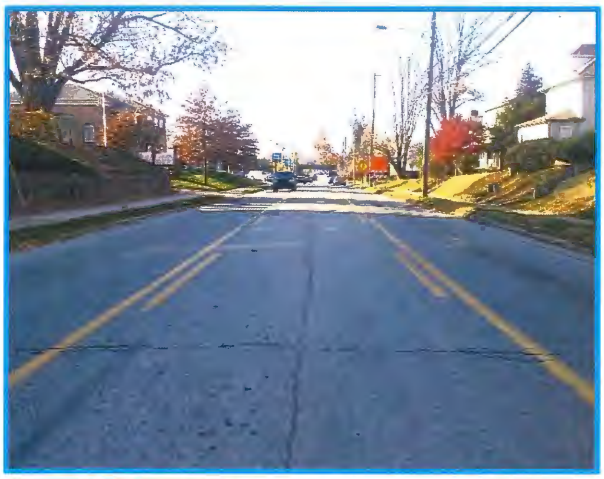
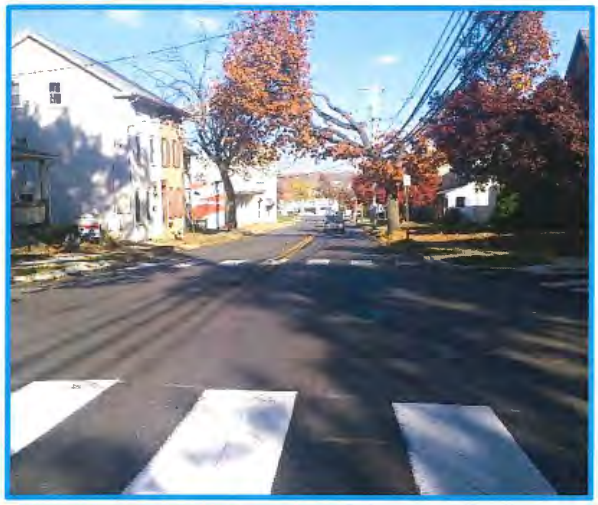
McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Nutt Road Traffic Evaluation

Borough of Phoenixville, Chester County, PA





COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOHN JOSEPH YURICK
ENGINEER
PE072076

John J. Yurick, P.E., PTOE, PTP
License Number PE 072076

Prepared by
McMahon Associates, Inc.
840 Springdale Drive
Exton, PA 19341
610.594.9995

Prepared for
Borough of Phoenixville

March 8, 2017

McMahon Project Number: 816494.11

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
EXISTING TRANSPORTATION SETTINGS & CONDITIONS	3
Roadway Characteristics	3
Area Transit Services	4
Pedestrian/Bicycle Facilities	4
Traffic Count Data	4
Traffic Signal Warrant Evaluation	4
FUTURE TRAFFIC CONDITIONS	6
Local Traffic Growth	6
Regional Traffic Growth	6
Planned Roadway Improvements	7
Future Traffic Conditions	7
CAPACITY/LEVEL-OF-SERVICE RESULTS	8
Nutt Road (S.R. 0023) and Bridge Street (S.R. 0113)	8
Neighborhood Access to Bridge Street (S.R. 0113) and Nutt Road (S.R. 0023)	9
CONCLUSIONS	11

APPENDIX A - *Traffic Signal Permit Plans*
APPENDIX B - *Manual Turning Movement Traffic Counts*
APPENDIX C - *Developments*
APPENDIX D - *2022 Future Traffic Volume Worksheets*
APPENDIX E - *Capacity/Level-of-Service Methodology*
APPENDIX F - *2016 Existing Capacity/Level-of-Service Analysis Worksheets*
APPENDIX G - *2022 Future Capacity/Level-of-Service Analysis Worksheets*

Executive Summary

Over the years, Phoenixville Borough and the surrounding municipalities have experienced rapid development growth, and this growth is expected to continue over the next several years. In addition, the Borough is located along Nutt Road (S.R. 0023), Bridge Street (S.R. 0113), and Starr Street (S.R. 0029) travel through the Borough and connect central and western Chester County with the greater King of Prussia area, and also ultimately provides access to U.S. Route 422. Since access across the Schuylkill River is limited, Phoenixville is also a gateway between Chester County and Montgomery County. As a result of the rapid growth, as well as the Borough's geographic location, a significant amount of traffic passes through the Borough on a daily basis.

The purpose if this study it to determine options for transportation improvements in the vicinity of the Nutt Road (S.R. 0023) and Bridge Street (S.R. 0013) intersection in order to relieve existing traffic demands and plan for future traffic growth.

The scope of this study includes an evaluation of the existing weekday morning and weekday afternoon peak hours, as well as the future 2022 design year, at the following study intersections:

- Nutt Road (S.R. 0023) and Bridge Street (S.R. 0113)
- Nutt Road (S.R. 0023) and Sherman Street
- Nutt Road (S.R. 0023) and Mason Street
- Nutt Road (S.R. 0023) and Callowhill Street
- Nutt Road (S.R. 0023) and Paradise Street
- Bridge Street and Pennsylvania Avenue
- Bridge Street and Chester Avenue

Based on the results of the analysis, there are several options for traffic improvements to improve existing conditions, as well as mitigate traffic impacts associated with regional and local (i.e., new developments) traffic growth at the study area intersections (and achieve generally acceptable levels of service), as follows:

Nutt Road (S.R. 0023) and Bridge Street (S.R. 0113)

- ***Option 1 – Conventional Improvements***
  - Widen eastbound Nutt Road for a second left-turn lane.
  - Realign the northern Bridge Street approach.

- ***Option 2 – Conventional Improvements***
  - Widen westbound Nutt Road for a second through lane.
  - Realign the northern Bridge Street approach.

- ***Option 3 – Roundabout***
  - Provide a partial two lane two-lane roundabout. This will require realignment of all legs of the intersection.

Neighborhood Access to Nutt Road (S.R. 0023) and Bridge Street

The only option to provide a new traffic signal in the study area that would allow signalized access to one or both of the neighborhoods on the west side of Bridge Street within the study area will be the introduction of the Paradise Street extension, likely associated with the Residences at French Creek development. With the Paradise Street extension, there are two options for the location of the Nutt Road intersection:

- ***Option 1 – Mason Street***
    - Widen westbound Nutt Road for a second through lane.
    - Widen northbound and southbound Mason Street for separate left-turn lanes.
    - Install a traffic signal.

- ***Option 2 – Paradise Street***
    - Widen westbound Nutt Road for a second through lane.
    - Widen southbound Paradise Street for a separate left-turn lane.
    - Install a traffic signal.

Since the study area is characterized by existing business and homes within minimal setbacks from adjacent roadways, each of these options will create an impact to surrounding properties. Alternatively, additional measures could be considered to reduce the need for geometric widening, thereby reducing property impacts. Such measures could include adaptive traffic signal control or other measures, including but not limited to provision of multimodal accommodations, improved transit service, and other new roadway connections. The Borough should determine which improvement options will be pursued, and it may be appropriate to develop conceptual intersection improvement plans to determine the feasibility of the selected options.

Existing Transportation Setting

The study area in is located on the southwest area of the Borough of Phoenixville, in Chester County, Pennsylvania (**Figure1**). The existing roadways and intersections in this area, which comprise the study area roadway network, are described in this section.

Roadway Characteristics

The study area roadway network and characteristics are summarized below in **Table 1**.

Table 1. Existing Roadway Characteristics

Roadway Name (Jurisdiction)	Average Daily Traffic Volumes (vehicles per day)	Roadway Classification		Travel Lanes (per direction)	Posted Speed Limit (mph)
		Smart Transportation (1)	PennDOT/ Township (2)		
Nutt Road (S.R. 0023 – State)	24,700 (3)	Community Arterial	Urban – Minor Arterial	1	35
Bridge Street (S.R. 0113 - State)	10,900 (3)	Community Arterial	Urban – Principal Arterial	1	25
Paradise Street (Local)	N/A	Local	Local	1	Not Posted
Callowhill Street (Local)	N/A	Local	Local	1	25
Mason Street (Local)	N/A	Local	Local	1	Not Posted
Sherman Street	N/A	Local	Local	1	Not Posted
Pennsylvania Avenue	N/A	Local	Local	1	25
Chester Avenue	N/A	Local	Local	1	Not Posted

(1) Based on Table 5.1 – Roadway Categories in the PennDOT publication, *Smart Transportation Guidebook*.
(2) Based on the roadway classifications provided on PennDOT's Internet Traffic Monitoring System (iTMS) website, or the Borough's Comprehensive Plan.
(3) Based on traffic data from PennDOT's Internet Traffic Monitoring System (iTMS) website.

The following key intersections in the vicinity of the site comprise the study area:

<u>Signalized Intersection</u>

- Nutt Road (S.R. 0023) and Bridge Street (S.R. 0113)

<u>Unsignalized Intersections</u>

- Nutt Road (S.R. 0023) and Sherman Street
- Nutt Road (S.R. 0023) and Mason Street

- Nutt Road (S.R. 0023) and Callowhill Street
- Nutt Road (S.R. 0023) and Paradise Street
- Bridge Street and Pennsylvania Avenue
- Bridge Street and Chester Avenue

The existing signal permit plans are provided in **Appendix A**.

Area Transit Services

There is no transit service (bus or train) provided within the immediate study area. However, SEPTA Bus Routes 99 and 139 run through portions of the Borough, with bus stops along High Street, Gay Street, Bridge Street, Church Street, and Township Line Road.

Pedestrian-Bicycle Facilities

Most of the study area roadways provide sidewalk facilities; however, dedicated or bicycle lanes are not provided in the study area.

Traffic Count Data

Manual turning movement traffic counts were conducted in October 2016 during the weekday morning (7:00 AM to 9:00 AM) and weekday afternoon (4:00 PM to 6:00 PM) at all of the study area intersections. The results of these traffic counts are tabulated by 15-minute intervals in **Appendix B**. Additionally, extended traffic counts were conducted at the intersections of Nutt Road with both Callowhill Street and Mason Street between 7:00 AM and 6:00 PM for the purposes of evaluating traffic signal warrants at these intersections. The four highest consecutive 15-minute peak intervals during these traffic count periods constitute the peak hours that are the basis of this traffic analysis.

The resultant peak hour traffic volumes are depicted in **Figure 2A** for the weekday morning and weekday afternoon peak hours.

Traffic Signal Warrant Evaluation

Based on the *Manual on Uniform Traffic Control Devices* (MUTCD) and PennDOT traffic signal warrant criteria, current traffic volumes at the unsignalized study area intersections satisfy these criteria, as shown in **Table 2.**

Table 2. Existing Conditions Traffic Signal Warrants

Intersection	Traffic Signal Warrant Criteria[1]		
	Peak Hour	Four Hour	Eight Hour
Nutt Road and Paradise Street	Not Warranted	Not Warranted	[2]
Nutt Road and Callowhill Street	Not Warranted	Not Warranted	Not Warranted
Nutt Road and Mason Street	Not Warranted	Not Warranted	Not Warranted
Nutt Road and Sherman Street	Not Warranted	Not Warranted	Not Warranted
Bridge Street Wheatland Street	Not Warranted	Not Warranted	[2]
Bridge Street and Pennsylvania Avenue	Not Warranted	Not Warranted	[2]
Bridge Street and Chester Avenue	Not Warranted	Not Warranted	[2]

1 – Based on the *Manual on Uniform Traffic Control Devices* (MUTCD) criteria.

2 – Limited traffic data was collected at these intersections; however, based on the collected data, it is not expected that this warrant will be satisfied.

Future Traffic Conditions

This section presents the future design year (2022) traffic conditions. The future 2022 design year traffic volumes were estimated by increasing the existing 2016 traffic volumes to account for regional growth, as described below.

Local Traffic Growth

To account for local traffic growth, all major developments that have received approval from the Borough have been included in the background traffic growth assumptions. In addition, approved major developments located in Schuylkill and East Pikeland Townships were also included in the future traffic growth projections. Trip generation for these developments are based on the Institute of Transportation Engineers (ITE) publication *Trip Generation, Ninth Edition*. **Table 3** shows the total combined trip generation of all of the developments combined. Additional detail regarding the developments is provided in **Appendix C**.

Table 3. Vehicular Trip Generation

		Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Municipality	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Phoenixville Borough	17,773	295	947	1,242	1,032	624	1,656
East Pikeland Township	5,153	102	275	377	311	189	500
Schuylkill Township	1,007	24	61	85	63	37	100
Total	***23,933***	***421***	***1,283***	***1,704***	***1,406***	***850***	***2,256***

Factors such as transit service, the walkability of the Borough, and other factors will likely have some positive impact (reduction) in the overall trip generation projections. However, in order to provide a conservative analysis, no trip generation reduction was applied to account for these influences.

Regional Traffic Growth

To account for regional traffic growth, the existing traffic volumes were increased by an annual traffic growth rate of 0.5 percent per year compounded for six years to 2022, or 3.04 percent total. This growth rate was used since a large number of developments were specifically accounted for, and since a review of historic traffic counts at the intersection of Nutt Road and Bridge Street reveals that traffic volumes have not significantly increased over the last 14 years. It is noted that the effective growth rate in the study area

ranges between 2.76 percent per year and 3.26 percent per year, which exceeds the traffic growth rate recommended by the PennDOT Bureau of Planning and Research *Growth Factors for August 2016 to July 2017* for similar, urban non-interstate roadways in Chester County.

Planned Roadway Improvements

As part of the Residences at French Creek development, it is our understanding that the Borough has requested the developer extend Paradise Street across French Creek to intersect Main Street just north of the Bridge Street/Main Street intersection. The future traffic volumes assume this new roadway connection, and include diversion of existing traffic volumes to the new connection (see **Appendix D**). At this time, the mitigation intersection improvements by the developer (if any) at the Nutt Road/Paradise Street intersection associated with this project are not known. As such, this study recommends potential alternatives regarding the location and intersection design of this intersection, which are described later in this report.

