Engineers, Surveyors, Planners, Scientists

April 8, 2016

Mr. Scott Fulton
Director of Planning
City of Pataskala
621 West Broad Street, Suite 2-A
Pataskala, Ohio 43062

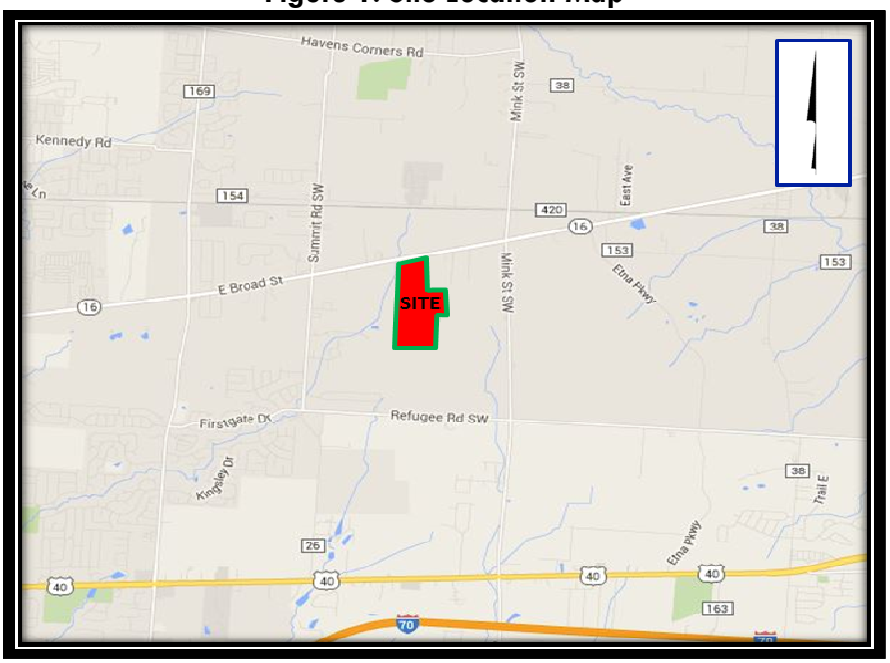
Subject: Broadmoore Commons – Pataskala, Ohio
Traffic Impact Study

Dear Mr. Fulton:

This traffic impact study (TIS) summarizes traffic analysis methodologies and results for a proposed residential development located on the south side of East Broad Street in Pataskala, Ohio. This analysis evaluates the planned access for the development as well as the impact of site traffic on surrounding roadways. The signed Memorandum of Understanding (MOU) dated January 22, 2016 is attached.

Proposed Development
This residential site is currently undeveloped land that is planned to include a combination of single family homes and two-family style units on the south side of East Broad Street (SR 16) west of Mink Road. The site will include a new connection to East Broad Street. Internal streets will connect all phases of work to the planned subdivision boulevard entrance that is expected to provide access to Broad Street for the site. A site plan is attached for reference. **Figure 1** below illustrates the site location.

Figure 1: Site Location Map



Existing Conditions

East Broad Street is a two-lane, major east-west arterial roadway with a generally straight alignment and flat profile in the area of the site. Based on the signed 50 miles per hour speed limit, good visibility is generally available at the planned Site Drive intersection. The two current Broad Street intersections at Summit Road and at Mink Street are currently signalized with single lane approaches on the side roadways. However, the Mink Street intersection is currently undergoing construction to provide dedicated left turn lanes on each approach with a new traffic signal, which should be completed by the summer of 2016. The widened condition at Mink Street with left turn lanes has been assumed as the existing condition for this study. The Mink Street/Refugee Road intersection is a two-way, stop controlled intersection with Mink Street traffic free flowing and Refugee Road traffic forced to stop. Single lane approaches are on all four legs of the Mink/Refugee intersection.

Data Collection

Peak hour manual turning movement counts were conducted in January 2016 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM at three intersections including:

- East Broad Street/Summit Road
- East Broad Street/Mink Street
- Mink Street/Refugee Road

Traffic counts observed peak hour volumes at each intersection to identify current traffic levels on an average weekday. Growth rate data provided by MORPC was used to increase background traffic to opening day (2016) and design year (2036) levels to complete this study. The growth rates account for current and future planned buildout of much of the surrounding study area. Traffic count data and growth rates for each roadway are attached for reference.

Trip Generation

Trip generation methodology contained in Trip Generation, 9th Edition (ITE), new trips will be used to generate site traffic associated with the 273 units of this development. Site trips will be based on the planned number of single family homes (land use #210), and will be calculated for the AM and PM Peak hours. Total site traffic assigned to East Broad Street and the surrounding street network is expected to be 201 trip ends in the AM Peak (50 in, 151 out) and 259 trip ends in the PM Peak (163 in, 96 out). **Table 1** below illustrates the trip generation characteristics of the proposed site:

Table 1: Expected Trip Generation

Land Use	Square Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
Single Family - Detached	273 units	210	ADT	Ln(T)=0.92Ln(x)+2.72	2,646	1,323	1,323
			AM Peak	T=0.70(x)+9.74	201	50	151
			PM Peak	Ln(T)=0.90Ln(x)+0.51	259	163	96

Trip Distribution

Site-generated traffic volumes for this analysis will be assigned to the existing street system based a review of the previous 1998 trip distribution assumed for previous report efforts. The assumed distribution will be checked once traffic data is obtained in the study area to verify its use in completing this study. The distribution of site traffic to the site driveways will be described in the final report.

Traffic Projections

Site generated traffic volumes will be combined with existing traffic volumes observed at each intersection to provide total traffic volumes for analysis. Traffic volumes generated by the proposed site will be combined with background traffic volumes to establish opening day (2016) full build traffic volumes for use in traffic analyses. Subsequent twenty year (2036) horizon volumes were developed to meet the City of Pataskala TIS criteria. Growth rates supplied by MORPC were applied to existing traffic data to reach future background traffic levels. The data provided by MORPC personnel gave guidance on expected background traffic growth for this area, which includes the traffic count data gathered for this study.

Traffic Analyses

Intersection Capacity Analyses

Synchro software was used to evaluate operational characteristics of study area intersections. Traffic analysis were completed for AM and PM peak horizon year conditions for both the No Build and Build conditions. A minimum overall intersection level of service (LOS) of D, minimum approach LOS of D and minimum individual movement LOS E was considered acceptable at each intersection. If an intersection for any scenario was below this criteria, reasonable and cost-effective improvements were explored for each scenario until the criteria were met.

Opening year analyses indicate all four study area intersections are predicted to operate acceptably in 2016 with good level of service and minimal delay. All intersections are predicted to operate at acceptable level of service in 2036 with the exception at East Broad Street/Site Drive intersection. The northbound left turn movement is predicted to operate at LOS E and F during AM and PM Peak hours in 2036. However, sidestreet left turn delay at an unsignalized intersection is typical and is not considered a major concern at this time. It is likely that future commercial development by others along the Broad Street frontage will spur the installation of a future traffic signal that resolves the delay concerns for left turns from the Site Drive. Results of capacity analysis at each intersection and for each movement are shown in **Table 2** below. Capacity analysis printouts are attached for reference.

Traffic Signal Warrant Analysis

Traffic signal warrants were assessed at the East Broad Street/Site Drive intersection using thresholds established by the Ohio Manual of Uniform Traffic Control Devices § 4C (Ohio Department of Transportation, 2012) (OMUTCD). For the purpose of this study, Warrant 1 (8-hour vehicular volume) was analyzed by comparing the estimated 8th highest hour of approach traffic (assumed as 55% of the PM Peak approach volumes) to the minimum requirements for Warrant 1. The sidestreet approach was evaluated with right turns discounted due to the separate right-turn-only lane and was compared to appropriate volume thresholds. The results indicate that Warrant 1 is not expected to be met in 2016 or 2036 if all 273 residential units are built. A signal warrant analysis worksheet is attached for reference.

Table 2: Capacity Analysis Results

Time Period	Year	Scenario	Conditions	EBLT	EBTH	EBRT	WBLT	WBTH	WBRT	NBLT	NBTH	NBRT	SBLT	SBTH	SBRT	TOTAL
East Broad Street/Summit Road																
AM Peak	2016	Background	Exist Conditions	C/24.8	B/13.1	B/13.1	B/16.2	B/17.6	B/17.6	B/14.7	B/14.7	B/14.7	B/12.6	B/12.6	B/12.6	B/15.6
		Full Build		C/26.8	B/12.7	B/12.7	B/16.6	B/19.4	B/19.4	B/16.7	B/16.7	B/16.7	B/14.0	B/14.0	B/14.0	B/16.9
	2036	Background		C/29.6	B/13.0	B/13.0	B/16.9	C/21.4	C/21.4	C/22.3	C/22.3	C/22.3	B/16.4	B/16.4	B/16.4	B/19.2
		Full Build		C/34.2	B/13.2	B/13.2	B/18.0	C/27.2	C/27.2	C/23.3	C/23.3	C/23.3	B/16.7	B/16.7	B/16.7	C/21.9
PM Peak	2016	Background	Exist Conditions	B/13.8	B/16.7	B/16.7	C/23.2	A/9.6	A/9.6	B/17.1	B/17.1	B/17.1	B/19.7	B/19.7	B/19.7	B/15.6
		Full Build		B/14.0	B/18.2	B/18.2	C/25.7	A/9.4	A/9.4	C/20.2	C/20.2	C/20.2	C/22.6	C/22.6	C/22.6	B/17.0
	2036	Background		B/15.0	C/25.7	C/25.7	C/30.3	A/9.4	A/9.4	C/24.8	C/24.8	C/24.8	C/31.5	C/31.5	C/31.5	C/22.5
		Full Build		B/16.2	C/34.8	C/34.8	D/36.5	A/9.9	A/9.9	C/26.9	C/26.9	C/26.9	D/35.6	D/35.6	D/35.6	C/27.5
East Broad Street/Site Drive																
AM Peak	2016	Full Build	Stop w/turn lanes	-	-	-	A/8.0	-	-	D/26.6	-	B/10.7	-	-	-	-
	2036	Full Build		-	-	-	A/8.2	-	-	E/38.8	-	B/11.2	-	-	-	-
PM Peak	2016	Full Build	Stop w/turn lanes	-	-	-	A/9.5	-	-	E/42.9	-	B/14.5	-	-	-	-
	2036	Full Build		-	-	-	B/10.2	-	-	F/75.8	-	C/16.8	-	-	-	-
East Broad Street/Mink Street																
AM Peak	2016	Background	Exist Conditions	B/17.9	B/11.2	B/11.2	B/13.6	B/13.6	B/13.6	A/9.5	A/9.2	A/9.2	A/9.8	A/8.6	A/8.6	B/11.9
		Full Build		B/17.9	B/11.4	B/11.4	B/14.1	B/13.1	B/13.1	B/10.5	A/9.9	A/9.9	B/10.6	A/9.4	A/9.4	B/12.0
	2036	Background		B/19.2	B/10.6	B/10.6	B/13.4	B/13.3	B/13.3	B/13.3	B/12.7	B/12.7	B/14.1	B/11.4	B/11.4	B/12.5
		Full Build		B/19.3	B/10.7	B/10.7	B/14.0	B/12.8	B/12.8	B/14.6	B/13.7	B/13.7	B/15.2	B/12.4	B/12.4	B/12.7
PM Peak	2016	Background	Exist Conditions	B/14.5	B/13.3	B/13.3	B/19.9	B/10.8	B/10.8	B/14.7	B/12.9	B/12.9	B/14.3	B/13.8	B/13.8	B/12.7
		Full Build		B/14.6	B/13.3	B/13.3	C/20.4	B/10.6	B/10.6	B/17.0	B/13.9	B/13.9	B/15.4	B/15.1	B/15.1	B/13.1
	2036	Background		B/14.9	B/14.5	B/14.5	C/22.6	B/10.3	B/10.3	C/21.8	B/17.9	B/17.9	C/21.1	B/19.7	B/19.7	B/14.7
		Full Build		B/15.2	B/15.2	B/15.2	C/23.5	B/10.1	B/10.1	C/25.3	B/18.9	B/18.9	C/22.3	C/21.4	C/21.4	B/15.5
Mink Street/Refugee Road																
AM Peak	2016	Background	Exist Conditions	B/11.1	B/11.1	B/11.1	B/11.6	B/11.6	B/11.6	A/7.4	-	-	A/7.6	-	-	-
		Full Build		B/11.4	B/11.4	B/11.4	B/12.0	B/12.0	B/12.0	A/7.5	-	-	A/7.7	-	-	-
	2036	Background		B/12.8	B/12.8	B/12.8	B/13.9	B/13.9	B/13.9	A/7.5	-	-	A/7.9	-	-	-
		Full Build		B/11.4	B/11.4	B/11.4	B/12.0	B/12.0	B/12.0	A/7.5	-	-	A/7.7	-	-	-
PM Peak	2016	Background	Exist Conditions	B/13.6	B/13.6	B/13.6	B/13.9	B/13.9	B/13.9	A/7.8	-	-	A/7.5	-	-	-
		Full Build		B/14.3	B/14.3	B/14.3	B/14.6	B/14.6	B/14.6	A/7.8	-	-	A/7.6	-	-	-
	2036	Background		C/19.8	C/19.8	C/19.8	C/20.3	C/20.3	C/20.3	A/8.1	-	-	A/7.7	-	-	-
		Full Build		C/21.5	C/21.5	C/21.5	C/22.0	C/22.0	C/22.0	A/8.1	-	-	A/7.8	-	-	-

X/X = Overall LOS / Average Delay Per Vehicle

+ - Broad Street/Mink Street intersection existing condition includes LT lanes on all approaches

Turn Lane Warrants and Turn Lane Length Calculations

Turn lane warrant analyses were evaluated at the East Broad Street/Site Drive intersection to determine if a left or right turn lane is required. Turn lane warrants were completed using 2036 volumes for expected full build conditions. Warrants (based on ODOT L&D Manual and Licking County Access Management Regulations) indicated that a westbound left turn lane and an eastbound right turn lane are needed to address ingress site traffic. Turn lane lengths were calculated using storage calculations provided in the Location and Design Manual § 401 (Ohio Department of Transportation, 2010). The calculated eastbound right turn lane is 285 feet with a 50-foot diverging taper included. The calculated westbound left turn lane is 285 feet with a 50-foot diverging taper included. The turn lane warrant graphs and length calculations are attached for reference.

