

September 23, 2015

Ms. Tarren Barrett
Knoxville Regional TPO
400 Main Street, Suite 403
Knoxville, TN 37902

RE: Ely Park Phase II Traffic Impact Study Update
Knox County, Tennessee

Dear Ms. Barrett:

This correspondence provides a summary of the referenced traffic impact study update that was performed at your request. This update was necessitated as a result of a five year time period elapsing since the previous update, which was dated February 17, 2010, and was performed by Wilbur Smith Associates.

Five figures and three tables were developed as a part of this study, and these are placed behind this correspondence, in the order that they are discussed. In addition, the latest project site plan is the first item contained in the APPENDIX that follows the figures and tables.

The project site is located in east Knox County, approximately 5 miles east of the Town Center Mall / I-640 area. The specific location is detailed on the site location map shown on FIGURE 1. The current proposal is to continue the development of the Ely Park subdivision, which currently has 29 occupied lots, to provide a final total of 277. The purpose of this study update is to assess the anticipated traffic impacts resulting from the future full build-out of this project.

Existing and Background Conditions

The physical conditions of the study roadways and general area have not changed since the previous study update was performed in 2010. The project site will continue to take its access directly off of Millertown Pike, which is a two lane roadway with approximately 21 feet of pavement and no paved shoulders. The roadway traverses through rolling terrain and has a posted speed limit of 40 mph.

The existing subdivision entrance is at Ely Park Lane, which is a 2 lane 26 foot standard subdivision street with bordering curb. The roadway has been widened at its intersection with Millertown Pike to provide a median divided entrance which consists of 2 -18 foot lanes on either side of a 6 foot landscaped median. This intersection lies approximately 1200 feet east of the intersection of Millertown Pike with Ellistown Road, which is a four-way stop controlled intersection.

TABLE 1 provides a summary of several years of recent Average Annual Daily Traffic (AADT) information from three nearby TDOT AADT count stations. This data will be further discussed and utilized in the next paragraph. In addition to the AADT traffic data, turning movement traffic counts were conducted for this study at the two study intersections, which are the Ely Park Lane and Ellistown Road intersections with Millertown Pike. This data, which is the existing year 2015 traffic data, is summarized in FIGURE 2. Raw traffic count and AADT data are also contained in the APPENDIX.

A five year time period has been assumed for project build-out. In order to arrive at estimates of what traffic would be like after five years if no further expansion of Ely Park takes place, a 2.5 percent annual growth rate has been assumed for this period of time. This rate is considered somewhat conservative, as the TABLE 1 AADT data for recent years only shows annual growth rates in the one to two percent range. FIGURE 3 provides estimates of this background year 2020 data using the 2.5 percent annual growth rate.

Future Conditions

In order to estimate future trips coming from a fully developed Ely Park subdivision, trip generation rates from the Institute of Transportation Engineers (ITE) were applied. The rates utilized were for ITE land use code 210, Single Family Detached Housing. TABLE 2 provides a summary of this trip generation, which was applied only to the 248 lots that are proposed that have not yet been built on and occupied. A sheet is also contained in the APPENDIX that summarizes the trip generation calculations.

The generated trips were applied to the study intersections by developing distribution percentages derived from the existing traffic counts for the study intersections. These distribution percentages are shown on the top of FIGURE 4, while the remainder of the figure shows how the generated trips were applied to the study intersections for the AM and PM peak traffic hours using these percentages. FIGURE 5 provides the volumes for year 2020 future/combined analysis. These were developed by adding the FIGURE 3 background volumes to the FIGURE 4 trip distribution volumes.

Analyses, Conclusions and Recommendations

The capacity analysis methods of the most recent edition of the *Highway Capacity Manual* were applied to the existing (FIGURE 2), background (FIGURE 3) and future/combined (FIGURE 5) traffic volumes at the two study intersections. The results are summarized on TABLE 3, with computer print-out summaries contained in the APPENDIX. As can be seen, even with the generated trips from full project build-out included in the year 2020 analyses, levels-of-service (LOS) remain no worse than LOS B for all evaluated approaches and time periods.

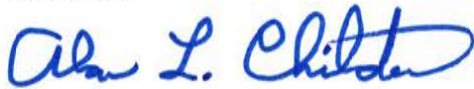
The possible need for left and right turn lanes for the Millertown Road and Ely Park Lane intersection was investigated by applying the requirements of the *Knox County Access Control and Driveway Design Policy*. The resulting figures are contained in the APPENDIX. As can be seen, no additional turn lanes are justified.

Based on this study update, it is recommended that the Ely Park subdivision be approved for its proposed Phase 2 expansion. While it is understood that Knox County prefers two entrances to a subdivision with over 150 units, there appears to be no traffic volume or capacity related justification for two entrances for Ely Park. A second entrance could be investigated in the future as additional properties bordering both the subdivision and Millertown Pike become available.

In addition, intersection corner sight distance is currently adequate at the Millertown Road and Ely Park Lane intersection. It is recommended that care be taken as this project develops further to keep signage, vegetation and any other sight limiting features from obstructing the current lines of sight.

Please do not hesitate to contact me with any questions or if you require additional information.

Sincerely,



Alan L. Childers, P.E.
Vice President

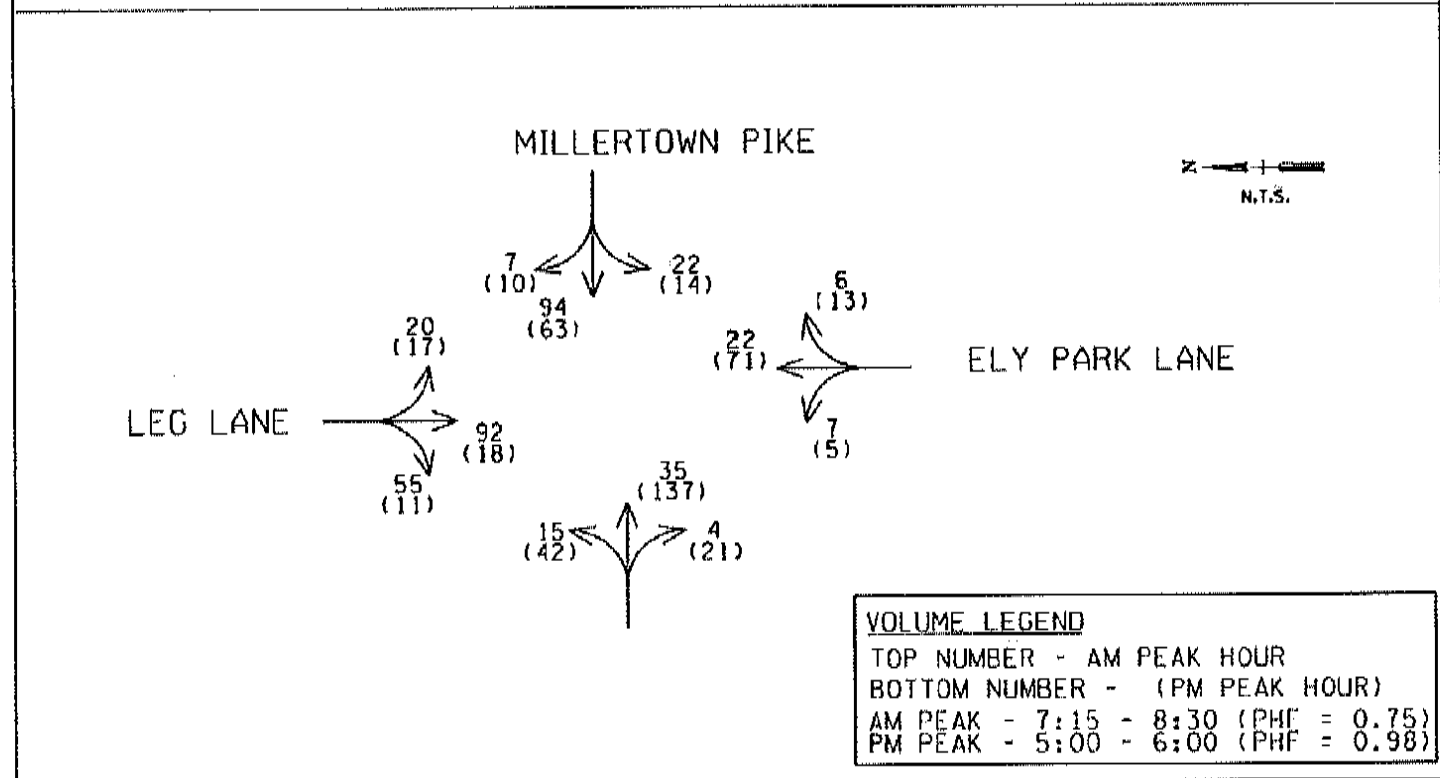
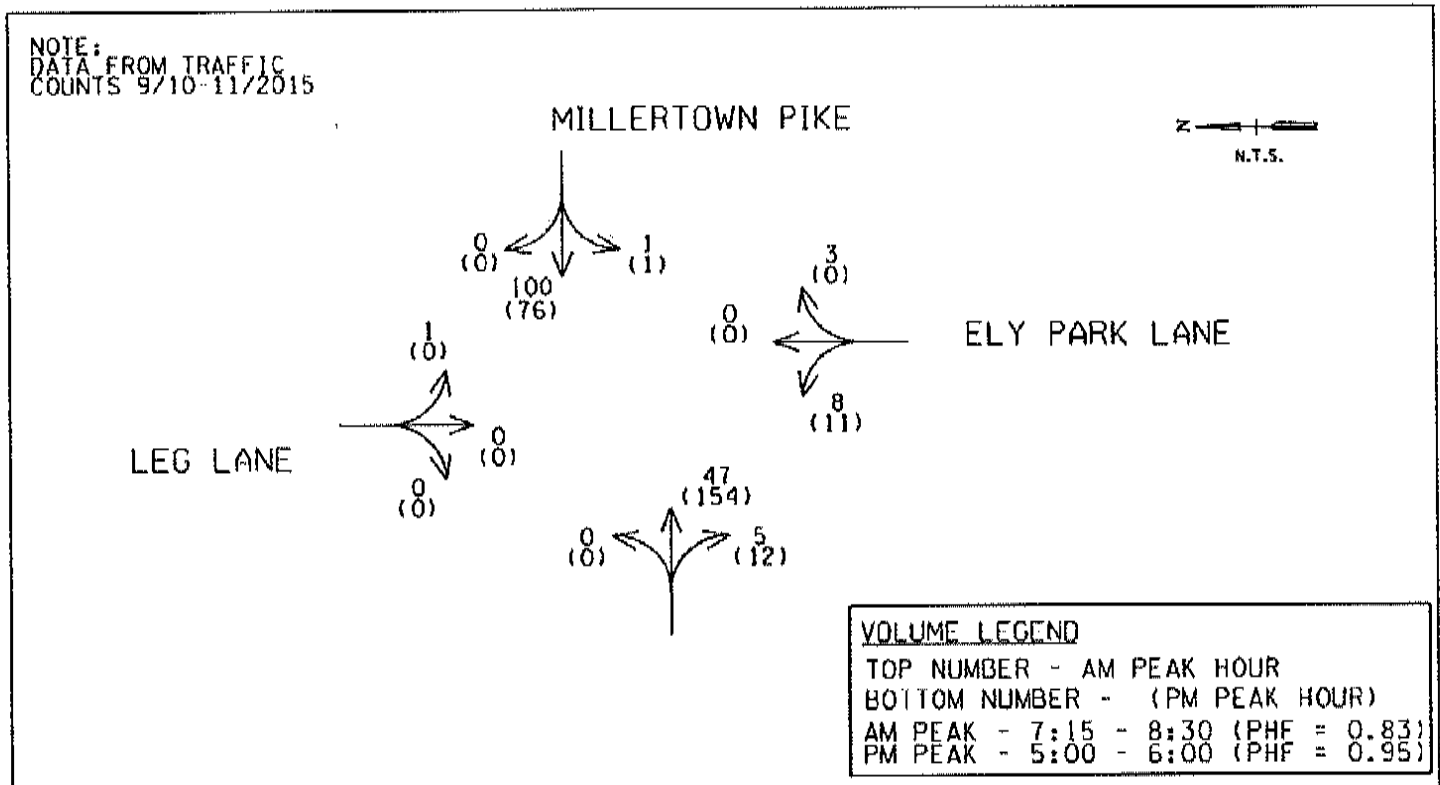