Future Traffic Conditions

The total background growth and nearby approved development traffic volumes were then added to the existing 2016 traffic volumes, resulting in the 2022 traffic volumes. The resultant future 2022 peak hour traffic volumes are illustrated in **Figure 3A** for the weekday morning and weekday afternoon peak hours. In addition, the future traffic signal warrants are shown in **Table 4**.

Table 4. Future Conditions Traffic Signal Warrants

Intersection	Traffic Signal Warrant Criteria[1]
	Peak Hour
Nutt Road and Paradise Street	Warranted[2]
Nutt Road and Callowhill Street	Not Warranted[3]
Nutt Road and Mason Street	Not Warranted[3]
Nutt Road and Sherman Street	Not Warranted[3]
Bridge Street Wheatland Street	Not Warranted[3]
Bridge Street and Pennsylvania Avenue	Not Warranted[3]
Bridge Street and Chester Avenue	Not Warranted[3]

1 – Based on the *Manual on Uniform Traffic Control Devices* (MUTCD) criteria.

2 – Warranted based on the assumption that Paradise Street will be extended over the French Creek and accommodate traffic diversions and traffic associated with the planned Residences at French Creek Development.

3 – Based on projected traffic volumes, it is not anticipated that additional traffic signal warrants will be satisfied, nor would PennDOT approve signalization based on non-peak hour projections in our experience.

Capacity/Level-of-Service Results

The peak hour traffic volumes were analyzed to determine the existing and future traffic operating conditions, both without and with any improvements, in accordance with the standard techniques contained in the current *Highway Capacity Manual (2010)* for both signalized and unsignalized intersections. The HCM 2010 Methodology within Synchro 8.0 (build 806, rev. 61) traffic analysis software was utilized in the traffic analyses.

These standard capacity/level-of-service analysis techniques, which calculate total control delay, are described in **Appendix E** for both signalized and unsignalized intersections, as well as the correlation between average total control delay and the respective level-of-service (LOS) criteria for each intersection type.

The existing, future design year (2022) traffic conditions, are summarized in **Figures 2B, and 3B**, respectively while the detailed capacity/level-of-service analysis worksheets are provided in **Appendices F and G.**

Nutt Road (S.R. 0023) and Bridge Street (S.R. 0113)

Under existing conditions, this intersection operates with overall LOS D and E during the weekday morning and weekday afternoon peak hours, respectively, and several movements, including the eastbound Nutt Road left-turn movement and the southbound Bridge Street right-turn movement, operate with significant delay during the peak hours due to the heavy turning movements at the intersection.

In the future, the delay at this intersection will increase as a result of projected traffic growth. In order to improve traffic conditions at this intersection the Borough should consider the following improvement options, as shown in **Figure 3C**:

Options 1 and 2 – Conventional Intersection Improvements

Under these options, either eastbound Nutt Road would be widened to provide dual left-turn lanes (Option 1), or westbound Nutt Road would be widened to provide a second through lane (Option 2). In addition, under both scenarios, it would be necessary to realign the north leg of Bridge Street at the intersection, which would impact properties on the northwest quadrant of the intersection, as well as properties on the north side of Nutt Road west of the intersection. Also, Mellon Street should be realigned likely to the north to intersect with Bridge Street. With either of these options, the intersection would still operate with some delay, especially during the weekday afternoon peak hour; however, additional capacity improvements may not be feasible under these options without additional major impacts to adjacent properties.

Option 3 – Roundabout

Under this option, a partial two-lane roundabout would be installed at the intersection, which would allow the intersection to operate at overall LOS D or better during both peak hours. Due to the limited space available at the intersection, and the need to realign the legs of the intersection, it is

likely that properties on all four corners of the intersection would be impacted by this improvement. However, the impact would be limited to properties immediately adjacent to the intersection.

It is recommended that the Borough consider developing a conceptual layout plan of these options in order to further evaluate these improvement alternatives and their impacts/feasibility.

Neighborhood Access to Bridge Street (S.R. 0113) and Nutt Road (S.R. 0023)

Under existing conditions, the stop-controlled side street approaches to most of the unsignalized intersections along Bridge Street and Nutt Road currently operate with moderate to heavy delay due to the heavy traffic volumes along Nutt Road and Bridge Street, and will continue to operate with delays in the future due to the projected traffic increases. As noted in Table 4, future traffic volumes do not satisfy traffic signal warrants in many instances. However, the only option to provide a new traffic signal in the study area that would allow signalized access to one or both of these neighborhoods will be the introduction of the Paradise Street extension associated with the Residences at French Creek development. This connection will allow traffic from the Residences at French Creek development, as well as traffic diverted from Bridge Street north of the study area to bypass the Nutt Road/Bridge Street intersection, and would introduce enough traffic so that a traffic signal would be warranted along Nutt Road west of Bridge Street. With the Paradise Street extension, there are two options for the location of the Nutt Road intersection, as shown in **Figure 3D**:

Option 1 – Mason Street

Under this option, Nutt Road would be widened to provide a second westbound through lane, the northbound and southbound Mason Street approaches would be widened to provide separate left-turn lanes, and a traffic signal would be installed. This option would allow signalized access to both neighborhoods. However, this option would require obtaining right-of-way to connect Paradise Street to Mason Street through private property, which includes the parking lot for an existing building. In addition, due to the close spacing of buildings to the edge of Mason Street at Nutt Road, widening Mason Street for left-turn lanes, and Nutt Road for through lanes would impact residential properties in the vicinity of the intersection.

Option 2 – Paradise Street

Under this option, Nutt Road would be widened to provide a second westbound through lane, southbound Paradise Street would be widened to provide separate left- and right-turn lanes, and a traffic signal would be installed. This option will may also require right-of-way; however, no existing developments will be affected. However, this option will not allow for the neighborhood on the south side of Nutt Road to access Nutt Road via a traffic signal. In addition, widening for the second westbound Nutt Road through lane will likely require modifications to the abandoned rail bridge over Nutt Road just west of the intersection. The bridge may also affect traffic signal visibility, and additional accommodations may be needed, as determined during the design of the improvements.

The additional unsignalized study intersections south of Nutt Road are projected to function at generally acceptable conditions in the future weekday commuter peak hours. Only the westbound, stop-controlled Chester Avenue approach to W. Bridge Street is expected to function with delay during the future weekday afternoon peak hour.

Additionally, the eastbound, stop-controlled Wheatland Street approach to Bridge Street will also function at failing levels of service during both future weekday commuter peak hours. Since future traffic volumes not satisfy MUTCD Peak Hour traffic signal warrant criteria, additional measures to improve operations or reduce traffic volumes along Bridge Street should be considered, possibly including a roadway connection to Bridge Street, north of Wheatland Street through adjacent properties. If such a roadway connection were made, it may be possible to provide improved access to Bridge Street via a new traffic signal at Wheatland Street or Buchannon Street, which would require further evaluation.

The improvements noted above are generally consistent with prior planning studies including the North Phoenixville Comprehensive Traffic Study. Furthermore, it is recommended that the Borough consider developing a conceptual layout plan of these options in order to further evaluate these improvement alternatives and their impacts/feasibility.

Conclusions

Many of the study intersections function poorly today and conditions will worsen in the future as a result of projected traffic growth, particularly with the amount of anticipated development in and around the Borough. Based on the results of the preceding analysis, there are several options for traffic improvements at the study area intersections, as follows:

Nutt Road (S.R. 0023) and Bridge Street (S.R. 0113)

- ***Option 1 – Conventional Improvements***
    - Widen eastbound Nutt Road for a second left-turn lane.
    - Realign the northern Bridge Street approach.

- ***Option 2 – Conventional Improvements***
    - Widen westbound Nutt Road for a second through lane.
    - Realign the northern Bridge Street approach.

- ***Option 3 – Roundabout***
    - Provide a partial two lane two-lane roundabout.

Neighborhood Access to Nutt Road (S.R. 0023) and Bridge Street

The only option to provide a new traffic signal in the study area that would allow signalized access to one or both of the neighborhoods on the west side of Bridge Street within the study area will be the introduction of the Paradise Street extension proposed by the Residences at French Creek development. With the Paradise Street extension, there are two options for the location of the Nutt Road intersection:

- ***Option 1 – Mason Street***
    - Widen westbound Nutt Road for a second through lane.
    - Widen northbound and southbound Mason Street for separate left-turn lanes.
    - Install a traffic signal.

- ***Option 2 – Paradise Street***
    - Widen westbound Nutt Road for a second through lane.
    - Widen southbound Paradise Street for a separate left-turn lane.
    - Install a traffic signal.

Since the study area is characterized by existing business and homes closely spaced with limited setbacks from adjacent roadways, each of these options will create an impact to surrounding properties. The Borough should determine which improvement options will be pursued, and it may be appropriate to develop conceptual intersection improvement plans to determine the feasibility of these improvements.

In addition, the analysis reveals that measures to reduce traffic along Nutt Road and Bridge Street should be considered as to reduce or offset impact of geometric widening for additional capacity. New roadway connections in the area should be pursued (to the extent feasible), including but not limited to the extension

of Paradise Street and the possible connection of Wheatland Street to properties to the north for alternative access to Bridge Street. Adaptive traffic signal control systems, multimodal facilities, and improved transit service may also help to reduce traffic and impacts of new development, and offset required mitigation improvements.

FIGURE 1

Site Location Map

NUTT ROAD (S.R. 0023) TRAFFIC STUDY

PHOENIXVILLE BOROUGH, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\816494 - Phx NuttRd Traffic Study\Dwg\Figures\Figure 1.dwg

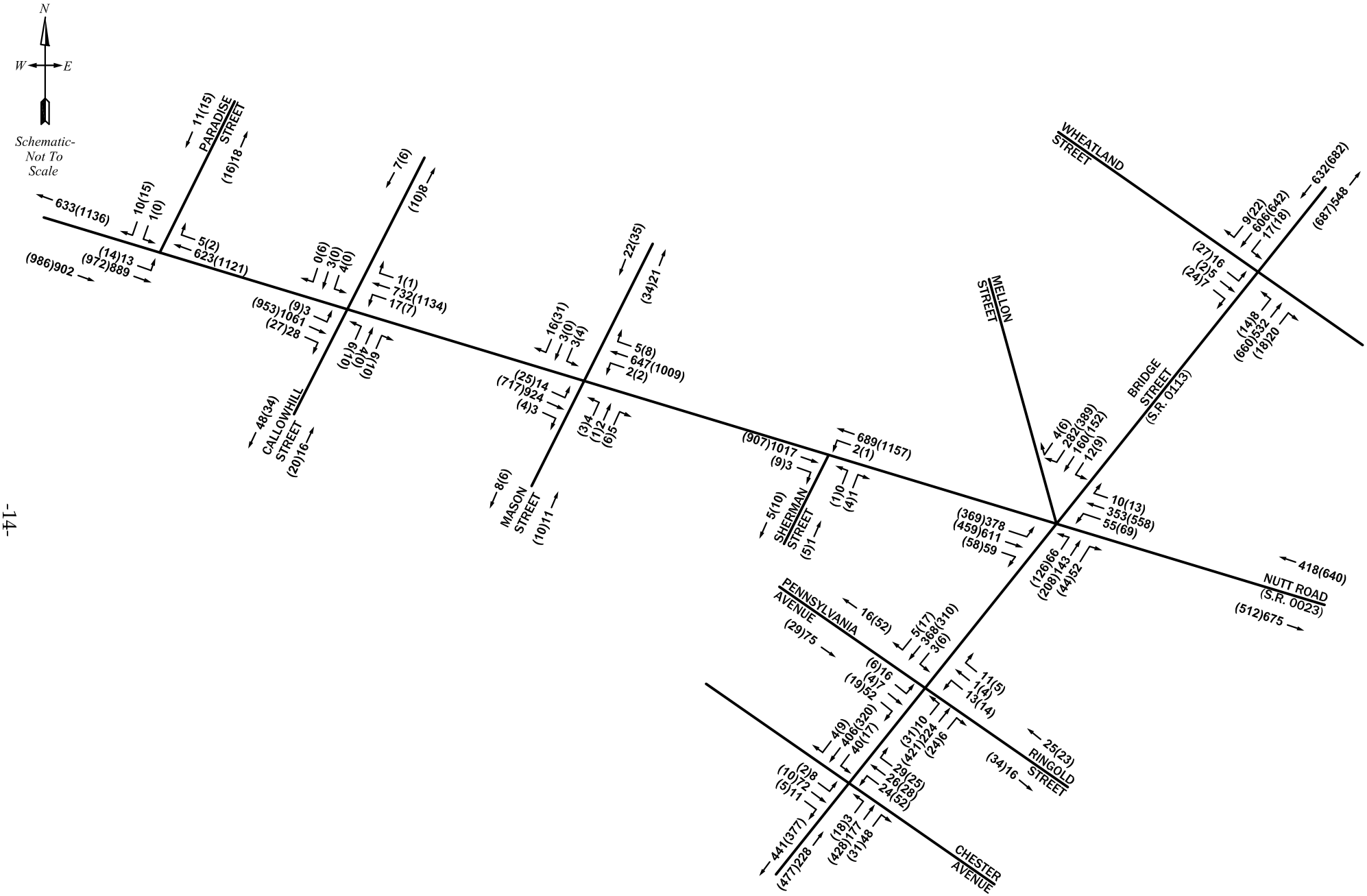


FIGURE 2A

2016 Existing Peak Hour Traffic Volumes

NUTT ROAD (S.R. 0023) TRAFFIC STUDY

PHOENIXVILLE BOROUGH, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\816494 - Phx NuttRd Traffic Study\Dwg\Figures\Figure 2A.dwg