Conclusions and Recommendations

The proposed site access will operate acceptably at the planned Broad Street access driveway and at the surrounding intersections, which are predicted to operate acceptably during 2016 Opening Year conditions with warranted improvements. During projected 2036 Horizon year peak hour conditions, the study area intersections are predicted to operate acceptably except for the East Broad Street/Summit Road intersection during No Build conditions. The addition of site traffic does add traffic to the intersection but adds only slightly to the expected delay there, which can be mitigated through minor signal timing adjustments.

To mitigate the addition of site traffic in the study area through the Horizon Year, the following site-related improvements are recommended at this time:

- Construct a westbound left turn lane and an eastbound right turn lane on East Broad Street at the planned Site Drive intersection that are 285 feet in length, including the 50-foot drop taper.
- Adjust current signal timing at the East Broad Street/Mink Street intersection to account for added site traffic.

No other site-related improvements are warranted or recommended. If you have any questions during your review, please contact me directly at (614) 775-4650 at your convenience.

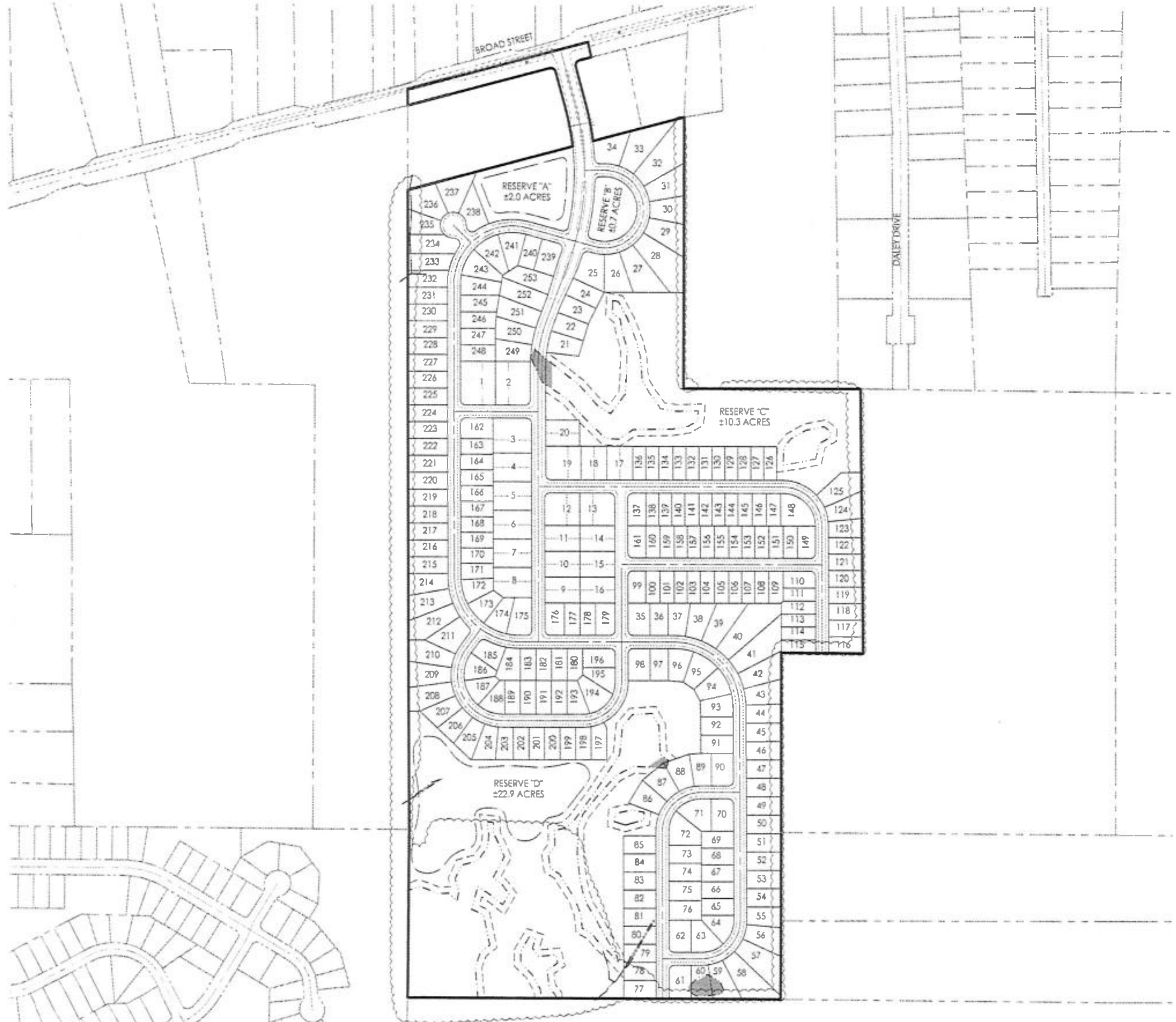
Sincerely,

Douglas A. Bender, PE, PTOE
Senior Traffic Engineer

Attachments
Copies: Brad Holland, EMH&T (w/att)

Exhibit

Site Plan



LOCATION MAP

NO SCALE

SITE STATISTICS:

Total Acreage:	±108.8 Acres
Number of Units	273
Twin-Single	20 Lots (40 Units) (Lots 1-20)
50'-55'x125'	63 Lots (Lots 99-161)
60'x125'	92 Lots (Lots 162-253)
65'-70'x125'	78 Lots (Lots 21-98)
Gross Density	±2.52 Units\Acre
Open Space Provided:	±35.9 Acres
Zoning Classification:	Cluster Housing (R-10) & R-M

NOTES:

NOTE "A": All of Broadmoore Commons is in the Flood Hazard Zone X as shown on the Federal Emergency Management Agency Flood Insurance Rate Map, Map Number 39089C0426J, effective date March 15, 2015.

NOTE "B": No Vehicular Access to be in effect until such time as the public right-of-way is extended by plat or deed.

NOTE "C": RESERVES "A"-"D" are to owned and maintained by the Broadmoore Commons Homeowners Association for the purpose of Stormwater Management and Open Space.

NOTE "D": All existing buildings shown hereon plan will be removed prior to development.

NOTE "E": All contours shown hereon are set at two foot intervals.

NOTE "F": Cluster Housing R-10

Front yard (Building Line):	25' min. (Unless otherwise shown hereon)
Side yard:	5' min. (total of 10')
Rear yard:	25' min.

R-M Zoning:

Front yard (Building Line):	35' min.
Side yard:	15' min.
Rear yard:	25' min.

NOTE "G": The Broadmoore Commons shall be serviced by central sewer and water by the City of Pataskala.

NOTE "H": The intersection for the road around Reserve "B" there is an approach distance of seventy-five feet. Per the City of Pataskala Subdivision Regulations one hundred feet is required. As a part of this Preliminary Plat approval the applicant is requesting a variance from the subdivision regulations.

NOTE "I": Lots 28-34, 42-61, 116-125, 208-210 and 212-237 meet the required building setback standards of the base zoning (R-10) as stipulated within the City of Pataskala Zoning Code Chapter 1275, Cluster Housing.

Front yard setback / Building Line:	35' min.
Side yard setback (each side):	10' min.
Rear yard setback:	25' min.

LEGEND:

Stm, CB, MH — Proposed Storm Sewer

SanServ, San, MH — Proposed Sanitary Sewer

Water Serv, PFH, PMFS, VN, PMDS — Proposed Watermain

Proposed Wetland Fill (0.45 Acres)

Broadmoore Commons					
Zoning Classification	Number of Units	Acreage (site)	Acreage (r/w)	Gross Density	Net Density
Base Zoning R-10	252	98.0 acres	21.9 acres	2.57 units/acre	3.35 units/acre
Cluster Housing Zoning	242	98.0 acres	16.3 acres	2.47 units/acre	2.96 units/acre

* The calculations above do not include the R-M base zoning acreage and units

GRAPHIC SCALE

0 100 200 400

1 inch = 200 feet

PRELIMINARY PLAT FOR

BROADMOORE COMMONS

SITE PLAN

WESTPORT HOMES
507 EXECTUIVE CAMPUS DRIVE
SUITE 100
WESTERVILLE, OHIO 43082
PH: 614-891-8545

REVISIONS

MARK	DATE	DESCRIPTION

EMHT

DATE: December 23, 2015

SCALE: 1" = 200'

JOB NO.: 20151194

SHEET: 1/1

Memorandum of Understanding

EMH&T
Engineers, Surveyors, Planners, Scientists

January 22, 2016

Mr. Scott Fulton
Director of Planning
City of Pataskala
621 West Broad Street, Suite 2-A
Pataskala, Ohio 43062

Subject: Broadmoore Commons Traffic Impact Study
Memorandum of Understanding

Dear Mr. Fulton,

This Memorandum of Understanding (MOU) has been prepared to document the scope of the above captioned traffic study on East Broad Street in Pataskala, Ohio. Following your concurrence, EMH&T will prepare a traffic impact study in accordance with the methodologies and assumptions described below.

Proposed Development & Site Access Plan

This residential site is currently undeveloped land that is planned to include a combination of single family homes and multi-family apartment style units on the south side of East Broad Street (SR 16) west of Mink Road. The site will include a new connection to East Broad Street. Internal streets will connect all phases of work to the planned subdivision boulevard entrance that is expected to provide access to Broad Street for the site. A site plan is attached for reference.

Data Collection

Peak hour manual turning movement counts will be conducted from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM at three intersections including:

- Broad Street/Summit Road
- Broad Street/Mink Street
- Mink Street/Refugee Road

Traffic counts will observe peak hour volumes at each intersection to identify current traffic levels on an average weekday.

Trip Generation

Trip generation methodology contained in Trip Generation, 9th Edition (ITE), new trips will be used to generate site traffic associated with the 273 units of this development. Site trips will be based

on the planned number of single family homes (land use #210), and will be calculated for the AM and PM Peak hours. Total site traffic assigned to East Broad Street and the surrounding street network is expected to be 201 trip ends in the AM Peak (50 in, 151 out) and 259 trip ends in the PM Peak (163 in, 96 out). **Table 1** below illustrates the trip generation characteristics of the proposed site:

Table 1: Expected Trip Generation

Land Use	Sq. Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
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			AM Peak	T=0.70(x)+9.74	201	50	151
			PM Peak	Ln(T)=0.90Ln(x)+0.51	259	163	96

Trip Distribution

Site-generated traffic volumes for this analysis will be assigned to the existing street system based a review of the previous 1998 trip distribution assumed for previous report efforts. The assumed distribution will be checked once traffic data is obtained in the study area to verify its use in completing this study. The distribution of site traffic to the site driveways will be described in the final report.

Traffic Projections

Site generated traffic volumes will be combined with existing traffic volumes observed at each intersection to provide total traffic volumes for analysis. Traffic volumes generated by the proposed site will be combined with background traffic volumes to establish opening day (2016) full build traffic volumes for use in traffic analyses. Subsequent twenty year (2036) horizon volumes will be prepared to meet the City of Pataskala TIS criteria. A growth rate will be applied to existing traffic data to reach future background traffic levels, provided by MORPC personnel as guidance on expected background traffic growth for this area. The rate will factor in the traffic count data completed for this project as consideration.

Intersections to Analyze

Analyses will be completed for 2016/2036 AM and PM Peak hours at the following intersections:

- Broad Street/Summit Road
- Broad Street/Mink Street
- Mink Street/Refugee Road
- Broad Street/Site Drive

Traffic Analyses

Intersection Capacity Analyses

Synchro software utilizing HCM methodology will be used to evaluate operational characteristics of study area intersections. Traffic analysis will consist of AM and PM peak capacity analysis for Opening Year Build and No Build conditions. A minimum overall intersection level of service (LOS) of D, minimum approach and individual movements must operate at LOS of D to be considered

acceptable. If an intersection for any scenario is below these criteria, reasonable and cost-effective improvements will be explored for both the No Build and Build scenarios to address these deficiencies. The No Build condition will be analyzed first to determine the improvements needed to reach these criteria, then the Build condition will be analyzed to determine what improvements would be needed to reach the same criteria. Study area intersections will be analyzed for a 20-year horizon as part of the TIS horizon year requirements.

Turn Lane Warrants

Turn lane warrant analyses will be evaluated at the proposed East Broad Street access drives to determine if left or right turn lanes are required. Turn lane warrants will be completed based on 2036 full build conditions compared to minimum requirements found in Licking County Access Management Regulations, (2009). If needed, turn lane lengths will be calculated using storage calculations provided in the Location and Design Manual § 401 (Ohio Department of Transportation, 2010).

Report Preparation

A detailed report including applicable figures and tables will be prepared to summarize study methodologies, analysis, findings and recommendations. The report will be submitted to the City of Pataskala for review. Please signify your concurrence with the scope tasks outlined herein by signing this Memorandum of Understanding below and returning to me.