Attachments

cc: Project File No. 01203-0000

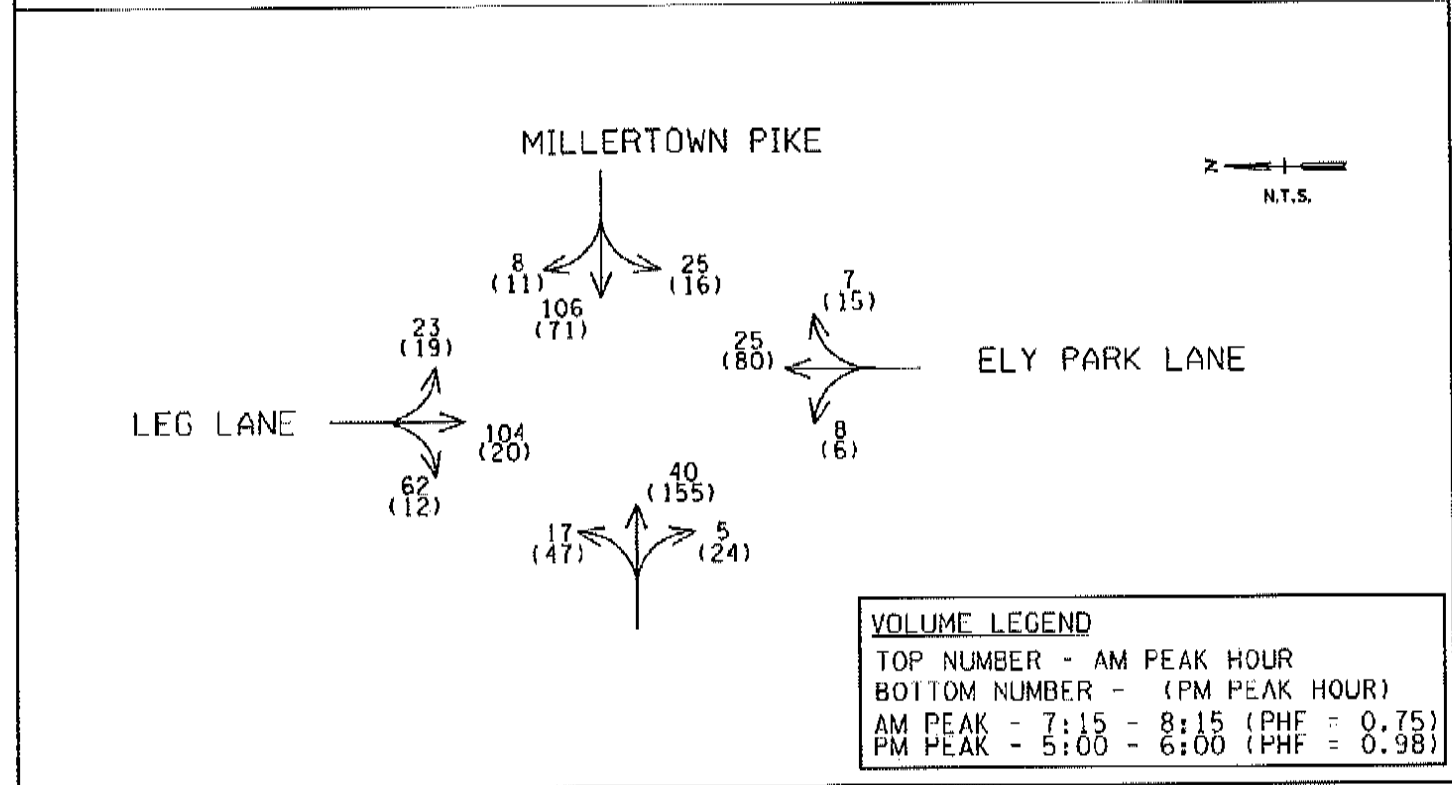
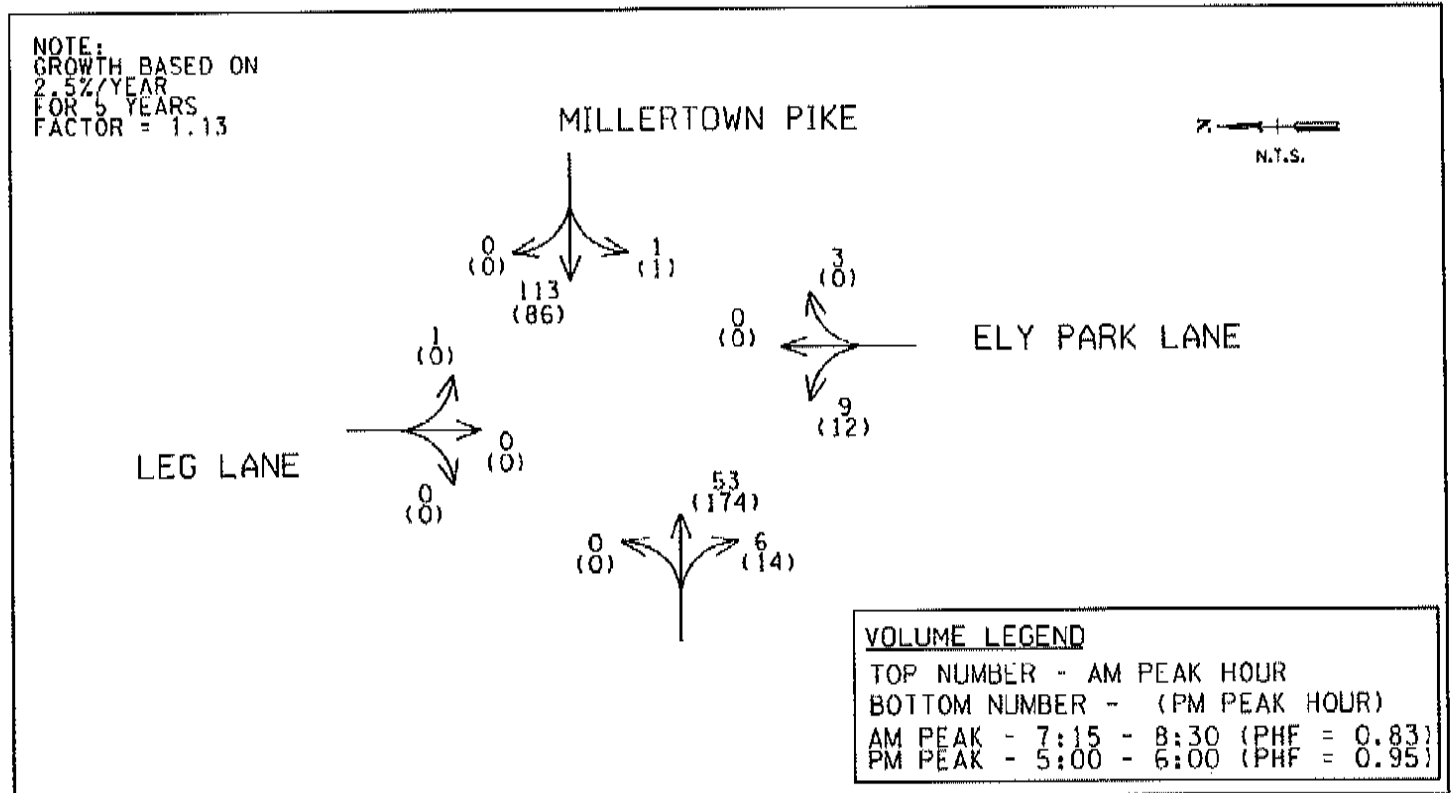
TABLE 1**ANNUAL AVERAGE DAILY TRAFFIC COUNT SUMMARY**

COUNT YEAR	TDOT Station 339 Millertown Pike near Grainger Co. line	TDOT Station 34 Ellistown Road N. of Millertown Pike	TDOT Station 340 Millertown Pike W. of Ellistown Rd.
2014	1105	1602	2578
2013	1045	1572	2477
2012	1071	1541	2521
2011	1321	1636	2445
2010	1283	1601	2760



EXISTING TRAFFIC (2015)

FIGURE 2



BACKGROUND TRAFFIC (2020)