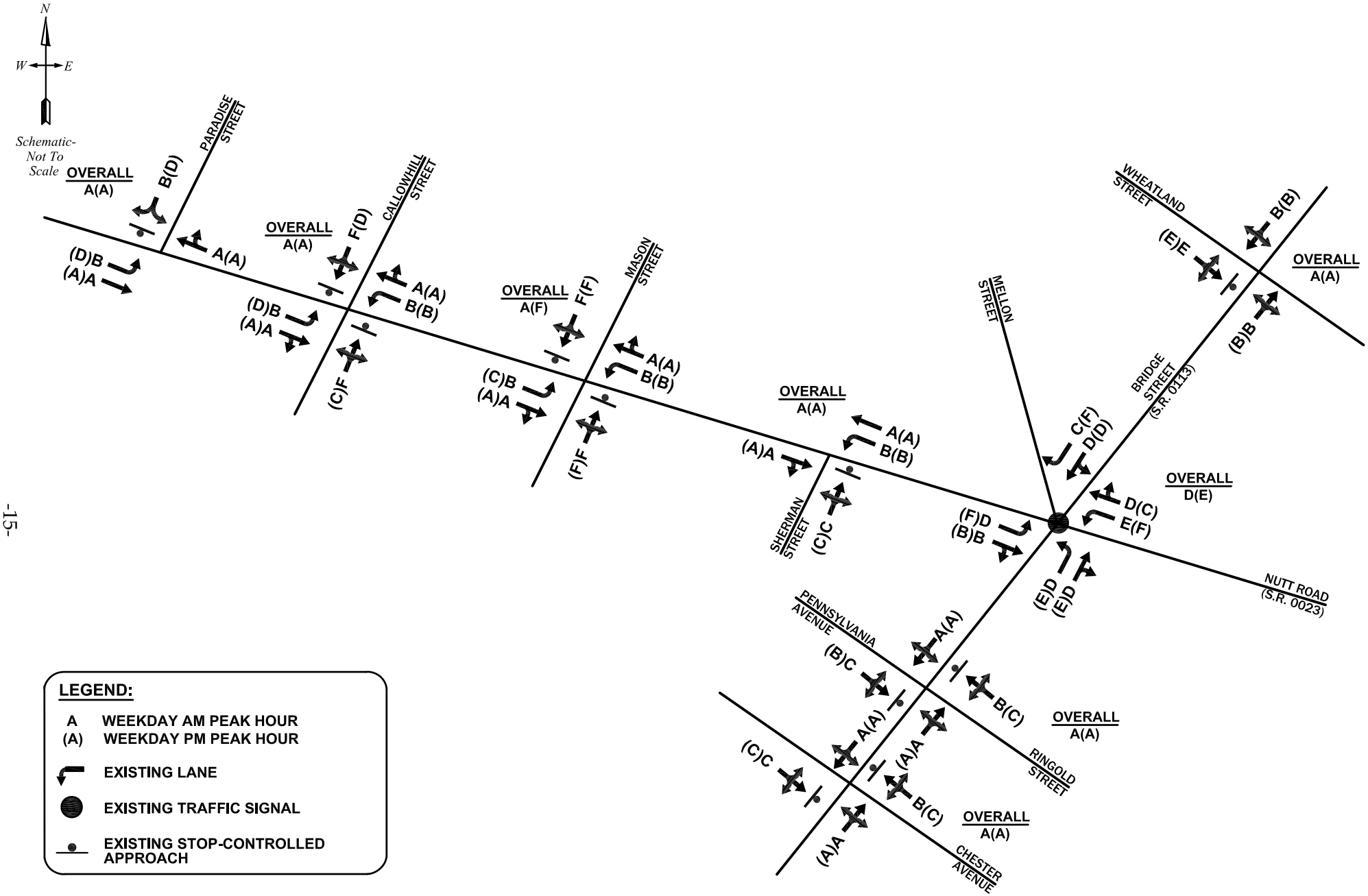


FIGURE 2B

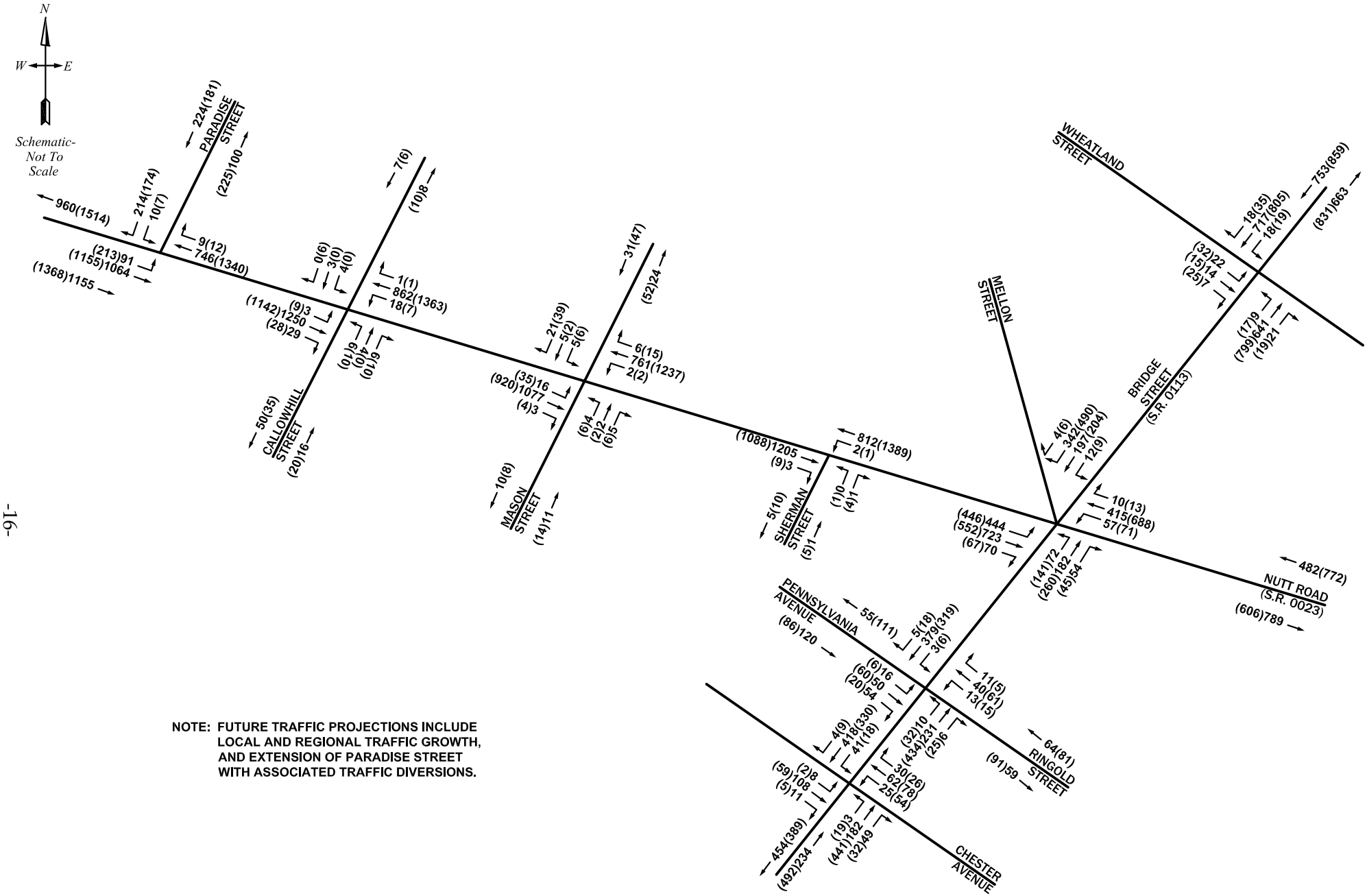
2016 Existing Peak Hour Levels-of-Service

NUTT ROAD (S.R. 0023) TRAFFIC STUDY

PHOENIXVILLE BOROUGH, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\816494 - Phx NuttRd Traffic Study\Dwg\Figures\Figure 2B.dwg



NOTE: FUTURE TRAFFIC PROJECTIONS INCLUDE LOCAL AND REGIONAL TRAFFIC GROWTH, AND EXTENSION OF PARADISE STREET WITH ASSOCIATED TRAFFIC DIVERSIONS.

FIGURE 3A

2022 Future Peak Hour Traffic Volumes

NUTT ROAD (S.R. 0023) TRAFFIC STUDY

PHOENIXVILLE BOROUGH, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\816494 - Phx NuttRd Traffic Study\Dwg\Figures\Figure 3A.dwg

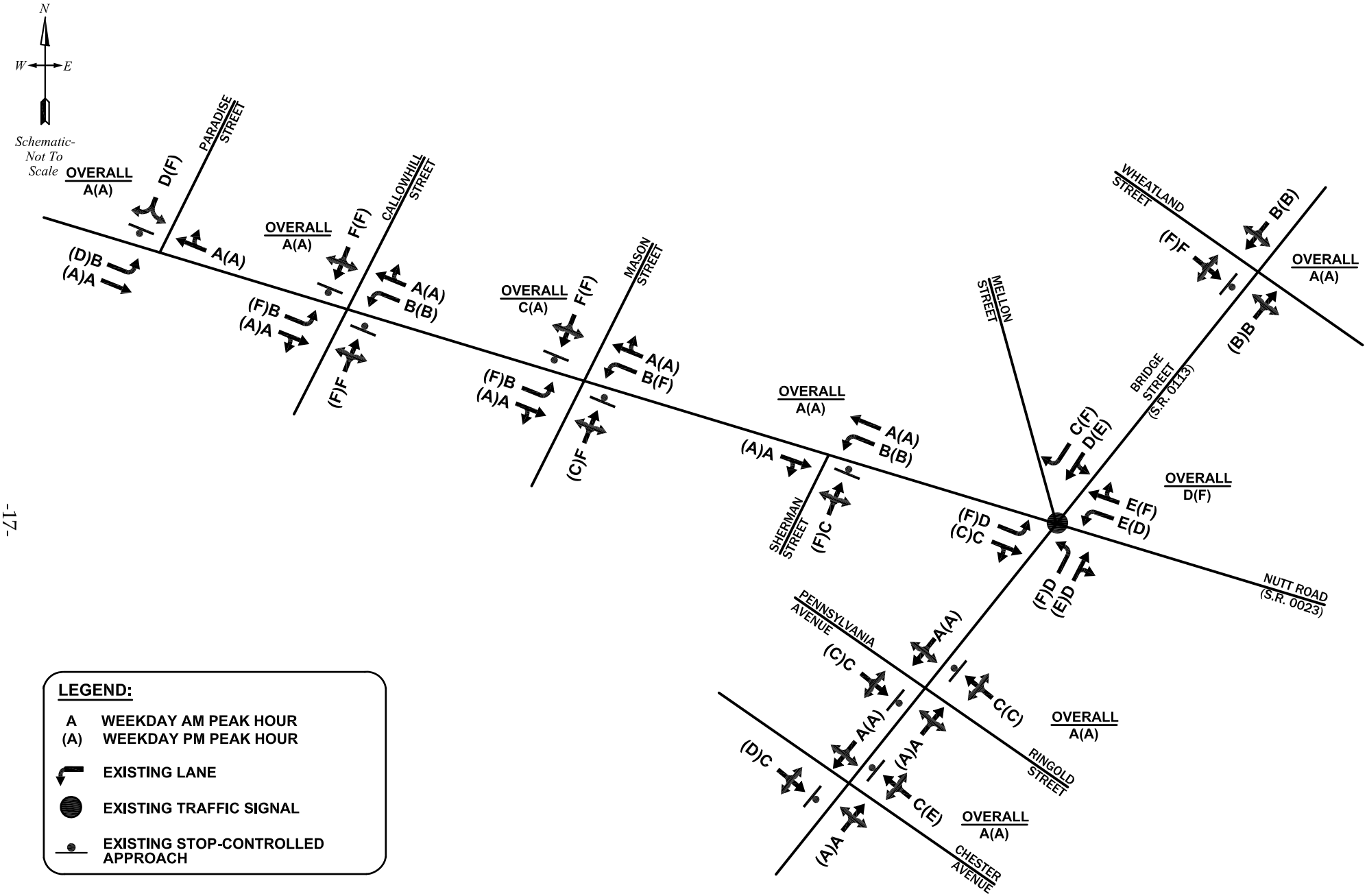


FIGURE 3B

2022 Future Peak Hour Levels-of-Service without Improvements

NUTT ROAD (S.R. 0023) TRAFFIC STUDY

PHOENIXVILLE BOROUGH, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\816494 - Phx NuttRd Traffic Study\Dwg\Figures\Figure 3B.dwg