Sincerely,

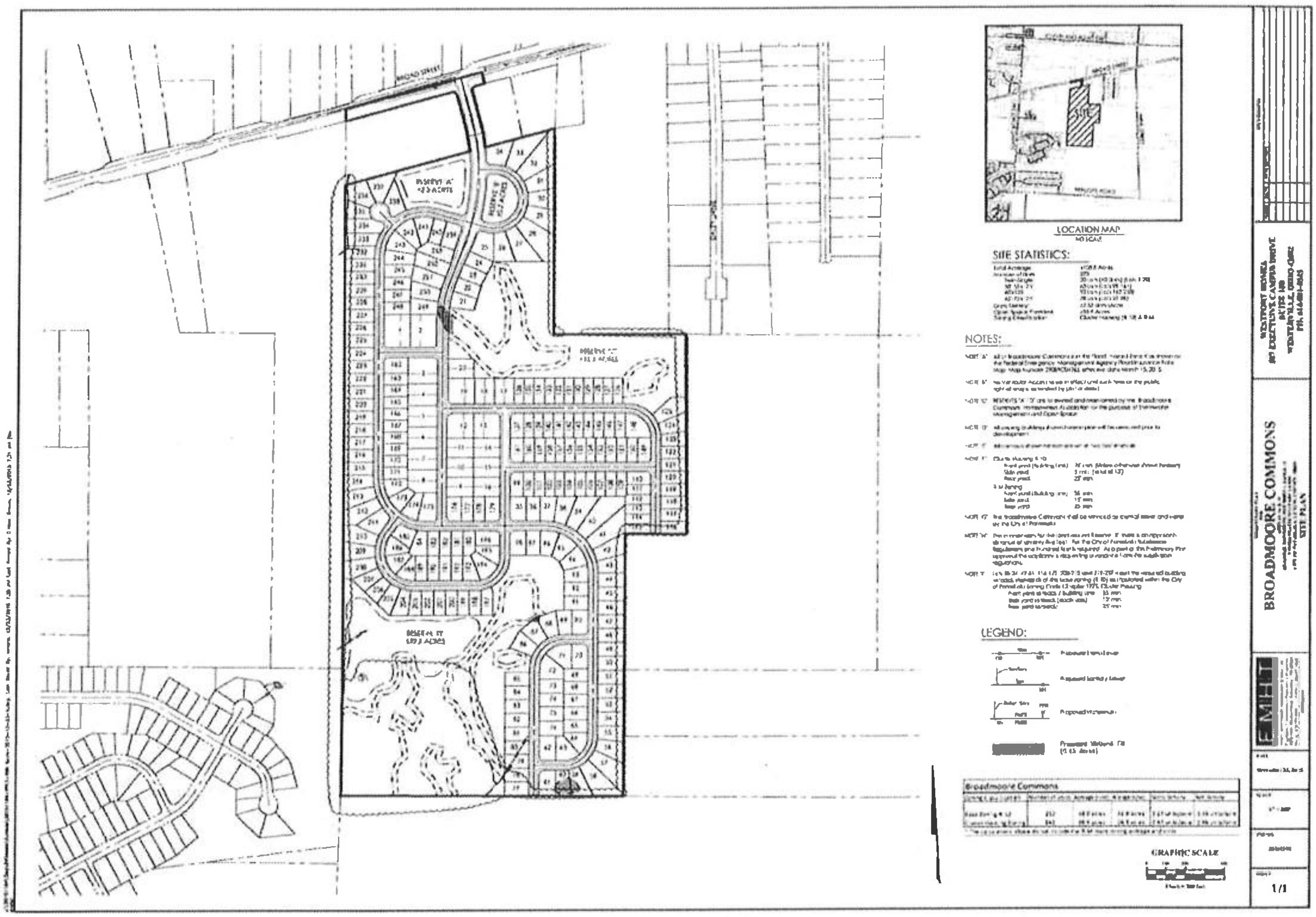
Douglas A. Bender, PE, PTOE
Senior Traffic Engineer

Copies: Terry Andrews, Westport Homes
Brad Holland, EMH&T

ACCEPTANCE AND APPROVAL OF MEMORANDUM OF UNDERSTANDING

By: _____
City of Pataskala

Date: 1-22-16



LOCATION MAP
SITE STATISTICS:
NOTES:
LEGEND:
Broadmoore Commons
GRAPHIC SCALE
BROADMOORE COMMONS
SITE PLAN
MHT
1/1

Traffic Count Data

EMH&T

5500 New Albany Road
Columbus, OH 43054
emht.com

File Name : E Broad St - Mink St
Site Code : 00000000
Start Date : 1/7/2016
Page No : 1

Groups Printed- Cars - Trucks

	MINK ST Southbound					BROAD STREET Westbound					MINK ST Northbound					BROAD STREET Eastbound					
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
07:00 AM	6	7	8	0	21	5	113	9	0	127	17	17	2	0	36	11	69	5	0	85	269
07:15 AM	5	11	8	0	24	6	104	8	0	118	13	33	6	0	52	2	60	2	0	64	258
07:30 AM	7	11	4	0	22	5	112	9	0	126	16	31	3	0	50	5	75	4	0	84	282
07:45 AM	13	5	4	0	22	5	122	3	0	130	17	24	5	0	46	5	85	6	0	96	294
Total	31	34	24	0	89	21	451	29	0	501	63	105	16	0	184	23	289	17	0	329	1103
08:00 AM	16	17	4	0	37	6	103	5	0	114	16	22	5	0	43	4	75	5	0	84	278
08:15 AM	17	9	4	0	30	0	111	2	0	113	7	17	3	0	27	1	69	6	0	76	246
08:30 AM	18	11	6	0	35	4	101	8	0	113	11	24	2	0	37	3	67	3	0	73	258
08:45 AM	15	8	7	0	30	5	106	4	0	115	8	10	1	0	19	2	67	4	0	73	237
Total	66	45	21	0	132	15	421	19	0	455	42	73	11	0	126	10	278	18	0	306	1019
*** BREAK ***																					
04:00 PM	21	13	8	0	42	2	75	5	0	82	11	15	10	0	36	5	116	6	0	127	287
04:15 PM	18	31	11	0	60	7	81	11	0	99	12	17	5	0	34	8	140	12	0	160	353
04:30 PM	17	27	8	0	52	3	101	13	0	117	16	18	6	0	40	12	155	12	0	179	388
04:45 PM	12	31	3	0	46	6	100	15	0	121	8	10	3	0	21	3	126	13	0	142	330
Total	68	102	30	0	200	18	357	44	0	419	47	60	24	0	131	28	537	43	0	608	1358
05:00 PM	16	19	6	0	41	4	99	18	0	121	7	19	6	0	32	6	129	14	0	149	343
05:15 PM	18	40	6	0	64	4	80	18	0	102	6	16	12	0	34	2	170	17	0	189	389
05:30 PM	18	34	3	0	55	6	103	17	0	126	6	8	7	0	21	7	146	13	0	166	368
05:45 PM	16	27	7	0	50	5	90	5	0	100	9	13	7	0	29	7	120	15	0	142	321
Total	68	120	22	0	210	19	372	58	0	449	28	56	32	0	116	22	565	59	0	646	1421
Grand Total	233	301	97	0	631	73	1601	150	0	1824	180	294	83	0	557	83	1669	137	0	1889	4901
Apprch %	36.9	47.7	15.4	0		4	87.8	8.2	0		32.3	52.8	14.9	0		4.4	88.4	7.3	0		
Total %	4.8	6.1	2	0	12.9	1.5	32.7	3.1	0	37.2	3.7	6	1.7	0	11.4	1.7	34.1	2.8	0	38.5	
Cars	229	300	93	0	622	68	1539	146	0	1753	176	285	81	0	542	77	1614	135	0	1826	4743
% Cars	98.3	99.7	95.9	0	98.6	93.2	96.1	97.3	0	96.1	97.8	96.9	97.6	0	97.3	92.8	96.7	98.5	0	96.7	96.8
Trucks	4	1	4	0	9	5	62	4	0	71	4	9	2	0	15	6	55	2	0	63	158
% Trucks	1.7	0.3	4.1	0	1.4	6.8	3.9	2.7	0	3.9	2.2	3.1	2.4	0	2.7	7.2	3.3	1.5	0	3.3	3.2

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File Name : E Broad St - Mink St
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	MINK ST Southbound					BROAD STREET Westbound					MINK ST Northbound					BROAD STREET Eastbound					
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 Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	11	**8**	0	24	**6**	104	8	0	118	13	**33**	**6**	0	**52**	2	60	2	0	64	258
07:30 AM	7	11	4	0	22	5	112	**9**	0	126	16	31	3	0	50	**5**	75	4	0	84	282
07:45 AM	13	5	4	0	22	5	**122**	3	0	**130**	**17**	24	5	0	46	5	**85**	**6**	0	**96**	**294**
08:00 AM	**16**	**17**	4	0	**37**	6	103	5	0	114	16	22	5	0	43	4	75	5	0	84	278
Total Volume	41	44	20	0	105	22	441	25	0	488	62	110	19	0	191	16	295	17	0	328	1112
% App. Total	39	41.9	19	0		4.5	90.4	5.1	0		32.5	57.6	9.9	0		4.9	89.9	5.2	0		
PHF	.641	.647	.625	.000	.709	.917	.904	.694	.000	.938	.912	.833	.792	.000	.918	.800	.868	.708	.000	.854	.946

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	MINK ST Southbound					BROAD STREET Westbound					MINK ST Northbound					BROAD STREET Eastbound					
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 Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	17	27	**8**	0	52	3	**101**	13	0	117	**16**	18	6	0	**40**	**12**	155	12	0	179	388
04:45 PM	12	31	3	0	46	**6**	100	15	0	**121**	8	10	3	0	21	3	126	13	0	142	330
05:00 PM	16	19	6	0	41	4	99	**18**	0	121	7	**19**	6	0	32	6	129	14	0	149	343
05:15 PM	**18**	**40**	6	0	**64**	4	80	18	0	102	6	16	**12**	0	34	2	**170**	**17**	0	**189**	**389**
Total Volume	63	117	23	0	203	17	380	64	0	461	37	63	27	0	127	23	580	56	0	659	1450
% App. Total	31	57.6	11.3	0		3.7	82.4	13.9	0		29.1	49.6	21.3	0		3.5	88	8.5	0		
PHF	.875	.731	.719	.000	.793	.708	.941	.889	.000	.952	.578	.829	.563	.000	.794	.479	.853	.824	.000	.872	.932

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File Name : Refugee - Mink
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Groups Printed- Cars - Trucks

	MINK Southbound					REFUGEE Westbound					MINK Northbound					REFUGEE Eastbound					
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
07:00 AM	2	15	2	0	19	3	9	5	0	17	6	36	2	0	44	0	3	6	0	9	89
07:15 AM	0	21	1	0	22	2	8	2	0	12	5	46	0	0	51	0	8	2	0	10	95
07:30 AM	1	15	0	0	16	3	12	2	0	17	7	60	3	0	70	0	13	4	0	17	120
07:45 AM	1	17	0	0	18	0	10	3	0	13	6	34	0	0	40	1	11	2	0	14	85
Total	4	68	3	0	75	8	39	12	0	59	24	176	5	0	205	1	35	14	0	50	389
08:00 AM	3	17	0	0	20	4	7	2	0	13	3	37	3	0	43	0	13	2	0	15	91
08:15 AM	3	22	1	0	26	4	20	2	0	26	8	31	1	1	41	0	25	3	0	28	121
08:30 AM	4	14	1	0	19	5	14	3	0	22	7	30	2	0	39	0	8	4	0	12	92
08:45 AM	2	18	1	0	21	1	9	0	0	10	2	14	3	0	19	1	7	6	0	14	64
Total	12	71	3	0	86	14	50	7	0	71	20	112	9	1	142	1	53	15	0	69	368
*** BREAK ***																					
04:00 PM	0	28	2	0	30	4	11	0	0	15	5	16	4	0	25	3	13	7	0	23	93
04:15 PM	1	28	1	0	30	3	10	2	0	15	4	20	0	0	24	0	11	12	0	23	92
04:30 PM	1	38	0	0	39	1	9	2	0	12	5	21	6	0	32	2	12	12	0	26	109
04:45 PM	3	48	1	0	52	3	9	1	0	13	6	22	0	0	28	0	18	6	0	24	117
Total	5	142	4	0	151	11	39	5	0	55	20	79	10	0	109	5	54	37	0	96	411
05:00 PM	3	50	0	0	53	1	15	3	0	19	3	31	1	0	35	0	20	8	0	28	135
05:15 PM	4	57	2	0	63	4	16	4	0	24	8	38	3	0	49	4	21	18	0	43	179
05:30 PM	4	56	1	0	61	3	16	2	0	21	7	43	3	0	53	1	16	10	0	27	162
05:45 PM	0	34	0	0	34	2	4	3	0	9	4	25	4	0	33	0	11	15	0	26	102
Total	11	197	3	0	211	10	51	12	0	73	22	137	11	0	170	5	68	51	0	124	578
Grand Total	32	478	13	0	523	43	179	36	0	258	86	504	35	1	626	12	210	117	0	339	1746
Apprch %	6.1	91.4	2.5	0		16.7	69.4	14	0		13.7	80.5	5.6	0.2		3.5	61.9	34.5	0		
Total %	1.8	27.4	0.7	0	30	2.5	10.3	2.1	0	14.8	4.9	28.9	2	0.1	35.9	0.7	12	6.7	0	19.4	
Cars	32	474	11	0	517	39	177	36	0	252	84	497	35	1	617	11	209	116	0	336	1722
% Cars	100	99.2	84.6	0	98.9	90.7	98.9	100	0	97.7	97.7	98.6	100	100	98.6	91.7	99.5	99.1	0	99.1	98.6
Trucks	0	4	2	0	6	4	2	0	0	6	2	7	0	0	9	1	1	1	0	3	24
% Trucks	0	0.8	15.4	0	1.1	9.3	1.1	0	0	2.3	2.3	1.4	0	0	1.4	8.3	0.5	0.9	0	0.9	1.4

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	MINK Southbound					REFUGEE Westbound					MINK Northbound					REFUGEE Eastbound					
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 Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**1**	15	0	0	16	3	12	2	0	17	7	**60**	**3**	0	**70**	0	13	**4**	0	**17**	120
07:45 AM	**1**	17	0	0	18	0	10	**3**	0	13	6	34	0	0	40	**1**	11	2	0	14	85
08:00 AM	**3**	17	0	0	20	**4**	7	2	0	13	3	37	3	0	43	0	13	2	0	15	91
08:15 AM	3	**22**	**1**	0	**26**	4	**20**	2	0	**26**	**8**	31	1	**1**	41	0	**25**	3	0	**28**	**121**
Total Volume	8	71	1	0	80	11	49	9	0	69	24	162	7	1	194	1	62	11	0	74	417
% App. Total	10	88.8	1.2	0		15.9	71	13	0		12.4	83.5	3.6	0.5		1.4	83.8	14.9	0		
PHF	.667	.807	.250	.000	.769	.688	.613	.750	.000	.663	.750	.675	.583	.250	.693	.250	.620	.688	.000	.661	.862

