44.3	0.0		50.2	49.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	72.8	4.0	0.1	5.2	24.0	0.0	14.1	14.8	0.4		5.6	1.3
Delay (s)	129.1	35.4	8.6	57.0	57.5	12.1	58.2	59.1	0.4		55.7	50.6
Level of Service	F	D	A	E	E	B	E	E	A		E	D
Approach Delay (s)		37.7			54.5			30.1			53.1	
Approach LOS		D			D			C			D	

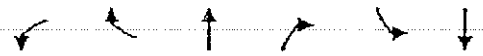
Intersection Summary			
HCM Average Control Delay	42.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1165	5	0	1765	395	5	1	5	145	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.94			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.98			0.96	
Satd. Flow (prot)	1770	3537			3539	1583		1710			1750	
Flt Permitted	0.95	1.00			1.00	1.00		0.90			0.76	
Satd. Flow (perm)	1770	3537			3539	1583		1578			1384	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1266	5	0	1918	429	5	1	5	158	5	33
RTOR Reduction (vph)	0	0	0	0	0	151	0	4	0	0	8	0
Lane Group Flow (vph)	38	1271	0	0	1918	278	0	3	0	0	188	0
Turn Type	Prot					Perm	Perm			Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases						6	8			4		
Actuated Green, G (s)	3.1	58.0			50.9	50.9		15.3			15.3	
Effective Green, g (s)	3.1	58.0			50.9	50.9		15.3			15.3	
Actuated g/C Ratio	0.04	0.71			0.62	0.62		0.19			0.19	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	67	2523			2216	991		297			260	
v/s Ratio Prot	c0.02	0.36			c0.54							
v/s Ratio Perm						0.18		0.00			c0.14	
v/c Ratio	0.57	0.50			0.87	0.28		0.02			0.72	
Uniform Delay, d1	38.4	5.2			12.4	6.9		26.9			31.0	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	10.6	0.2			3.8	0.2		0.0			9.5	
Delay (s)	49.0	5.4			16.2	7.0		26.9			40.5	
Level of Service	D	A			B	A		C			D	
Approach Delay (s)		6.6			14.5			26.9			40.5	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	81.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	185	740	655	40	160	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	3433	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.09	1.00
Satd. Flow (perm)	1770	1583	1863	1583	336	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	804	712	43	174	332
RTOR Reduction (vph)	0	65	0	12	0	0
Lane Group Flow (vph)	201	739	712	31	174	332
Turn Type		pm+ov		Perm	pm+pt	
Protected Phases	7		2		6	
Permitted Phases		8		2	6	
Actuated Green, G (s)	16.6	54.8	53.2	53.2	95.4	95.4
Effective Green, g (s)	16.6	54.8	53.2	53.2	95.4	95.4
Actuated g/C Ratio	0.14	0.46	0.44	0.44	0.80	0.80
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	245	776	826	702	1253	1481
v/s Ratio Prot	0.11	c0.30	c0.38		0.04	0.18
v/s Ratio Perm		0.16		0.02	0.07	
v/c Ratio	0.82	0.95	0.86	0.04	0.14	0.22
Uniform Delay, d1	50.3	31.4	30.1	19.0	11.7	3.1
Progression Factor	1.00	1.00	1.00	1.00	4.78	0.55
Incremental Delay, d2	19.3	21.4	11.5	0.1	0.0	0.3
Delay (s)	69.5	52.8	41.6	19.1	56.1	2.1
Level of Service	E	D	D	B	E	A
Approach Delay (s)	56.1		40.3		20.6	
Approach LOS	E		D		C	

Intersection Summary			
HCM Average Control Delay	42.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	85	610	25	100	390
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	92	663	27	109	424
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						603
pX, platoon unblocked	0.99					
vC, conflicting volume	1315	677			690	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1315	677			690	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	80			88	
cM capacity (veh/h)	164	433			902	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	114	690	0	424	0
Volume Left	22	0	109	0	
Volume Right	92	27	0	0	
cSH	328	1700	904	1700	
Volume to Capacity	0.35	0.41	0.12	0.25	
Queue Length 95th (ft)	38	0	10	0	
Control Delay (s)	21.7	0.0	9.5	0.0	
Lane LOS	C		A		
Approach Delay (s)	21.7	0.0	1.9		
Approach LOS	C				

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

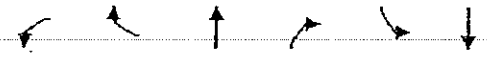
HCM Unsignalized Intersection Capacity Analysis
9: Access 3 & RT 27

1/16/2007

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	20	295	340	25	65	345
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	321	370	27	71	375
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	899	383			397	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	899	383			397	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	52			94	
cM capacity (veh/h)	290	664			1162	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	22	321	397	71	375
Volume Left	22	0	0	71	0
Volume Right	0	321	27	0	0
cSH	290	664	1700	1162	1700
Volume to Capacity	0.07	0.48	0.23	0.06	0.22
Queue Length 95th (ft)	6	66	0	5	0
Control Delay (s)	18.4	15.4	0.0	8.3	0.0
Lane LOS	C	C		A	
Approach Delay (s)	15.6		0.0	1.3	
Approach LOS	C				

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	45	170	195	5	40	325
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	185	212	5	43	353
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	655	215			217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	655	215			217	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	78			97	
cM capacity (veh/h)	417	825			1352	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	234	185	217	397	
Volume Left	49	0	0	43	
Volume Right	0	185	5	0	
cSH	417	825	1700	1352	
Volume to Capacity	0.12	0.22	0.13	0.03	
Queue Length 95th (ft)	10	21	0	2	
Control Delay (s)	14.8	10.6	0.0	1.1	
Lane LOS	B	B		A	
Approach Delay (s)	11.5		0.0	1.1	
Approach LOS	B				

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	43.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	75	25	175	15	5	365
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	27	190	16	5	397
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	606	198			207	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	606	198			207	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	97			100	
cM capacity (veh/h)	458	843			1365	

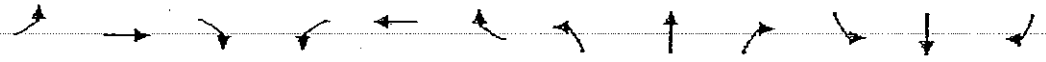
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	82	27	207	402	
Volume Left	82	0	0	5	
Volume Right	0	27	16	0	
cSH	458	843	1700	1365	
Volume to Capacity	0.18	0.03	0.12	0.00	
Queue Length 95th (ft)	16	2	0	0	
Control Delay (s)	14.5	9.4	0.0	0.1	
Lane LOS	B	A		A	
Approach Delay (s)	13.3		0.0	0.1	
Approach LOS	B				

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NB	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	20	5	5	115	365	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	5	5	125	397	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	585	399	402			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	535	399	402			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	99	100			
cM capacity (veh/h)	504	650	1158			

Volume Total	27	130	402			
Volume Left	22	5	0			
Volume Right	5	0	5			
cSH	527	1156	1700			
Volume to Capacity	0.05	0.00	0.24			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	12.2	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.2	0.4	0.0			
Approach LOS	B					

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↕		↰	↳	
Volume (vph)	40	400	20	10	890	250	10	5	5	280	5	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.97		1.00	0.86	
Flt Protected		1.00			1.00	1.00		0.97		0.95	1.00	
Satd. Flow (prot)		1844			1862	1583		1757		1770	1595	
Flt Permitted		0.63			0.99	1.00		0.89		0.74	1.00	
Satd. Flow (perm)		1162			1853	1583		1607		1385	1595	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	435	22	11	967	272	11	5	5	304	5	114
RTOR Reduction (vph)	0	2	0	0	0	107	0	4	0	0	82	0
Lane Group Flow (vph)	0	498	0	0	978	165	0	12	0	304	37	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2		2	4			8		
Actuated Green, G (s)		44.4			44.4	44.4		20.6		20.6	20.6	
Effective Green, g (s)		44.4			44.4	44.4		20.6		20.6	20.6	
Actuated g/C Ratio		0.61			0.61	0.61		0.28		0.28	0.28	
Clearance Time (s)		4.0			4.0	4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		707			1127	963		453		391	450	
v/s Ratio Prot											0.02	
v/s Ratio Perm		0.43			c0.53	0.10		0.01		c0.22		
v/c Ratio		0.70			0.87	0.17		0.03		0.78	0.08	
Uniform Delay, d1		9.8			11.9	6.3		19.0		24.1	19.3	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		3.2			7.3	0.1		0.0		9.4	0.1	
Delay (s)		13.0			19.1	6.3		19.0		33.5	19.3	
Level of Service		B			B	A		B		C	B	
Approach Delay (s)		13.0			16.3			19.0			29.5	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX F
SIGNAL WARRANT ANALYSIS
(Peak Hour Warrant)

Greenhorne & O'Mara

Route 27/Route 9

Signal Warrant Analysis

Study Name : Route 27 @ Route 9
Study Date : 10/06/06
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: Route 9
Number of Lanes: 1
Approach Speed: 35
Total Approach Volume: 1,710

Southbound: Route9
Number of Lanes: 1
Approach Speed: 35
Total Approach Volume: 940

Minor Street Approaches

Eastbound: Route 27
Number of Lanes: 1

Total Approach Volume: 40

Westbound: Route 27
Number of Lanes: 1

Total Approach Volume: 475

Warrant Summary (Urban values apply.)

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Satisfied**

Warrant 1A - Minimum Vehicular Volume ..... **Not Satisfied**
Required volumes reached for 1 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Not Satisfied**
Required volumes reached for 2 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Not Satisfied**
Required volumes reached for 1 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Not Satisfied**
Number of hours (1) volumes exceed minimum < minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Not Satisfied**
Total approach volumes and delays on minor street do not exceed minimums for any hour.

Warrant 3B - Peak Hour Volumes ..... **Satisfied**
Volumes exceed minimums for at least one hour.

Warrant 4 - Pedestrian Volumes ..... **Not Satisfied**
Required 4 Hr pedestrian volume reached for 0 hour(s) and the single hour volume for 0 hour(s)

Warrant 5 - School Crossing ..... **Not Satisfied**
Number of gaps > .0 seconds (0) exceeds the number of minutes in the crossing period (0).

Warrant 6 - Coordinated Signal System ..... **Not Satisfied**
No adjacent coordinated signals are present

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (-1) is less than minimum (5). Volume minimums are not met.

Warrant 8 - Roadway Network ..... **Not Satisfied**
Major Route conditions not met. One or more volume requirement met.