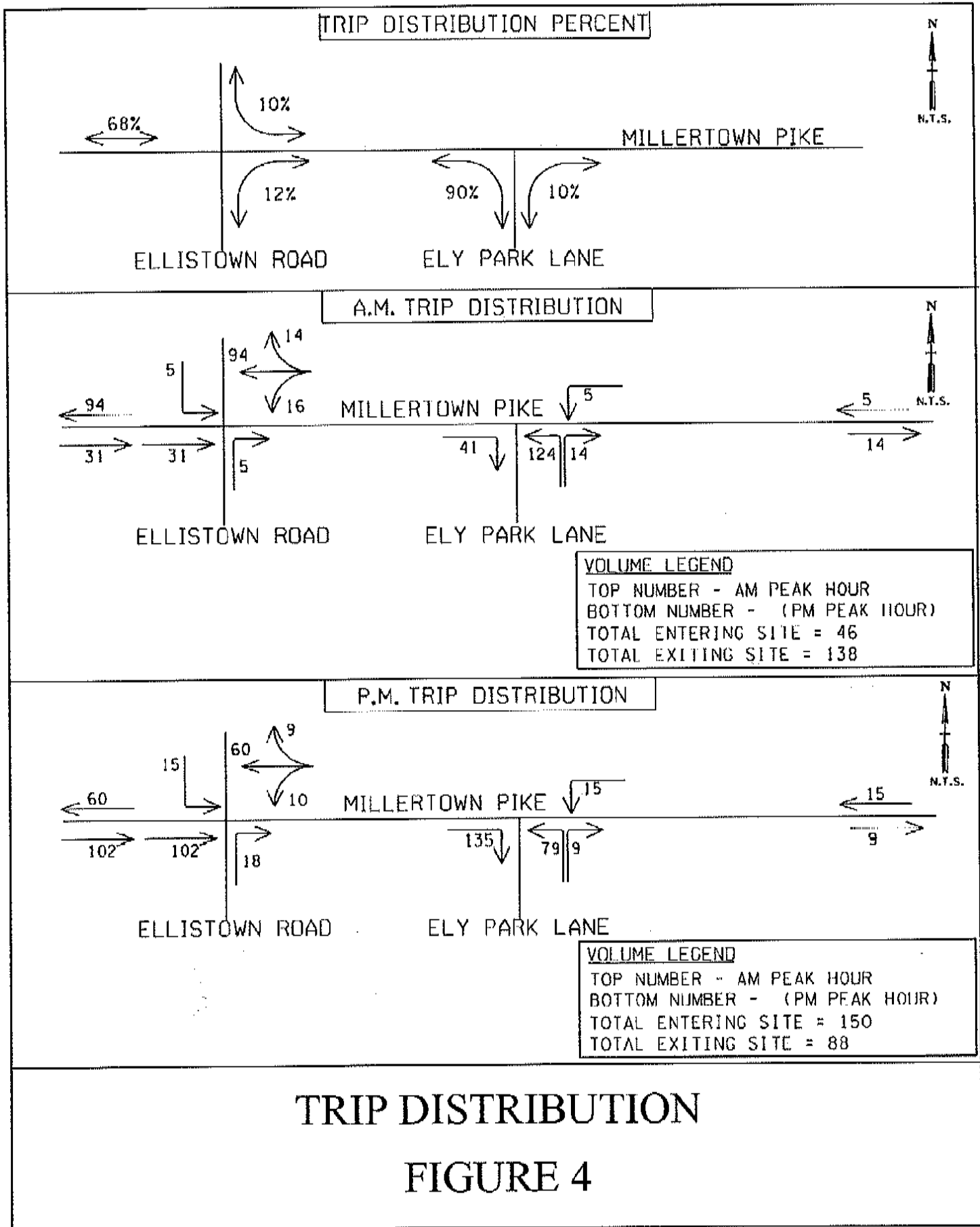
FIGURE 3

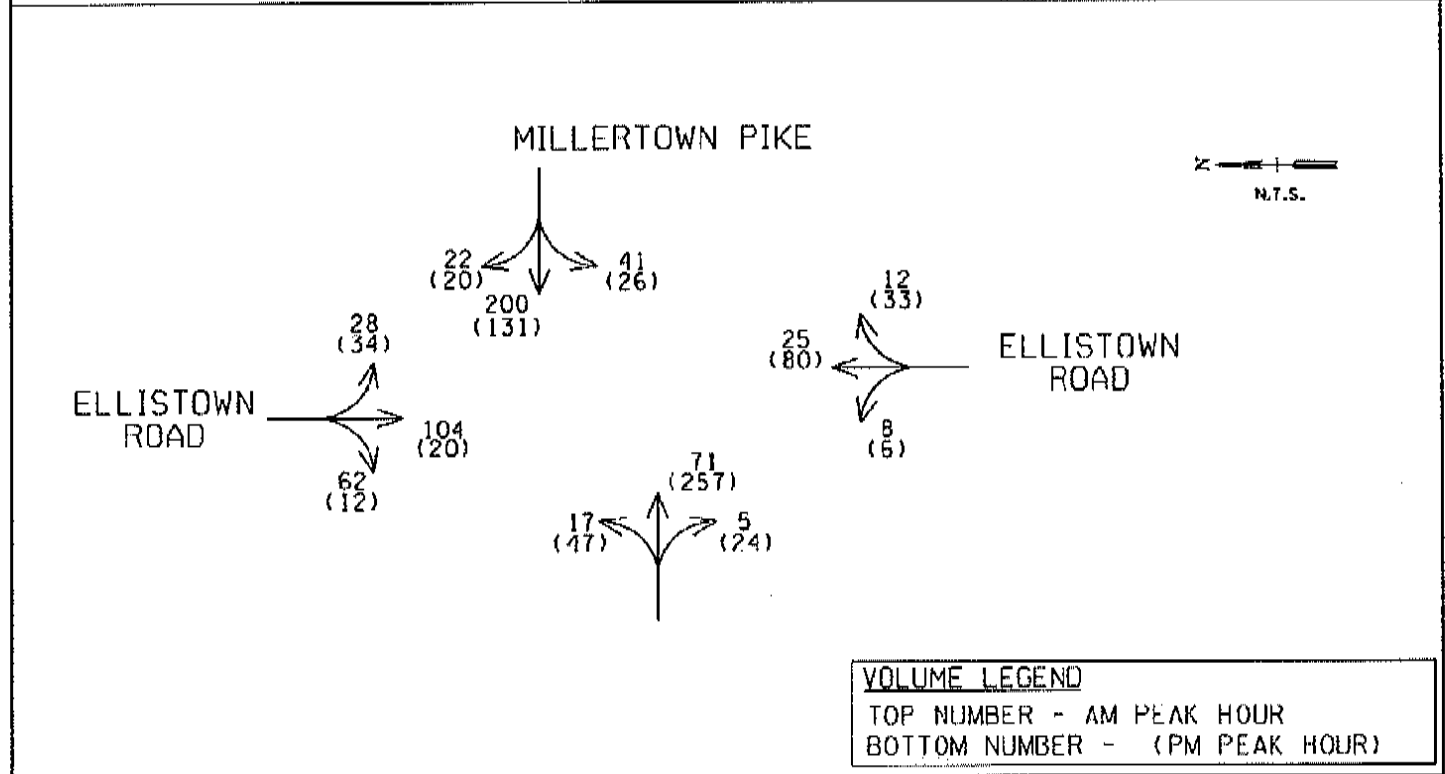
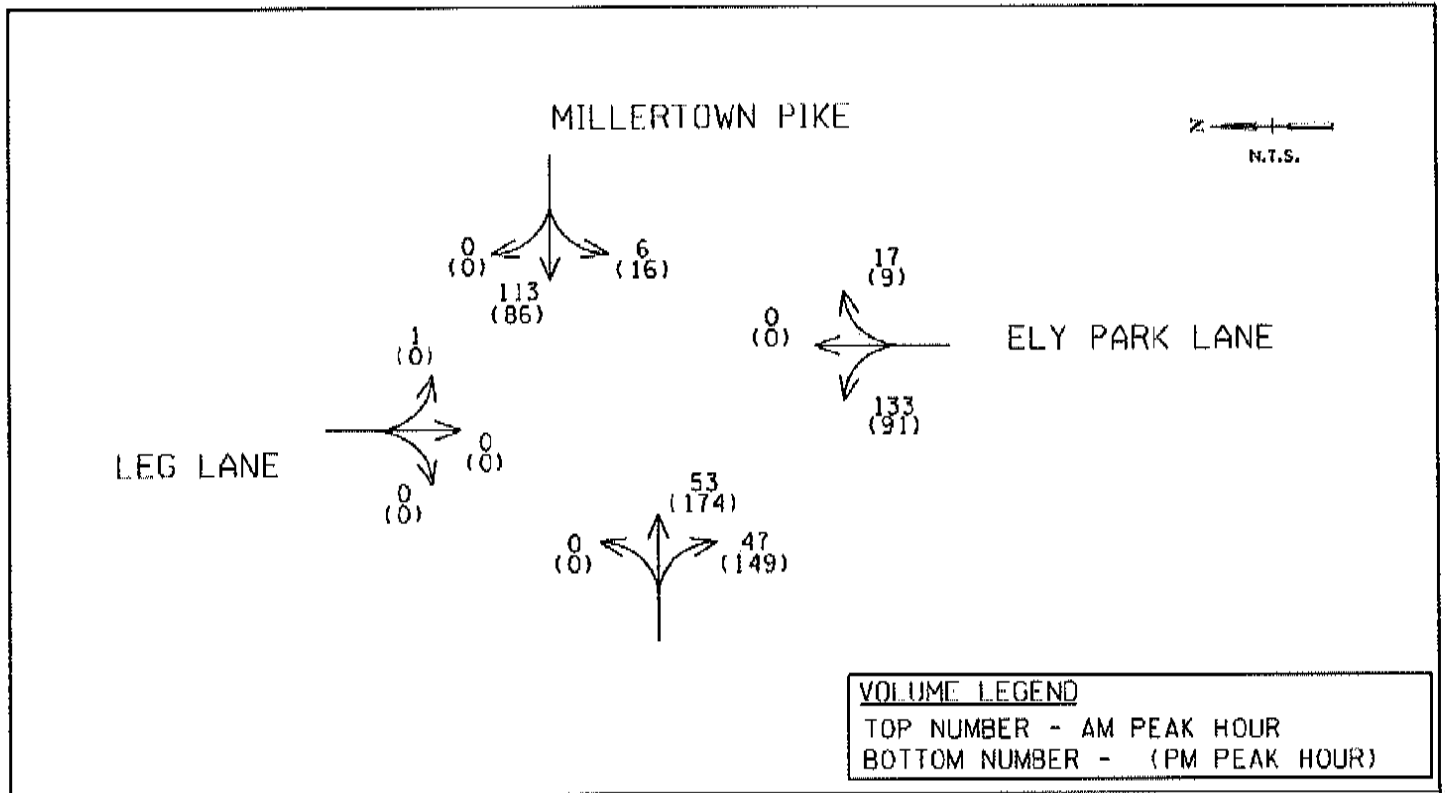
TABLE 2

TRIP GENERATION SUMMARY

LAND USE	ITE CODE	SIZE	WEEKDAY (TRIPS/DAY)	AM PEAK HOUR (TRIPS/HR)	PM PEAK HOUR (TRIPS/HR)
Single Family Detached Housing	210	248 lots*	2422	184	238
Entering Trips (%)			1211 (50%)	46 (25%)	150 (63%)
Exiting Trips (%)			1211 (50%)	138 (75%)	88 (37%)

* No. of lots that have yet to be built-on as of date of traffic counts for study





FUTURE/COMBINED TRAFFIC (2020)

FIGURE 5

TABLE 3**CAPACITY ANALYSIS SUMMARY**

Intersection	Peak Time Period	Year 2015 Existing (LOS/Delay)	Year 2020 Background (LOS/Delay)	Year 2020 Future/Combined (LOS/Delay)
Millertown/Ellistown ¹	A.M.	A 8.8 s.	A 9.2 s.	B 11.3 s.
	P.M.	A 8.5 s.	A 8.8 s.	B 10.3 s.
Millertown/Ely Park ²	A.M.	A 9.7 s.	A 9.8 s.	B 11.6 s.
	P.M.	A 10.0 s.	B 10.2 s.	B 12.0 s.

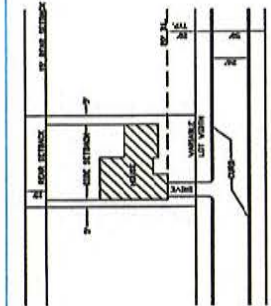
1. All-way stop control analyses. Values given are average of all intersection movements.
2. Two-way stop control analyses. Values given are average of all movements on critical side street approach.

APPENDIX

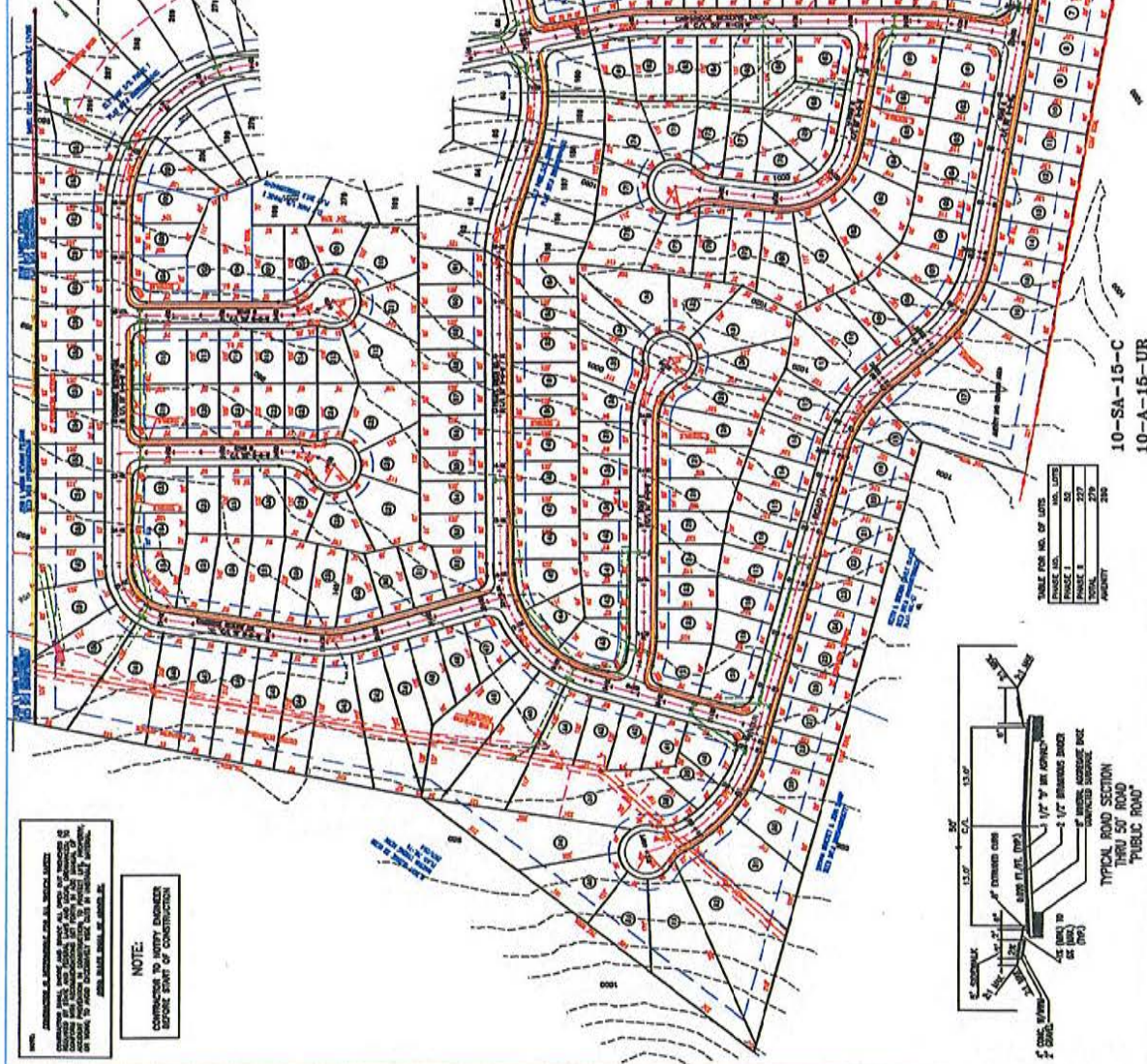


LOCATION MAP

NOTE: PLS SEND TO ANY ENGINEER OR CONSTRUCTION CONTRACTOR FIRST CONTRACT: TENNESSEE ONE-CALL 1-800-351-1111 RECORD AND SAVE YOUR CONFIRMATION NUMBER.