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	MINK Southbound					REFUGEE Westbound					MINK Northbound					REFUGEE Eastbound					
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 Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	3	48	1	0	52	3	9	1	0	13	6	22	0	0	28	0	18	6	0	24	117
05:00 PM	3	50	0	0	53	1	15	3	0	19	3	31	1	0	35	0	20	8	0	28	135
05:15 PM	**4**	**57**	**2**	0	**63**	**4**	**16**	**4**	0	**24**	**8**	38	**3**	0	49	**4**	**21**	**18**	0	**43**	**179**
05:30 PM	4	56	1	0	61	3	16	2	0	21	7	**43**	3	0	**53**	1	16	10	0	27	162
Total Volume	14	211	4	0	229	11	56	10	0	77	24	134	7	0	165	5	75	42	0	122	593
% App. Total	6.1	92.1	1.7	0		14.3	72.7	13	0		14.5	81.2	4.2	0		4.1	61.5	34.4	0		
PHF	.875	.925	.500	.000	.909	.688	.875	.625	.000	.802	.750	.779	.583	.000	.778	.313	.893	.583	.000	.709	.828

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File Name : E Broad St - Summit Rd
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Groups Printed- Cars - Trucks

	SUMMIT ST Southbound					E BROAD ST Westbound					SUMMIT ST Northbound					E BROAD ST Eastbound					
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
07:00 AM	6	14	29	0	49	4	129	13	0	146	50	41	1	0	92	22	61	26	0	109	396
07:15 AM	11	21	32	0	64	1	108	16	0	125	45	28	3	0	76	18	69	17	0	104	369
07:30 AM	8	11	15	0	34	1	129	13	0	143	37	16	5	0	58	12	65	13	0	90	325
07:45 AM	6	10	25	0	41	2	137	10	0	149	46	28	2	0	76	8	78	17	0	103	369
Total	31	56	101	0	188	8	503	52	0	563	178	113	11	0	302	60	273	73	0	406	1459
08:00 AM	9	6	17	0	32	3	126	15	0	144	33	22	4	0	59	18	66	30	0	114	349
08:15 AM	9	8	15	0	32	0	125	18	0	143	23	16	3	0	42	23	64	16	0	103	320
08:30 AM	9	8	14	0	31	2	111	13	0	126	23	15	3	0	41	30	71	8	0	109	307
08:45 AM	8	10	39	0	57	1	118	6	0	125	22	10	1	0	33	33	66	7	0	106	321
Total	35	32	85	0	152	6	480	52	0	538	101	63	11	0	175	104	267	61	0	432	1297
*** BREAK ***																					
04:00 PM	12	29	25	0	66	2	88	11	0	101	22	7	4	0	33	16	144	24	0	184	384
04:15 PM	19	23	22	0	64	4	81	13	0	98	26	11	3	0	40	28	158	29	0	215	417
04:30 PM	17	30	16	0	63	2	118	12	0	132	13	14	3	0	30	24	153	38	0	215	440
04:45 PM	22	37	17	0	76	5	73	10	0	88	20	11	0	0	31	23	140	31	0	194	389
Total	70	119	80	0	269	13	360	46	0	419	81	43	10	0	134	91	595	122	0	808	1630
05:00 PM	26	32	23	0	81	11	75	13	0	99	22	14	3	0	39	17	155	42	0	214	433
05:15 PM	13	49	16	0	78	3	101	4	1	109	30	13	4	0	47	26	148	31	0	205	439
05:30 PM	21	34	16	0	71	5	113	12	0	130	25	14	4	0	43	28	140	33	0	201	445
05:45 PM	20	26	17	0	63	5	83	5	0	93	22	13	4	0	39	25	96	41	0	162	357
Total	80	141	72	0	293	24	372	34	1	431	99	54	15	0	168	96	539	147	0	782	1674
Grand Total	216	348	338	0	902	51	1715	184	1	1951	459	273	47	0	779	351	1674	403	0	2428	6060
Apprch %	23.9	38.6	37.5	0		2.6	87.9	9.4	0.1		58.9	35	6	0		14.5	68.9	16.6	0		
Total %	3.6	5.7	5.6	0	14.9	0.8	28.3	3	0	32.2	7.6	4.5	0.8	0	12.9	5.8	27.6	6.7	0	40.1	
Cars	211	343	319	0	873	48	1665	177	1	1891	454	268	46	0	768	305	1628	397	0	2330	5862
% Cars	97.7	98.6	94.4	0	96.8	94.1	97.1	96.2	100	96.9	98.9	98.2	97.9	0	98.6	86.9	97.3	98.5	0	96	96.7
Trucks	5	5	19	0	29	3	50	7	0	60	5	5	1	0	11	46	46	6	0	98	198
% Trucks	2.3	1.4	5.6	0	3.2	5.9	2.9	3.8	0	3.1	1.1	1.8	2.1	0	1.4	13.1	2.7	1.5	0	4	3.3

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	SUMMIT ST Southbound					E BROAD ST Westbound					SUMMIT ST Northbound					E BROAD ST Eastbound					
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 Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	6	14	**29**	0	49	**4**	129	13	0	146	**50**	**41**	1	0	**92**	**22**	61	**26**	0	**109**	**396**
07:15 AM	**11**	**21**	**32**	0	**64**	1	108	**16**	0	125	45	28	3	0	76	18	69	17	0	104	369
07:30 AM	8	11	15	0	34	1	129	13	0	143	37	16	**5**	0	58	12	65	13	0	90	325
07:45 AM	6	10	25	0	41	2	**137**	10	0	**149**	46	28	2	0	76	8	**78**	17	0	103	369
Total Volume	31	56	101	0	188	8	503	52	0	563	178	113	11	0	302	60	273	73	0	406	1459
% App. Total	16.5	29.8	53.7	0		1.4	89.3	9.2	0		58.9	37.4	3.6	0		14.8	67.2	18	0		
PHF	.705	.667	.789	.000	.734	.500	.918	.813	.000	.945	.890	.689	.550	.000	.821	.682	.875	.702	.000	.931	.921

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	SUMMIT ST Southbound					E BROAD ST Westbound					SUMMIT ST Northbound					E BROAD ST Eastbound					
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 Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	22	37	17	0	76	5	73	10	0	88	20	11	0	0	31	23	140	31	0	194	389
05:00 PM	**26**	32	**23**	0	**81**	**11**	75	**13**	0	99	**22**	**14**	3	0	39	17	**155**	**42**	0	**214**	433
05:15 PM	13	49	16	0	78	3	101	4	**1**	109	**30**	13	**4**	0	**47**	26	148	31	0	205	439
05:30 PM	21	34	16	0	71	5	**113**	12	0	**130**	25	14	4	0	43	**28**	140	33	0	201	**445**
Total Volume	82	152	72	0	306	24	362	39	1	426	97	52	11	0	160	94	583	137	0	814	1706
% App. Total	26.8	49.7	23.5	0		5.6	85	9.2	0.2		60.6	32.5	6.9	0		11.5	71.6	16.8	0		
PHF	.788	.776	.783	.000	.944	.545	.801	.750	.250	.819	.808	.929	.688	.000	.851	.839	.940	.815	.000	.951	.958

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File Name : E Broad St - Mink St
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Groups Printed- Cars - Trucks

	MINK ST Southbound					BROAD STREET Westbound					MINK ST Northbound					BROAD STREET Eastbound					
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
07:00 AM	6	7	8	0	21	5	113	9	0	127	17	17	2	0	36	11	69	5	0	85	269
07:15 AM	5	11	8	0	24	6	104	8	0	118	13	33	6	0	52	2	60	2	0	64	258
07:30 AM	7	11	4	0	22	5	112	9	0	126	16	31	3	0	50	5	75	4	0	84	282
07:45 AM	13	5	4	0	22	5	122	3	0	130	17	24	5	0	46	5	85	6	0	96	294
Total	31	34	24	0	89	21	451	29	0	501	63	105	16	0	184	23	289	17	0	329	1103
08:00 AM	16	17	4	0	37	6	103	5	0	114	16	22	5	0	43	4	75	5	0	84	278
08:15 AM	17	9	4	0	30	0	111	2	0	113	7	17	3	0	27	1	69	6	0	76	246
08:30 AM	18	11	6	0	35	4	101	8	0	113	11	24	2	0	37	3	67	3	0	73	258
08:45 AM	15	8	7	0	30	5	106	4	0	115	8	10	1	0	19	2	67	4	0	73	237
Total	66	45	21	0	132	15	421	19	0	455	42	73	11	0	126	10	278	18	0	306	1019
*** BREAK ***																					
04:00 PM	21	13	8	0	42	2	75	5	0	82	11	15	10	0	36	5	116	6	0	127	287
04:15 PM	18	31	11	0	60	7	81	11	0	99	12	17	5	0	34	8	140	12	0	160	353
04:30 PM	17	27	8	0	52	3	101	13	0	117	16	18	6	0	40	12	155	12	0	179	388
04:45 PM	12	31	3	0	46	6	100	15	0	121	8	10	3	0	21	3	126	13	0	142	330
Total	68	102	30	0	200	18	357	44	0	419	47	60	24	0	131	28	537	43	0	608	1358
05:00 PM	16	19	6	0	41	4	99	18	0	121	7	19	6	0	32	6	129	14	0	149	343
05:15 PM	18	40	6	0	64	4	80	18	0	102	6	16	12	0	34	2	170	17	0	189	389
05:30 PM	18	34	3	0	55	6	103	17	0	126	6	8	7	0	21	7	146	13	0	166	368
05:45 PM	16	27	7	0	50	5	90	5	0	100	9	13	7	0	29	7	120	15	0	142	321
Total	68	120	22	0	210	19	372	58	0	449	28	56	32	0	116	22	565	59	0	646	1421
Grand Total	233	301	97	0	631	73	1601	150	0	1824	180	294	83	0	557	83	1669	137	0	1889	4901
Apprch %	36.9	47.7	15.4	0		4	87.8	8.2	0		32.3	52.8	14.9	0		4.4	88.4	7.3	0		
Total %	4.8	6.1	2	0	12.9	1.5	32.7	3.1	0	37.2	3.7	6	1.7	0	11.4	1.7	34.1	2.8	0	38.5	
Cars	229	300	93	0	622	68	1539	146	0	1753	176	285	81	0	542	77	1614	135	0	1826	4743
% Cars	98.3	99.7	95.9	0	98.6	93.2	96.1	97.3	0	96.1	97.8	96.9	97.6	0	97.3	92.8	96.7	98.5	0	96.7	96.8
Trucks	4	1	4	0	9	5	62	4	0	71	4	9	2	0	15	6	55	2	0	63	158
% Trucks	1.7	0.3	4.1	0	1.4	6.8	3.9	2.7	0	3.9	2.2	3.1	2.4	0	2.7	7.2	3.3	1.5	0	3.3	3.2

EMH&T
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Columbus, OH 43054
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File Name : E Broad St - Mink St
Site Code : 00000000
Start Date : 1/7/2016
Page No : 2

	MINK ST Southbound					BROAD STREET Westbound					MINK ST Northbound					BROAD STREET Eastbound					
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 Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	11	**8**	0	24	**6**	104	8	0	118	13	**33**	**6**	0	**52**	2	60	2	0	64	258
07:30 AM	7	11	4	0	22	5	112	**9**	0	126	16	31	3	0	50	**5**	75	4	0	84	282
07:45 AM	13	5	4	0	22	5	**122**	3	0	**130**	**17**	24	5	0	46	5	**85**	**6**	0	**96**	**294**
08:00 AM	**16**	**17**	4	0	**37**	6	103	5	0	114	16	22	5	0	43	4	75	5	0	84	278
Total Volume	41	44	20	0	105	22	441	25	0	488	62	110	19	0	191	16	295	17	0	328	1112
% App. Total	39	41.9	19	0		4.5	90.4	5.1	0		32.5	57.6	9.9	0		4.9	89.9	5.2	0		
PHF	.641	.647	.625	.000	.709	.917	.904	.694	.000	.938	.912	.833	.792	.000	.918	.800	.868	.708	.000	.854	.946

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File Name : E Broad St - Mink St
Site Code : 00000000
Start Date : 1/7/2016
Page No : 3

	MINK ST Southbound					BROAD STREET Westbound					MINK ST Northbound					BROAD STREET Eastbound					
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 Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	17	27	**8**	0	52	3	**101**	13	0	117	**16**	18	6	0	**40**	**12**	155	12	0	179	388
04:45 PM	12	31	3	0	46	**6**	100	15	0	**121**	8	10	3	0	21	3	126	13	0	142	330
05:00 PM	16	19	6	0	41	4	99	**18**	0	121	7	**19**	6	0	32	6	129	14	0	149	343
05:15 PM	**18**	**40**	6	0	**64**	4	80	18	0	102	6	16	**12**	0	34	2	**170**	**17**	0	**189**	**389**
Total Volume	63	117	23	0	203	17	380	64	0	461	37	63	27	0	127	23	580	56	0	659	1450
% App. Total	31	57.6	11.3	0		3.7	82.4	13.9	0		29.1	49.6	21.3	0		3.5	88	8.5	0		
PHF	.875	.731	.719	.000	.793	.708	.941	.889	.000	.952	.578	.829	.563	.000	.794	.479	.853	.824	.000	.872	.932

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File Name : E Broad St - Mink St
Site Code : 00000000
Start Date : 1/7/2016
Page No : 1

Groups Printed- Cars - Trucks

	MINK ST (SB)					BROAD STREET (WB)					MINK ST (NB)					BROAD STREET (EB)					
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
04:45 PM	12	31	3	0	46	6	100	15	0	121	8	10	3	0	21	3	126	13	0	142	330
Total	12	31	3	0	46	6	100	15	0	121	8	10	3	0	21	3	126	13	0	142	330
05:00 PM	16	19	6	0	41	4	99	18	0	121	7	19	6	0	32	6	129	14	0	149	343
05:15 PM	18	40	6	0	64	4	80	18	0	102	6	16	12	0	34	2	170	17	0	189	389
05:30 PM	18	34	3	0	55	6	103	17	0	126	6	8	7	0	21	7	146	13	0	166	368
Grand Total	64	124	18	0	206	20	382	68	0	470	27	53	28	0	108	18	571	57	0	646	1430
Apprch %	31.1	60.2	8.7	0		4.3	81.3	14.5	0		25	49.1	25.9	0		2.8	88.4	8.8	0		
Total %	4.5	8.7	1.3	0	14.4	1.4	26.7	4.8	0	32.9	1.9	3.7	2	0	7.6	1.3	39.9	4	0	45.2	
Cars	64	124	17	0	205	19	374	66	0	459	27	52	27	0	106	17	560	57	0	634	1404
% Cars	100	100	94.4	0	99.5	95	97.9	97.1	0	97.7	100	98.1	96.4	0	98.1	94.4	98.1	100	0	98.1	98.2
Trucks	0	0	1	0	1	1	8	2	0	11	0	1	1	0	2	1	11	0	0	12	26
% Trucks	0	0	5.6	0	0.5	5	2.1	2.9	0	2.3	0	1.9	3.6	0	1.9	5.6	1.9	0	0	1.9	1.8

Traffic Volume Calculations

Wu, Charles

From: Hwashik Jang <hjang@morpc.org>
Sent: Thursday, January 21, 2016 10:20 AM
To: Wu, Charles
Cc: Zhuojun Jiang; Bender, Douglas; Nick Gill
Subject: RE: Request growth rate for Broadmoore Commons

Charles,

We have completed growth rate for Broadmoore Commons study.
Please use a linear annual growth rates as summarized in the following table below.