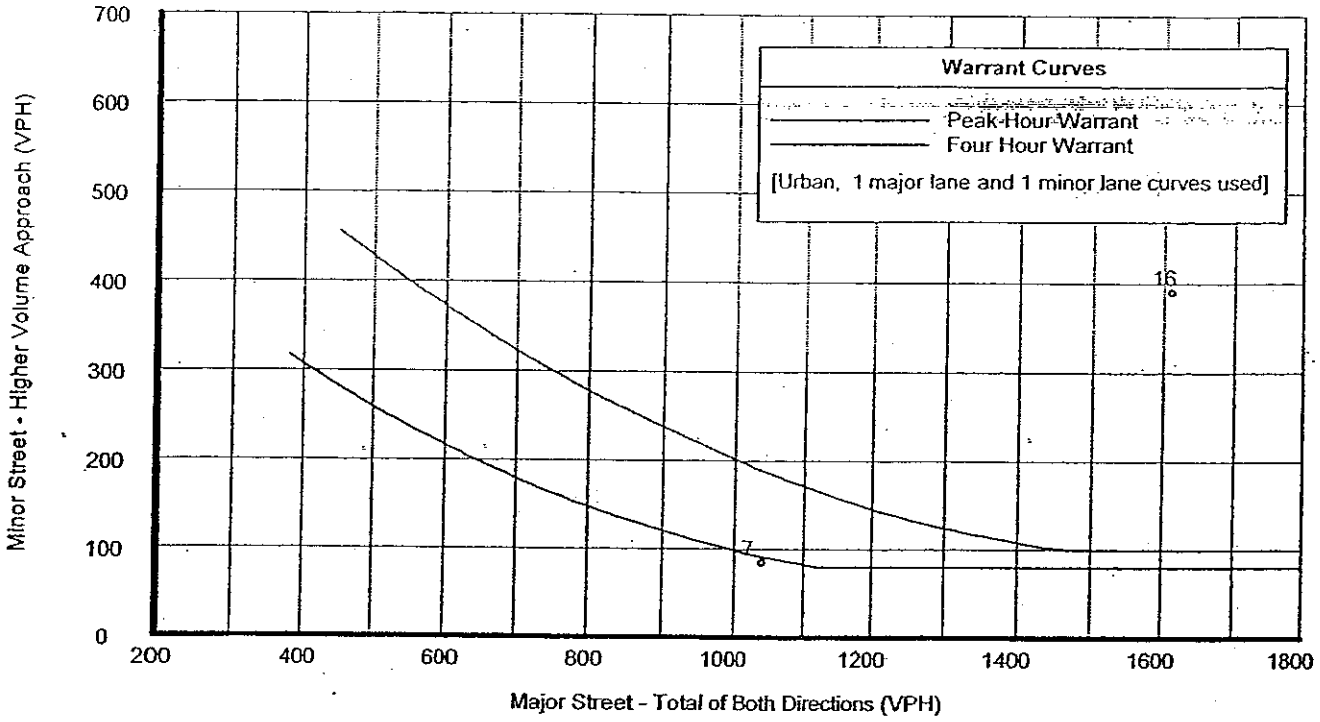
Greenhorne & O'Mara

Route 27/Route 9

Signal Warrant Analysis

Study Name : Route 27 @ Route 9
Study Date : 10/06/06
Page No. : 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Dir	War-1A Major Crit	War-1A Minor Crit	War-1A Meets?	War-1B Major Crit	War-1B Minor Crit	War-1B Meets?	War-1A&B Major Crit	War-1A&B Minor Crit	War-1A&B Meets?
00:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
01:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
02:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
03:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
04:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
05:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
06:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
07:00	1,040	85	WB	500-Yes	150-No	Major	750-Yes	75-Yes	Both	600-Yes	120-No	Major
08:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
09:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
10:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
11:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
12:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
13:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
14:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
15:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
16:00	1,610	390	WB	500-Yes	150-Yes	Both	750-Yes	75-Yes	Both	600-Yes	120-Yes	Both
17:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
18:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
19:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
20:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
21:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
22:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—
23:00	0	0	EB	500-No	150-No	—	750-No	75-No	—	600-No	120-No	—

Greenhorne & O'Mara

US 340/Route 27

Signal Warrant Analysis

Study Name : US 340 @ Route 27
Study Date : 10/06/06
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: US 340
Number of Lanes: 2
Approach Speed: 41
Total Approach Volume: 3,065

Westbound: US 340
Number of Lanes: 2
Approach Speed: 65
Total Approach Volume: 3,685

Minor Street Approaches

Northbound: Route 27
Number of Lanes: 2
Total Approach Volume: 1,715

Southbound: Route 27
Number of Lanes: 1
Total Approach Volume: 425

Warrant Summary (Rural values apply.)

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Satisfied**

Warrant 1A - Minimum Vehicular Volume ..... **Not Satisfied**
Required volumes reached for 2 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Not Satisfied**
Required volumes reached for 2 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Not Satisfied**
Required volumes reached for 2 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Not Satisfied**
Number of hours (2) volumes exceed minimum < minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Not Satisfied**
Total approach volumes and delays on minor street do not exceed minimums for any hour.

Warrant 3B - Peak Hour Volumes ..... **Satisfied**
Volumes exceed minimums for at least one hour.

Warrant 4 - Pedestrian Volumes ..... **Not Satisfied**
Required 4 Hr pedestrian volume reached for 0 hour(s) and the single hour volume for 0 hour(s)

Warrant 5 - School Crossing ..... **Not Satisfied**
Number of gaps > .0 seconds (0) exceeds the number of minutes in the crossing period (0).

Warrant 6 - Coordinated Signal System ..... **Not Satisfied**
No adjacent coordinated signals are present

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (-1) is less than minimum (5). Volume minimums are not met.

Warrant 8 - Roadway Network ..... **Not Satisfied**
Major Route conditions not met. One or more volume requirement met.

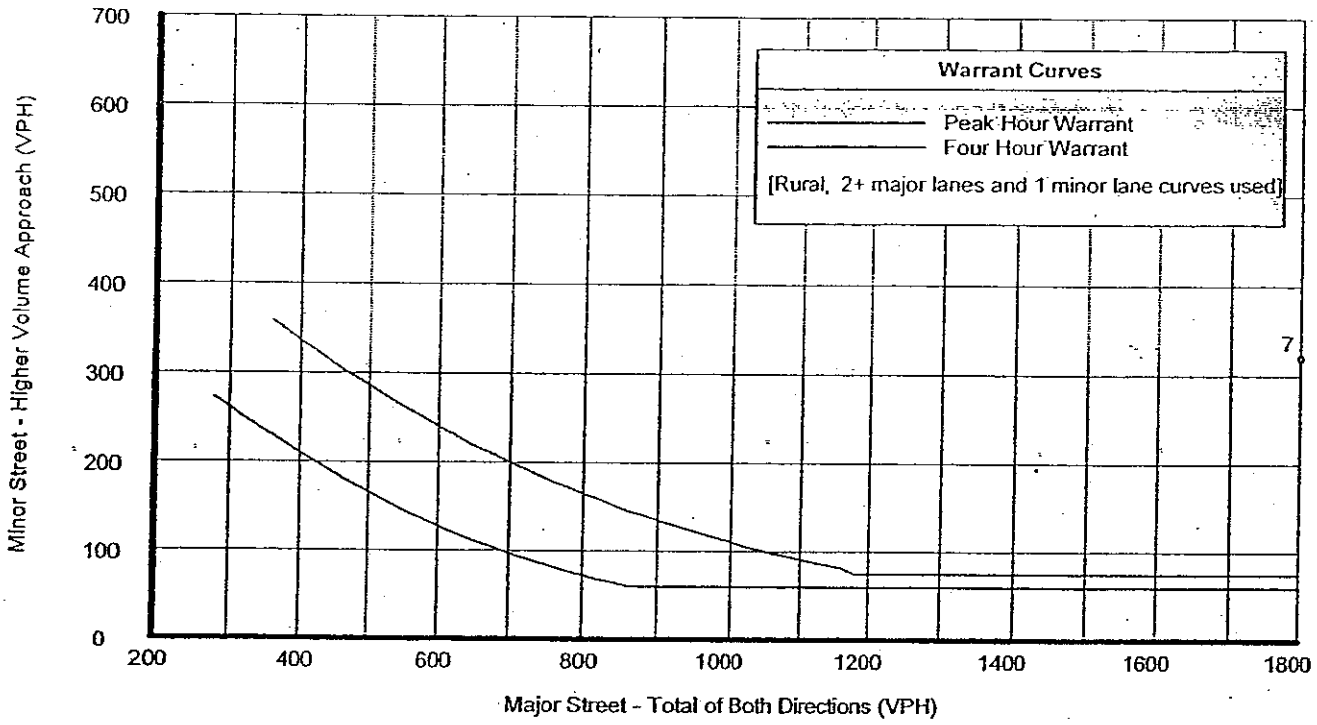
Greenhorne & O'Mara

US 340/Route 27

Signal Warrant Analysis

Study Name : US 340 @ Route 27
Study Date : 10/06/06
Page No. : 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Higher Minor Dir	War-1A Major Crit	War-1A Minor Crit	War-1A Meets?	War-1B Major Crit	War-1B Minor Crit	War-1B Meets?	War-1A&B Major Crit	War-1A&B Minor Crit	War-1A&B Meets?
00:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
01:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
02:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
03:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
04:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
05:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
06:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
07:00	3,180	320	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
08:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
09:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
10:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
11:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
12:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
13:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
14:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
15:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
16:00	3,570	1,395	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
17:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
18:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
19:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
20:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
21:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
22:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—
23:00	0	0	NB	420-No	140-No	—	630-No	70-No	—	504-No	112-No	—

Greenhorne & O'Mara

Route 27/Northern Access (1)

Signal Warrant Analysis

Study Name : Route 27 @ Northern Access (1)
Study Date : 10/06/06
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: Route 27
Number of Lanes: 1
Approach Speed: 0
Total Approach Volume: 1,100

Southbound: Route 27
Number of Lanes: 2
Approach Speed: 0
Total Approach Volume: 1,960

Minor Street Approaches

Eastbound:
Number of Lanes: 1

Total Approach Volume: 0

Westbound: Nothern Site Access
Number of Lanes: 2

Total Approach Volume: 1,070

Warrant Summary (Urban values apply.)

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Satisfied**

Warrant 1A - Minimum Vehicular Volume ..... **Not Satisfied**
Required volumes reached for 1 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Not Satisfied**
Required volumes reached for 2 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Not Satisfied**
Required volumes reached for 1 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Not Satisfied**
Number of hours (2) volumes exceed minimum < minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Not Satisfied**
Total approach volumes and delays on minor street do not exceed minimums for any hour.

Warrant 3B - Peak Hour Volumes ..... **Satisfied**
Volumes exceed minimums for at least one hour.

Warrant 4 - Pedestrian Volumes ..... **Not Satisfied**
Required 4 Hr pedestrian volume reached for 0 hour(s) and the single hour volume for 0 hour(s)

Warrant 5 - School Crossing ..... **Not Satisfied**
Number of gaps > .0 seconds (0) exceeds the number of minutes in the crossing period (0).

Warrant 6 - Coordinated Signal System ..... **Not Satisfied**
No adjacent coordinated signals are present

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (-1) is less than minimum (5). Volume minimums are not met.

Warrant 8 - Roadway Network ..... **Not Satisfied**
Major Route conditions not met. One or more volume requirement met.

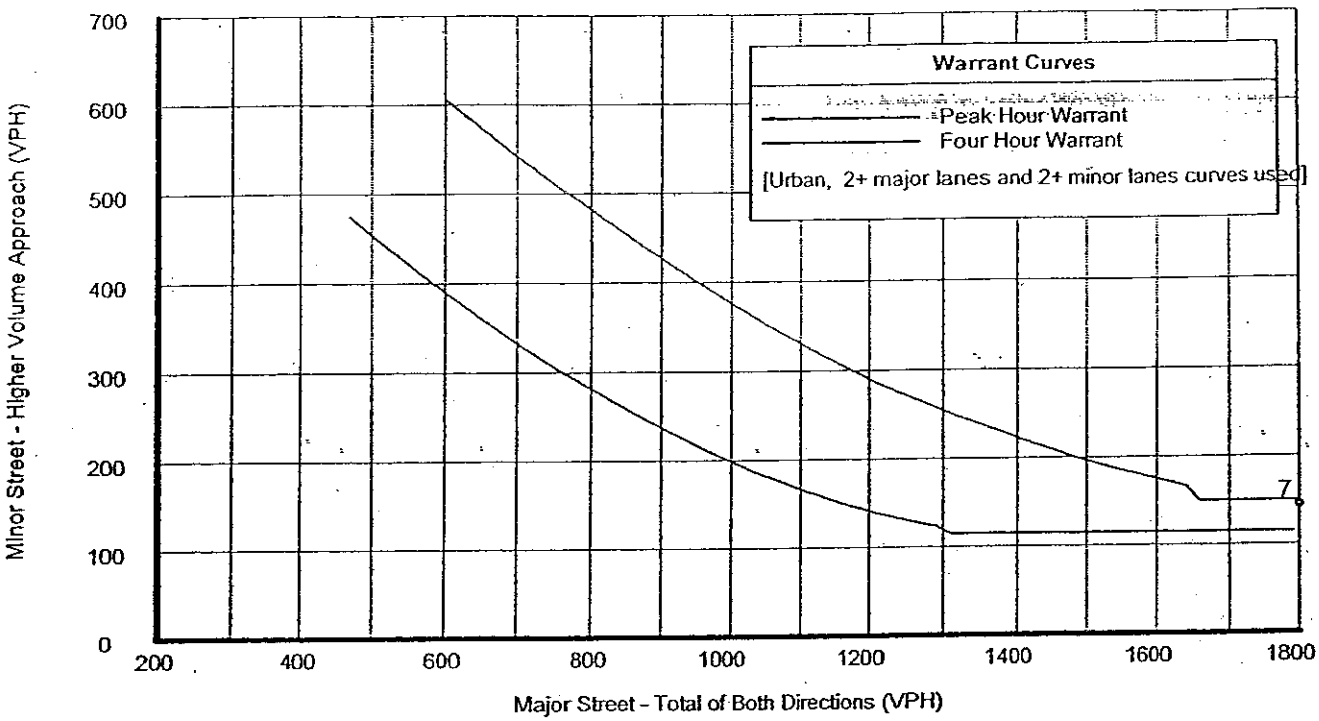
Greenhorne & O'Mara

Route 27/Northern Access (1)