TYPICAL LOT LAYOUT
1" = 40'



- NOTES:
1. ALL DIMENSIONS ARE GIVEN UNLESS OTHERWISE NOTED TO BE TO THE FACE.
 2. ALL DIMENSIONS ARE GIVEN UNLESS OTHERWISE NOTED TO BE TO THE FACE OF THE ROAD.
 3. ALL DIMENSIONS ARE GIVEN UNLESS OTHERWISE NOTED TO BE TO THE FACE OF THE ROAD.
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CONSTRUCTION OF CONCEPT PLAN
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CONCEPT ENGINEER, INC.
1000 BROADWAY, SUITE 100
MEMPHIS, TN 38103
TEL: (901) 525-1111
FAX: (901) 525-1111

CONCEPT ENGINEER, INC.
1000 BROADWAY, SUITE 100
MEMPHIS, TN 38103
TEL: (901) 525-1111
FAX: (901) 525-1111

FOR ELY PARK PHASE II
CONCEPT PLAN
CLT MAP 041, PARCEL 100.04
CLT MAP 051, PARCEL 10.03
DISTRICT 8, KNOX COUNTY, TENNESSEE

RECORD REFERENCES:
D.A. INST. # 20150610007650
PLAN INST. # 200510250037438
SCALE: AS SHOWN

SCALE: AS SHOWN
DATE: 08-18-2015

NO.	DATE	BY	REVISION

APPROVED: [Signature]
DATE: 08-18-2015

REGISTERED PROFESSIONAL ENGINEER, INC.
1000 BROADWAY, SUITE 100
MEMPHIS, TN 38103
TEL: (901) 525-1111
FAX: (901) 525-1111
www.conceptengineer.com

9/16/15

Trip Generation

by AEC

Single Family Detached Housing (ITE Code 210)
(Relevant Sheets from "Trip Generation, 9th Edition" are attached)
Project will have 277 lots, of which 29 currently occupied

Trip Generation for Remaining 248 lots:

A) Weekday:

$$L_n(T) = 0.92 L_n(248) + 2.72$$

$$\rightarrow T = 2422 \text{ trips} - \text{Enter}(50\%) = 1211, \text{Exit}(50\%) = 1211$$

B) Peak Hour of Adjacent Street Traffic (One Hour between 7-9 a.m.):

$$T = 0.70(248) + 9.74$$

$$\rightarrow T = 184 \text{ trips} - \text{Enter}(25\%) = 46, \text{Exit}(75\%) = 138$$

C) Peak Hour of Adjacent Street Traffic (One Hour between 4-6 p.m.):

$$\rightarrow L_n(T) = 0.90 L_n(248) + 0.51$$

$$\rightarrow T = 238 \text{ trips} - \text{Enter}(63\%) = 150, \text{Exit}(37\%) = 88$$

Single-Family Detached Housing (210)

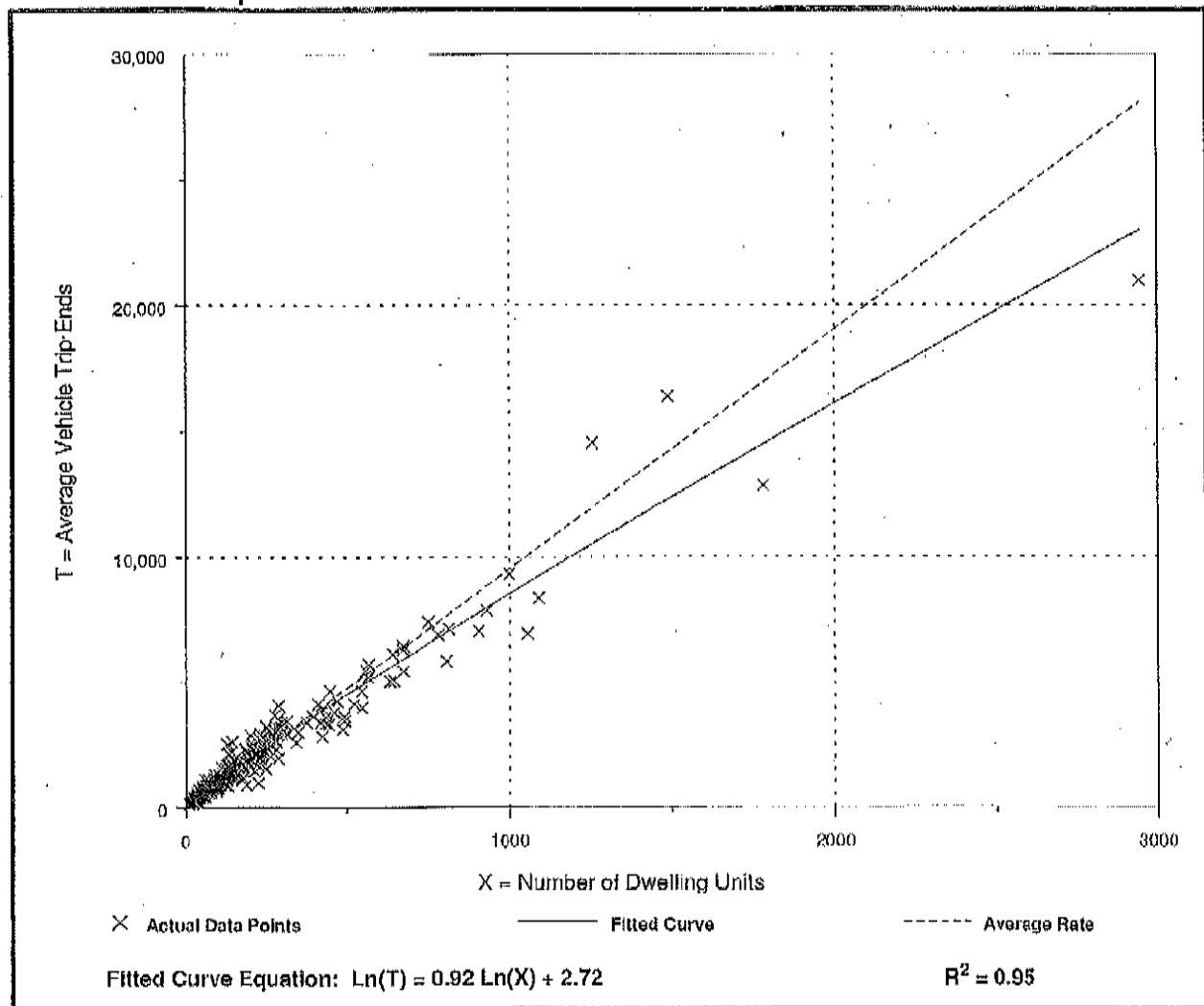
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Number of Studies: 355
Avg. Number of Dwelling Units: 198
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.52	4.31 - 21.85	3.70

Data Plot and Equation



Single-Family Detached Housing (210)

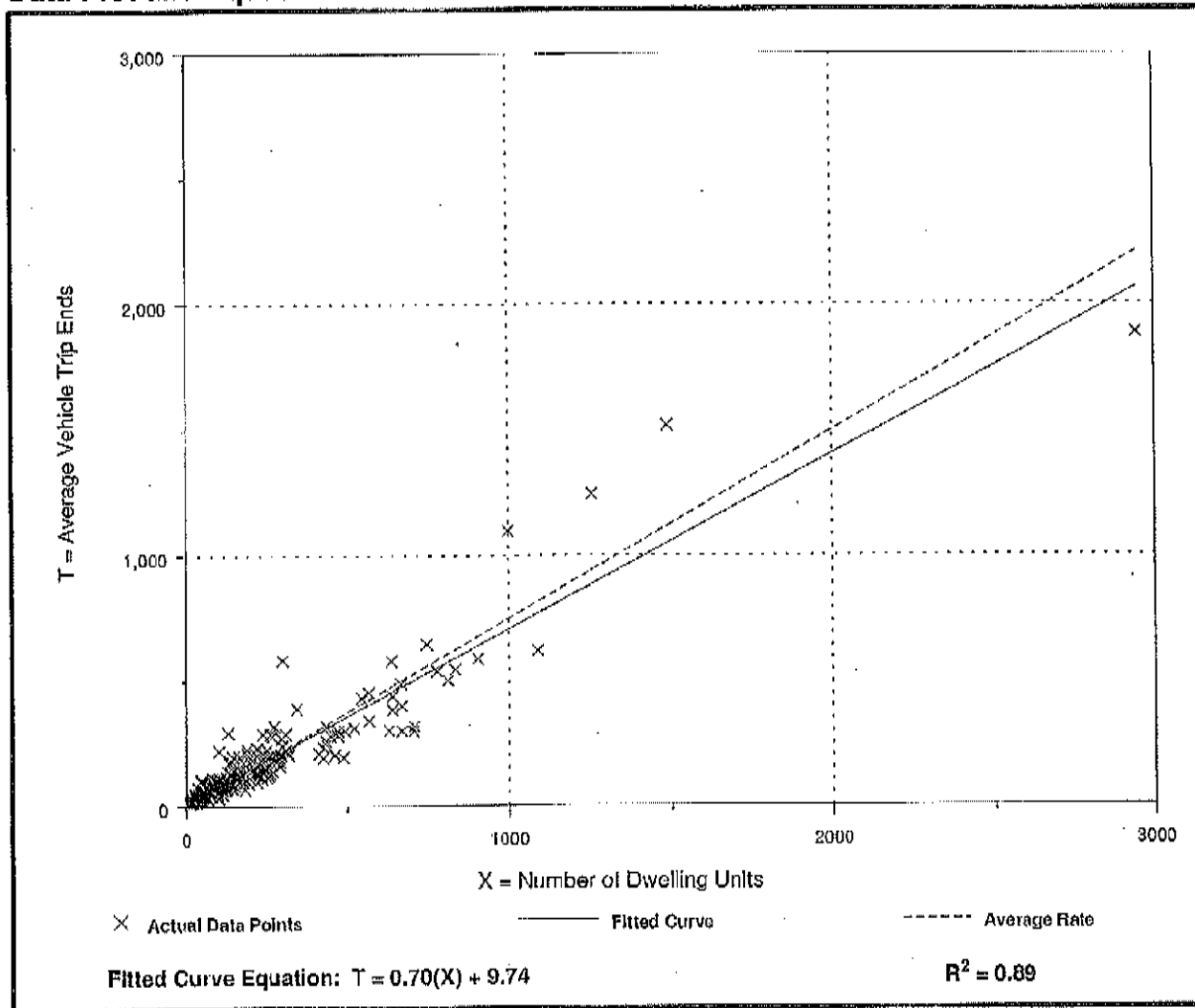
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 292
 Avg. Number of Dwelling Units: 194
 Directional Distribution: 25% entering, 75% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.75	0.33 - 2.27	0.90

Data Plot and Equation



Single-Family Detached Housing (210)