Location	Linear Annual Growth Rate
Broad St, e/o Summit Rd	1.00%
Summit Rd, n/o Broad St	1.75%
Broad St, w/o Summit Rd	1.00%
Summit Rd, s/o Broad St	1.00%
Broad St, e/o Mink St	1.00%
Mink St, n/o Broad St	2.25%
Broad St, w/o Mink st	1.00%
Mink St, s/o Broad St	2.50%
Refugee Rd, e/o Mink St	1.25%
Mink St, n/o Refugee Rd	2.50%
Refugee Rd, w/o Mink St	1.25%
Mink St, s/o Refugee Rd	2.50%

Note: This is planning level analysis based on MORPC regional travel demand model.

If you have any other questions, please let me know.

Thanks,

-Hwashik

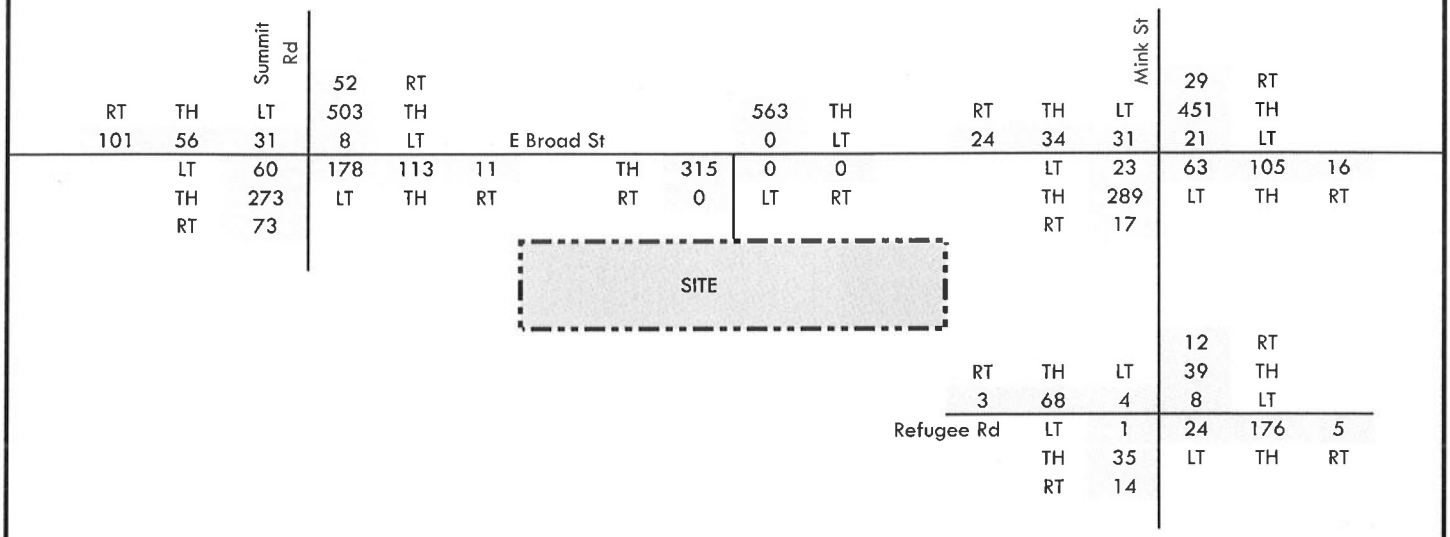
Hwashik Jang | hjang@morpc.org | MORPC
Tel 614.233.4145 | Fax 614.233.4245

From: Wu, Charles [mailto:cwu@emht.com]
Sent: Friday, January 08, 2016 3:32 PM
To: Hwashik Jang
Cc: Zhuojun Jiang; Wu, Charles; Bender, Douglas
Subject: Request growth rate for Broadmoore Commons

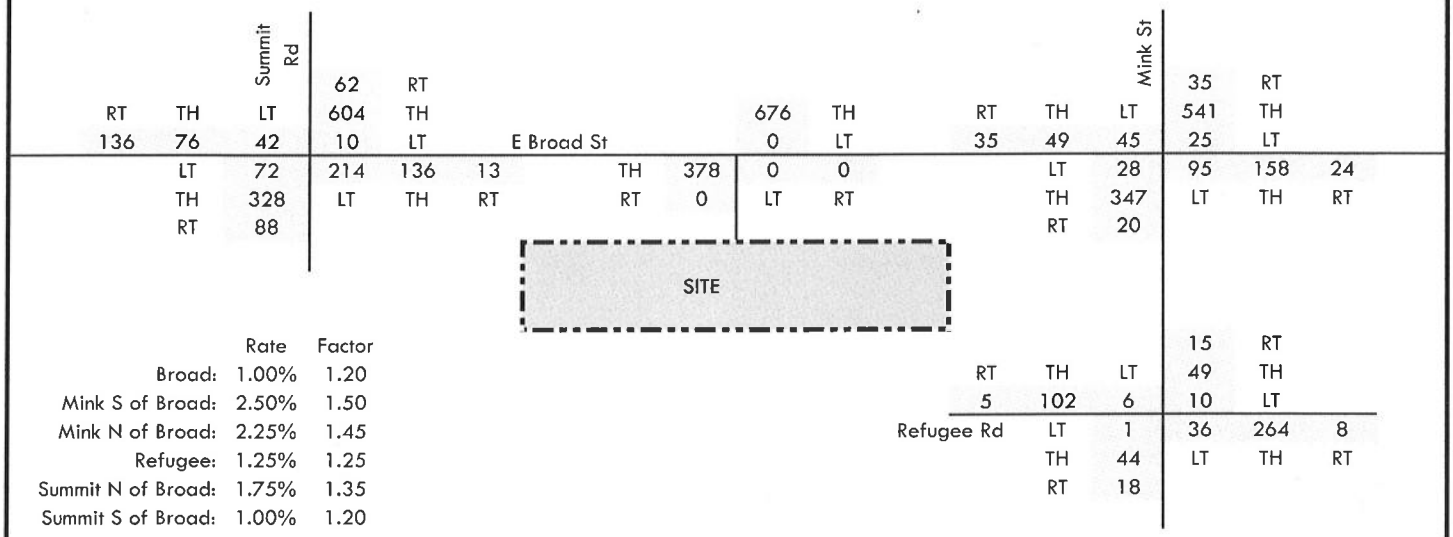
Hi Hwashik,

Broadmoore Commons
Traffic Impact Study
Traffic Volume Calculations

2016 Counted Traffic Volumes — **AM Peak Hour**
(7:00-8:00) — **a**



2036 Background Traffic Volumes — **AM Peak Hour**
(7:00-8:00) — **b**



	Rate	Factor
Broad:	1.00%	1.20
Mink S of Broad:	2.50%	1.50
Mink N of Broad:	2.25%	1.45
Refugee:	1.25%	1.25
Summit N of Broad:	1.75%	1.35
Summit S of Broad:	1.00%	1.20

Broadmoore Commons
Traffic Impact Study
Traffic Volume Calculations

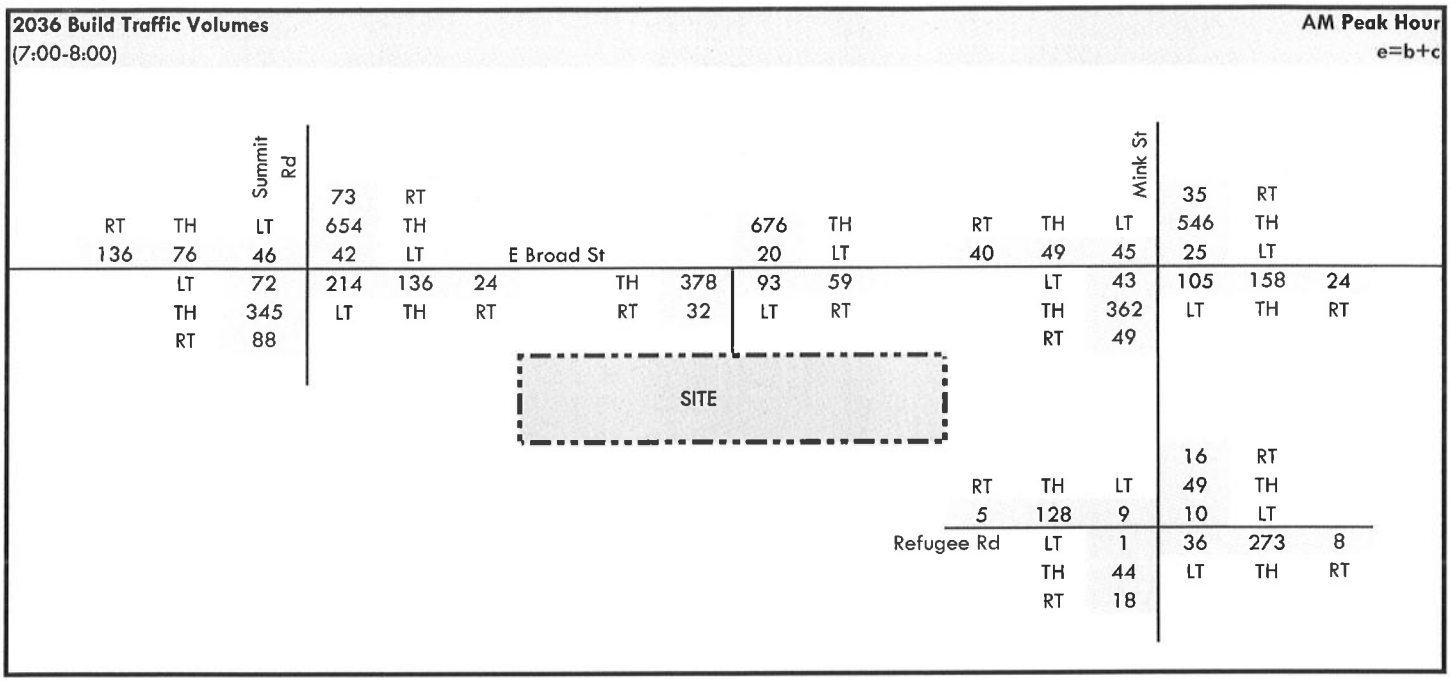
Trip Assignment — **AM Peak Hour**
(7:00-8:00) — c

			7%													10%				
			Summit Rd												Mink St					
				11	RT												RT			
	RT	TH	LT	50	TH						TH	RT	TH	LT		5	TH			
			4	32	LT	E Broad St			20	LT		5					LT			10%
33%		LT					11	TH		93	59			LT	15		10			
		TH	17	LT	TH	RT		RT	32	LT	RT			TH	15		LT	TH	RT	
		RT												RT	29					
				21%				SITE		in	50									
										out	151									
																	1	RT		
												RT	TH	LT				TH		
													26	3				LT		2%
												Refugee Rd	LT				9			
													TH				LT	TH	RT	
													RT							
																	17%			

2016 Build Traffic Volumes — **AM Peak Hour**
(7:00-8:00) — d=a+c

			Summit Rd												Mink St					
				63	RT												29	RT		
	RT	TH	LT	553	TH						563	TH	RT	TH	LT		456	TH		
	101	56	35	40	LT	E Broad St					20	LT	29	34	31		21	LT		
		LT	60	178	113	22		TH	315		93	59			LT	38		73	105	16
		TH	290	LT	TH	RT		RT	32		LT	RT			TH	304		LT	TH	RT
		RT	73												RT	46				
								SITE												
																	13	RT		
													RT	TH	LT		39	TH		
													3	94	7		8	LT		
												Refugee Rd	LT	1			24	185	5	
													TH	35			LT	TH	RT	
													RT	14						

2036 Build Traffic Volumes **AM Peak Hour**
(7:00-8:00) e=b+c



2016 Counted Traffic Volumes — **PM Peak Hour** — a
(4:45 - 5:45)

			Summit Rd										Mink St			
			39	RT				425	TH				68	RT		
RT	TH		LT	362	TH						RT	TH	LT	382	TH	
72	152		82	24	LT	E Broad St		0	LT		18	124	64	20	LT	
	LT	94	97	52	11	TH	676	0	0			LT	18	27	53	28
	TH	583	LT	TH	RT	RT	0	LT	RT			TH	571	LT	TH	RT
	RT	137										RT	57			
						SITE										
														10	RT	
											RT	TH	LT	56	TH	
											4	211	14	11	LT	
										Refugee Rd		LT	5	24	134	7
												TH	75	LT	TH	RT
												RT	42			

2036 Background Traffic Volumes — **PM Peak Hour** — b
(4:45 - 5:45)

			Summit Rd										Mink St			
			47	RT				510	TH				82	RT		
RT	TH		LT	434	TH						RT	TH	LT	458	TH	
97	205		111	29	LT	E Broad St		0	LT		26	180	93	24	LT	
	LT	113	116	62	13	TH	811	0	0			LT	22	41	80	42
	TH	700	LT	TH	RT	RT	0	LT	RT			TH	685	LT	TH	RT
	RT	164										RT	68			
						SITE										