Signal Warrant Analysis

Study Name : Route 27 @ Northern Access (1)
Study Date : 10/06/06
Page No. : 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Higher Minor Dir	War-1A Major Crit	War-1A Minor Crit	War-1A Meets?	War-1B Major Crit	War-1B Minor Crit	War-1B Meets?	War-1A&B Major Crit	War-1A&B Minor Crit	War-1A&B Meets?
00:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
01:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
02:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
03:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
04:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
05:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
06:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
07:00	1,900	145	WB	600-Yes	200-No	Major	900-Yes	100-Yes	Both	720-Yes	160-No	Major
08:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
09:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
10:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
11:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
12:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
13:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
14:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
15:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
16:00	1,160	925	WB	600-Yes	200-Yes	Both	900-Yes	100-Yes	Both	720-Yes	160-Yes	Both
17:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
18:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
19:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
20:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
21:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
22:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—
23:00	0	0	EB	600-No	200-No	—	900-No	100-No	—	720-No	160-No	—

Discussions with the West Virginia Department of Highways and Jefferson County Planning Office indicate that a three and half percent (3.5%) annual growth rate is anticipated in this area. Thus, because the Old Standard LLC Quarry development is expected to be completed in 5 years, traffic volumes were projected for the year 2011. Figure 4 presents the Background Growth Volumes.

The following background developments were included as part of the background conditions analysis:

Table 2. Background Developments Trip Generation

Development Name	Land Use	Size	Unit	Daily	AM Peak			PM Peak		
					In	Out	Total	In	Out	Total
Sheridan Subdivision	Single Family Home (210)	131	Units	1,333	25	76	101	86	51	137
Jefferson Crossing	Motel (320)	80	Rooms	465	13	23	36	28	24	51
	Retail (820)	152000	SF	8,915	123	78	201	396	429	825
	Resturant (932)	10000	SF	1272	60	55	115	67	43	109
	Bank w/i Drive-Thru (912)	2400	SF	694	17	13	30	55	55	110
	Resturant (934)	3000	SF	1488	81	78	159	54	50	104
Total				**12,834**	**294**	**248**	**542**	**599**	**600**	**1,199**
Beallair Phase II	Active Adult Home	49	Units		5	14	19	11	10	21
Windmill Crossings	Townhomes (230)	140	Units	854	11	56	68	53	26	79
	Codos (230)	60	Units	416	6	28	34	26	13	40
	Medical Office (720)	13,200	SF	540	26	7	33	13	35	48
Total				**1,810**	**43**	**91**	**135**	**93**	**74**	**167**
Background Total				**15,977**	**362**	**415**	**777**	**778**	**725**	**1,503**

The number of vehicle-trips generated by these background developments was estimated based on the rates documented in Trip Generation, by the Institute of Transportation Engineers (ITE), Seventh Edition, 2003. Table 2, above, presents the estimated peak hour vehicle-trips generated by each development

As can be see from Table 2, the four background developments are expected to generate approximately 775 vehicle trips during the AM peak hour and approximately 1,505 trips during the PM peak hour. It has been assumed that all of these developments will be built and fully occupied by the year 2011 which coincides with the buildout of the Old Standard LLC Quarry development.

The traffic studies completed for all the background developments were obtained from the Jefferson County Planning office. The trip distribution and assignments presented in their individual traffic studies was used to assign the trips impacting the study intersections. The trip distribution/assignments for all the background developments are included in Appendix C. Figure 5 presents the total background development volumes. These volumes were added to the Background Growth Volume presented in Figure 4 to determine the Total Background Volumes presented in Figure 6.

Figure 6 presents the Background Volumes, lane geometries, and LOS results. Background conditions were evaluated using the volumes presented in Figure 6 and Synchro to determine the LOS. Table 3 presents the LOS results.

Table 3. Background LOS Results

Intersection	Existing		Background	
	AM Peak	PM Peak	AM Peak	PM Peak
US 340/US 340 Alt	B (14.7)	B (18.4)	B (15.4)	C (21.9)
US 340/Route 27				
NB LT	c (22.1)	f (981.8)	f (53.3)	f (-)
SB LT	e (45.8)	f (-)	f (271.5)	f (-)
EB LT	a (8.7)	b (12.9)	a (9.5)	c (18.2)
WB LT	a (9.6)	a (9.7)	b (10.9)	b (11.1)
US 340/Route 230				
NB LT	d (26.8)	c (15.1)	e (35.5)	f (97.9)
SB LT	f (80.3)	f (133.3)	f (661.5)	f (-)
EB LT	a (9.6)	b (11.5)	a (9.3)	c (15.5)
With signalization			***B (11.6)***	***A (9.5)***
Route 27/Route 23				
NB LT	a (-)	a (-)	a (-)	a (-)
EB LT	a (8.4)	a (8.8)	a (8.8)	a (8.9)
Route 9/Route 27				
NB LT	a (-)	a (-)	a (-)	a (0.3)
SB LT	a (-)	a (0.3)	a (-)	a (0.6)
EB LT	b (13.7)	d (30.9)	c (16.2)	f (50.9)
WB LT	b (14.1)	e (39.2)	c (16.2)	f (80.7)

X (00.0) = signalized intersection LOS (delay)
x (00.0) = unsignalized intersection critical movement LOS (delay)

As can be seen in Table 3, the signalized intersection of US 340/US 340 alternate is expected to operate at LOS C or better during the peak hours. Furthermore, it is our understanding that the US 340/Route 230 intersection is to be signalized as part of the Sheridan Subdivision Development. As a signalized intersection, it is expected to operate at LOS B or better during the peak hours.

The left turns from the minor street at the US 340/Route 27 intersection are expected to experience lengthy delays and operate at LOS F during the peak hours. Similarly, all movements at the Route 9/Route 27 intersection are expected to operate at LOS C or better with the exception of the left tum movement from Route 27 which is expected to operate at LOS F during the PM peak hour. All movements at the strop sign controlled Route 27/Route 23 intersection are expected to continue operating at LOS A during both the AM and PM peak hours.

It is our understanding that there are no other improvements being made in the study area. Appendix D contains the analysis worksheets.

IV. PROPOSED PROJECT TRAFFIC

As currently proposed, the site will consist of office space, warehousing, restaurant, and a hotel with conference facility. This development is expected to be built out and fully occupied by 2011.

This development proposes five access points along Route 27. Since the site is divided into two pads due to the Old Standard Quarry Lake, the northernmost access will serve the eastern pad. The access point just south of the northernmost access is expected to serve the hotel/conference center and the restaurant. The three southern accesses will serve the remaining western pad site.

Route 27 is a two lane north-south roadway with abuts the west side of the site. This roadway extends from south of Route 9 past US 340 to the north. The speed limit along this roadway is 30 miles per hour. This roadway has sharp horizontal curves near the site. All intersections along this roadway, in the vicinity of the site, are stop sign controlled. Near its intersection with Route 9, this roadway can only allow one lane of traffic at a time for approximately 50 feet over a structure which is too narrow provide two travel lanes. There are signs posted along both sides of the structure warning of the one lane section.

Route 230 is a two lane roadway which extends from US 340 to north towards Shepherdstown. It provides access to various residential as well as institutional developments located along it. In particular it provides access to the Sheridan Subdivision, which is a proposed residential development that has been approved by the Jefferson County planning board. As part of the Sheridan Subdivision improvements, a traffic signal is expected to be installed at the US 340/Route 230 intersection.

Route 9 is a two lane roadway extending through Charlestown to the north and crossing the Shenandoah River and traveling south towards the DC area. The posted speed limit along this roadway is 35 mph. Its intersection with Route 27 is stop sign controlled on Route 27 such that Route 9 has the right of way.

B. Existing Volumes and Traffic Operations

In August of 2006, Friday AM and PM peak hour turning movement volumes were recorded at the following intersections:

- US 340/US 340 Alternate
- US 340/Route 27
- US 340/Route 230
- Route 27/Route 23
- Route 9/Route 27

These turning movement counts along with the existing lane geometry and levels of service are shown in Figure 3. The raw traffic count data is included in Appendix A.

Existing traffic operations were evaluated at each intersection according to techniques documented in the Highway Capacity Manual, by the Transportation Research Board (TRB), 2000. The result of such an analysis is a level of service (LOS) rating, which is a qualitative assessment of the traffic flow based on the average stopped delay per vehicle at a controlled intersection. Levels of service are described by a letter designation ranging from "A" to "F", with LOS A representing essentially uninterrupted flow, and LOS F representing a breakdown of traffic flow with excessive congestion and delay. The signalized intersection capacity analysis results in an overall level of service, representative of all movements through the intersection. The unsignalized intersection capacity analysis produces LOS results for each movement which must yield to conflicting traffic at the intersection. Per the WVDOH guidelines, the LOS of the study intersections should be not worse than the LOS before the new facility opens.

Synchro, a traffic analysis software which analyzes signalized and unsignalized roadway networks, was used for the operational analysis. All the signal timings have been optimizedusing Synchro; however, the results presented in the report are HCS outputs. The analysis worksheets are included in Appendix B. Figure 3 graphically presents the Existing Friday peak hour traffic volumes, lane geometries, and LOS results. Table 1 presents the existing LOS results.

Table 1. Existing Level Of Service Results

Intersection	Peak Hour Level of Service	
	AM Peak	PM Peak
US 340/US 340 Alt	B (14.7)	B (18.4)
US 340/Route 27		
NB LT	a (22.1)	f (-)
SB LT	e (45.8)	f (-)
EB LT	a (8.7)	b (12.9)
WB LT	a (9.6)	a (9.7)
US 340/Route 230		
NB LT	d (26.8)	c (15.1)
SB LT	f (80.3)	f (133.3)
EB LT	a (8.6)	b (11.5)
Route 27/Route 23		
NB LT	a(0.7)	a (1.5)
EB LT	a (8.4)	a (8.8)
Route 7/Route 27		
NB LT	a (-)	a (-)
SB LT	a (-)	a (0.3)
EB LT	b (13.7)	d (30.9)
WB LT	b (14.1)	e (39.2)

X (00.0) = signalized intersection LOS (delay in seconds)
x (00.0) = unsignalized intersection critical movement LOS (delay in seconds)
- = HCS does not report delay (delay is very long)

As presented in Figure 3, the signalized intersection of US 340/US 340 Alt operates at LOS B during both the AM and PM peak hour. All movements at the unsignalized intersection of US 340/Route 27 operate at LOS D or better with the exception of the left turn movements from Route 27 which are expected to experience LOS E or F conditions during the peak hours.

Similarly, all the movements at the unsignalized intersection of US 340/Route 230 are expected to operate at acceptable LOS with the exception of the left turn movement from the Route 230 which is expected to operate at LOS F during both the AM and PM peak hours.