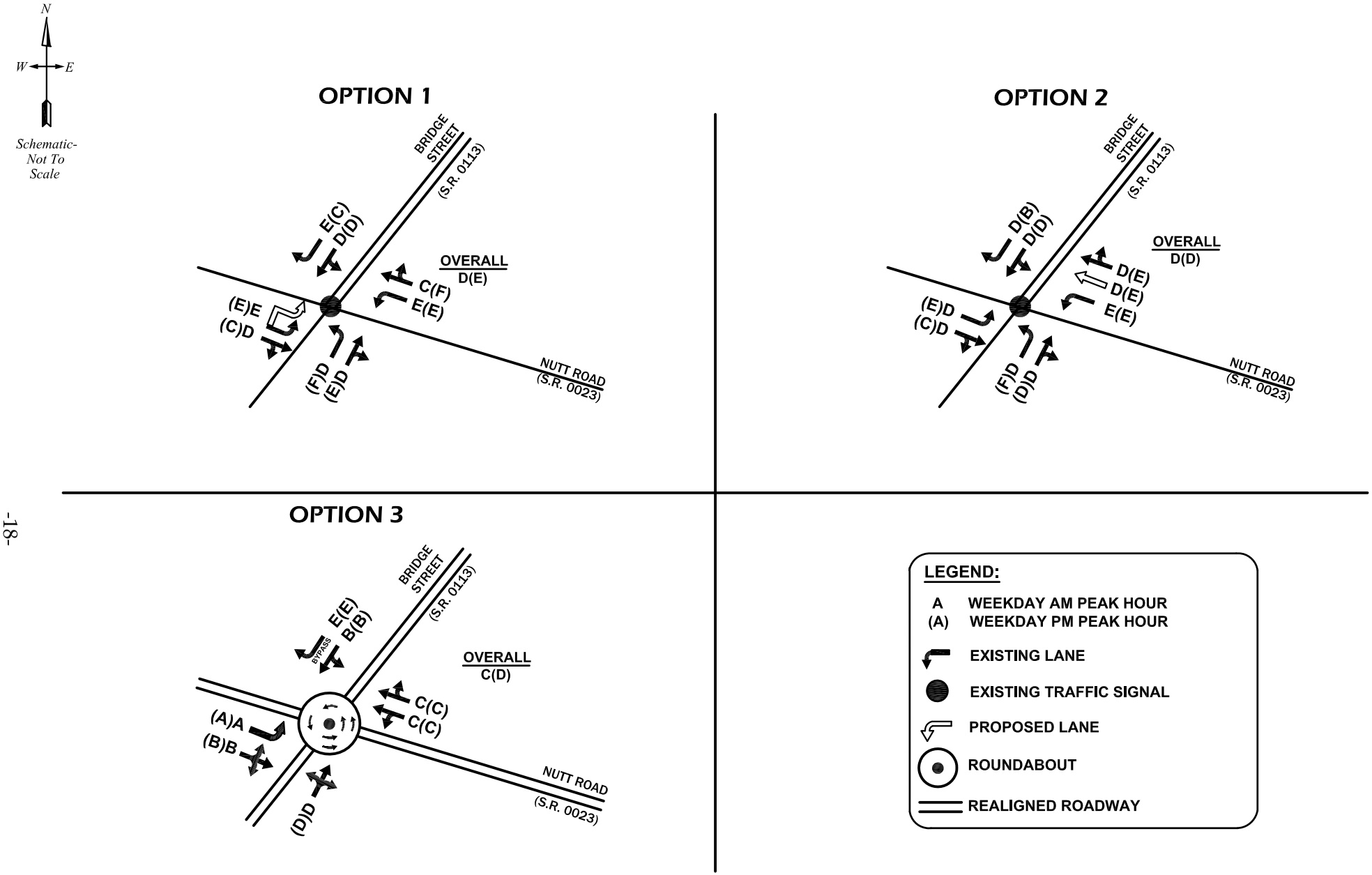


FIGURE 3C

2022 Future Peak Hour Levels-of-Service with Improvements - Nutt Road and Bridge Street

NUTT ROAD (S.R. 0023) TRAFFIC STUDY

PHOENIXVILLE BOROUGH, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\816494 - Phx NuttRd Traffic Study\Dwg\Figures\Figure 3C.dwg

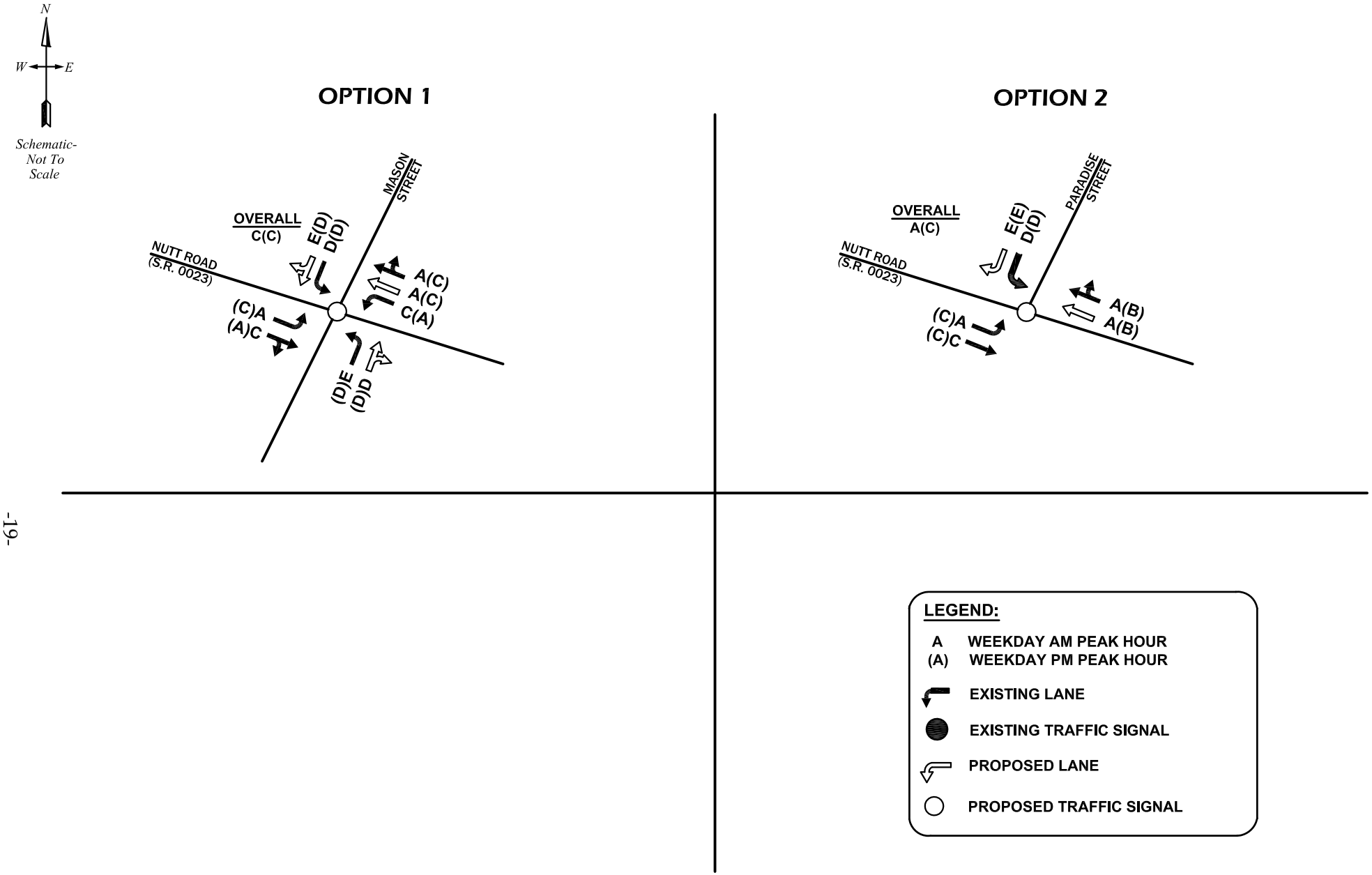


FIGURE 3D

2022 Future Peak Hour Levels-of-Service with Improvements - Paradise Street Extension

NUTT ROAD (S.R. 0023) TRAFFIC STUDY

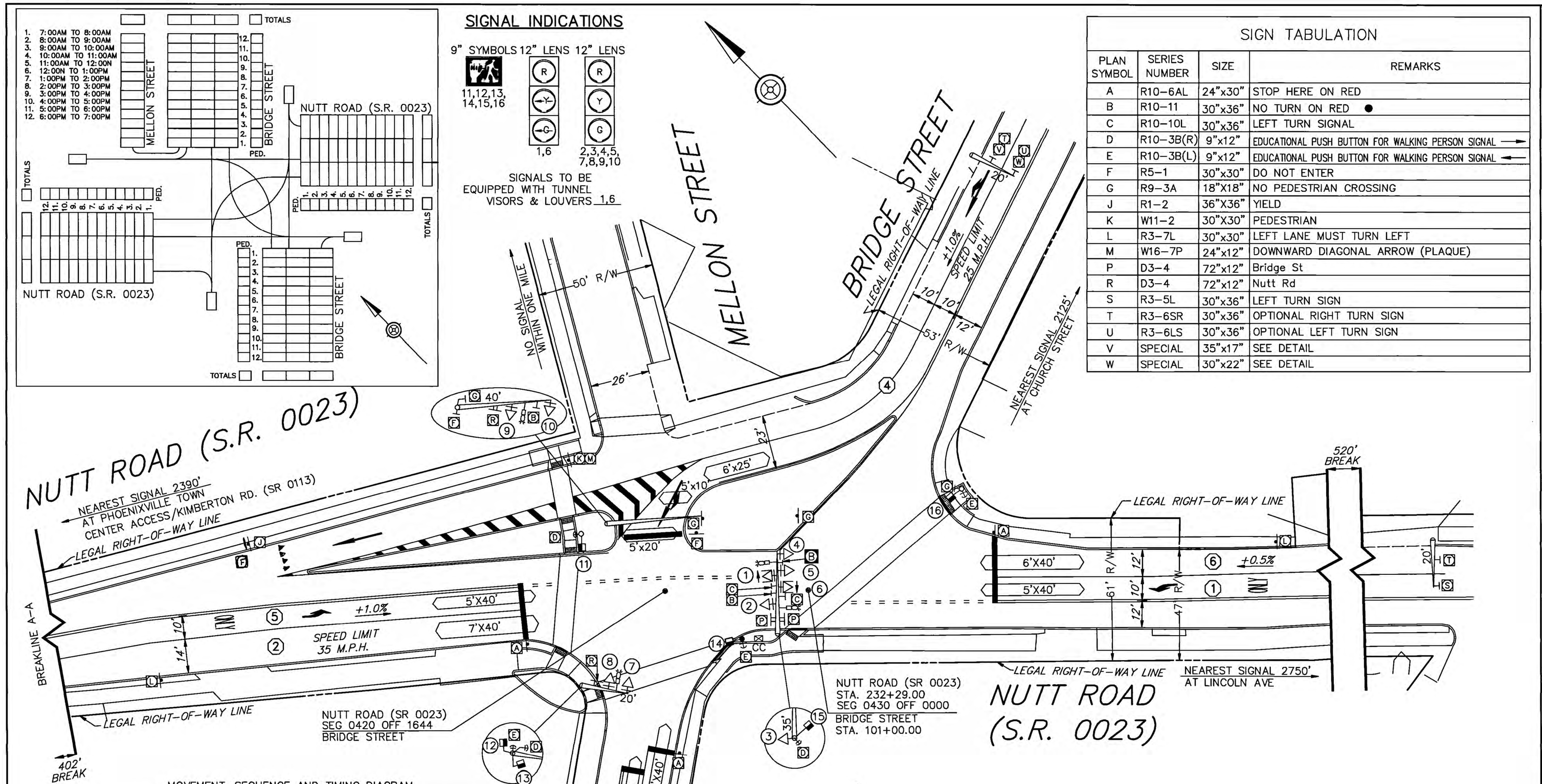
PHOENIXVILLE BOROUGH, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\816494 - Phx NuttRd Traffic Study\Dwg\Figures\Figure 3D.dwg

Appendix A

Traffic Signal Permit Plans



SIGN TABULATION

PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R10-6AL	24"x30"	STOP HERE ON RED
B	R10-11	30"x36"	NO TURN ON RED ●
C	R10-10L	30"x36"	LEFT TURN SIGNAL
D	R10-3B(R)	9"x12"	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON SIGNAL →
E	R10-3B(L)	9"x12"	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON SIGNAL ←
F	R5-1	30"x30"	DO NOT ENTER
G	R9-3A	18"X18"	NO PEDESTRIAN CROSSING
J	R1-2	36"X36"	YIELD
K	W11-2	30"X30"	PEDESTRIAN
L	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
M	W16-7P	24"x12"	DOWNWARD DIAGONAL ARROW (PLAQUE)
P	D3-4	72"x12"	Bridge St
R	D3-4	72"x12"	Nutt Rd
S	R3-5L	30"x36"	LEFT TURN SIGN
T	R3-6SR	30"x36"	OPTIONAL RIGHT TURN SIGN
U	R3-6LS	30"x36"	OPTIONAL LEFT TURN SIGN
V	SPECIAL	35"x17"	SEE DETAIL
W	SPECIAL	30"x22"	SEE DETAIL

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED DECEMBER 20, 1974.

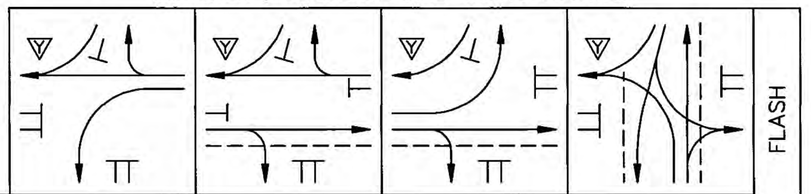
WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT# I-0053

MOVEMENT, SEQUENCE AND TIMING DIAGRAM



PHASE	1+6			2+6				2+5				4+8				
INTERVAL / SIGNALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	R	R	R	R	R	R	R	~~G~~	~~G~~	~~Y~~	R	R	R	R	R	Y
2,3	R	R	R	G	G	Y ②	R ②	G	G	Y ①	R ①	R	R	R	R	Y
4,5	G	Y ①	R ①	G	G	Y ③	R ③	R	R	R	R	R	R	R	R	Y
6	~~G~~	~~Y~~	R	R	R	R	R	R	R	R	R	R	R	R	R	Y
7,8	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R
9,10	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R
11,12	H	H	H	H	H	H	H	H	H	H	H	M	FH	H	H	OFF
13,14	H	H	H	M	FH	H	H	M	FH	H	H	H	H	H	H	OFF
15,16	H	H	H	H	H	H	H	H	H	H	H	M	FH	H	H	OFF

FIXED		3	5			3	2			3	5			3	2
MINIMUM	7			15				7				7			
PASSAGE	3			3				3				3			
MAX 1	15			45				20				25			
PEDESTRIAN*				10	11			④				7	18		
MEMORY	NL			MN				NL				NL			

*UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE HAND SYMBOL AT ALL TIMES.

OPERATION NOTES:

① REMAINS G IF FOLLOWED BY PHASE 2+6.
② REMAINS G IF FOLLOWED BY PHASE 2+5.
③ REMAINS G IF FOLLOWED BY PHASE 1+6.
④ TIMINGS SHALL BE AS SHOWN IN PHASE 2+6. IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 2+6.