	Rate	Factor
Broad:	1.00%	1.20
Mink S of Broad:	2.50%	1.50
Mink N of Broad:	2.25%	1.45
Refugee:	1.25%	1.25
Summit N of Broad:	1.75%	1.35
Summit S of Broad:	1.00%	1.20

			13	RT	
RT	TH	LT	70	TH	
6	317	21	14	LT	
Refugee Rd	LT	6	36	201	11
	TH	94	LT	TH	RT
	RT	53			

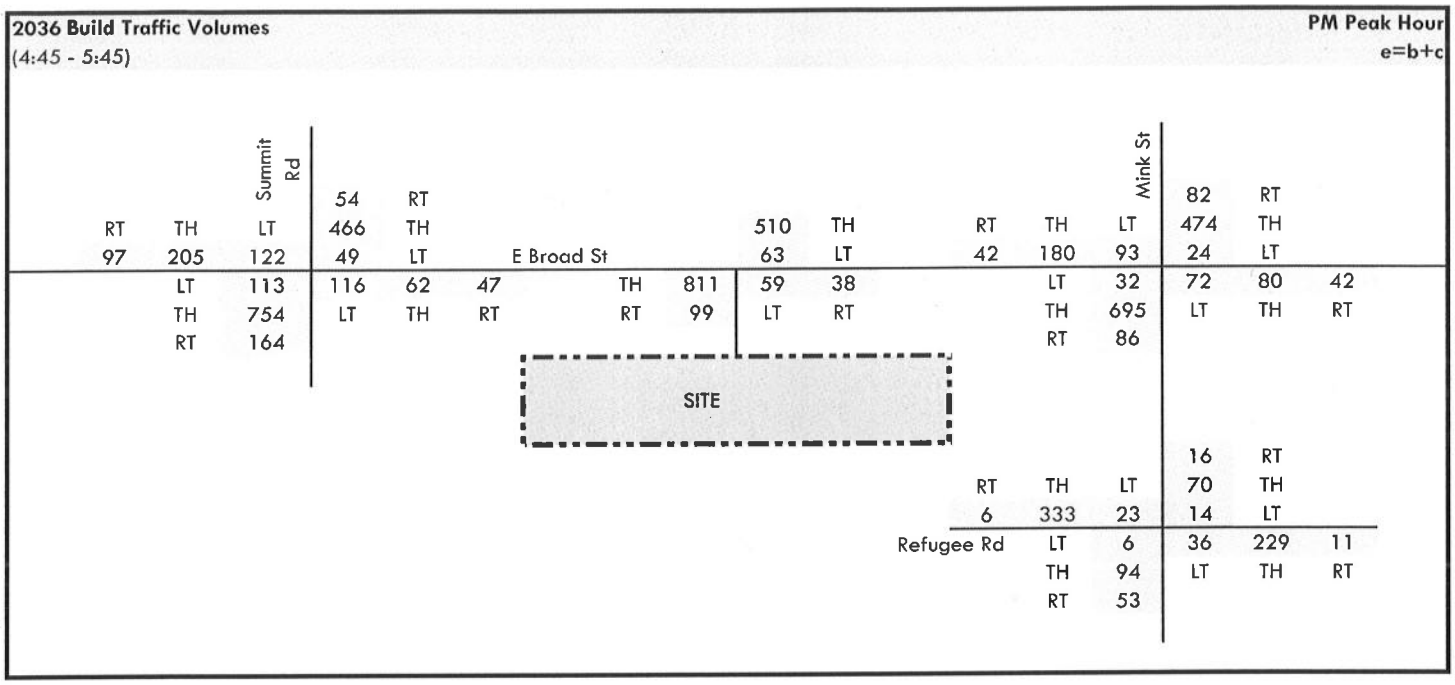
Trip Assignment — **PM Peak Hour**
(4:45 - 5:45) — c

			7%													10%				
			Summit Rd												Mink St					
				7	RT												RT			
	RT	TH	LT	32	TH						TH	RT	TH	LT		*16*	TH			
			11	20	LT		E Broad St			*63*	LT	*16*					LT			10%
33%		LT					*34*		TH		59	38			LT	10	*31*			
		TH	*54*	LT	TH	RT		RT		*99*	LT	RT			TH	10	LT	TH	RT	
		RT													RT	18				
				21%				SITE		in	163									
										out	96									
																	3	RT		
												RT	TH	LT				TH		
													16	2				LT		2%
												Refugee Rd	LT				*28*			
													TH				LT	TH	RT	
													RT							
																17%				

2016 Build Traffic Volumes — **PM Peak Hour**
(4:45 - 5:45) — d=a+c

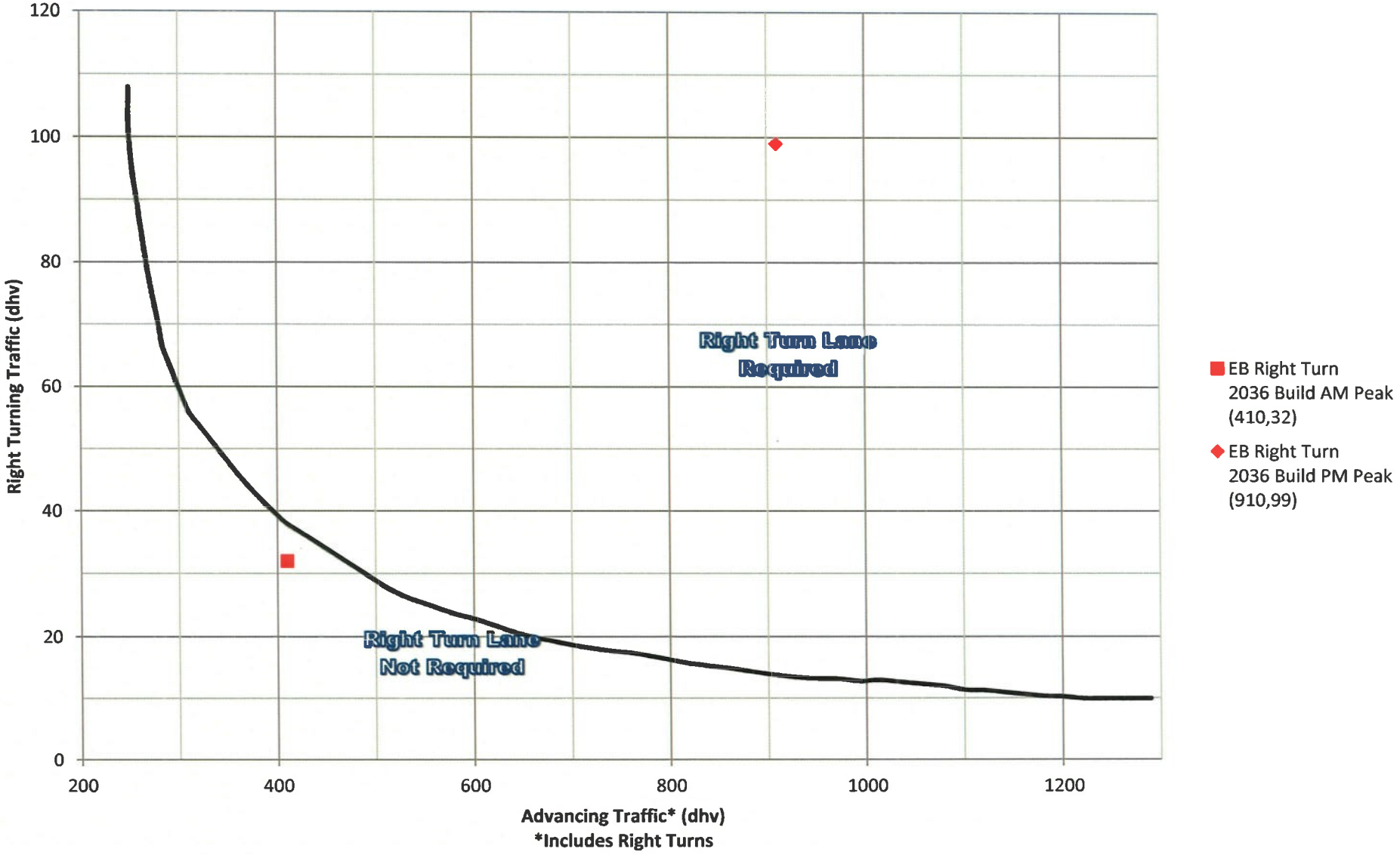
			Summit Rd												Mink St					
				46	RT												68	RT		
	RT	TH	LT	394	TH						425	TH	RT	TH	LT		398	TH		
	72	152	93	44	LT		E Broad St				63	LT	34	124	64		20	LT		
		LT	94	97	52	45		TH	676		59	38			LT	28	58	53	28	
		TH	637	LT	TH	RT		RT	99		LT	RT			TH	581	LT	TH	RT	
		RT	137												RT	75				
								SITE												
																	13	RT		
													RT	TH	LT		56	TH		
													4	227	16		11	LT		
												Refugee Rd	LT	5			24	162	7	
													TH	75			LT	TH	RT	
													RT	42						

2036 Build Traffic Volumes **PM Peak Hour**
(4:45 - 5:45) e=b+c

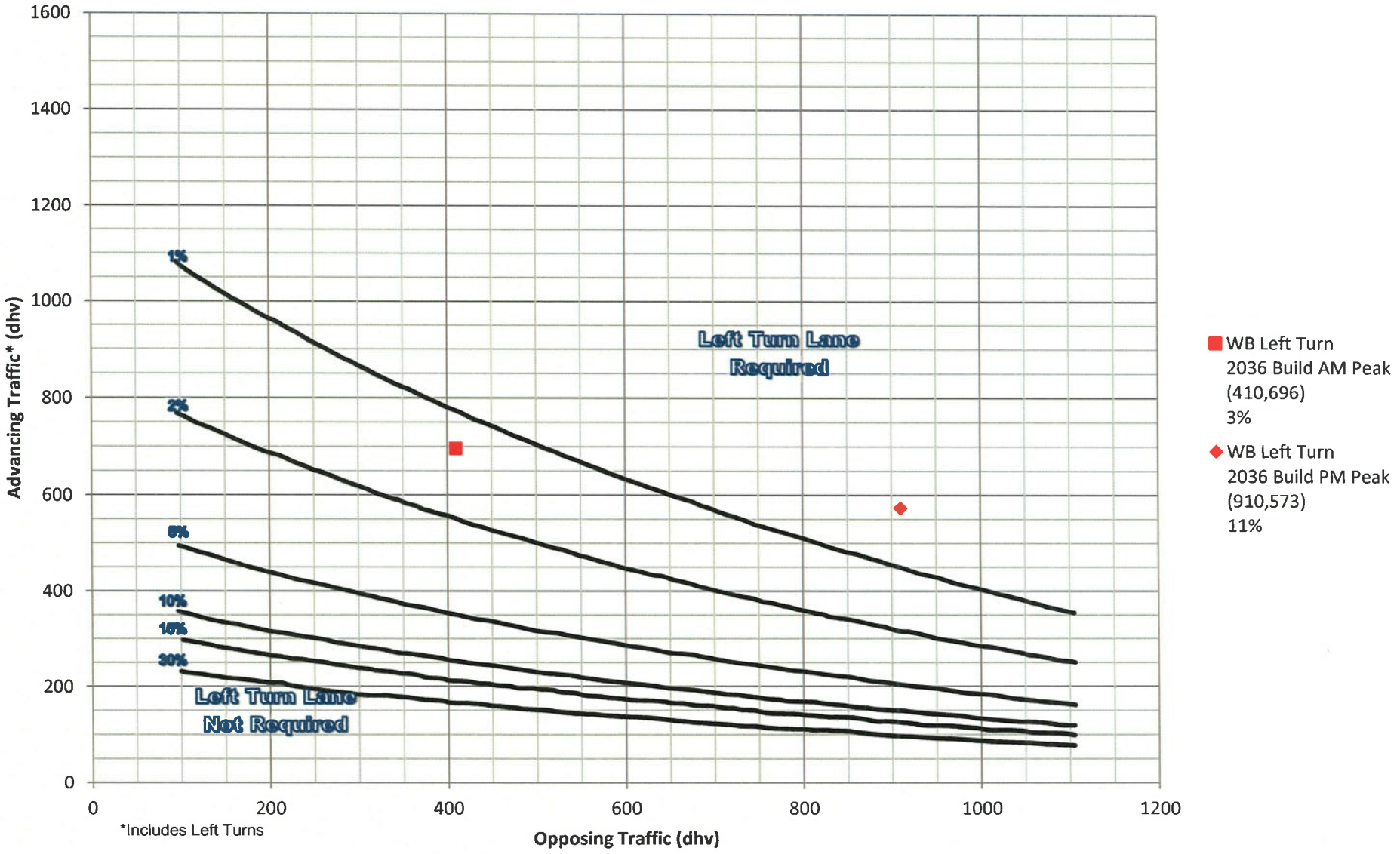


Turn Lane Warrant Analysis

East Broad Street @ Broadmoore Commons Drive
2-Lane Highway Right Turn Lane Warrant
>40 mph or 70 kph Posted Speed



East Broad Street @ Broadmoore Commons Drive
2-Lane Highway Left Turn Lane Warrant
>40 mph or 70 kph Posted Speed



Turn Lane Length Calculations

Broadmoore Commons

Turn Lane Length Calculations

AM Peak Hour 2036 Full Build E Broad St. & Site Drive		
Movement	EBRT	
Design Speed	55	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	378	vph
Number of Through Lanes	1	
Turning Volume	32	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	8%	
Vehicles Per Cycle	0.5	
Storage Length	50	feet
Deceleration/Taper	285	feet
Calculated Turn Lane Length	**285**	**feet**
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

PM Peak Hour 2036 Full Build E Broad St. & Site Drive		
Movement	EBRT	
Design Speed	55	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	811	vph
Number of Through Lanes	1	
Turning Volume	99	vph
Number of Turning Lanes	1	
Design Condition	C	A, B, or C
Turning Percentage	11%	
Vehicles Per Cycle	1.7	
Storage Length	100	feet
Deceleration/Taper	164	feet
Calculated Turn Lane Length	**264**	**feet**
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