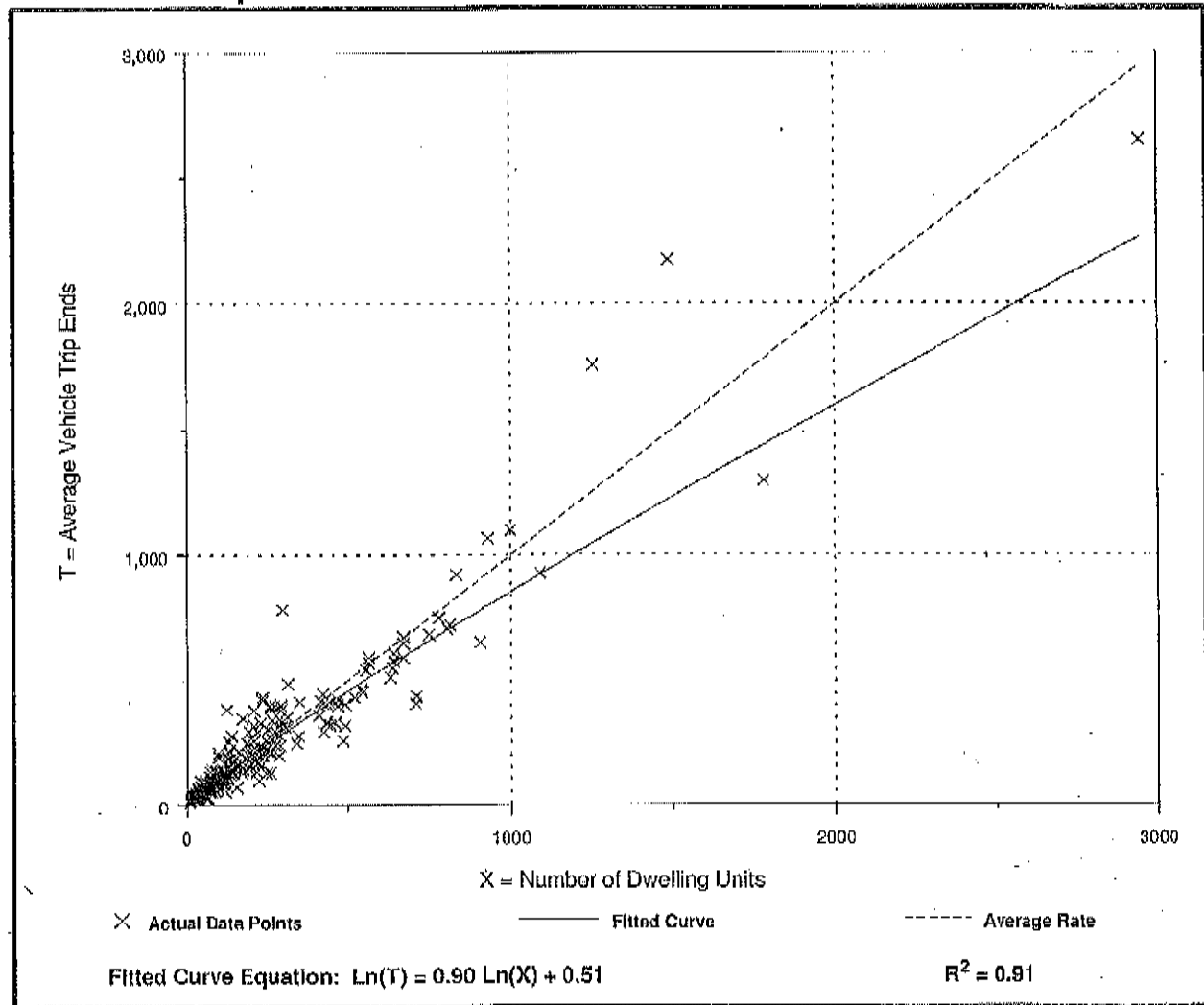
Average Vehicle Trip Ends vs: Dwelling Units
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.

Number of Studies: 321
 Avg. Number of Dwelling Units: 207
 Directional Distribution: 63% entering, 37% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
1.00	0.42 - 2.98	1.05

Data Plot and Equation

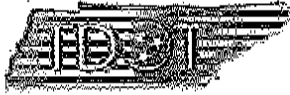




Traffic History

Station #	County	Location	Route #
000339	Knox	MILLERTOWN PK-NEAR GRAINGER CO LINE	02430

Record	Year	AADT
1	2014	1105
2	2013	1045
3	2012	1071
4	2011	1321
5	2010	1283
6	2009	1289
7	2008	1378
8	2007	1294
9	2006	1277
10	2005	1245
11	2004	1100
12	2003	1147
13	2002	1051
14	2001	1109
15	2000	884
16	1999	1073
17	1998	1008
18	1997	800
19	1996	863
20	1995	712
21	1994	675
22	1993	564
23	1992	726
24	1991	1000
25	1990	964
26	1989	1010
27	1988	661



Traffic History

Station #	County	Location	Route #
000340	Knox	MILLERTOWN PK-NORTHEAST OF JOHN SEVIER	02430

Record	Year	AADT
1	2014	2578
2	2013	2477
3	2012	2521
4	2011	2445
5	2010	2760
6	2009	2984
7	2008	3052
8	2007	2767
9	2006	2758
10	2005	3028
11	2004	2728
12	2003	2533
13	2002	2551
14	2001	2288
15	2000	2436
16	1999	2412
17	1998	2291
18	1997	2129
19	1996	2141
20	1995	1730
21	1994	1534
22	1993	1455
23	1992	1398
24	1991	1539
25	1990	1250
26	1989	1153
27	1988	1160



Traffic History

Station #	County	Location	Route #
000034	Knox	NORTH OF ELLISTOWN	0D431

Record	Year	AADT
1	2014	1602
2	2013	1572
3	2012	1541
4	2011	1636
5	2010	1601
6	2009	1660
7	2008	1700
8	2007	1578
9	2006	1765
10	2005	1396
11	2004	1215
12	2003	1152
13	2002	1264
14	2001	1174
15	2000	1308
16	1999	1213
17	1998	1124
18	1997	1006
19	1996	1040
20	1995	1033
21	1994	1294
22	1993	998
23	1992	1071
24	1991	1226
25	1990	838
26	1989	993
27	1988	902

Cannon & Cannon, Inc.
 Consulting Engineers - Field Surveyors
 8550 Kingston Pike
 Knoxville, TN 37919

CCI Project Name: Ely Park TIS
 CCI Project Number:
 Intersection: Millertown @ Ellistown
 Counted By: CCI

File Name : Millertown, Ellistown, 9-10-15
 Site Code : 00000001
 Start Date : 9/10/2015
 Page No : 1

Groups Printed- Unshifted

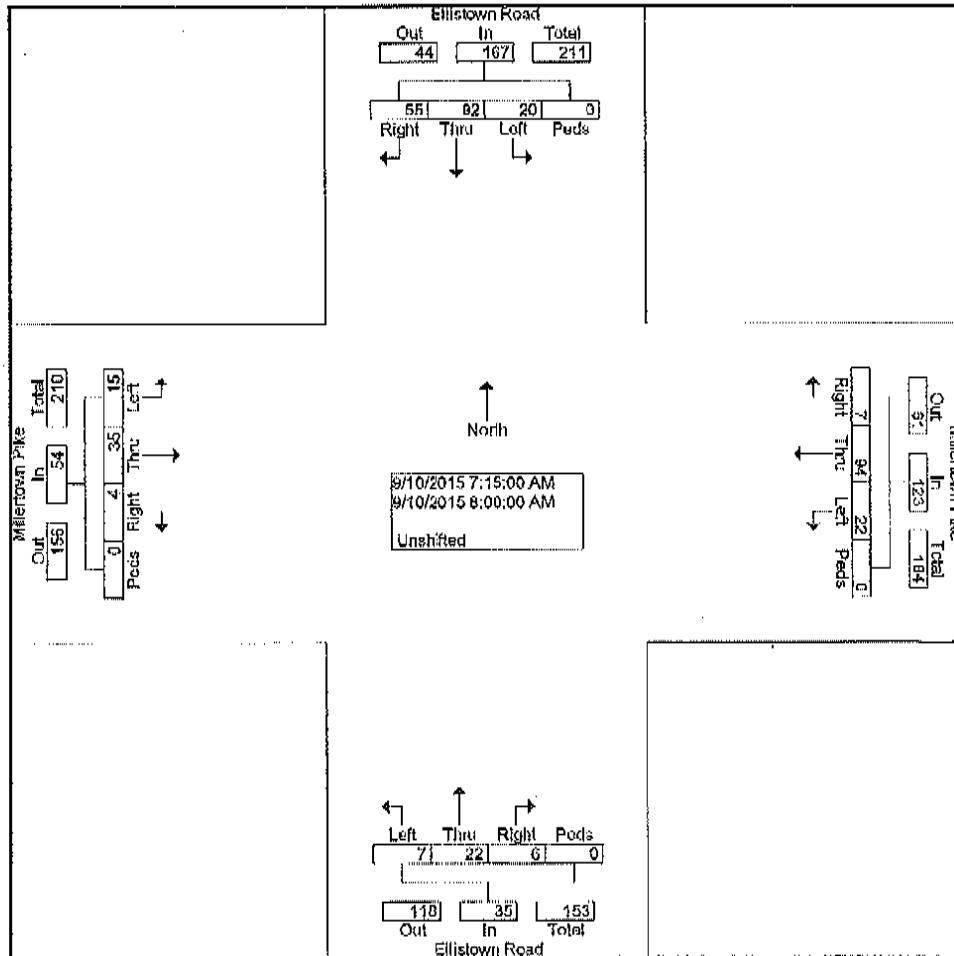
Start Time	Ellistown Road Southbound					Millertown Pike Westbound					Ellistown Road Northbound					Millertown Pike Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:15 AM	6	23	18	0	47	6	31	1	0	38	2	4	3	0	9	3	12	1	0	16	110
07:30 AM	6	30	23	0	59	10	26	6	0	42	5	6	3	0	14	0	10	1	0	11	126
07:45 AM	5	14	12	0	31	2	22	0	0	24	0	8	0	0	8	8	6	1	0	15	78
Total	17	67	53	0	137	18	79	7	0	104	7	18	6	0	31	11	28	3	0	42	314
08:00 AM	3	25	2	0	30	4	15	0	0	19	0	4	0	0	4	4	7	1	0	12	65
08:15 AM	1	12	4	0	17	2	11	2	0	15	2	9	1	0	12	4	10	0	0	14	58
*** BREAK ***																					
Total	4	37	6	0	47	6	26	2	0	34	2	13	1	0	16	8	17	1	0	26	123
*** BREAK ***																					
05:00 PM	5	5	1	0	11	5	13	3	0	21	1	21	3	0	25	7	29	9	0	45	102
05:15 PM	7	5	1	0	13	6	15	1	0	22	1	19	4	0	24	12	33	4	0	49	108
05:30 PM	3	2	3	0	8	0	19	5	0	24	2	17	1	0	20	14	38	4	0	56	108
05:45 PM	2	6	6	0	14	3	16	1	0	20	1	14	5	0	20	9	37	4	0	50	104
Total	17	18	11	0	46	14	63	10	0	87	5	71	13	0	89	42	137	21	0	200	422
Grand Total	38	122	70	0	230	38	168	19	0	225	14	102	20	0	136	61	182	25	0	268	859
Approch %	16.5	53.0	30.4	0.0		16.9	74.7	8.4	0.0		10.3	75.0	14.7	0.0		22.8	67.9	9.3	0.0		
Total %	4.4	14.2	8.1	0.0	26.8	4.4	19.8	2.2	0.0	26.2	1.6	11.9	2.3	0.0	15.8	7.1	21.2	2.9	0.0	31.2	

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 Knoxville, TN 37919

CCI Project Name: Ely Park TIS
 CCI Project Number:
 Intersection: Millertown @ Ellistown
 Counted By: CCI

File Name : Millertown_Ellistown_9-10-15
 Site Code : 00000001
 Start Date : 9/10/2015
 Page No : 2