MASTER CONTROLLER LOCATED AT THIS INTERSECTION.

THIS SIGNAL IS COORDINATED WITH ADJACENT SIGNALS ALONG NUTT ROAD (SR 0023) FROM RAPPS DAM ROAD/MOWERE ROAD TO BRIDGE STREET BY MEANS OF FIBER-OPTIC COMMUNICATION.

SEE SYSTEM PLAN I-0053 FOR SIGNAL SYSTEM PROGRAM TIMES. OFFSET REFERENCED TO PHASE 2+6 START OF GREEN (INTERVAL 4).

SCALE
25 0 25

LEGEND

- MAST ARM/ IDENTIFYING LENGTH (20')
- VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS/ DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/ SIGN
- SIGN/IDENTIFYING LETTER
- VIDEO DETECTOR
- C.C. CONTROLLER CABINET
- LOOP SENSOR/SIZE (12'x6')
- ZONE OF DETECTION
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- EMERGENCY PRE-EMPTION DEVICE
- CURB RAMP
- UTILITY POLE
- PHASE NUMBER
- INLET
- WAVETRONIX RADAR DETECTOR

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: PHOENIXVILLE BOROUGH
INTERSECTION: NUTT ROAD (S.R. 0023) AND BRIDGE STREET

REVIEWED:
DATE
MUNICIPAL OFFICIAL DATE

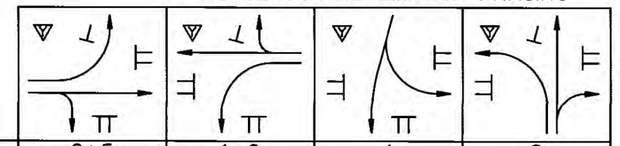
RECOMMENDED:
PHOENIXVILLE BOROUGH OFFICIAL 5/17/07
LOUIS R. BELMONTE 5/31/07
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	AS BUILT DRAWING	KMJ	11/10/10	LUTZ	12/8/10		
2	ADD SIGNS V&W	MCM	7/28/16	[illegible]	8/24/16	[illegible]	8/26/16
3							
4							
5							
6							
7							
8							

SHEET 2 OF 3 PERMIT # 62-0568 FILE # 0568

t:\eng\515229 - Nutt Rd (S.R. 0023) and Bridge St\Dwg\2595GI2.dwg 7/28/2016 5:52:41 PM

EMERGENCY PRE-EMPTION PHASING



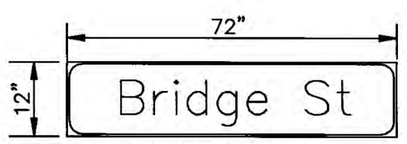
PHASE	2+5			1+6			4			8		
SIGNALS \ INTERVAL	16	17	18	19	20	21	22	23	24	25	26	27
1	~~G~~	~~Y~~ ⓪	R ⓪	R	R	R	R	R	R	R	R	R
2,3	G	Y ⓪	R ⓪	R	R	R	R	R	R	R	R	R
4,5	R	R	R	G	Y ⓪	R ⓪	R	R	R	R	R	R
6	R	R	R	~~G~~	~~Y~~ ⓪	R ⓪	R	R	R	R	R	R
7,8	R	R	R	R	R	R	G	Y	R	R	R	R
9,10	R	R	R	R	R	R	R	R	R	G	Y	R
11,12	H	H	H	H	H	H	H	H	H	H	H	H
13,14	H	H	H	H	H	H	H	H	H	H	H	H
15,16	H	H	H	H	H	H	H	H	H	H	H	H
FIXED TIME	ⓑ	3	5	ⓑ	3	5	ⓑ	3	2	ⓑ	3	2

⓪ SIGNAL TO REMAIN G WHEN RETURNING TO PHASE 2+6
ⓑ FOR DURATION OF OPTICAL PRE-EMPTION

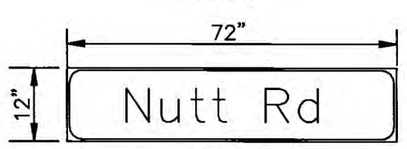
NOTE: IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE NORTHBOUND & SOUTHBOUND APPROACHES OF NUTT ROAD (SR 0023) AND THE EASTBOUND & WESTBOUND APPROACHES OF BRIDGE STREET WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.
  THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.
  LOCATION OF EMERGENCY VEHICLE DETECTORS ARE TO BE FIELD ADJUSTED TO ACHIEVE MAXIMUM OPERATION.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLES, SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY, FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY. THEN THE GREEN INTERVAL FOR THE PRE-EMPTED PHASE SHALL FOLLOW.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.
- IF SIGNALS HAVE BEEN ACTUATED BY PEDESTRIAN PUSH BUTTON AND THE SIGNAL IS PRE-EMPTED, THE PEDESTRIAN TIME SHALL BE SPLIT BETWEEN PED "WALK (MAN)" AND PED "CLEAR (HAND)". THE PED "WALK (MAN)" INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PED "CLEAR (HAND)" INTERVAL. THIS INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE CLEARANCES, BEFORE GOING INTO EMERGENCY PRE-EMPTION.
- IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE ARE FLASHING, ALL SIGNALS SHALL REMAIN FLASHING.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.
- UPON COMPLETION OF PRE-EMPTION PHASE 2+5, 4, 1+6, OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED. PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.



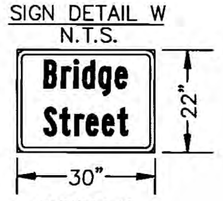
DETAIL SIGN P
N.T.S.



DETAIL SIGN R
N.T.S.

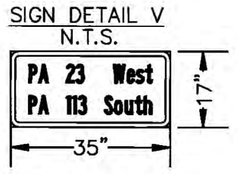
CLEARVIEWONE CD-45
8" UPPER CASE
6" LOWER CASE
WHITE LEGEND ON
GREEN BACKGROUND

SIGN DETAIL W
N.T.S.



SERIES B
6" UPPER CASE
4" LOWER CASE
WHITE LEGEND ON
GREEN BACKGROUND

SIGN DETAIL V
N.T.S.



SERIES B
4" UPPER CASE
3" LOWER CASE
WHITE LEGEND ON
GREEN BACKGROUND

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT# I-0053

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: PHOENIXVILLE BOROUGH
INTERSECTION: NUTT ROAD (S.R. 0023)
AND BRIDGE STREET

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

PHOENIXVILLE BOROUGH OFFICIAL 5/17/07

LOUIS R. BELMONTE 5/31/07
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	AS BUILT DRAWING	KMJ	11/10/10	LUTZ	12/8/10		
2	ADD SIGNS V&W	MCM	7/28/16	[illegible]	8/24/16	[illegible]	8/26/16
3							
4							
5							
6							
7							
8							

SHEET 3 OF 3 | PERMIT # 62-0568 | FILE # 0568

	SUBSYSTEM 1			PROGRAM CYCLE LENGTH		
	INTERSECTION	IP ADDRESS	FILE #	1	2	3
1	SCHUYLKILL RD (SR 0023) AND RAPPS DAM RD/MOWERE RD	10.0.71.2	2441	120	110	100
2	SCHUYLKILL RD (SR 0023) AND KIMBERTON SQ/VALLEY FORGE MALL DR	10.0.71.3	1986	120	110	100
2a	SCHUYLKILL RD (SR 0023) AND TOWNSHIP LINE ROAD	10.0.71.23	2614	120	110	100
3	SCHUYLKILL RD (SR 0023) AND PHOENIXVILLE TOWN CTR DRIVEWAY	10.0.71.4	3216	120	110	100
4	NUTT RD (SR 0023) AND KIMBERTON RD/SR 0113/PHOENIXVILLE TOWN CTR	10.0.71.5	0031	120	110	100
5	NUTT RD (SR 0023) AND BRIDGE ST*	10.0.71.6	0568	120	110	100
	SUBSYSTEM 2			PROGRAM CYCLE LENGTH		
	INTERSECTION	IP ADDRESS	FILE #	1	2	3
6	NUTT RD (SR 0023) AND LINCOLN AVE/FOURTH AVE	10.0.71.7	0587	90	70	90
7	NUTT RD (SR 0023) AND GAY ST	10.0.71.8	0584	90	70	90
8	NUTT RD (SR 0023) AND MAIN ST/MANAVON ST*	10.0.71.10	0582	90	70	90
9	NUTT RD (SR 0023) AND STARR ST	10.0.71.11	0279	90	70	90
10	VALLEY FORGE RD (SR 0023) AND WHITE HORSE ROAD	10.0.71.12	0929	90	70	90
13	STARR ST (SR 0029) AND MANAVON ST/FIFTH AVE	10.0.71.9	0019	90	70	90
	SUBSYSTEM 3			PROGRAM CYCLE LENGTH		
	INTERSECTION	IP ADDRESS	FILE #	1	2	3
11	VALLEY FORGE RD (SR 0023) AND PAWLINGS RD	10.0.71.13	3366	90	60	100
12	VALLEY FORGE RD (SR 0023) AND FERRY LN/COUNTRY CLUB RD*	10.0.71.14	0252	90	60	100
	SUBSYSTEM 4			PROGRAM CYCLE LENGTH		
	INTERSECTION	IP ADDRESS	FILE #	1	2	3
18	KIMBERTON RD/SR 0113 AND PRIVATE DR	10.0.71.15	2952	110	100	120
19	KIMBERTON RD/SR 0113 AND RAPPS DAM RD					
20	KIMBERTON RD/SR 0113 AND POTHOUSE RD	10.0.71.16	2748	110	100	120
21	KIMBERTON RD/SR 0113 AND TOWNSHIP LINE RD*	10.0.71.17	2449	110	100	120
	SUBSYSTEM 5			PROGRAM CYCLE LENGTH		
	INTERSECTION	IP ADDRESS	FILE #	1	2	3
14	BRIDGE ST AND CHURCH ST	10.0.71.18	0055	60	70	70
15	BRIDGE ST AND GAY ST	10.0.71.19	0586	60	70	70
16	BRIDGE ST AND MAIN ST	10.0.71.20	0587	60	70	70
17	BRIDGE ST AND STARR ST*	10.0.71.21	0054	120	70	70

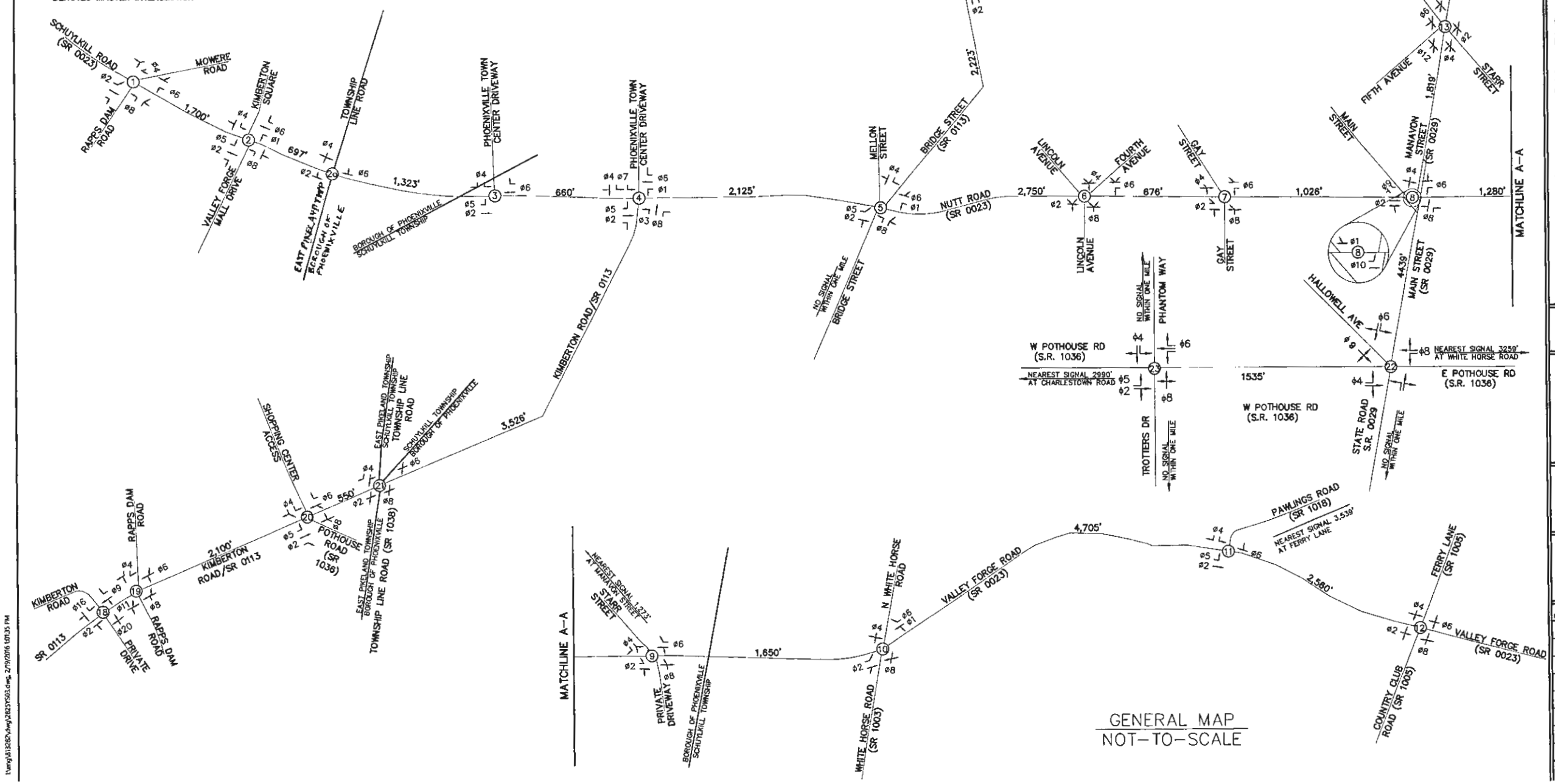
	SUBSYSTEM 6			PROGRAM CYCLE LENGTH			
	INTERSECTION	IP ADDRESS	FILE #	1	2	3	4
22	W POTHOUSE RD & STATE RD/HALLOWELL AVE		2270	130	130	105	140
23	W POTHOUSE RD & PHANTOM WAY/TROTTERS DR		3884	130	130	105	70