AM Peak Hour 2036 Full Build E Broad St. & Site Drive		
Movement	WBLT	
Design Speed	55	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	676	vph
Number of Through Lanes	1	
Turning Volume	20	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	3%	
Vehicles Per Cycle	0.3	
Storage Length	50	feet
Deceleration/Taper	285	feet
Calculated Turn Lane Length	**285**	**feet**
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

PM Peak Hour 2036 Full Build E Broad St. & Site Drive		
Movement	WBLT	
Design Speed	55	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	510	vph
Number of Through Lanes	1	
Turning Volume	63	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	11%	
Vehicles Per Cycle	1.1	
Storage Length	50	feet
Deceleration/Taper	285	feet
Calculated Turn Lane Length	**285**	**feet**
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

Signal Warrant Analysis

SIGNAL WARRANT WORKSHEET

Warrant 1
Manual of Uniform Traffic Control Devices

E Broad St & Site Drive

CONDITION	# OF LANES	E Broad St			Site Drive			Condition A				Condition B			
		EB	WB	2-WAY	NBLT	NBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+							600	200	480	160	900	100	720	80
High Speed	1			X			X	**350**	**105**	**280**	**84**	**525**	**53**	**420**	**42**
High Speed	2+							420	140	336	112	630	70	504	56
2016 Full Build	PM Peak	775	488	1263	59	23	82	YES	NO	YES	NO	YES	YES	YES	YES
8th highest hr *		426	268	694	32	13	45	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**	**YES**	**YES**
								NO	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
RT Reduction	40%							NO	NO	NO	NO	NO	NO	NO	NO
2036 Full Build	PM Peak	910	573	1483	59	27	86	YES	NO	YES	YES	YES	YES	YES	YES
8th highest hr *		501	315	816	32	15	47	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**	**YES**	**YES**
								NO	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
RT Reduction	30%							NO	NO	NO	NO	NO	NO	NO	NO
								NO	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
								NO	NO	NO	NO	NO	NO	NO	NO

* 8th Highest Hour estimated as 55% of PM Peak Hour volume

2016 Full Build	:	**NOT MET**
RT Reduction 40%		
2036 Full Build	:	**NOT MET**
RT Reduction 30%		

Broadmoore Commons

20160003

(Taken From TEM Section 402-5, Ohio Department of Transportation)

HOUR BEGIN	MINOR STREET Approach A: Config. "A": Mainline Lanes:	Site Drive 2 1			MAINLINE VOLUME (CONFLICTING WITH RIGHT TURN)	MAINLINE APPROACH VOLUME PER LANE	BASE RIGHT TURN	MAINLINE CONGESTION FACTOR %	ADJUSTED RIGHT TURN REDUCTION %	ADJUSTED RIGHT TURNS	ADJUSTED MINOR STREET VOLUMES
	Volumes										
	LEFT	THROUGH	RIGHT	TOTAL (A)							
6:00 AM				0		0	20%	0%	20%	0	0
7:00	93	0	59	152	347	347	60%	0%	60%	24	117
8:00				0		0	20%	0%	20%	0	0
9:00				0		0	20%	0%	20%	0	0
10:00				0		0	20%	0%	20%	0	0
11:00				0		0	20%	0%	20%	0	0
Noon				0		0	20%	0%	20%	0	0
1:00 PM				0		0	20%	0%	20%	0	0
2:00				0		0	20%	0%	20%	0	0
3:00				0		0	20%	0%	20%	0	0
4:00				0		0	20%	0%	20%	0	0
5:00	59	0	38	97	765	765	60%	20%	40%	23	82
6:00				0		0	20%	0%	20%	0	0
7:00				0		0	20%	0%	20%	0	0
8:00				0		0	20%	0%	20%	0	0
9:00				0		0	20%	0%	20%	0	0

2016 Full Build

Broadmoore Commons

20160003

(Taken From TEM Section 402-5, Ohio Department of Transportation)

HOUR BEGIN	MINOR STREET				MAINLINE VOLUME (CONFLICTING WITH RIGHT TURN)	MAINLINE APPROACH VOLUME PER LANE	BASE RIGHT TURN	MAINLINE CONGESTION FACTOR %	ADJUSTED RIGHT TURN REDUCTION %	ADJUSTED RIGHT TURNS	ADJUSTED MINOR STREET VOLUMES
	Approach A: Config. "A": Mainline Lanes:	Site Drive 2 1									
	Volumes										
	LEFT	THROUGH	RIGHT	TOTAL (A)							
6:00 AM				0		0	20%	0%	20%	0	0
7:00	93	0	59	152	410	410	60%	5%	55%	27	120
8:00				0		0	20%	0%	20%	0	0
9:00				0		0	20%	0%	20%	0	0
10:00				0		0	20%	0%	20%	0	0
11:00				0		0	20%	0%	20%	0	0
Noon				0		0	20%	0%	20%	0	0
1:00 PM				0		0	20%	0%	20%	0	0
2:00				0		0	20%	0%	20%	0	0
3:00				0		0	20%	0%	20%	0	0
4:00				0		0	20%	0%	20%	0	0
5:00	59	0	38	97	910	910	60%	30%	30%	27	86
6:00				0		0	20%	0%	20%	0	0
7:00				0		0	20%	0%	20%	0	0
8:00				0		0	20%	0%	20%	0	0
9:00				0		0	20%	0%	20%	0	0
2036 Full Build											

Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	72	345	88	42	654	73	214	136	24	46	76	136
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	78	375	96	46	711	79	233	148	26	50	83	148
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	695	178	381	800	89	375	212	35	141	233	348
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	683	1432	366	919	1647	183	735	530	86	200	582	870
Grp Volume(v), veh/h	78	0	471	46	0	790	407	0	0	281	0	0
Grp Sat Flow(s),veh/h/ln	683	0	1798	919	0	1830	1351	0	0	1652	0	0
Q Serve(g_s), s	6.7	0.0	12.8	2.6	0.0	27.3	9.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	34.0	0.0	12.8	15.3	0.0	27.3	18.2	0.0	0.0	8.3	0.0	0.0
Prop In Lane	1.00		0.20	1.00		0.10	0.57		0.06	0.18		0.53
Lane Grp Cap(c), veh/h	168	0	873	381	0	889	621	0	0	721	0	0
V/C Ratio(X)	0.46	0.00	0.54	0.12	0.00	0.89	0.65	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	168	0	873	381	0	889	621	0	0	721	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.2	0.0	12.5	17.9	0.0	16.3	18.0	0.0	0.0	15.1	0.0	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.7	0.1	0.0	10.9	5.3	0.0	0.0	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	6.4	0.7	0.0	16.3	7.6	0.0	0.0	4.2	0.0	0.0
LnGrp Delay(d),s/veh	34.2	0.0	13.2	18.0	0.0	27.2	23.3	0.0	0.0	16.7	0.0	0.0
LnGrp LOS	C		B	B		C	C			B		
Approach Vol, veh/h		549			836			407			281	
Approach Delay, s/veh		16.2			26.7			23.3			16.7	
Approach LOS		B			C			C			B	

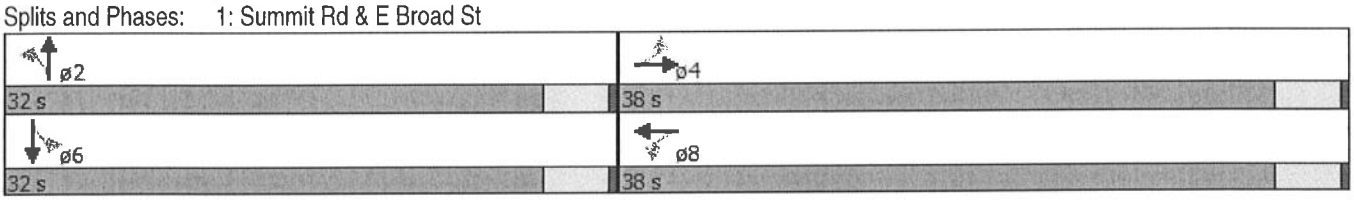
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		38.0		32.0		38.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		34.0		28.0		34.0
Max Q Clear Time (g_c+I1), s		20.2		36.0		10.3		29.3
Green Ext Time (p_c), s		2.7		0.0		4.3		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	None	Max	None
Maximum Split (s)	32	38	32	38
Maximum Split (%)	45.7%	54.3%	45.7%	54.3%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	32	0	32
End Time (s)	32	0	32	0
Yield/Force Off (s)	28	66	28	66
Yield/Force Off 170(s)	17	55	17	55
Local Start Time (s)	0	32	0	32
Local Yield (s)	28	66	28	66
Local Yield 170(s)	17	55	17	55

Intersection Summary	
Cycle Length	70
Control Type	Actuated-Uncoordinated
Natural Cycle	50

Splits and Phases: 1: Summit Rd & E Broad St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	113	754	164	49	466	54	116	62	47	122	205	97
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	123	820	178	53	507	59	126	67	51	133	223	105
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	422	848	184	126	936	109	226	117	70	190	260	113
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	842	1484	322	562	1638	191	470	371	222	395	826	360
Grp Volume(v), veh/h	123	0	998	53	0	566	244	0	0	461	0	0
Grp Sat Flow(s),veh/h/ln	842	0	1806	562	0	1829	1064	0	0	1581	0	0
Q Serve(g_s), s	7.4	0.0	37.1	2.9	0.0	13.4	0.0	0.0	0.0	5.6	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	37.1	40.0	0.0	13.4	14.2	0.0	0.0	19.8	0.0	0.0
Prop In Lane	1.00		0.18	1.00		0.10	0.52		0.21	0.29		0.23
Lane Grp Cap(c), veh/h	422	0	1032	126	0	1045	412	0	0	563	0	0
V/C Ratio(X)	0.29	0.00	0.97	0.42	0.00	0.54	0.59	0.00	0.00	0.82	0.00	0.00
Avail Cap(c_a), veh/h	422	0	1032	126	0	1045	412	0	0	563	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.8	0.0	14.4	34.3	0.0	9.3	20.8	0.0	0.0	23.1	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	20.4	2.2	0.0	0.6	6.1	0.0	0.0	12.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	23.9	1.1	0.0	6.8	4.8	0.0	0.0	10.5	0.0	0.0
LnGrp Delay(d),s/veh	16.2	0.0	34.8	36.5	0.0	9.9	26.9	0.0	0.0	35.6	0.0	0.0
LnGrp LOS	B		C	D		A	C			D		
Approach Vol, veh/h		1121			619			244			461	
Approach Delay, s/veh		32.8			12.2			26.9			35.6	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		26.0		44.0		26.0		44.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		22.0		40.0		22.0		40.0
Max Q Clear Time (g_c+I1), s		16.2		39.1		21.8		42.0
Green Ext Time (p_c), s		2.3		0.8		0.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.5
HCM 2010 LOS	C

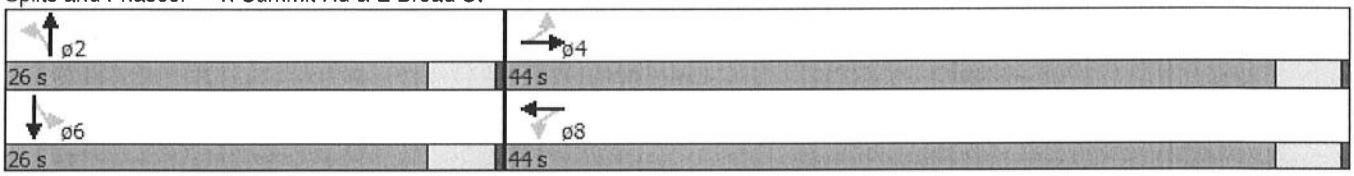
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	None	Max	None
Maximum Split (s)	26	44	26	44
Maximum Split (%)	37.1%	62.9%	37.1%	62.9%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	22	66	22	66
Yield/Force Off 170(s)	11	55	11	55
Local Start Time (s)	0	26	0	26
Local Yield (s)	22	66	22	66
Local Yield 170(s)	11	55	11	55

Intersection Summary	
Cycle Length	70
Control Type	Actuated-Uncoordinated
Natural Cycle	75

Splits and Phases: 1: Summit Rd & E Broad St



Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	315	32	20	563	93	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	342	35	22	612	101	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	342	0	997	342
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	655	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1217	-	271	701
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	517	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1217	-	266	701
Mov Cap-2 Maneuver	-	-	-	-	266	-
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	508	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	266	701	-	-	1217	-
HCM Lane V/C Ratio	0.38	0.091	-	-	0.018	-
HCM Control Delay (s)	26.6	10.7	-	-	8	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.7	0.3	-	-	0.1	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	↰	↱
Volume (veh/h)	315	32	20	563	93	59
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	342	35	22	612	101	64
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1012	860	715	1012	270	241
Arrive On Green	0.54	0.54	0.54	0.54	0.15	0.15
Sat Flow, veh/h	1863	1583	1002	1863	1774	1583
Grp Volume(v), veh/h	342	35	22	612	101	64
Grp Sat Flow(s),veh/h/ln	1863	1583	1002	1863	1774	1583
Q Serve(g_s), s	2.7	0.3	0.3	5.9	1.3	0.9
Cycle Q Clear(g_c), s	2.7	0.3	3.0	5.9	1.3	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1012	860	715	1012	270	241
V/C Ratio(X)	0.34	0.04	0.03	0.60	0.37	0.27
Avail Cap(c_a), veh/h	3048	2591	1810	3048	1283	1145
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.4	2.8	4.2	4.1	10.0	9.8
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.1	0.1	3.1	0.7	0.4
LnGrp Delay(d),s/veh	3.6	2.8	4.2	4.7	10.9	10.4
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	377			634	165	
Approach Delay, s/veh	3.5			4.7	10.7	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		8.0		18.3				18.3
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		19.0		43.0				43.0
Max Q Clear Time (g_c+I1), s		3.3		4.7				7.9
Green Ext Time (p_c), s		0.4		6.5				6.4