Start Time	Ellistown Road Southbound					Millertown Pike Westbound					Ellistown Road Northbound					Millertown Pike Eastbound					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 07:15 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	20	92	55	0	167	22	94	7	0	123	7	22	6	0	35	15	35	4	0	54	379
Percent	12.0	55.1	32.9	0.0		17.9	76.4	5.7	0.0		20.0	62.9	17.1	0.0		27.8	64.8	7.4	0.0		
07:30 Volume	6	30	23	0	59	10	26	6	0	42	5	6	3	0	14	0	10	1	0	11	126
Peak Factor																					0.752
High Int. Volume	07:30 AM																				
Peak Factor	6	30	23	0	59	10	26	6	0	42	5	6	3	0	14	3	12	1	0	16	0.844
Factor	0.708					0.732					0.625										

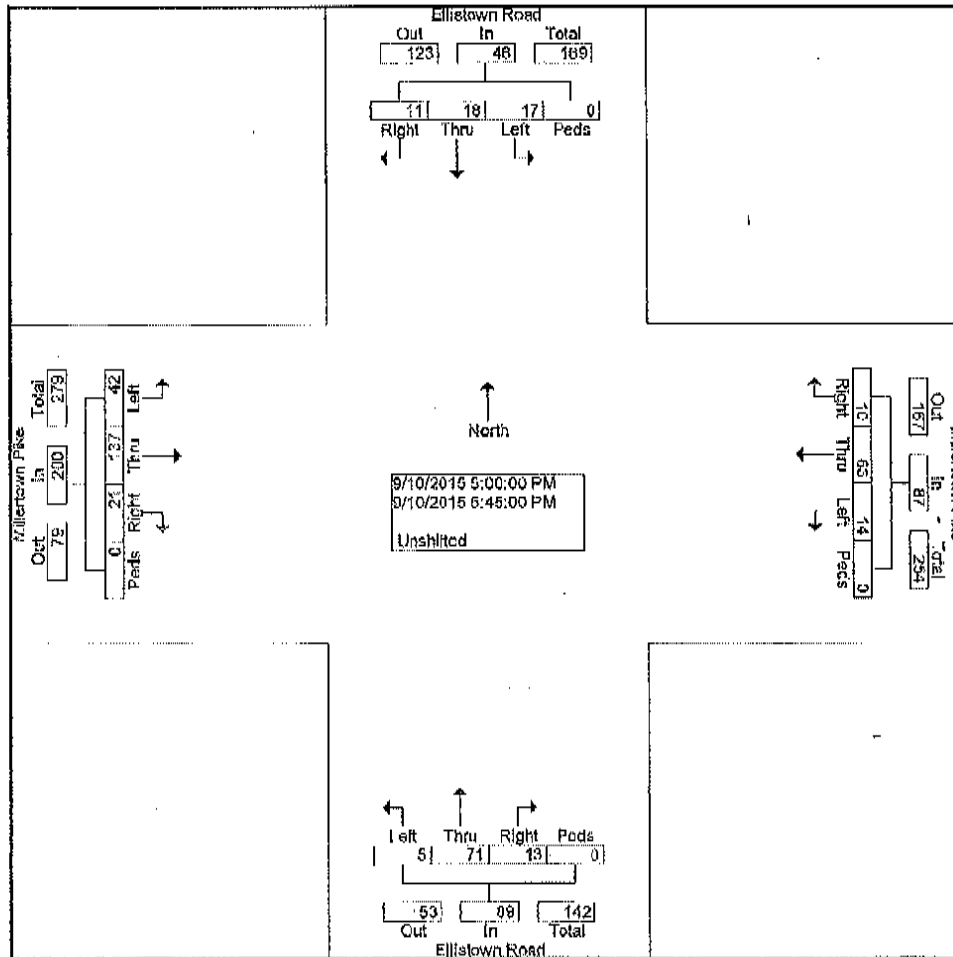


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 CCI Project Number:
 Intersection: Millertown @ Ellistown
 Counted By: CCI

File Name : Millertown_Ellistown_9-10-15
 Site Code : 00000001
 Start Date : 9/10/2015
 Page No : 3

Start Time	Ellistown Road Southbound					Millertown Pike Westbound					Ellistown Road Northbound					Millertown Pike Eastbound					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 05:00 PM to 05:45 PM - Peak 1 of 1																								
Intersection	05:00 PM																							
Volume	17	18	11	0	46	14	63	10	0	87	5	71	13	0	89	42	137	21	0	200	422			
Percent	37.0	39.1	23.9	0.0		16.1	72.4	11.5	0.0		5.6	79.8	14.6	0.0		21.0	68.5	10.5	0.0					
05:30 Volume	3	2	3	0	8	0	19	5	0	24	2	17	1	0	20	14	38	4	0	56	108			
Peak Factor	0.977																							
High Int. Volume	05:45 PM					05:30 PM					05:00 PM					05:30 PM								
Peak Factor	2	6	6	0	14	0	19	5	0	24	1	21	3	0	25	14	38	4	0	56	0.821	0.906	0.890	0.893



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 Consulting Engineers - Field Surveyors
 8550 Kingston Pike
 Knoxville, TN 37919

CCI Project Name: Ely Park TIS
 CCI Project Number:
 Intersection: Millertown @ Ely Park
 Counted By: CCI

File Name : Millertown_Ely Park.am 9-11-15
 Site Code : 00000002
 Start Date : 9/11/2015
 Page No : 1

Groups Printed- Unshifted

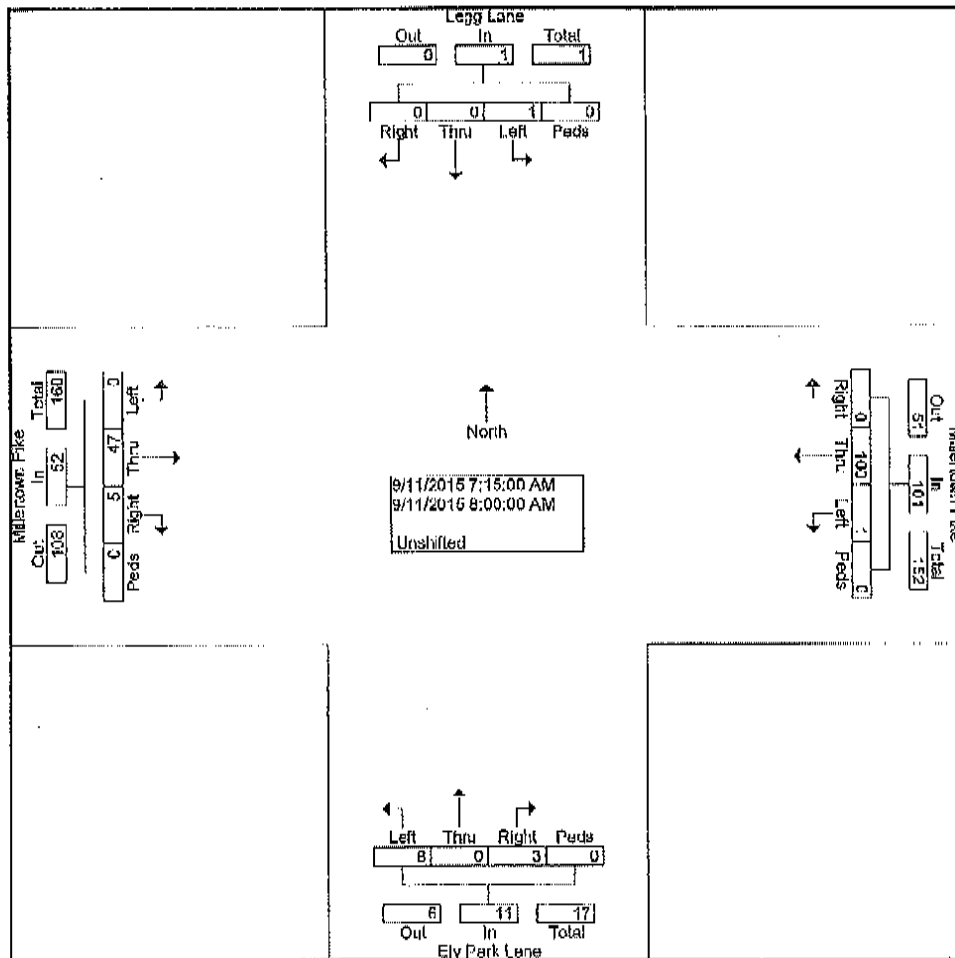
Start Time	Legg Lane Southbound					Millertown Pike Westbound					Ely Park Lane Northbound					Millertown Pike Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:15 AM	0	0	0	0	0	0	29	0	0	29	0	0	2	0	2	0	18	1	0	19	50
07:30 AM	0	0	0	0	0	0	27	0	0	27	3	0	0	0	3	0	8	2	0	10	40
07:45 AM	1	0	0	0	1	0	23	0	0	23	2	0	1	0	3	0	14	0	0	14	41
Total	1	0	0	0	1	0	79	0	0	79	5	0	3	0	8	0	40	3	0	43	131
08:00 AM	0	0	0	0	0	1	21	0	0	22	3	0	0	0	3	0	7	2	0	9	34
08:15 AM	0	0	0	0	0	0	25	0	0	25	4	0	0	0	4	0	9	0	0	9	38
Grand Total	1	0	0	0	1	1	125	0	0	126	12	0	3	0	15	0	56	5	0	61	203
Approch %	100.0	0.0	0.0	0.0		0.8	99.2	0.0	0.0		80.0	0.0	20.0	0.0		0.0	91.8	8.2	0.0		
Total %	0.5	0.0	0.0	0.0	0.5	0.5	61.6	0.0	0.0	62.1	5.9	0.0	1.5	0.0	7.4	0.0	27.6	2.5	0.0	30.0	

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CCI Project Name: Ely Park TIS
 CCI Project Number:
 Intersection: Millertown @ Ely Park
 Counted By: CCI

File Name : Millertown_Ely Park_am_9-11-15
 Site Code : 00000002
 Start Date : 9/11/2015
 Page No : 2

Start Time	Legg Lane Southbound					Millertown Pike Westbound					Ely Park Lane Northbound					Millertown Pike Eastbound					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 07:15 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	1	0	0	0	1	1	100	0	0	101	8	0	3	0	11	0	47	5	0	52	165
Percent	100.0	0.0	0.0	0.0		1.0	99.0	0.0	0.0		72.7	0.0	27.3	0.0		0.0	90.4	9.6	0.0		
07:15 Volume Peak Factor	0	0	0	0	0	0	29	0	0	29	0	0	2	0	2	0	18	1	0	19	50
High Int. Volume Peak Factor	07:45 AM					07:15 AM					07:30 AM					07:15 AM					0.825
	1	0	0	0	1	0	29	0	0	29	3	0	0	0	3	0	18	1	0	19	
					0.250					0.871					0.917					0.684	



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CCI Project Name: Ely Park TIS
 CCI Project Number:
 Intersection: Millertown @ Ely Park
 Counted By: CCI

File Name : Millertown_Ely Park_prn_9-10-15
 Site Code : 00000001
 Start Date : 9/10/2015
 Page No : 1