* DENOTES MASTER INTERSECTION

WEEKLY PROGRAM CHART

EVENT	DAY	TIME	PROGRAM	REMARKS
1	1–5	06:00	1	AM PEAK
2	1–5	10:00	2	MIDDAY
3	1–5	15:00	3	PM PEAK
4	1–7	19:00	2	EVENING/WEEKEND
5	1–7	22:00	FREE	MAX
6	6,7	09:00	2	EVENING/WEEKEND

MONDAY = DAY 1



GENERAL MAP
NOT–TO–SCALE

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC–8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6–0

COUNTY: CHESTER
MUNICIPALITY: PHOENIXVILLE BOR, EAST PIKELAND & SCHUYLKILL TWPS
INTERSECTION: SCHUYKILL RD/NUTT RD (S.R. 0023)
TRAFFIC SIGNAL SYSTEM

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

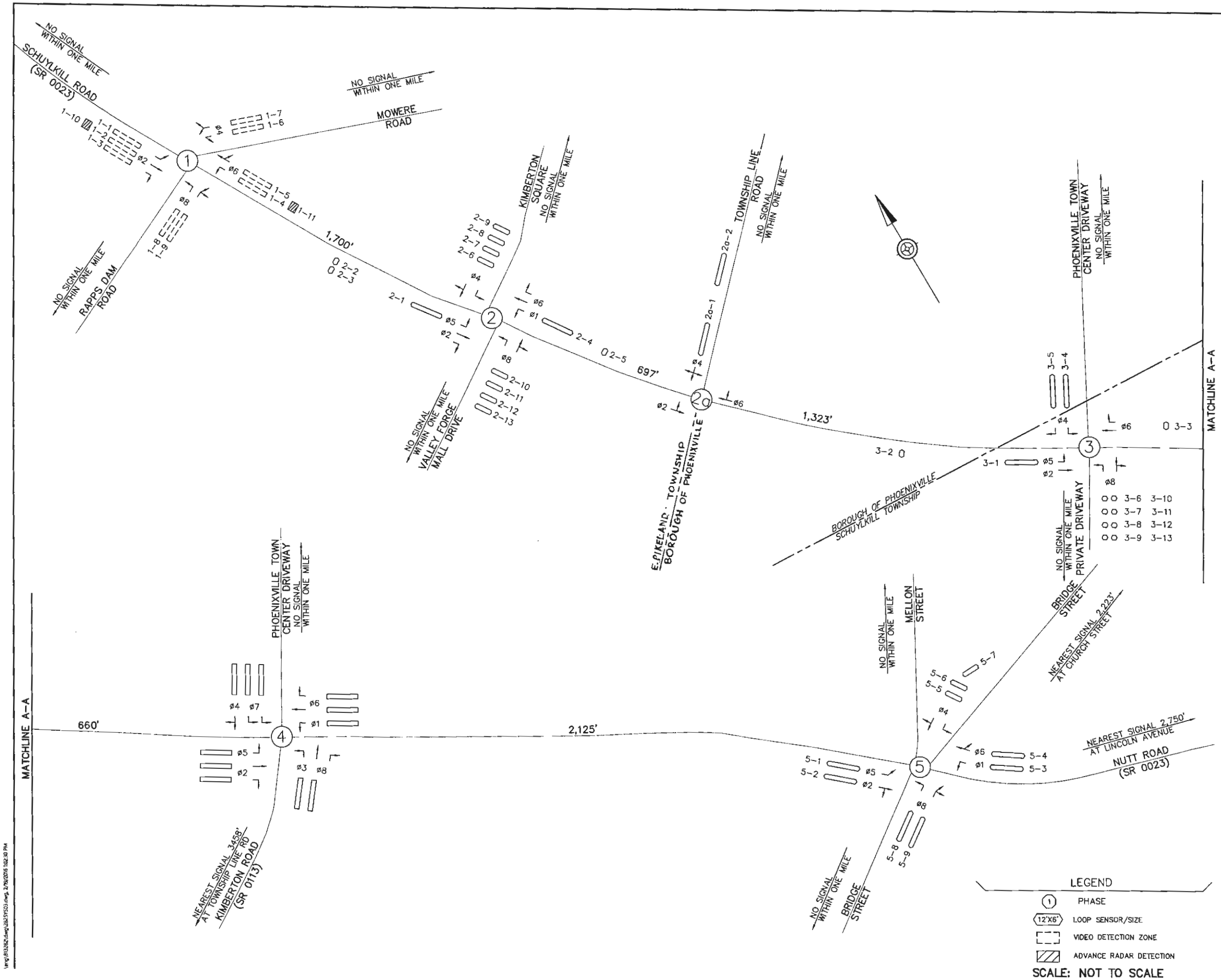
PAUL LUTZ 12/8/10

LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	MCM	2/4/16	WJF	2/4/16	AJ Wdd	2/5/16
3							
4							
5							
6							
7							
8							

SHEET 1 OF 9 PERMIT # 1–0053

t:\eng\8132820\dwg\2823Y501.dwg, 2/10/2016 10:13:35 PM



GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: PHOENIXVILLE BOR, EAST PIKELAND & SCHUYLKILL TWPS
INTERSECTION: SCHUYKILL RD/NUTT RD (S.R. 0023)
TRAFFIC SIGNAL SYSTEM, SUBSYSTEM #1

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

PAUL LUTZ 12/8/10

LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	MCM	3/4/16	LWT	3/4/16	[illegible]	3/7/16
3							
4							
5							
6							
7							
8							

SHEET 2 OF 9 | PERMIT # 1-0053

WEEKLY PROGRAM CHART				
EVENT	DAY	TIME	PROGRAM	REMARKS
1	1–5	06:00	1	AM PEAK
2	1–5	10:00	2	MIDDAY
3	1–5	15:00	3	PM PEAK
4	1–7	19:00	2	EVENING/WEEKEND
5	1–7	22:00	FREE	FREE
6	6,7	09:00	2	EVENING/WEEKEND

MONDAY = DAY 1

SYSTEM NOTES

1. PROGRAMS TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF GREEN (PHASE 2+6) ON SCHUYLKILL ROAD/NUTT ROAD (SR 0023). THE MASTER CONTROLLER IS LOCATED AT NUTT ROAD (SR 0023) AND BRIDGE STREET.
3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
4. SYSTEM LIMITS :
   SCHUYLKILL ROAD/NUTT ROAD (SR 0023) (5 INTERSECTIONS) – RAPPS DAM ROAD/MOWERE ROAD TO BRIDGE STREET
5. PRIMARY COORDINATION: FIBER OPTIC
6. SECONDARY COORDINATION: TBC (DEFAULT TO BACKUP TBC)

TIME OF DAY SYSTEM CYCLE/SPLIT/OFFSET

	PROGRAM 1		PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
1	SCHUYLKILL RD (SR 0023) AND RAPPS DAM RD/MOWERE RD	2441		82		38		82		38		120	16	1	103	3
2	SCHUYLKILL RD (SR 0023) AND KIMBERTON SQ/VALLEY FORGE MALL DR	1986	13(LEAD)	76(LAG)		31	13(LEAD)	76(LAG)		31		120	54	12	10	14
2a	SCHUYLKILL RD (SR 0023) AND TOWNSHIP LINE ROAD	2614		84		16		84				120	53	1	9	3
3	SCHUYLKILL RD (SR 0023) AND PHOENIXVILLE TOWN CTR DRIVEWAY	3216		81(LAG)		39	21(LEAD)	60(LAG)		39		120	84	5	18	7
4	NUTT RD (SR 0023) AND KIMBERTON RD/SR 0113/PHOENIXVILLE TOWN CTR	0031	29(LEAD)	49(LAG)	13(LEAD)	29(LAG)	13(LEAD)	65(LAG)	13(LEAD)	29(LAG)		120	67	12	110	14
5	NUTT RD (SR 0023) AND BRIDGE ST	0568	18(LEAD)	70(LAG)		32	38(LEAD)	50(LAG)		32		120	0	12	0	14

	PROGRAM 2		PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
1	SCHUYLKILL RD (SR 0023) AND RAPPS DAM RD/MOWERE RD	2441		80		30		80		30		110	34	1	26	4
2	SCHUYLKILL RD (SR 0023) AND KIMBERTON SQ/VALLEY FORGE MALL DR	1986	13(LEAD)	66(LAG)		31	15(LEAD)	66(LAG)		31		110	36	12	102	14
2a	SCHUYLKILL RD (SR 0023) AND TOWNSHIP LINE ROAD	2614		81		29		81				110	48	1	19	3
3	SCHUYLKILL RD (SR 0023) AND PHOENIXVILLE TOWN CTR DRIVEWAY	3216		74(LAG)		36	18(LEAD)	56(LAG)		39		110	99	5	39	7
4	NUTT RD (SR 0023) AND KIMBERTON RD/SR 0113/PHOENIXVILLE TOWN CTR	0031	24(LEAD)	44(LAG)	13(LEAD)	29(LAG)	13(LEAD)	55(LAG)	13(LEAD)	29(LAG)		110	74	12	2	14
5	NUTT RD (SR 0023) AND BRIDGE ST	0568	12(LEAD)	75(LAG)		23	28(LEAD)	59(LAG)		23		110	0	12	0	14

	PROGRAM 3		PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
1	SCHUYLKILL RD (SR 0023) AND RAPPS DAM RD/MOWERE RD	2441		69		31		69		31		100	2	1	71	3
2	SCHUYLKILL RD (SR 0023) AND KIMBERTON SQ/VALLEY FORGE MALL DR	1986	13(LEAD)	56(LAG)		31	13(LEAD)	56(LAG)		31		100	21	12	77	14
2a	SCHUYLKILL RD (SR 0023) AND TOWNSHIP LINE ROAD	2614		84		16		84				100	94	1	78	3
3	SCHUYLKILL RD (SR 0023) AND PHOENIXVILLE TOWN CTR DRIVEWAY	3216		69(LAG)		31	13(LEAD)	56(LAG)		39		100	80	5	30	7
4	NUTT RD (SR 0023) AND KIMBERTON RD/SR 0113/PHOENIXVILLE TOWN CTR	0031	25(LEAD)	33(LAG)	13(LEAD)	29(LAG)	13(LEAD)	45(LAG)	13(LEAD)	29(LAG)		100	75	12	2	14
5	NUTT RD (SR 0023) AND BRIDGE ST	0568	11(LEAD)	66(LAG)		23	26(LEAD)	51(LAG)		23		100	0	12	0	14

NOTES: – ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE.
– REFER TO THE SIGNAL PERMIT PLAN FOR MAX I, MAX II, CLEARANCE AND PED TIMES.

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC–8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6–0

COUNTY: CHESTER
MUNICIPALITY: PHOENIXVILLE BOR, EAST PIKELAND & SCHUYLKILL TWPS
INTERSECTION: SCHUYKILL RD/NUTT RD (S.R. 0023)
TRAFFIC SIGNAL SYSTEM, SUBSYSTEM #1

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

PAUL LUTZ 12/8/10

LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

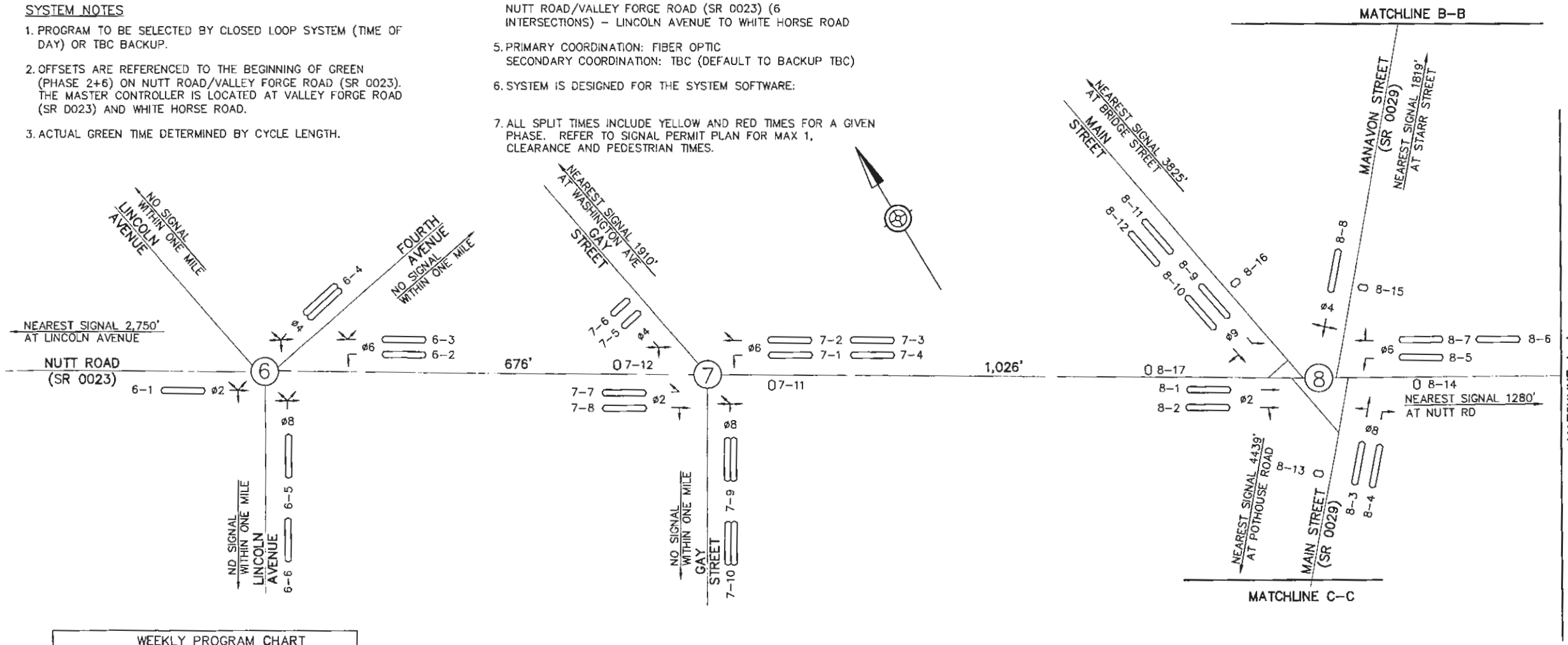
NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	McM	3/4/16	WJT2	3/4/16	[illegible]	3/7/16
3							
4							
5							
6							
7							
8							

SHEET 3 OF 9 PERMIT # I–0053

I:\eng\813282\dwg\282513\1.dwg, 2/16/2016 10:24:44 PM

SYSTEM NOTES

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF GREEN (PHASE 2+6) ON NUTT ROAD/VALLEY FORGE ROAD (SR 0023). THE MASTER CONTROLLER IS LOCATED AT VALLEY FORGE ROAD (SR 0023) AND WHITE HORSE ROAD.
3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
4. SYSTEM LIMITS : NUTT ROAD/VALLEY FORGE ROAD (SR 0023) (6 INTERSECTIONS) – LINCOLN AVENUE TO WHITE HORSE ROAD
5. PRIMARY COORDINATION: FIBER OPTIC
   SECONDARY COORDINATION: TBC (DEFAULT TO BACKUP TBC)
6. SYSTEM IS DESIGNED FOR THE SYSTEM SOFTWARE:
7. ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE. REFER TO SIGNAL PERMIT PLAN FOR MAX 1, CLEARANCE AND PEDESTRIAN TIMES.