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	378	32	20	676	93	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	411	35	22	735	101	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	411	0	1189	411
Stage 1	-	-	-	-	411	-
Stage 2	-	-	-	-	778	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1148	-	208	641
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	453	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1148	-	204	641
Mov Cap-2 Maneuver	-	-	-	-	204	-
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	444	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	28.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	204	641	-	-	1148	-
HCM Lane V/C Ratio	0.496	0.1	-	-	0.019	-
HCM Control Delay (s)	38.8	11.2	-	-	8.2	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	2.5	0.3	-	-	0.1	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	378	32	20	676	93	59
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	411	35	22	735	101	64
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1122	954	699	1122	235	210
Arrive On Green	0.60	0.60	0.60	0.60	0.13	0.13
Sat Flow, veh/h	1863	1583	940	1863	1774	1583
Grp Volume(v), veh/h	411	35	22	735	101	64
Grp Sat Flow(s),veh/h/ln	1863	1583	940	1863	1774	1583
Q Serve(g_s), s	3.4	0.3	0.4	7.8	1.6	1.1
Cycle Q Clear(g_c), s	3.4	0.3	3.8	7.8	1.6	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1122	954	699	1122	235	210
V/C Ratio(X)	0.37	0.04	0.03	0.65	0.43	0.31
Avail Cap(c_a), veh/h	2715	2308	1503	2715	1058	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.1	2.4	4.0	3.9	12.0	11.8
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.7	1.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.1	0.1	4.1	0.8	0.5
LnGrp Delay(d),s/veh	3.3	2.5	4.0	4.6	13.3	12.6
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	446			757	165	
Approach Delay, s/veh	3.2			4.6	13.0	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		8.0		22.2				22.2
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		18.0		44.0				44.0
Max Q Clear Time (g_c+I1), s		3.6		5.4				9.8
Green Ext Time (p_c), s		0.4		8.6				8.4

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	676	99	63	425	59	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	50	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	735	108	68	462	64	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	735	0	1334	735
Stage 1	-	-	-	-	735	-
Stage 2	-	-	-	-	599	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	870	-	170	420
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	549	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	870	-	157	420
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	506	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	31.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	157	420	-	-	870	-
HCM Lane V/C Ratio	0.408	0.098	-	-	0.079	-
HCM Control Delay (s)	42.9	14.5	-	-	9.5	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	1.8	0.3	-	-	0.3	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	↰	↱
Volume (veh/h)	676	99	63	425	59	38
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	735	108	68	462	64	41
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1205	1024	483	1205	209	186
Arrive On Green	0.65	0.65	0.65	0.65	0.12	0.12
Sat Flow, veh/h	1863	1583	650	1863	1774	1583
Grp Volume(v), veh/h	735	108	68	462	64	41
Grp Sat Flow(s),veh/h/ln	1863	1583	650	1863	1774	1583
Q Serve(g_s), s	7.8	0.9	2.3	4.0	1.1	0.8
Cycle Q Clear(g_c), s	7.8	0.9	10.1	4.0	1.1	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1205	1024	483	1205	209	186
V/C Ratio(X)	0.61	0.11	0.14	0.38	0.31	0.22
Avail Cap(c_a), veh/h	2467	2097	923	2467	888	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.5	2.3	6.5	2.8	13.7	13.6
Incr Delay (d2), s/veh	0.5	0.0	0.1	0.2	0.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.4	0.4	2.0	0.6	0.4
LnGrp Delay(d),s/veh	4.0	2.3	6.6	3.0	14.5	14.2
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	843			530	105	
Approach Delay, s/veh	3.8			3.5	14.4	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		8.0		26.0				26.0
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		17.0		45.0				45.0
Max Q Clear Time (g_c+I1), s		3.1		9.8				12.1
Green Ext Time (p_c), s		0.2		10.0				9.8

Intersection Summary	
HCM 2010 Ctrl Delay	4.4
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	811	99	63	510	59	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	50	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	882	108	68	554	64	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	882	0	1573	882
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	691	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	767	-	121	345
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	497	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	767	-	110	345
Mov Cap-2 Maneuver	-	-	-	-	110	-
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	453	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	52.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	110	345	-	-	767	-
HCM Lane V/C Ratio	0.583	0.12	-	-	0.089	-
HCM Control Delay (s)	75.8	16.8	-	-	10.2	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	2.8	0.4	-	-	0.3	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	↰	↱
Volume (veh/h)	811	99	63	510	59	38
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	882	108	68	554	64	41
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1311	1114	425	1311	175	156
Arrive On Green	0.70	0.70	0.70	0.70	0.10	0.10
Sat Flow, veh/h	1863	1583	566	1863	1774	1583
Grp Volume(v), veh/h	882	108	68	554	64	41
Grp Sat Flow(s),veh/h/ln	1863	1583	566	1863	1774	1583
Q Serve(g_s), s	10.8	0.9	3.1	5.1	1.4	1.0
Cycle Q Clear(g_c), s	10.8	0.9	13.9	5.1	1.4	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1311	1114	425	1311	175	156
V/C Ratio(X)	0.67	0.10	0.16	0.42	0.37	0.26
Avail Cap(c_a), veh/h	2115	1797	670	2115	700	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.4	1.9	7.3	2.5	17.1	16.9
Incr Delay (d2), s/veh	0.6	0.0	0.2	0.2	1.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.4	0.5	2.5	0.7	0.5
LnGrp Delay(d),s/veh	4.0	1.9	7.5	2.7	18.3	17.8
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	990			622	105	
Approach Delay, s/veh	3.8			3.3	18.1	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		8.0		32.5				32.5
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		16.0		46.0				46.0
Max Q Clear Time (g_c+I1), s		3.4		12.8				15.9
Green Ext Time (p_c), s		0.2		13.1				12.6

Intersection Summary	
HCM 2010 Ctrl Delay	4.5
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	43	362	49	25	546	35	105	158	24	45	49	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	47	393	53	27	593	38	114	172	26	49	53	43
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	295	779	105	422	839	54	566	598	90	480	360	292
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	792	1608	217	940	1732	111	1294	1581	239	1180	953	773
Grp Volume(v), veh/h	47	0	446	27	0	631	114	0	198	49	0	96
Grp Sat Flow(s),veh/h/ln	792	0	1824	940	0	1843	1294	0	1821	1180	0	1726
Q Serve(g_s), s	2.9	0.0	9.7	1.2	0.0	15.6	3.7	0.0	4.4	1.8	0.0	2.1
Cycle Q Clear(g_c), s	18.5	0.0	9.7	10.9	0.0	15.6	5.8	0.0	4.4	6.2	0.0	2.1
Prop In Lane	1.00		0.12	1.00		0.06	1.00		0.13	1.00		0.45
Lane Grp Cap(c), veh/h	295	0	884	422	0	893	566	0	688	480	0	653
V/C Ratio(X)	0.16	0.00	0.50	0.06	0.00	0.71	0.20	0.00	0.29	0.10	0.00	0.15
Avail Cap(c_a), veh/h	592	0	1568	775	0	1584	566	0	688	480	0	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	0.0	10.2	14.0	0.0	11.8	13.8	0.0	12.6	14.8	0.0	11.9
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.1	0.0	1.0	0.8	0.0	1.1	0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	4.9	0.3	0.0	8.1	1.5	0.0	2.4	0.6	0.0	1.1
LnGrp Delay(d),s/veh	19.3	0.0	10.7	14.0	0.0	12.8	14.6	0.0	13.7	15.2	0.0	12.4
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		493			658			312			145	
Approach Delay, s/veh		11.5			12.9			14.0			13.3	
Approach LOS		B			B			B			B	

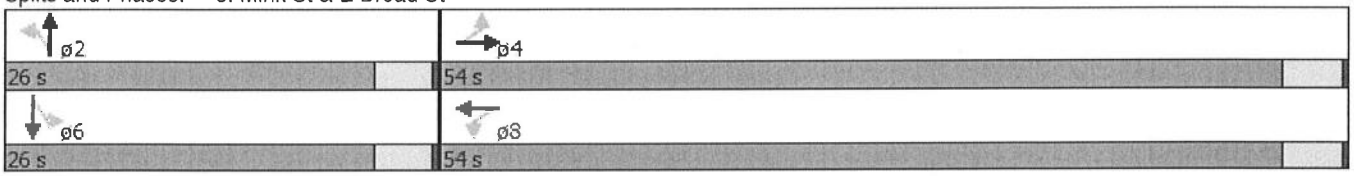
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		26.0		32.2		26.0		32.2
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		22.0		50.0		22.0		50.0
Max Q Clear Time (g_c+I1), s		7.8		20.5		8.2		17.6
Green Ext Time (p_c), s		1.9		7.7		1.9		7.8

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	None	Max	None
Maximum Split (s)	26	54	26	54
Maximum Split (%)	32.5%	67.5%	32.5%	67.5%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	22	76	22	76
Yield/Force Off 170(s)	11	65	11	65
Local Start Time (s)	0	26	0	26
Local Yield (s)	22	76	22	76
Local Yield 170(s)	11	65	11	65

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 3: Mink St & E Broad St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	695	86	24	474	82	72	80	42	93	180	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	35	755	93	26	515	89	78	87	46	101	196	46
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	394	931	115	233	886	153	338	360	190	425	458	107
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	812	1627	200	647	1548	268	1133	1148	607	1252	1460	343
Grp Volume(v), veh/h	35	0	848	26	0	604	78	0	133	101	0	242
Grp Sat Flow(s),veh/h/ln	812	0	1827	647	0	1816	1133	0	1756	1252	0	1802
Q Serve(g_s), s	2.0	0.0	26.0	2.3	0.0	15.0	4.1	0.0	3.9	4.6	0.0	7.5
Cycle Q Clear(g_c), s	17.0	0.0	26.0	28.3	0.0	15.0	11.6	0.0	3.9	8.5	0.0	7.5
Prop In Lane	1.00		0.11	1.00		0.15	1.00		0.35	1.00		0.19
Lane Grp Cap(c), veh/h	394	0	1046	233	0	1039	338	0	551	425	0	565
V/C Ratio(X)	0.09	0.00	0.81	0.11	0.00	0.58	0.23	0.00	0.24	0.24	0.00	0.43
Avail Cap(c_a), veh/h	509	0	1303	324	0	1294	338	0	551	425	0	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.1	0.0	12.0	23.3	0.0	9.6	23.7	0.0	17.9	21.0	0.0	19.1
Incr Delay (d2), s/veh	0.1	0.0	3.2	0.2	0.0	0.5	1.6	0.0	1.0	1.3	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	13.9	0.4	0.0	7.5	1.4	0.0	2.1	1.7	0.0	4.1
LnGrp Delay(d),s/veh	15.2	0.0	15.2	23.5	0.0	10.1	25.3	0.0	18.9	22.3	0.0	21.4
LnGrp LOS	B		B	C		B	C		B	C		C
Approach Vol, veh/h		883			630			211			343	
Approach Delay, s/veh		15.2			10.7			21.3			21.7	
Approach LOS		B			B			C			C	

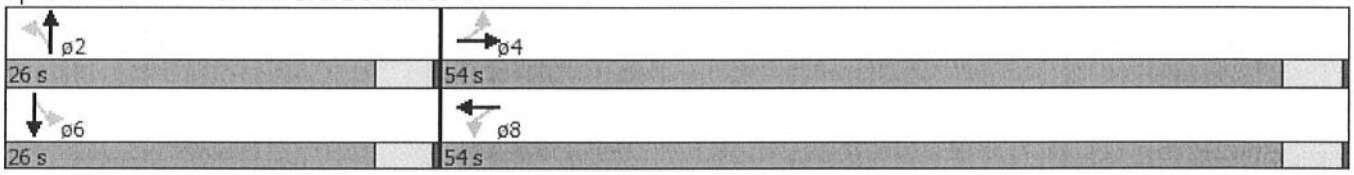
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		26.0		44.1		26.0		44.1
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		22.0		50.0		22.0		50.0
Max Q Clear Time (g_c+I1), s		13.6		28.0		10.5		30.3
Green Ext Time (p_c), s		1.8		10.4		2.2		9.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	None	Max	None
Maximum Split (s)	26	54	26	54
Maximum Split (%)	32.5%	67.5%	32.5%	67.5%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	22	76	22	76
Yield/Force Off 170(s)	11	65	11	65
Local Start Time (s)	0	26	0	26
Local Yield (s)	22	76	22	76
Local Yield 170(s)	11	65	11	65

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 3: Mink St & E Broad St



Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	35	14	8	39	13	24	185	5	7	94	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	38	15	9	42	14	26	201	5	8	102	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	403	378	104	402	377	204	105	0	0	207	0	0
Stage 1	119	119	-	256	256	-	-	-	-	-	-	-
Stage 2	284	259	-	146	121	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	558	554	951	559	555	837	1486	-	-	1364	-	-
Stage 1	885	797	-	749	696	-	-	-	-	-	-	-
Stage 2	723	694	-	857	796	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	506	540	951	510	541	837	1486	-	-	1364	-	-
Mov Cap-2 Maneuver	506	540	-	510	541	-	-	-	-	-	-	-
Stage 1	867	792	-	734	682	-	-	-	-	-	-	-
Stage 2	653	680	-	798	791	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	12	0.8	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1486	-	-	613	581	1364	-	-
HCM Lane V/C Ratio	0.018	-	-	0.089	0.112	0.006	-	-
HCM Control Delay (s)	7.5	0	-	11.4	12	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.4	0	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	94	53	14	70	16	36	229	11	23	333	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	102	58	15	76	17	39	249	12	25	362	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	795	754	365	828	751	255	368	0	0	261	0	0
Stage 1	415	415	-	333	333	-	-	-	-	-	-	-
Stage 2	380	339	-	495	418	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	305	338	680	290	340	784	1191	-	-	1303	-	-
Stage 1	615	592	-	681	644	-	-	-	-	-	-	-
Stage 2	642	640	-	556	591	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	233	317	680	190	319	784	1191	-	-	1303	-	-
Mov Cap-2 Maneuver	233	317	-	190	319	-	-	-	-	-	-	-
Stage 1	592	578	-	655	620	-	-	-	-	-	-	-
Stage 2	530	616	-	409	577	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.5	22	1.1	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1191	-	-	382	319	1303	-	-
HCM Lane V/C Ratio	0.033	-	-	0.435	0.341	0.019	-	-
HCM Control Delay (s)	8.1	0	-	21.5	22	7.8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.1	1.5	0.1	-	-