Groups Printed- Unshifted

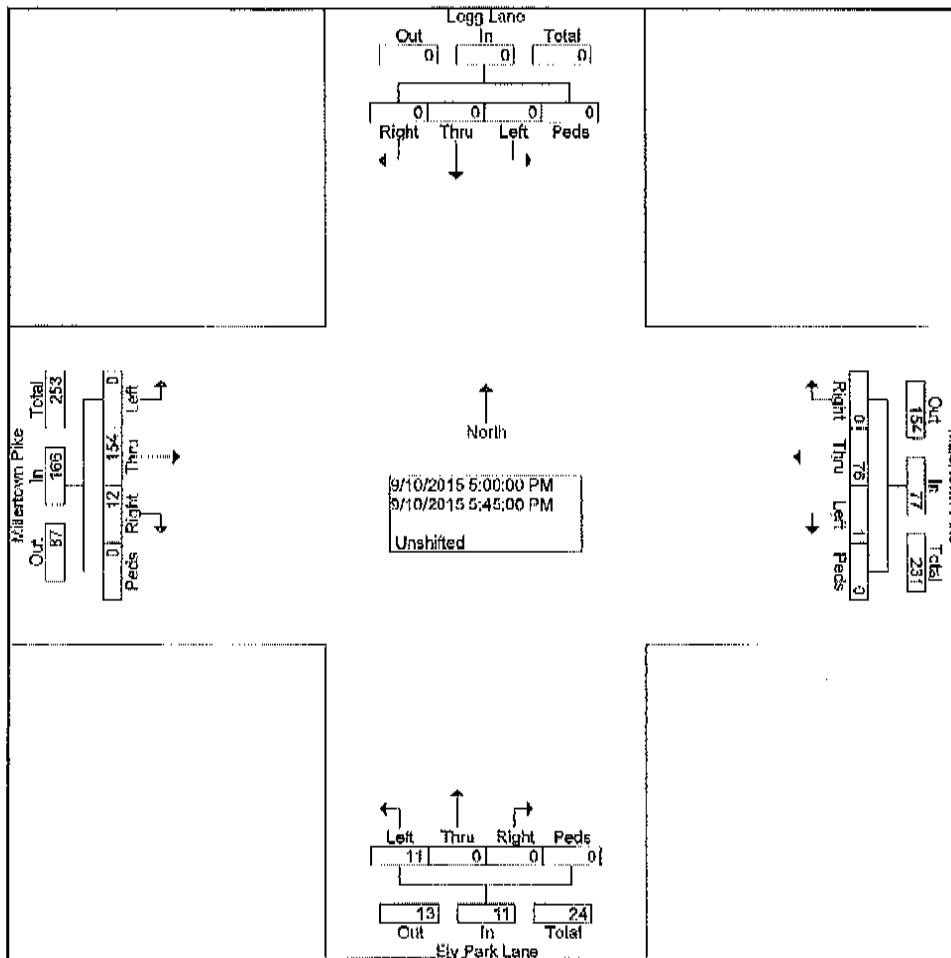
Start Time	Legg Lane Southbound					Millertown Pike Westbound					Ely Park Lane Northbound					Millertown Pike Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	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	18	0	0	18	4	0	0	0	4	0	34	4	0	38	60
05:15 PM	0	0	0	0	0	0	16	0	0	16	4	0	0	0	4	0	42	1	0	43	63
05:30 PM	0	0	0	0	0	1	24	0	0	25	0	0	0	0	0	0	35	4	0	39	64
05:45 PM	0	0	0	0	0	0	18	0	0	18	3	0	0	0	3	0	43	3	0	46	67
Total	0	0	0	0	0	1	76	0	0	77	11	0	0	0	11	0	154	12	0	166	254
Grand Total	0	0	0	0	0	1	76	0	0	77	11	0	0	0	11	0	154	12	0	166	254
Approch %	0.0	0.0	0.0	0.0		1.3	98.7	0.0	0.0		100.0	0.0	0.0	0.0		0.0	92.8	7.2	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.4	29.9	0.0	0.0	30.3	4.3	0.0	0.0	0.0	4.3	0.0	60.6	4.7	0.0	65.4	

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CCI Project Name: Ely Park TIS
 CCI Project Number:
 Intersection: Millertown @ Ely Park
 Counted By: CCI

File Name : Millertown_Ely Park_pm_9-10-15
 Site Code : 00000001
 Start Date : 9/10/2015
 Page No : 2

Start Time	Legg Lane Southbound					Millertown Pike Westbound					Ely Park Lane Northbound					Millertown Pike Eastbound					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 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	0	0	0	0	0	1	76	0	0	77	11	0	0	0	11	0	154	12	0	166	254
Percent	0.0	0.0	0.0	0.0		1.3	98.7	0.0	0.0		100.0	0.0	0.0	0.0		0.0	92.8	7.2	0.0		
05:45 Volume	0	0	0	0	0	0	18	0	0	18	3	0	0	0	3	0	43	3	0	46	67
Peak Factor																					
High Int. Volume	4:45:00 PM					05:30 PM					05:00 PM					05:45 PM					
Peak Factor																					
						0.770					0.688					0.902					



ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	ALC				Intersection	Millertown/Ellistown		
Agency/Co.	CCI				Jurisdiction	Knox County		
Date Performed	9/15/2016				Analysis Year	2016 Existing		
Analysis Time Period	AM (7:16-8:16)							
Project ID: Ely Park Subdivision Phase II - TIS Update 2								
East/West Street: Millertown Pike					North/South Street: Ellistown Road			
Volume Adjustments and Site Characteristics								
Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	15	35	4	22	94	7		
% Thrus Left Lane								
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	7	22	6	20	92	55		
% Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.75		0.75		0.75		0.75	
Flow Rate (veh/h)	71		163		46		221	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.3		0.2		0.2		0.1	
Prop. Right-Turns	0.1		0.1		0.2		0.3	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.1		-0.0		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.06		0.14		0.04		0.20	
hd, final value (s)	4.81		4.68		4.73		4.41	
x, final value	0.095		0.212		0.060		0.271	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.8		2.7		2.7		2.4	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	789		776		767		819	
Delay (s/veh)	8.3		8.9		8.0		9.0	
LOS	A		A		A		A	
Approach Delay (s/veh)	8.3		8.9		8.0		9.0	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.8							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	ALC			Intersection	Millertown/Ellistown			
Agency/Co.	CCI			Jurisdiction	Knox County			
Date Performed	9/15/2015			Analysis Year	2015 Existing			
Analysis Time Period	PM (5:00-6:00)							
Project ID <i>Ely Park Subdivision Phase II - TIS Update 2</i>								
East/West Street: <i>Millertown Pike</i>				North/South Street: <i>Ellistown Road</i>				
Volume Adjustments and Site Characteristics								
Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	42	137	21	14	63	10		
%Thrus Left Lane								
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	5	71	13	17	18	11		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHP	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	210		90		92		46	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.2		0.2		0.1		0.4	
Prop. Right-Turns	0.1		0.1		0.1		0.2	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.0		-0.0		-0.0	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.19		0.08		0.08		0.04	
hd, final value (s)	4.37		4.49		4.63		4.69	
x, final value	0.255		0.112		0.118		0.060	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.4		2.5		2.6		2.7	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	808		818		767		767	
Delay (s/veh)	8.9		8.1		8.3		8.0	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.9		8.1		8.3		8.0	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.5							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	ALC				Intersection	Millertown/Ellistown			
Agency/Co.	CCI				Jurisdiction	Knox County			
Date Performed	9/15/2015				Analysis Year	2020 Background			
Analysis Time Period	AM (7:15-8:15)								
Project ID Ely Park Subdivision Phase II - TIS Update 2									
East/West Street: Millertown Pike					North/South Street: Ellistown Road				
Volume Adjustments and Site Characteristics									
Approach		Eastbound			Westbound				
Movement	L	T	R	L	T	R			
Volume (veh/h)	17	40	5	25	106	8			
%Thrus Left Lane									
Approach		Northbound			Southbound				
Movement	L	T	R	L	T	R			
Volume (veh/h)	8	25	7	23	104	62			
%Thrus Left Lane									
		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR		
PHF	0.75		0.75		0.75		0.75		
Flow Rate (veh/h)	81		184		52		250		
% Heavy Vehicles	3		3		3		3		
No. Lanes	1		1		1		1		
Geometry Group	1		1		1		1		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.3		0.2		0.2		0.1		
Prop. Right-Turns	0.1		0.1		0.2		0.3		
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0		
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.1		-0.0		-0.1		
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20		
x, initial	0.07		0.16		0.05		0.22		
hd, final value (s)	4.94		4.80		4.87		4.52		
x, final value	0.111		0.245		0.070		0.314		
Move-up time, m (s)	2.0		2.0		2.0		2.0		
Service Time, t _c (s)	2.9		2.8		2.9		2.5		
Capacity and Level of Service									
		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	736		736		743		806		
Delay (s/veh)	8.6		9.3		8.2		9.6		
LOS	A		A		A		A		
Approach Delay (s/veh)	8.6		9.3		8.2		9.6		
LOS	A		A		A		A		
Intersection Delay (s/veh)	9.2								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS										
General Information					Site Information					
Analyst	ALC				Intersection	Millertown/Ellistown				
Agency/Co.	CCI				Jurisdiction	Knox County				
Date Performed	9/15/2015				Analysis Year	2020 Background				
Analysis Time Period	PM (5:00-6:00)									
Project ID Ely Park Subdivision Phase II - TIS Update 2										
East/West Street: Millertown Pike					North/South Street: Ellistown Road					
Volume Adjustments and Site Characteristics										
Approach	Eastbound					Westbound				
	L	T	R	L	T	R				
	47	155	24	16	71	11				
%Thrus Left Lane										
Approach	Northbound					Southbound				
	L	T	R	L	T	R				
	6	80	15	19	20	0				
%Thrus Left Lane										
Configuration	Eastbound		Westbound		Northbound		Southbound			
	L1	L2	L1	L2	L1	L2	L1	L2		
	LTR		LTR		LTR		LTR			
	0.95		0.95		0.95		0.95			
	237		101		105		41			
	3		3		3		3			
	1		1		1		1			
	1		1		1		1			
					0.25					
	Duration, T									
Saturation Headway Adjustment Worksheet										
Prop. Left-Turns	0.2		0.2		0.1		0.5			
Prop. Right-Turns	0.1		0.1		0.1		0.0			
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0			
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6		
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7		
hadj, computed	0.0		0.0		-0.0		0.1			
Departure Headway and Service Time										
hd, initial value (s)	3.20		3.20		3.20		3.20			
x, initial	0.21		0.09		0.09		0.04			
hd, final value (s)	4.42		4.56		4.72		4.98			
x, final value	0.291		0.128		0.138		0.057			
Move-up time, m (s)	2.0		2.0		2.0		2.0			
Service Time, t _s (s)	2.4		2.6		2.7		3.0			
Capacity and Level of Service										
Capacity (veh/h)	Eastbound		Westbound		Northbound		Southbound			
	L1	L2	L1	L2	L1	L2	L1	L2		
	817		777		750		683			
	9.2		8.2		8.5		8.3			
	A		A		A		A			
	9.2		8.2		8.5		8.3			
	A		A		A		A			
	Intersection Delay (s/veh)									
	8.8									
	Intersection LOS									
A										

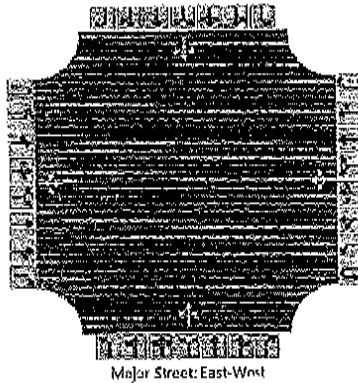
ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	ALC			Intersection	Millertown/Ellostown			
Agency/Co.	CCI			Jurisdiction	Knox County			
Date Performed	9/15/2015			Analysis Year	2020 Future/Combined			
Analysis Time Period	AM (7:15-8:15)							
Project ID Ely Park Subdivision Phase II- TIS Update 2								
East/West Street: Millertown Pike				North/South Street: Ellostown Road				
Volume Adjustments and Site Characteristics								
Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	17	71	5	41	200	22		
%Thrus Left Lane								
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	8	25	12	28	104	62		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.75		0.75		0.75		0.75	
Flow Rate (veh/h)	122		349		59		257	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T								0.25
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.2		0.2		0.2		0.1	
Prop. Right-Turns	0.0		0.1		0.3		0.3	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1		0.0		-0.1		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.11		0.31		0.05		0.23	
hd, final value (s)	5.33		4.98		5.49		5.12	
x, final value	0.181		0.483		0.090		0.366	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	3.3		3.0		3.5		3.1	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	678		727		656		695	
Delay (s/veh)	9.5		12.6		9.0		11.0	
LOS	A		B		A		B	
Approach Delay (s/veh)	9.5		12.6		9.0		11.0	
LOS	A		B		A		B	
Intersection Delay (s/veh)								11.3
Intersection LOS								B