WEEKLY PROGRAM CHART				
EVENT	DAY	TIME	PROGRAM	REMARKS
1	1–5	06:00	1	AM PEAK
2	1–5	10:00	2	MIDDAY
3	1–5	15:00	3	PM PEAK
4	1–7	19:00	2	EVENING/WEEKEND
5	1–7	22:00	FREE	
6	6,7	09:00	2	EVENING/WEEKEND

MONDAY = DAY 1

LEGEND

(1) PHASE

⟨12'X6'⟩ LOOP SENSOR/SIZE

[ ] VIDEO DETECTION ZONE

SCALE: NOT TO SCALE

	PROGRAM 1		PHASE										CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	12					
6	NUTT RD (SR 0023) AND LINCOLN AVE/FOURTH AVE	0587		56		13		56		21			90	50	1	10	3
7	NUTT RD (SR 0023) AND GAY ST	0584		52		38		52		38			90	70	1	26	3
8	NUTT RD (SR 0023) AND MAIN ST/MANAVON ST	0582		47		26		47		26	17		90	0	1	0	3
9	NUTT RD (SR 0023) AND STARR ST	0279		41		49		41		49			90	5	1	40	3
10	VALLEY FORGE RD (SR 0023) AND WHITE HORSE ROAD	0929	8(LEAD)	47(LAG)		35		55		35			90	69	4	19	6
13	STARR ST (SR 0029) AND MANAVON ST/FIFTH AVE	0019		49		22		49		22		19	90	86	1	40	3

	PROGRAM 2		PHASE										CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	12					
6	NUTT RD (SR 0023) AND LINCOLN AVE/FOURTH AVE	0587		38		12		38		20			70	45	1	7	3
7	NUTT RD (SR 0023) AND GAY ST	0584		40		30		40		30			70	42	1	6	3
8	NUTT RD (SR 0023) AND MAIN ST/MANAVON ST	0582		29		21		29		21	20		70	0	1	0	3
9	NUTT RD (SR 0023) AND STARR ST	0279		38		32		38		32			70	35	1	67	3
10	VALLEY FORGE RD (SR 0023) AND WHITE HORSE ROAD	0929	9(LEAD)	37(LAG)		24		46		24			70	13	4	43	6
13	STARR ST (SR 0029) AND MANAVON ST/FIFTH AVE	0019		29		22		29		22		19	70	33	1	57	3

	PROGRAM 3		PHASE										CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	12					
6	NUTT RD (SR 0023) AND LINCOLN AVE/FOURTH AVE	0587		55		14		55		21			90	48	1	7	3
7	NUTT RD (SR 0023) AND GAY ST	0584		51		39		51		39			90	42	1	87	3
8	NUTT RD (SR 0023) AND MAIN ST/MANAVON ST	0582		38		32		38		32	20		90	0	1	0	3
9	NUTT RD (SR 0023) AND STARR ST	0279		50		40		50		40			90	54	1	8	3
10	VALLEY FORGE RD (SR 0023) AND WHITE HORSE ROAD	0929	13(LEAD)	41(LAG)		36		54		36			90	30	4	64	6
13	STARR ST (SR 0029) AND MANAVON ST/FIFTH AVE	0019		49		22		49		22		19	90	31	1	75	3

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC–8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6–0

COUNTY: CHESTER
MUNICIPALITY: PHOENIXVILLE BORO & SCHUYLKILL TWP
INTERSECTION: NUTT RD/VALLEY FORGE RD (S.R. 0023)
TRAFFIC SIGNAL SYSTEM, SUBSYSTEM #2

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

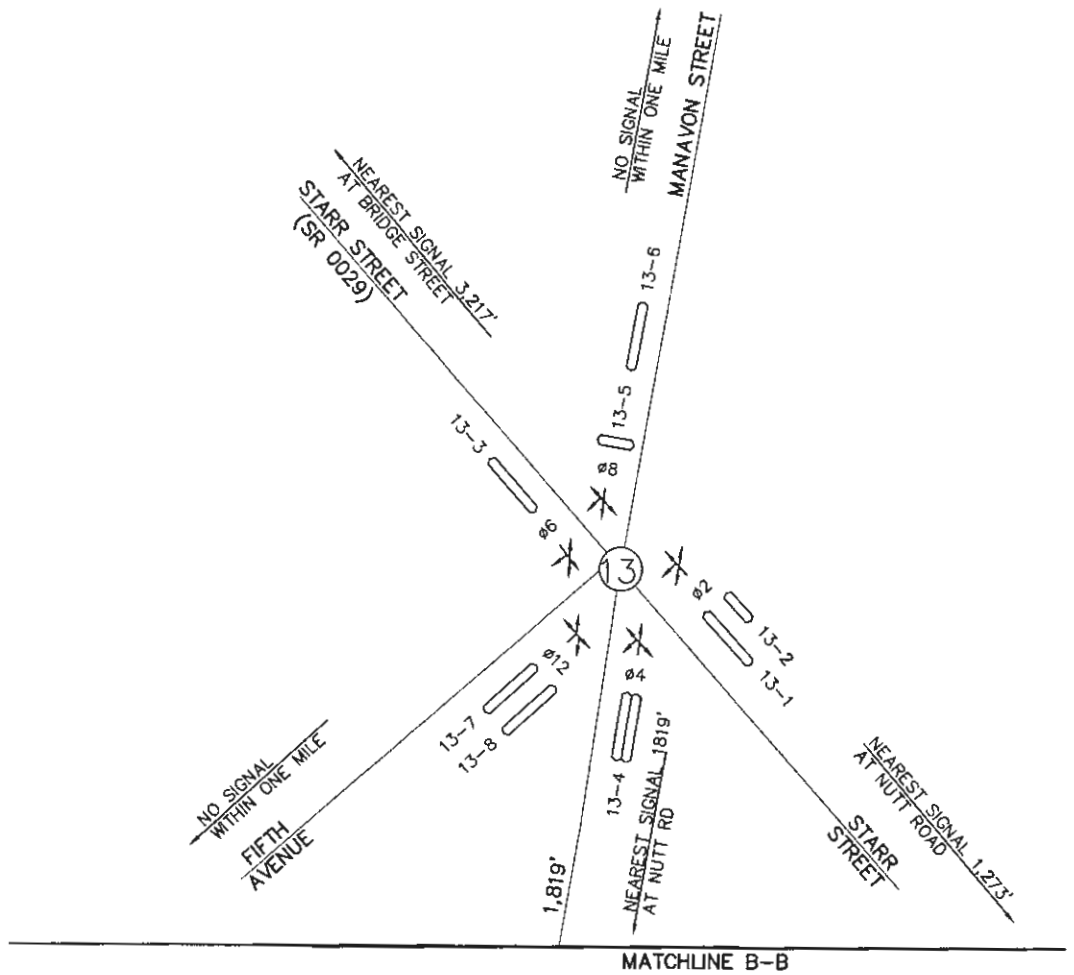
PAUL LUTZ 12/8/10

LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	McM	3/4/16	WJT	3/4/16	[illegible]	3/8/16
3							
4							
5							
6							
7							
8							

SHEET 4 OF 9 PERMIT # I–0053

L:\eng\ti\32604\dwg\32604SY001.dwg, 2/19/2016 1:03:00 PM



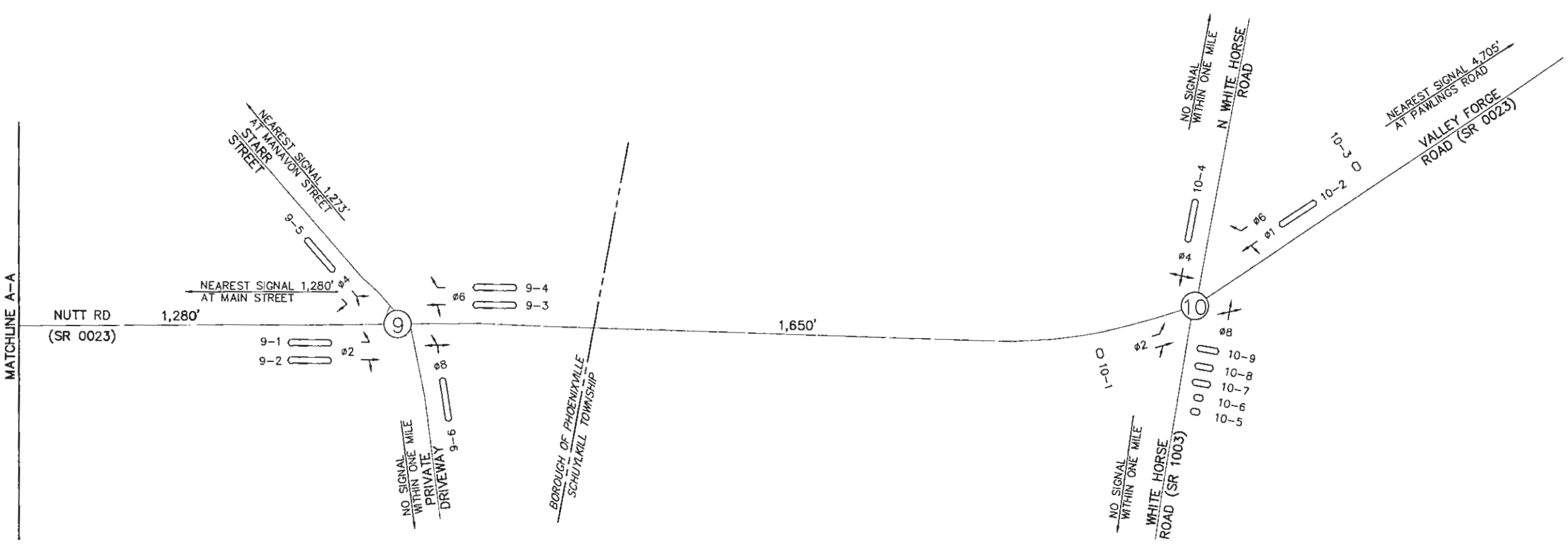
SYSTEM NOTES

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF GREEN (PHASE 2+6) ON NUTT ROAD/VALLEY FORGE ROAD (SR 0023). THE MASTER CONTROLLER IS LOCATED AT VALLEY FORGE ROAD (SR 0023) AND WHITE HORSE ROAD.
3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
4. SYSTEM LIMITS :
   NUTT ROAD/VALLEY FORGE ROAD (SR 0023) (6 INTERSECTIONS) – LINCOLN AVENUE TO WHITE HORSE ROAD
5. PRIMARY COORDINATION: FIBER OPTIC
   SECONDARY COORDINATION: TBC (DEFAULT TO BACKUP TBC)
6. SYSTEM IS DESIGNED FOR THE SYSTEM SOFTWARE:
7. ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE. REFER TO SIGNAL PERMIT PLAN FOR MAX 1, CLEARANCE AND PEDESTRIAN TIMES.