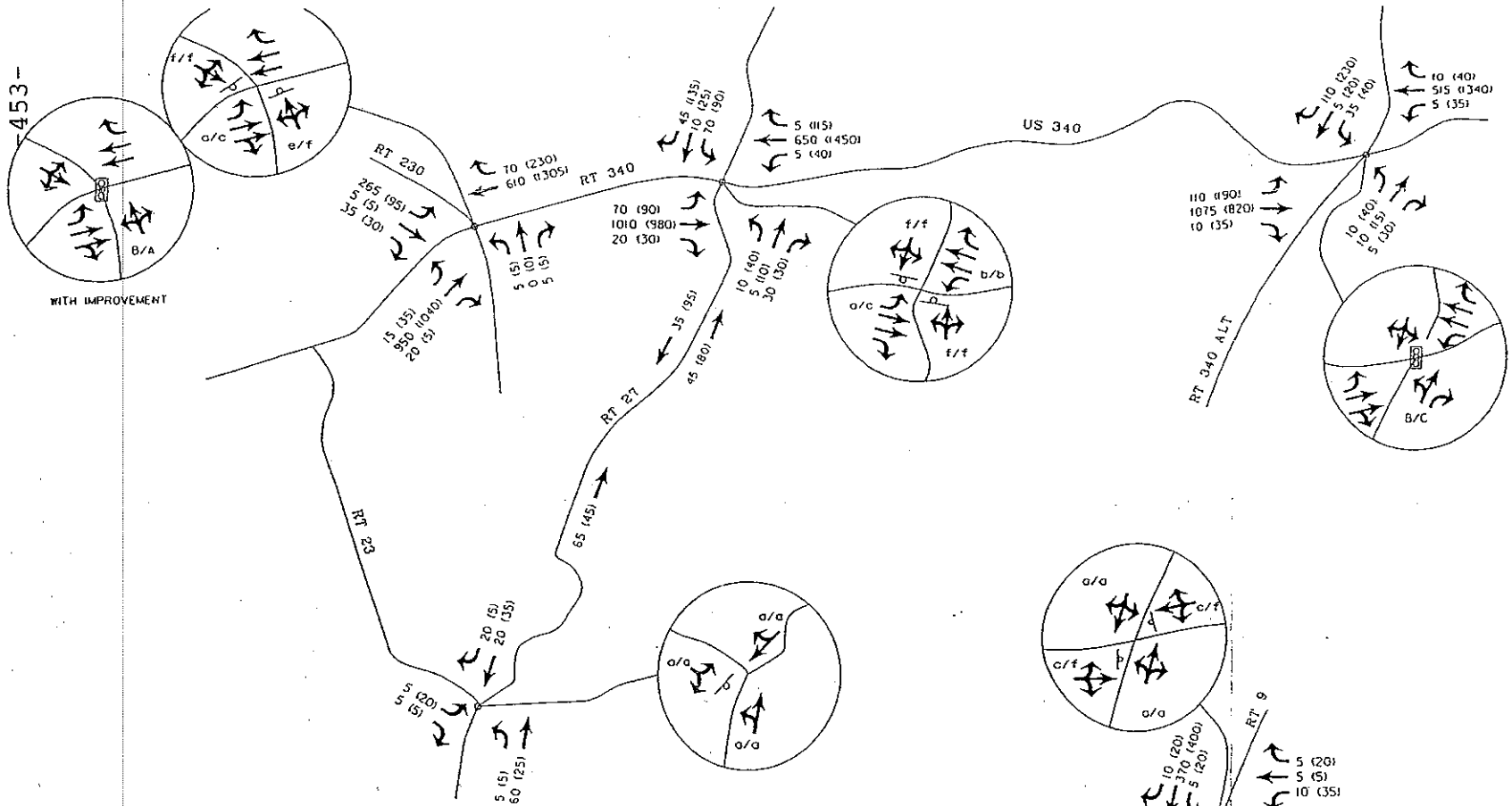
All movements at the stop-sign controlled intersection of Route 27/Route 23 operate at LOS A during the peak hours. Similarly all movements at the unsignalized intersection of Route 9/Route 27 operate at LOS D or better with the exception of the left turn movement from westbound Route 27 which operates at LOS E during the PM peak hour.

Overall, the study area intersections generally do not have capacity problems during the weekday peak hours with the exception of the minor street left turn movements along US 340. It is fairly common for left turn movements along high volume roadway to have long delays during peak hours.

iii. FUTURE CONDITIONS WITHOUT PROPOSED DEVELOPMENT

Background traffic is the projected traffic volumes on the roadway network at the time of completion of the proposed development without the traffic generated by the site.

Background volumes include historic growth trends, as well as developments which have been approved for construction but not yet built. Discussions with the Jefferson County Planning Staff have indicated that there are four developments which have been approved in the vicinity of the Old Standard LLC Quarry development.



d:

= AM(PM)
PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

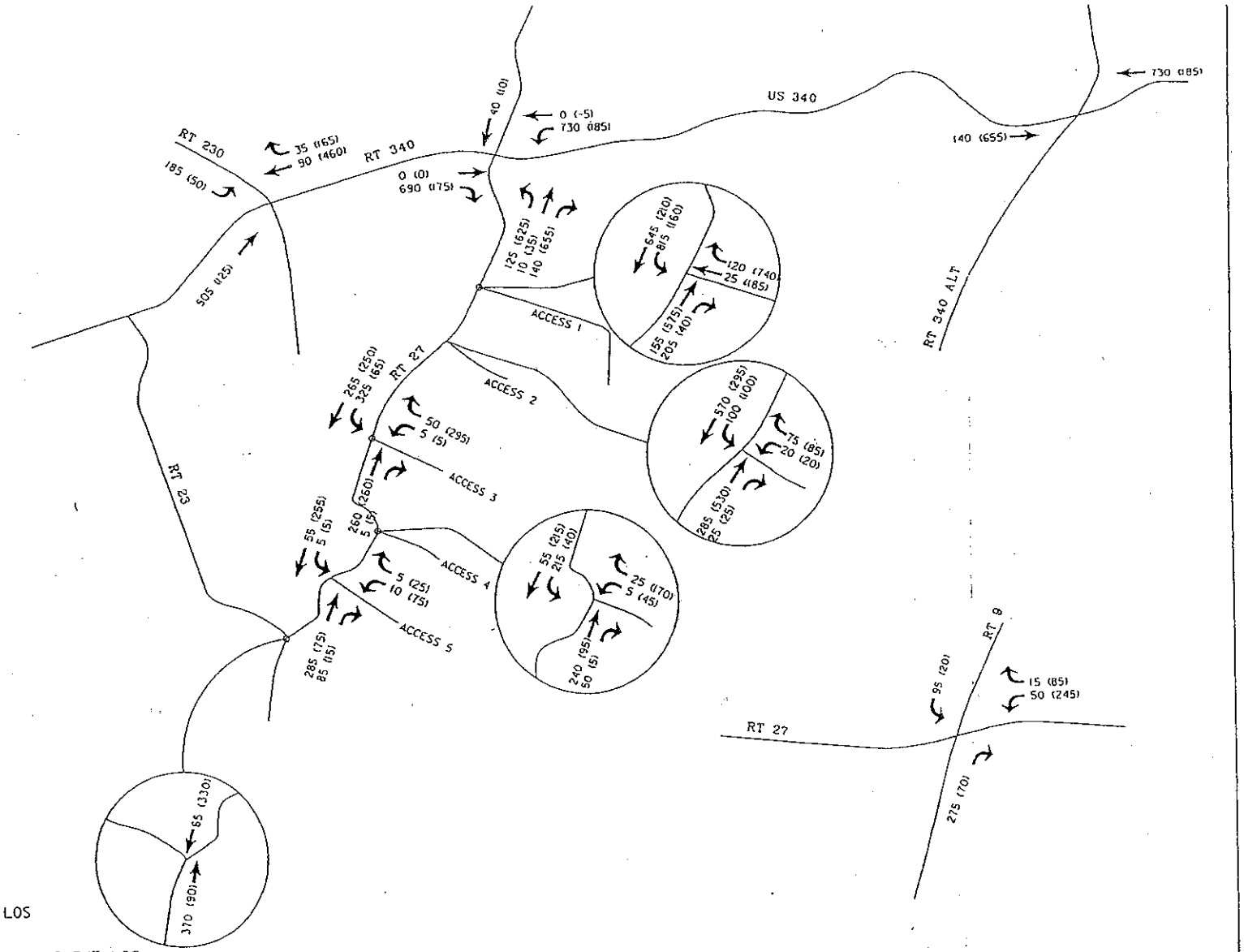
= AM/PM
PEAK HOUR SIGNALIZED LOS

= AM/PM
PEAK HOUR UNSIGNALIZED MOVEMENT LOS

OLD STANDARD LLC QUARRY DEVELOPMENT
BACKGROUND TOTAL TRAFFIC VOLUME, LANE GEOMETRY, AND LOS RESULTS

FIGURE 6

ROUND TOTAL.dgn 11/6/2006 3:55:01 PM



Legend:

((XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

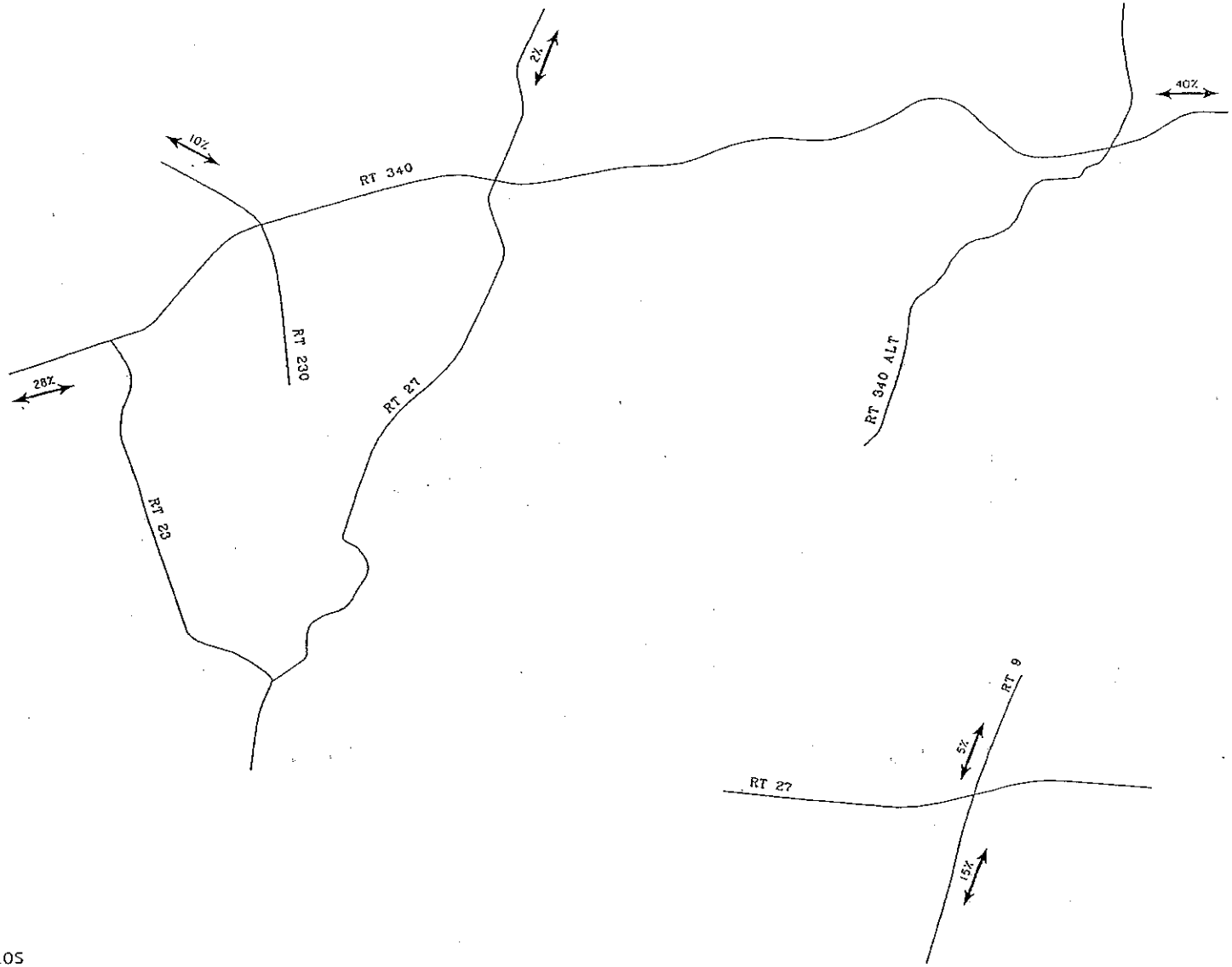
A/A = AM/PM PEAK HOUR SIGNALIZED LOS

o/o = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

G&O

OLD STANDARD LLC QUARRY DEVELOPMENT
SITE TRIP ASSIGNMENT

FIGURE 8



Legend:

(XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

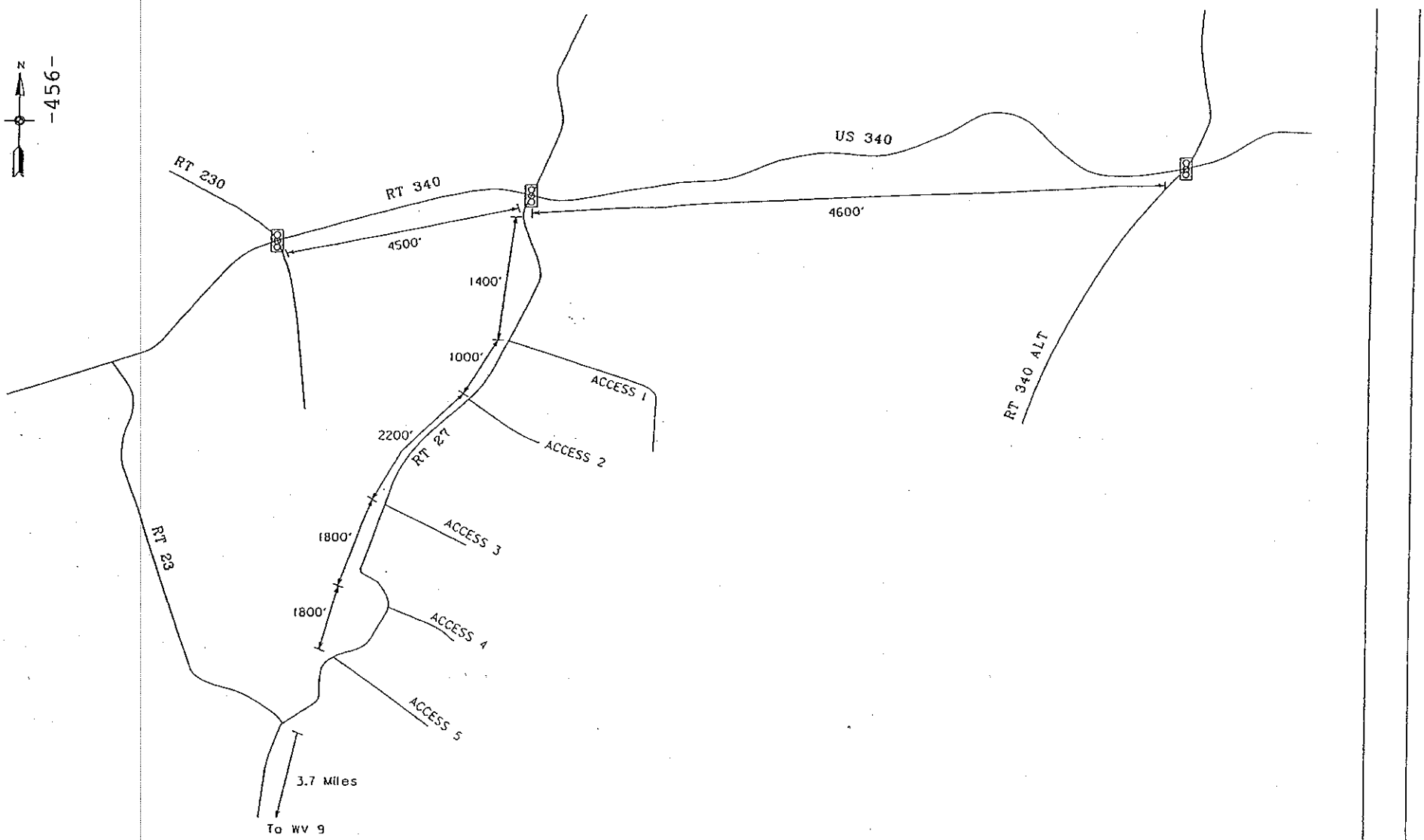
A/A = AM/PM PEAK HOUR SIGNALIZED LOS

o/o = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

OLD STANDARD LLC QUARRY DEVELOPMENT
SITE TRIP DISTRIBUTION

FIGURE 7

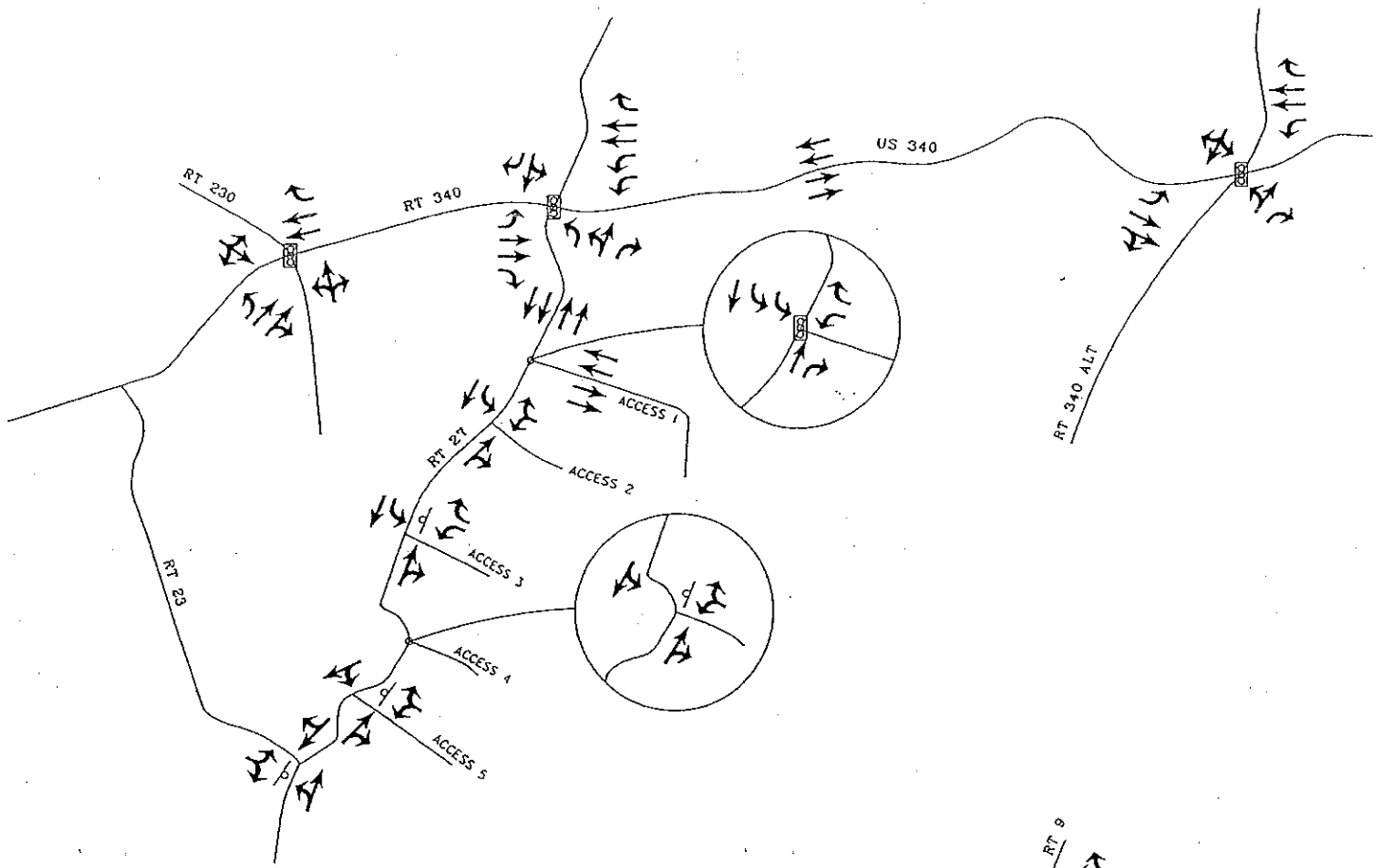
ITE TRIP DISTR.dgn 11/6/2006 3:55:44 PM

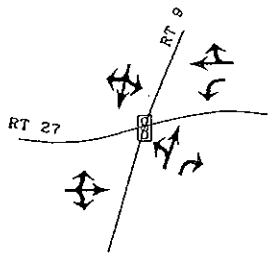


OLD STANDARD LLC QUARRY DEVELOPMENT
APPROXIMATE DISTANCES BETWEEN INTERSECTIONS

FIGURE 12

cs\0952-Distances.dgn 1/16/2007 1:15:43 PM





egend:

(XXX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

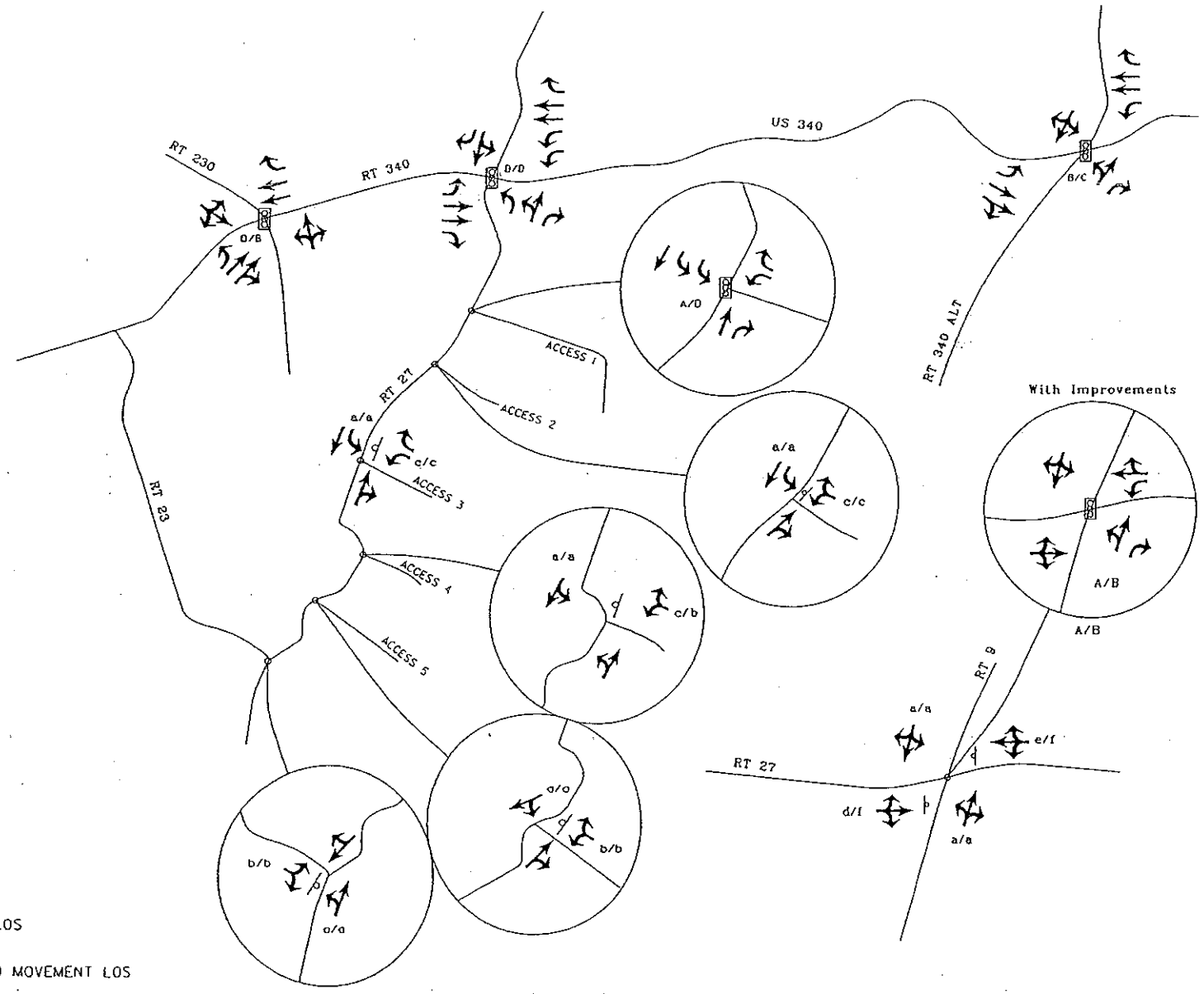
A/A = AM/PM PEAK HOUR SIGNALIZED LOS

o/o = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

OLD STANDARD LLC QUARRY DEVELOPMENT
SUGGESTED LANE GEOMETRY

FIGURE 11

Lane Geo.dgn _ Revised 1/16/2007 1:15:07 PM



gend:

(XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

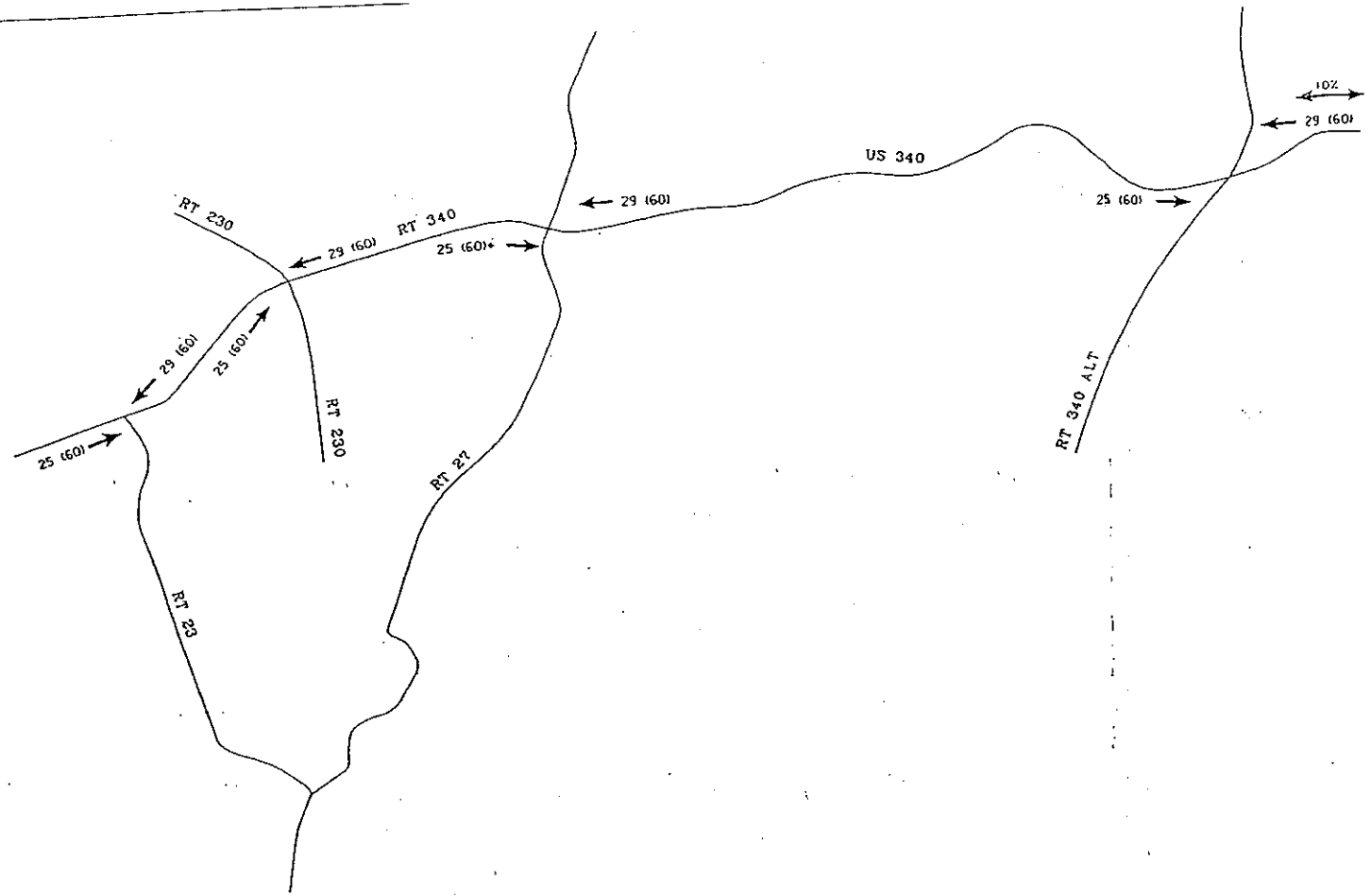
= STOP SIGN

/A = AM/PM PEAK HOUR SIGNALIZED LOS

/a = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

OLD STANDARD LLC QUARRY DEVELOPMENT
TOTAL TRAFFIC LANE GEOMETRY AND LOS RESULTS

FIGURE 10



Legend:

XX(XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

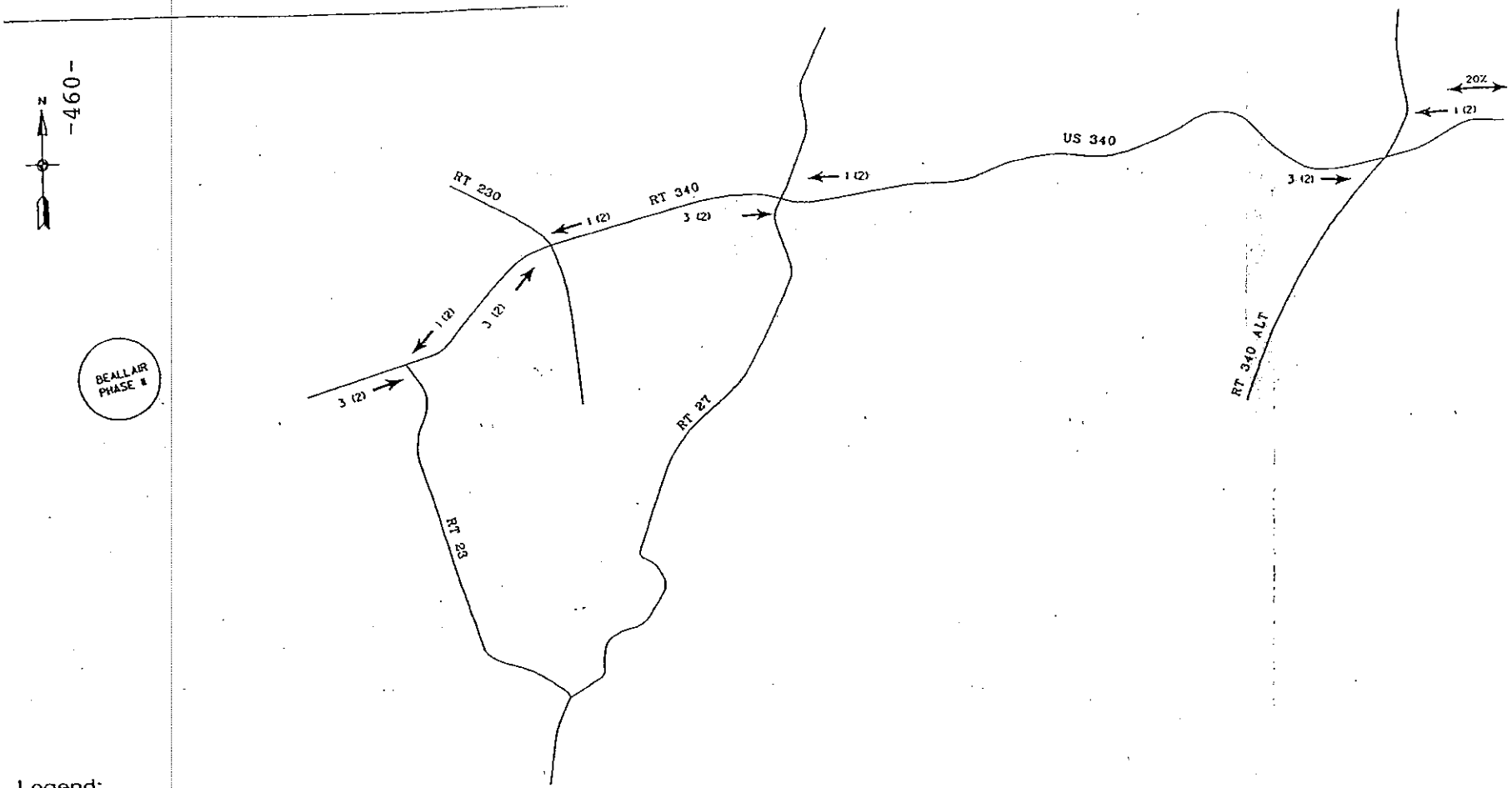
= SIGNAL

= STOP SIGN

A/A = AM/PM PEAK HOUR SIGNALIZED LOS

a/a = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

J&O OLD STANDARD LLC QUARRY DEVELOPMENT
JEFFERSON CROSSINGS



Legend:

XX(XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

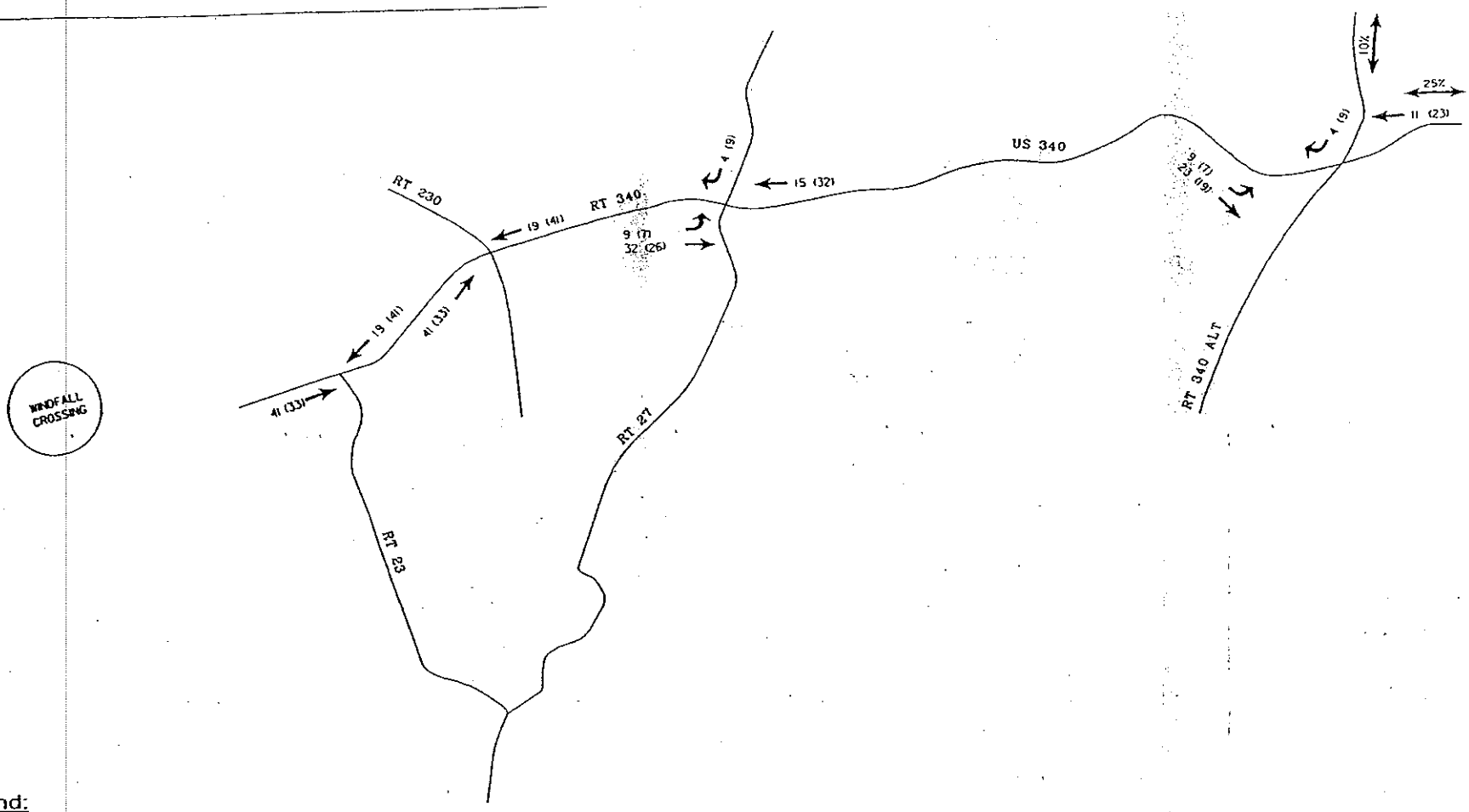
= STOP SIGN

A/A = AM/PM PEAK HOUR SIGNALIZED LOS

a/a = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

G&O OLD STANDARD LLC QUARRY DEVELOPMENT
BEALLAIR PHASE II

952-BEALLAIR PHASE II.dgn 11/6/2006 3:59:31 PM



Legend:

XX(XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

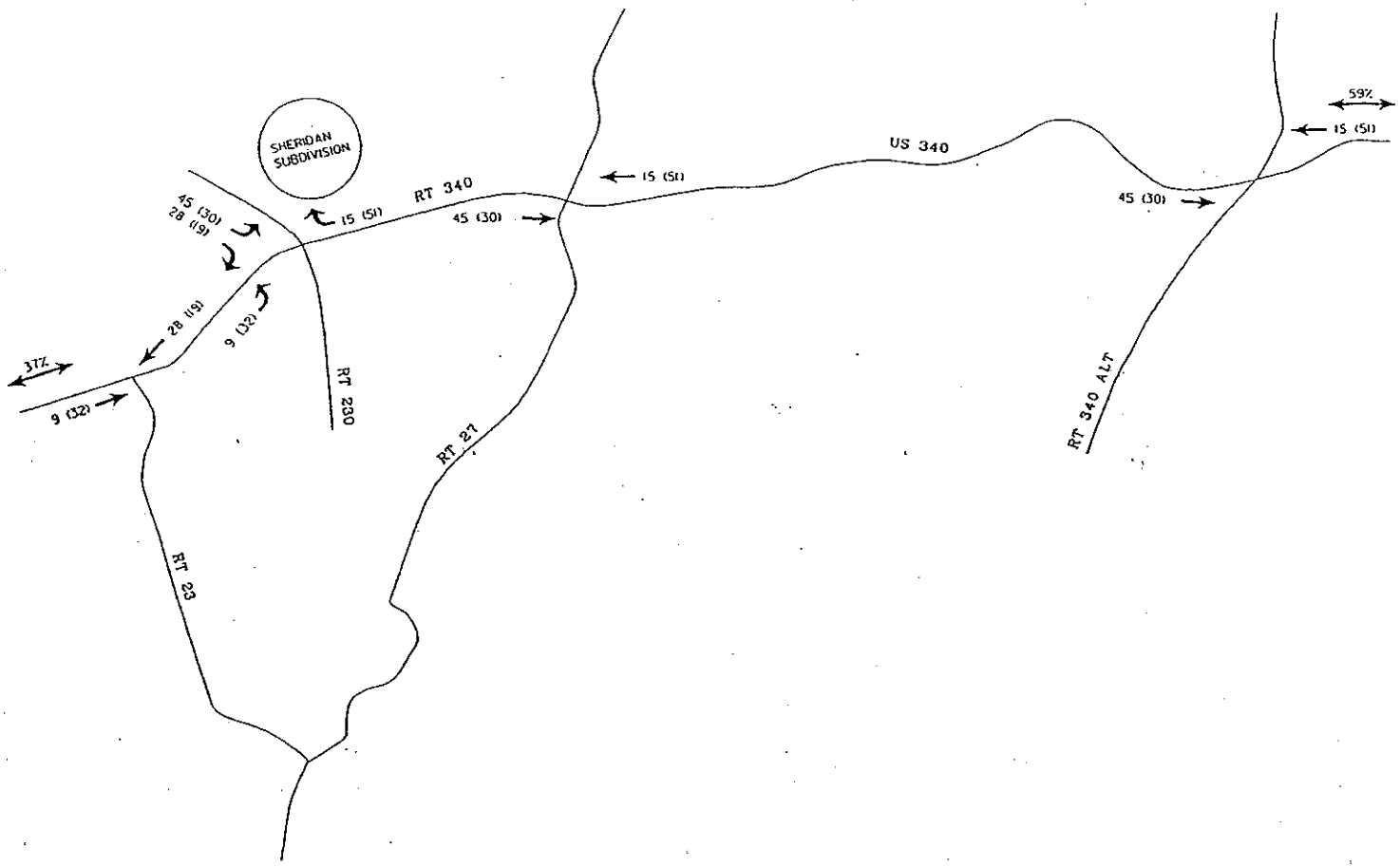
A/A = AM/PM PEAK HOUR SIGNALIZED LOS

a/a = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

G&O

OLD STANDARD LLC QUARRY DEVELOPMENT
WINDMILL CROSSINGS

...\0952-WINDMILL CROSSING.dgn 11/6/2006 4:01:21 PM



egend:

(XX) = AM(PM)
PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

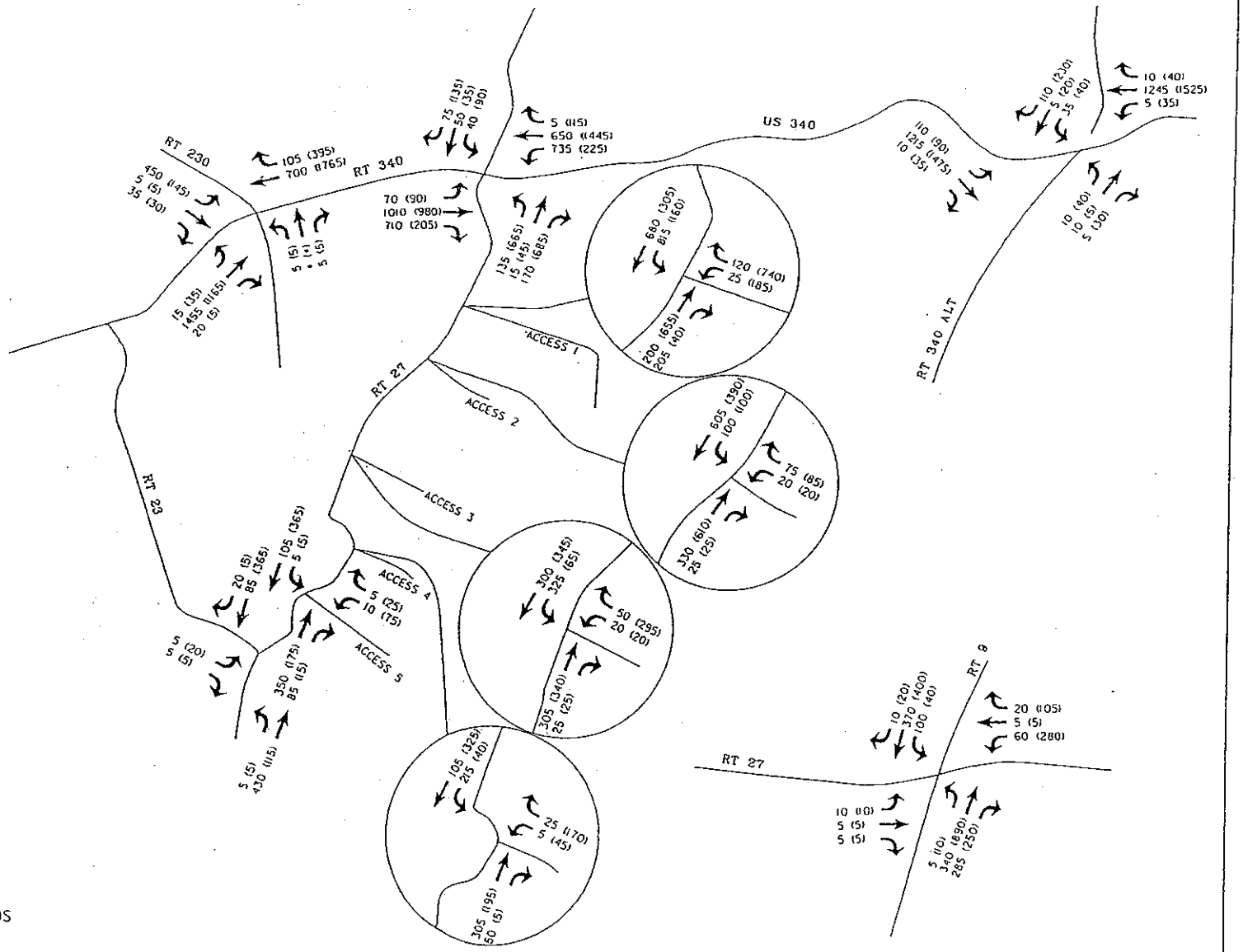
= STOP SIGN

A/A = AM/PM
PEAK HOUR SIGNALIZED LOS

D/D = AM/PM
PEAK HOUR UNSIGNALIZED MOVEMENT LOS

OLD STANDARD LLC QUARRY DEVELOPMENT
SHERIDAN SUBDIVISION

HENDAN SUBDIVISION.dgn 11/6/2006 4:00:40 PM



egend:

X(XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

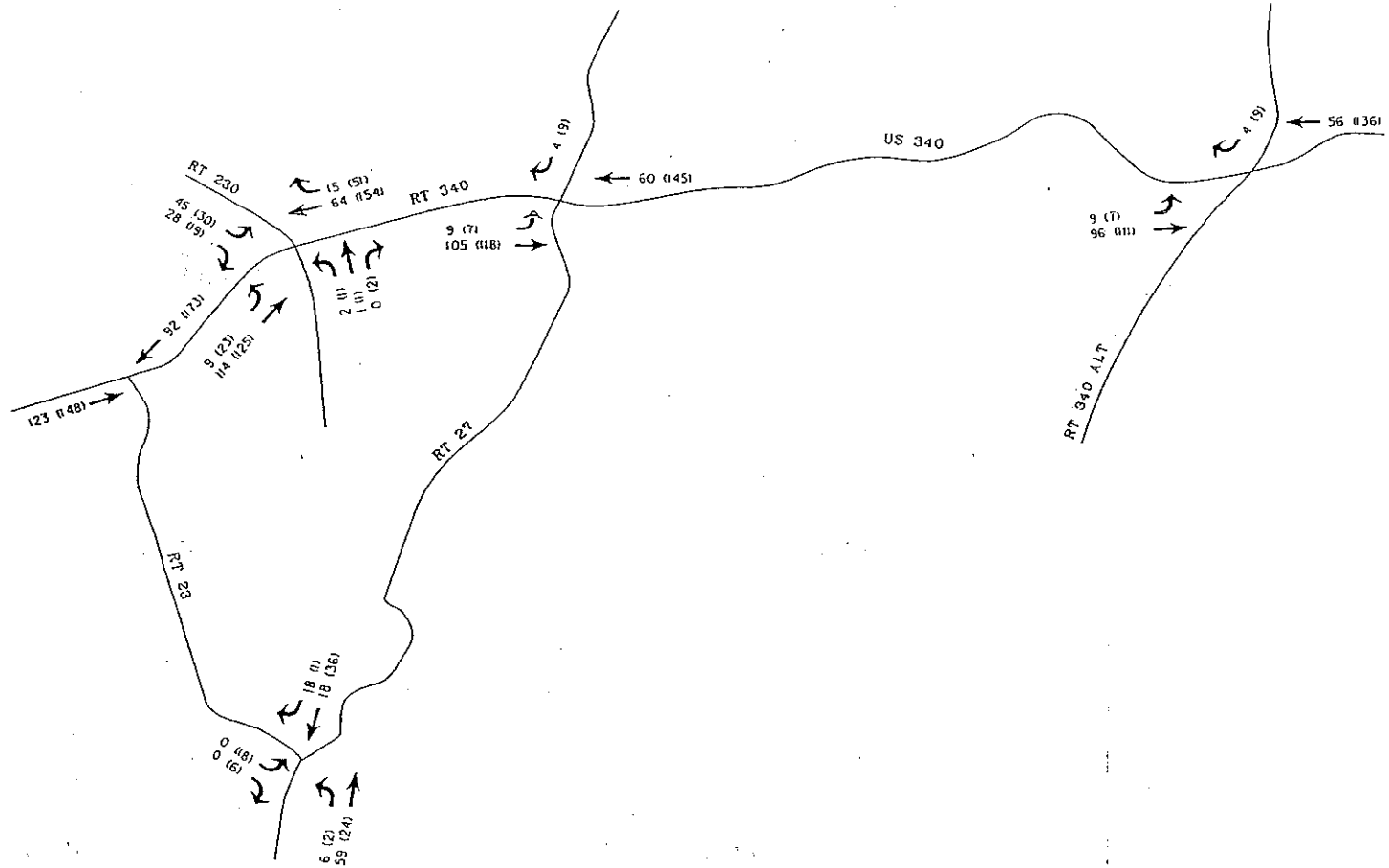
A/A = AM/PM PEAK HOUR SIGNALIZED LOS

a/a = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

OLD STANDARD LLC QUARRY DEVELOPMENT
TOTAL TRAFFIC VOLUME

FIGURE 9

OTAL TRAFFIC.dgn 1/16/2007 1:23:02 PM



egend:

X(XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

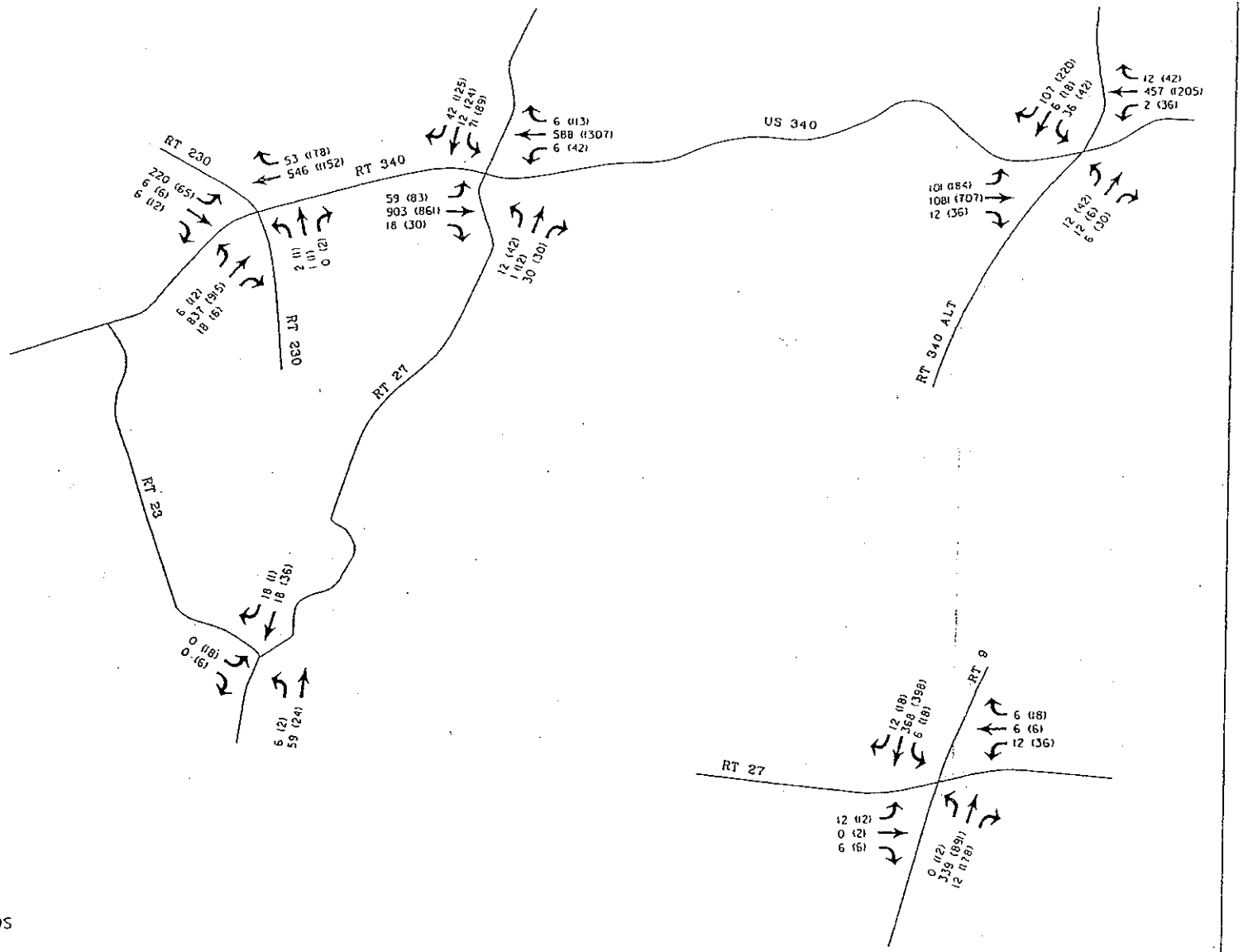
A/A = AM/PM PEAK HOUR SIGNALIZED LOS

a/a = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

5 OLD STANDARD LLC QUARRY DEVELOPMENT
TOTAL BACKGROUND DEVELOPMENT VOLUMES

FIGURE 5

TOTAL BACK-DEVELOP.dgn 11/6/2006 3:54:28 PM



Id:

= AM(PM)
PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

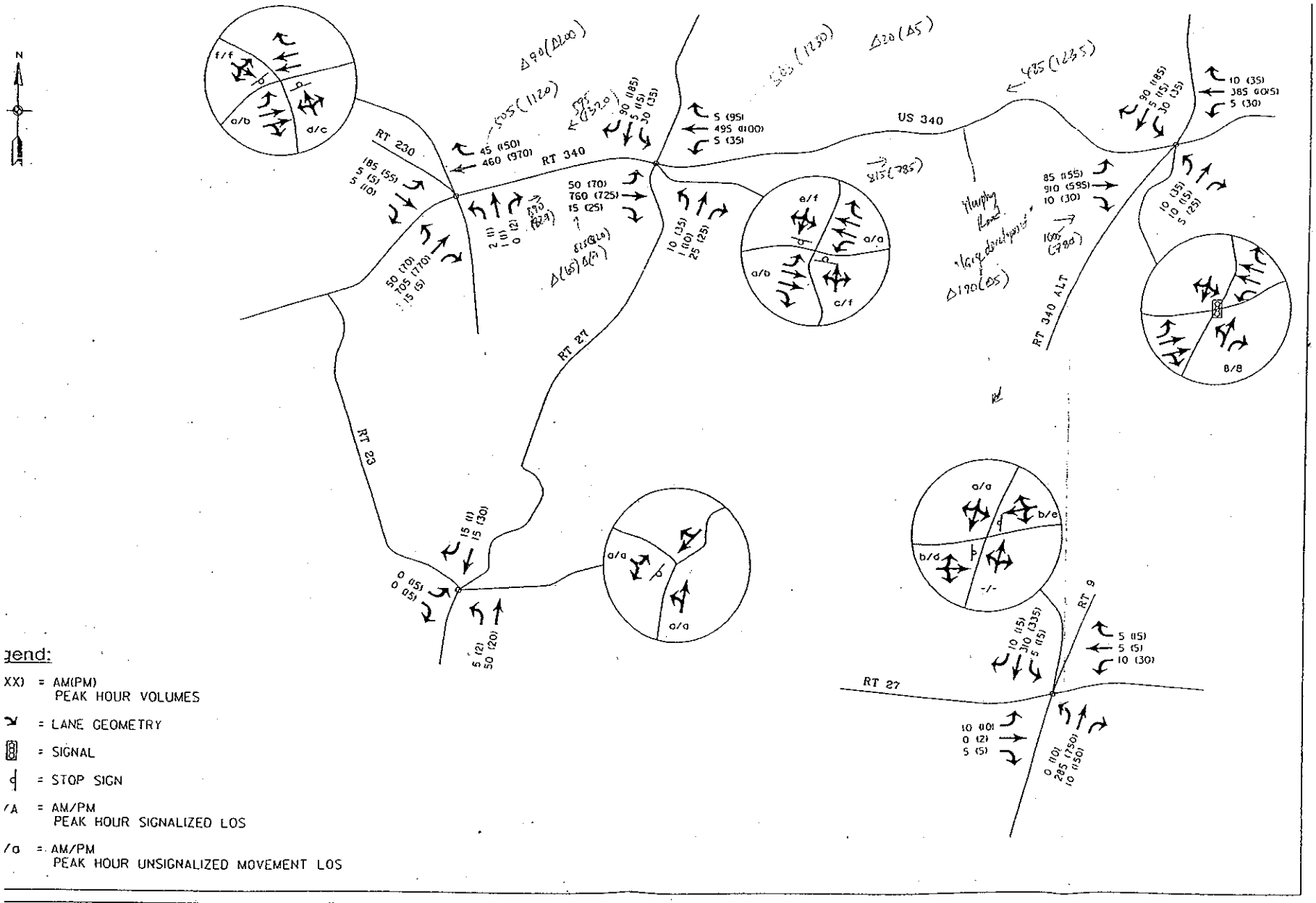
= AM/PM
PEAK HOUR SIGNALIZED LOS

= AM/PM
PEAK HOUR UNSIGNALIZED MOVEMENT LOS

OLD STANDARD LLC QUARRY DEVELOPMENT
BACKGROUND TRAFFIC GROWTH VOLUMES (3.5%) - YEAR 2011

FIGURE 4

2-BACKGROUND.dgn 11/6/2006 3:53:32 PM



gend:

XX) = AM(PM) PEAK HOUR VOLUMES

= LANE GEOMETRY

= SIGNAL

= STOP SIGN

/A = AM/PM PEAK HOUR SIGNALIZED LOS

/a = AM/PM PEAK HOUR UNSIGNALIZED MOVEMENT LOS

& OLD STANDARD LLC QUARRY DEVELOPMENT
) EXISTING TRAFFIC VOLUMES, LANE GEOMETRY, AND LOS RESULTS

FIGURE 3

0952-Existing.dgn 11/6/2006 3:52:06 PM