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	ALC			Intersection	Millertown/Ellistown			
Agency/Co.	CCI			Jurisdiction	Knox County			
Date Performed	9/15/2015			Analysis Year	2020 Future/Combined			
Analysis Time Period	PM (6:00-8:00)							
Project ID Ely Park Subdivision Phase II - TIS Update 2								
East/West Street: Millertown Pike				North/South Street: Ellistown Road				
Volume Adjustments and Site Characteristics								
Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	47	257	24	26	131	20		
%Thrus Left Lane								
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	6	80	33	34	20			
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	344		185		124		56	
% Heavy Vehicles	3		3		3		3	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T								0.25
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.1		0.1		0.0		0.6	
Prop. Right-Turns	0.1		0.1		0.3		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.0		-0.1		0.2	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.31		0.16		0.11		0.05	
hd, final value (s)	4.68		4.84		5.18		5.58	
x, final value	0.447		0.249		0.178		0.087	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.7		2.8		3.2		3.6	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	764		740		689		622	
Delay (s/veh)	11.4		9.4		9.3		9.1	
LOS	B		A		A		A	
Approach: Delay (s/veh)	11.4		9.4		9.3		9.1	
LOS	B		A		A		A	
Intersection Delay (s/veh)								10.3
Intersection LOS								B

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	ALC	Intersection	Millertown/Ely Park Lane
Agency/Co.	CCI	Jurisdiction	Knox County
Date Performed	9/15/2015	East/West Street	Millertown Pike
Analysis Year	2015 Existing	North/South Street	Ely Park Lane
Time Analyzed	AM (7:15-8:15)	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Ely Park Subdivision Phase II - FIS Update 2		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	47	5		1	100	0		8	0	3		1	0	0
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)					1					14					1	
Capacity		1460			1581					830					771	
v/c Ratio					0.00					0.02					0.00	
95% Queue Length					0.0					0.1					0.0	
Control Delay (s/veh)		7.5			7.4					9.4					9.7	
Level of Service (LOS)		A			A					A					A	
Approach Delay (s/veh)					0.1				9.4				9.7			
Approach LOS					A				A				A			

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	ALC	Intersection	Millertown/Ely Park Lane
Agency/Co.	CCI	Jurisdiction	Knox County
Date Performed	9/15/2015	East/West Street	Millertown Pike
Analysis Year	2015 Existing	North/South Street	Ely Park Lane
Time Analyzed	PM (5:00-6:00)	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Ely Park Subdivision Phase II - TIS Update 2		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	154	12		1	76	0		11	0	0		0	0	0
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

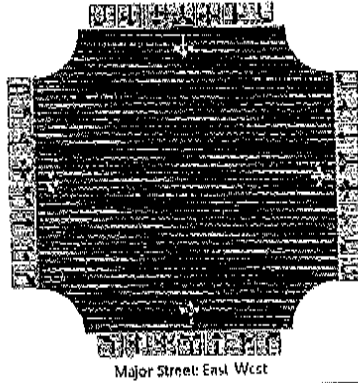
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						1										12
Capacity		1510				1394										735
v/c Ratio						0.00										0.02
.95% Queue Length						0.0										0.0
Control Delay (s/veh)		7.4				7.6										10.0
Level of Service (LOS)		A				A										A
Approach Delay (s/veh)					0.1				10.0							
Approach LOS					A				A							

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	ALC	Intersection	Millertown/Ely Park Lane
Agency/Co.	CCI	Jurisdiction	Knox County
Date Performed	9/15/2015	East/West Street	Millertown Pike
Analysis Year	2020 Background	North/South Street	Ely Park Lane
Time Analyzed	AM (7:15-8:15)	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Ely Park Subdivision Phase II - TIS Update 2		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Number of Lanes	0	0	1	0	0	0	1	0	0	1	0		0	1	0	
Configuration			LTR				LTR			LTR				LTR		
Volume (veh/h)		0	53	5		1	113	0		9	0	3		1	0	0
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

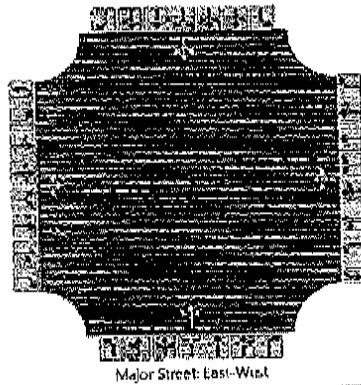
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)					1						15					1
Capacity		1440			1521						801					743
v/c Ratio					0.00						0.02					0.00
95% Queue Length					0.0						0.1					0.0
Control Delay (s/veh)		7.5			7.4						9.6					9.8
Level of Service (LOS)		A			A						A					A
Approach Delay (s/veh)					0.1				9.6				9.8			
Approach LOS					A				A				A			

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	ALC	Intersection	Millertown/Ely Park Lane
Agency/Co.	CCI	Jurisdiction	Knox County
Date Performed	9/15/2015	East/West Street	Millertown Pike
Analysis Year	2020 <i>Background</i>	North/South Street	Ely Park Lane
Time Analyzed	PM (5:00-6:00)	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Ely Park Subdivision Phase II - TIS Update 2		

Lanes



Vehicle Volumes and Adjustments

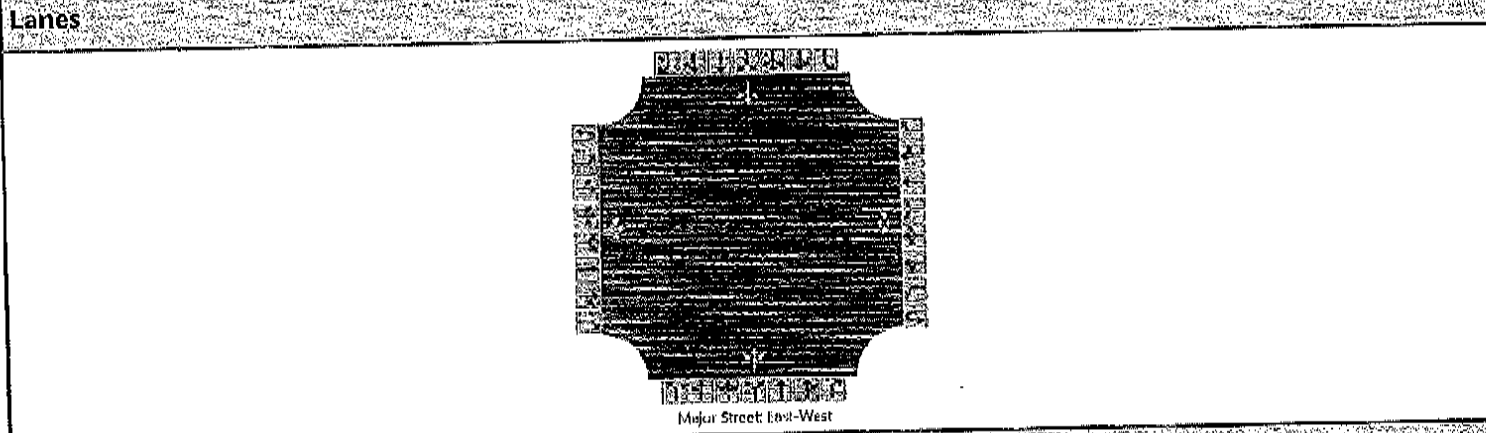
Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	171	14		1	86	0		12	0	0		0	0	0
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)					1					13						
Capacity		1496			1867					703						
v/c Ratio					0.00					0.02						
95% Queue Length					0.0					0.1						
Control Delay (s/veh)		7.4			7.6					10.2						
Level of Service (LOS)		A			A					B						
Approach Delay (s/veh)					0.1				10.2							
Approach LOS					A				B							

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	ALC	Intersection	Millertown/Ely Park Lane
Agency/Co.	CCI	Jurisdiction	Knox County
Date Performed	9/15/2015	East/West Street	Millertown Pike
Analysis Year	2020 <i>Future / Combined</i>	North/South Street	Ely Park Lane
Time Analyzed	AM (7:15-8:15)	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Ely Park Subdivision Phase II - TIS Update 2		



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Number of Lanes	0	0	1	0	0	0	1	0	0	1	0		0	1	0	
Configuration			LTR				LTR			LTR				LTR		
Volume (veh/h)		0	53	47		6	113	0		133	0	17		1	0	0
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channalized	No				No				No				No			
Median Type	Undivided															
Median Storage																

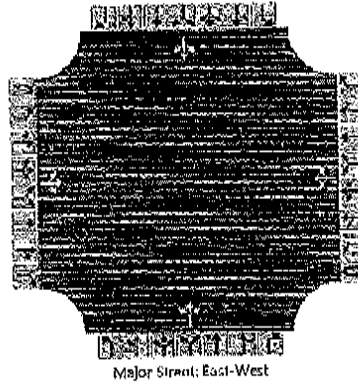
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						7					180					1	
Capacity		1440				1459					728					682	
w/c Ratio						0.00					0.25					0.00	
95% Queue Length						0.0					1.0					0.0	
Control Delay (s/veh)		7.5				7.5					11.6					10.3	
Level of Service (LOS)		A				A					B					B	
Approach Delay (s/veh)					0.4				11.6				10.3				
Approach LOS					A				B				B				

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	ALC	Intersection	Millertown/Ely Park Lane
Agency/Co.	CCI	Jurisdiction	Knox County
Date Performed	9/15/2015	East/West Street	Millertown Pike
Analysis Year	2020 <i>Future/Combined</i>	North/South Street	Ely Park Lane
Time Analyzed	PM (5:00-6:00)	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Ely Park Subdivision Phase II - TIS Update 2		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	0	1	0	0	0	1	0	0	1	0		0	1	0	
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	174	149		16	86	0		91	0	9		0	0	0
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							17										105					
Capacity			1496				1212										618					
v/c Ratio							0.01										0.17					
95% Queue Length							0.0										0.6					
Control Delay (s/veh)			7.4				8.0										12.0					
Level of Service (LOS)			A				A										B					
Approach Delay (s/veh)					14				12.0													
Approach LOS					A				B													

Millertown Pike at
Ely Park Lane

TABLE 5A

LEFT-TURN LANE VOLUME THRESHOLDS
FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

(If the left-turn volume exceeds the table value a left-turn lane is needed)

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	100 - 149	150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
100 - 149	A.M. (250) 6 200 No	180	140	110	80	70
150 - 199		140	105	90	70	60
200 - 249		115	85	75	65	55
250 - 299		100	75	65	60	50
300 - 349	P.M. (110) 16 100 No	90	70	60	55	45
350 - 399		80	65	55	50	40
400 - 449		70	60	50	45	35
450 - 499		80	65	45	40	30
500 - 549		70	60	45	35	25
550 - 599		65	55	40	35	25
600 - 649		60	45	35	30	25
650 - 699		55	35	35	30	20
700 - 749		50	35	30	25	20
750 or More		45	35	25	25	20

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	=/ > 600
100 - 149	70	60	50	45	40	35
150 - 199	60	55	45	40	35	30
200 - 249	55	50	40	35	30	30
250 - 299	50	45	35	30	30	30
300 - 349	45	40	35	30	25	25
350 - 399	40	35	30	25	25	20
400 - 449	35	30	30	25	20	20
450 - 499	30	25	25	20	20	20
500 - 549	25	25	20	20	20	15
550 - 599	25	20	20	20	20	15
600 - 649	25	20	20	20	20	15
650 - 699	20	20	20	20	20	15
700 - 749	20	20	20	15	15	15
750 or More	20	20	20	15	15	15

* Or through volume only if a right-turn lane exists

Millertown Pike at
Ely Park Lane

TABLE 5B

RIGHT-TURN LANE VOLUME THRESHOLDS
FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	< 100	100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
Fewer Than 25 25 - 49 50 - 99	A.M. X 47 NO					
100 - 149 150 - 199		A.M. X 149 NO				
200 - 249 250 - 299					Yes	Yes Yes
300 - 349 350 - 399			Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499		Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 600	+ / > 600
Fewer Than 25 25 - 49 50 - 99				Yes	Yes Yes	Yes Yes
100 - 149 150 - 199		Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
200 - 249 250 - 299	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
300 - 349 350 - 399	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

* Or through volume only if a left-turn lane exists.