LEGEND

(1)	PHASE
12'X6'	LOOP SENSOR/SIZE
[ ]	VIDEO DETECTION ZONE

SCALE: NOT TO SCALE



GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: PHOENIXVILLE BORO & SCHUYLKILL TWP
INTERSECTION: NUTT RD/VALLEY FORGE RD (S.R. 0023)
TRAFFIC SIGNAL SYSTEM, SUBSYSTEM #2

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

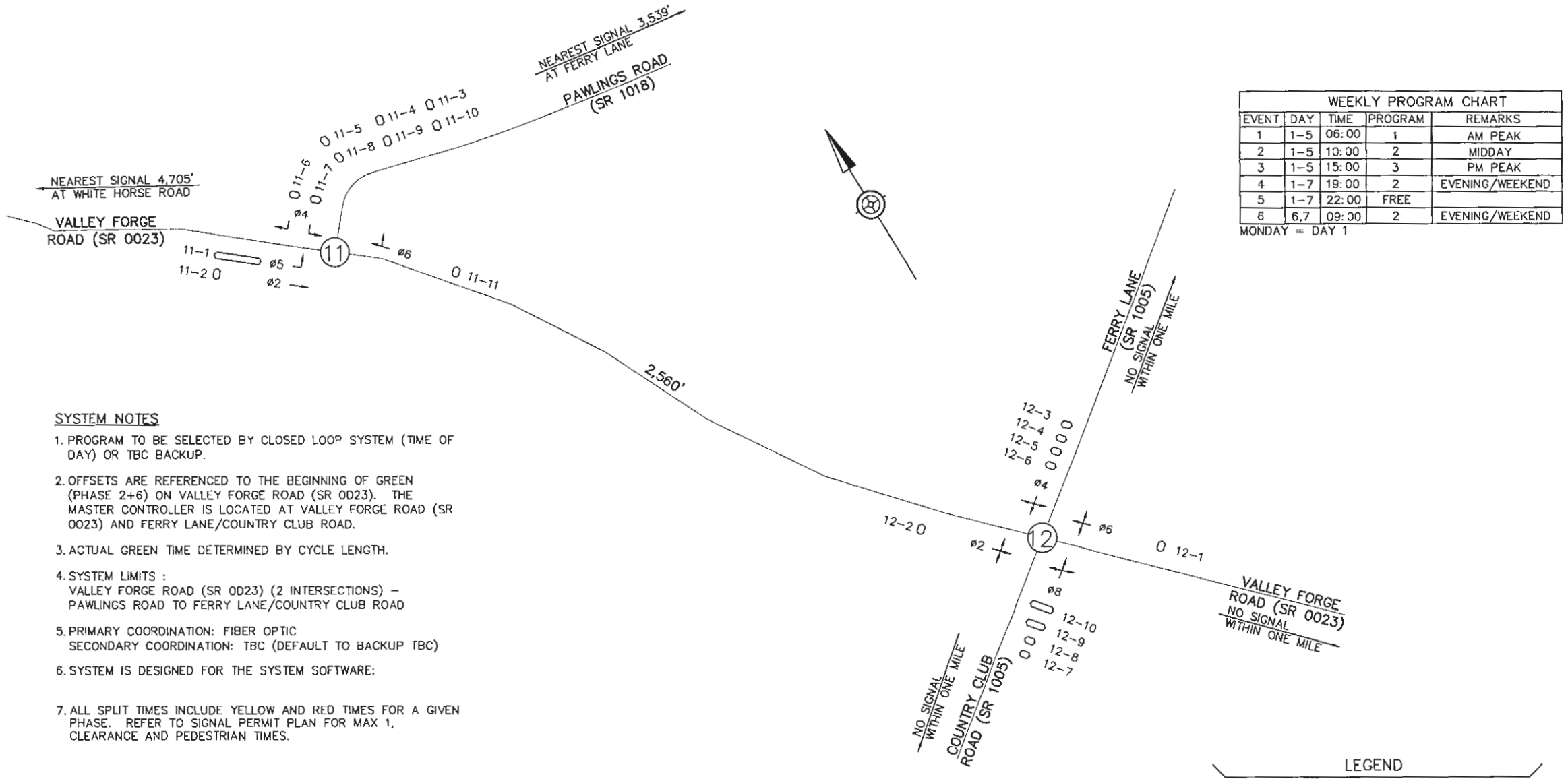
PAUL LUTZ 12/8/10

LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	MCM	3/4/16	[illegible]	3/4/16	[illegible]	3/7/16
3							
4							
5							
6							
7							
8							

SHEET 5 OF 9 PERMIT # 1-0053

U:\engy\13282\dwg\28251563.dwg, 2/19/2015 1:03:45 PM



SYSTEM NOTES

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF GREEN (PHASE 2+6) ON VALLEY FORGE ROAD (SR 0023). THE MASTER CONTROLLER IS LOCATED AT VALLEY FORGE ROAD (SR 0023) AND FERRY LANE/COUNTRY CLUB ROAD.
3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
4. SYSTEM LIMITS :
   VALLEY FORGE ROAD (SR 0023) (2 INTERSECTIONS) –
   PAWLINGS ROAD TO FERRY LANE/COUNTRY CLUB ROAD
5. PRIMARY COORDINATION: FIBER OPTIC
   SECONDARY COORDINATION: TBC (DEFAULT TO BACKUP TBC)
6. SYSTEM IS DESIGNED FOR THE SYSTEM SOFTWARE:
7. ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE. REFER TO SIGNAL PERMIT PLAN FOR MAX 1, CLEARANCE AND PEDESTRIAN TIMES.

WEEKLY PROGRAM CHART

EVENT	DAY	TIME	PROGRAM	REMARKS
1	1–5	06:00	1	AM PEAK
2	1–5	10:00	2	MIDDAY
3	1–5	15:00	3	PM PEAK
4	1–7	19:00	2	EVENING/WEEKEND
5	1–7	22:00	FREE	
6	6,7	09:00	2	EVENING/WEEKEND

MONDAY = DAY 1

LEGEND

(1) PHASE
⟨12'X6'⟩ LOOP SENSOR/SIZE
[ ] VIDEO DETECTION ZONE

SCALE: NOT TO SCALE

PROGRAM 1		PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
11 VALLEY FORGE RD (SR 0023) AND PAWLINGS RD	3366		66		24	17(LEAD)	49(LAG)				90	55	4	7	6
12 VALLEY FORGE RD (SR 0023) AND FERRY LN/COUNTRY CLUB RD	0252		54		36		54		36		90	0		0	

PROGRAM 2		PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
11 VALLEY FORGE RD (SR 0023) AND PAWLINGS RD	3366		44		16	14(LEAD)	30(LAG)				60	37	4	0	6
12 VALLEY FORGE RD (SR 0023) AND FERRY LN/COUNTRY CLUB RD	0252		33		27		33		27		60	0		0	

PROGRAM 3		PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
11 VALLEY FORGE RD (SR 0023) AND PAWLINGS RD	3366		80		20	18(LEAD)	62(LAG)				100	47	4	2	6
12 VALLEY FORGE RD (SR 0023) AND FERRY LN/COUNTRY CLUB RD	0252		59		41		59		41		100	0		0	

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: SCHUYLKILL TOWNSHIP
INTERSECTION: VALLEY FORGE ROAD (S.R. 0023)
TRAFFIC SIGNAL SYSTEM, SUBSYSTEM #3

REVIEWED:
DATE
MUNICIPAL OFFICIAL DATE

RECOMMENDED:
PAUL LUTZ 12/8/10
LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

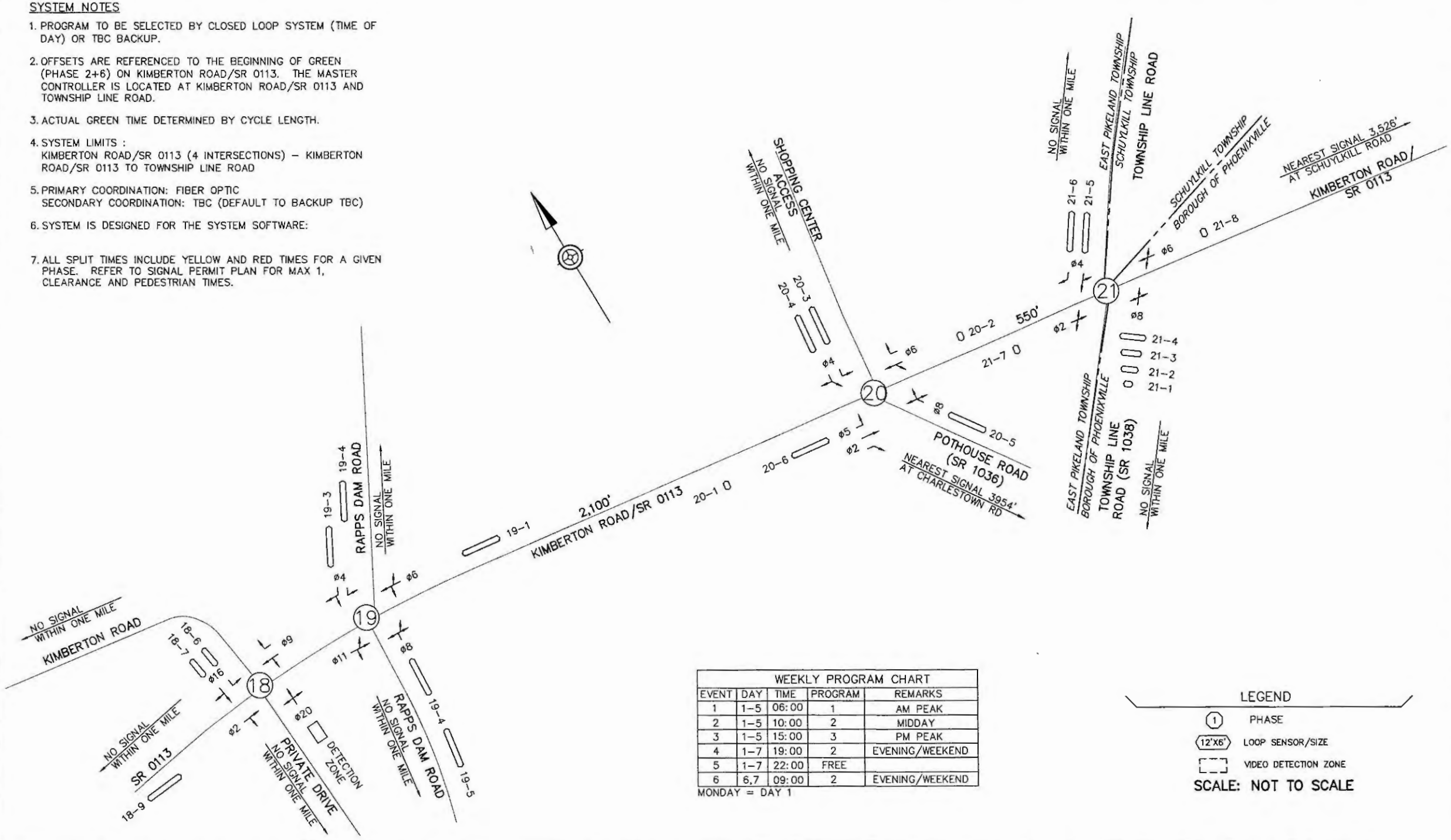
NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	MCM	3/4/16	[illegible]	3/4/16	[illegible]	3/7/16
3							
4							
5							
6							
7							
8							

SHEET 6 OF 9 PERMIT # I-0053

I:\engt\01128\dwg\2825\5103.dwg, 2/15/2016 10:57 PM

SYSTEM NOTES

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF GREEN (PHASE 2+6) ON KIMBERTON ROAD/SR 0113. THE MASTER CONTROLLER IS LOCATED AT KIMBERTON ROAD/SR 0113 AND TOWNSHIP LINE ROAD.
3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
4. SYSTEM LIMITS :
   KIMBERTON ROAD/SR 0113 (4 INTERSECTIONS) – KIMBERTON ROAD/SR 0113 TO TOWNSHIP LINE ROAD
5. PRIMARY COORDINATION: FIBER OPTIC
   SECONDARY COORDINATION: TBC (DEFAULT TO BACKUP TBC)
6. SYSTEM IS DESIGNED FOR THE SYSTEM SOFTWARE:
7. ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE. REFER TO SIGNAL PERMIT PLAN FOR MAX 1, CLEARANCE AND PEDESTRIAN TIMES.



WEEKLY PROGRAM CHART				
EVENT	DAY	TIME	PROGRAM	REMARKS
1	1–5	06:00	1	AM PEAK
2	1–5	10:00	2	MIDDAY
3	1–5	15:00	3	PM PEAK
4	1–7	19:00	2	EVENING/WEEKEND
5	1–7	22:00	FREE	
6	6,7	09:00	2	EVENING/WEEKEND

MONDAY = DAY 1

LEGEND

(1) PHASE
(12'X6') LOOP SENSOR/SIZE
[ ] VIDEO DETECTION ZONE

SCALE: NOT TO SCALE

PROGRAM 1		PHASE											CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	16	20					
18 KIMBERTON RD/SR 0113 AND PRIVATE DR 19 KIMBERTON RD/SR 0113 AND RAPPS DAM RD	2952		40		26		40		22		22	22	110	83	1	7	2
20 KIMBERTON RD/SR 0113 AND POTHOUSE RD	2748		67		12(LEAD)	12(LEAD)	55(LAG)		31(LAG)				110	3	5	52	7
21 KIMBERTON RD/SR 0113 AND TOWNSHIP LINE RD	2449		66		44		66		44				110	0	1	0	3

PROGRAM 2		PHASE											CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	16	20					
18 KIMBERTON RD/SR 0113 AND PRIVATE DR 19 KIMBERTON RD/SR 0113 AND RAPPS DAM RD	2952		34		22		34		22		22	22	100	53	1	81	2
20 KIMBERTON RD/SR 0113 AND POTHOUSE RD	2748		52		16(LEAD)	12(LEAD)	40(LAG)		32(LAG)				100	2	5	36	7
21 KIMBERTON RD/SR 0113 AND TOWNSHIP LINE RD	2449		63		37		63		37				100	0	1	0	3

PROGRAM 3		PHASE											CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	16	20					
18 KIMBERTON RD/SR 0113 AND PRIVATE DR 19 KIMBERTON RD/SR 0113 AND RAPPS DAM RD	2952		54		22		54		22		22	22	120	90	1	18	2
20 KIMBERTON RD/SR 0113 AND POTHOUSE RD	2748		59		12(LEAD)	12(LEAD)	47(LAG)		49(LAG)				120	9	5	50	7
21 KIMBERTON RD/SR 0113 AND TOWNSHIP LINE RD	2449		72		48		72		48				120	0	1	0	3

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: EAST PIKELAND & SCHUYLKILL TWPS
INTERSECTION: KIMBERTON ROAD (S.R. 0113)
TRAFFIC SIGNAL SYSTEM, SUBSYSTEM #4

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

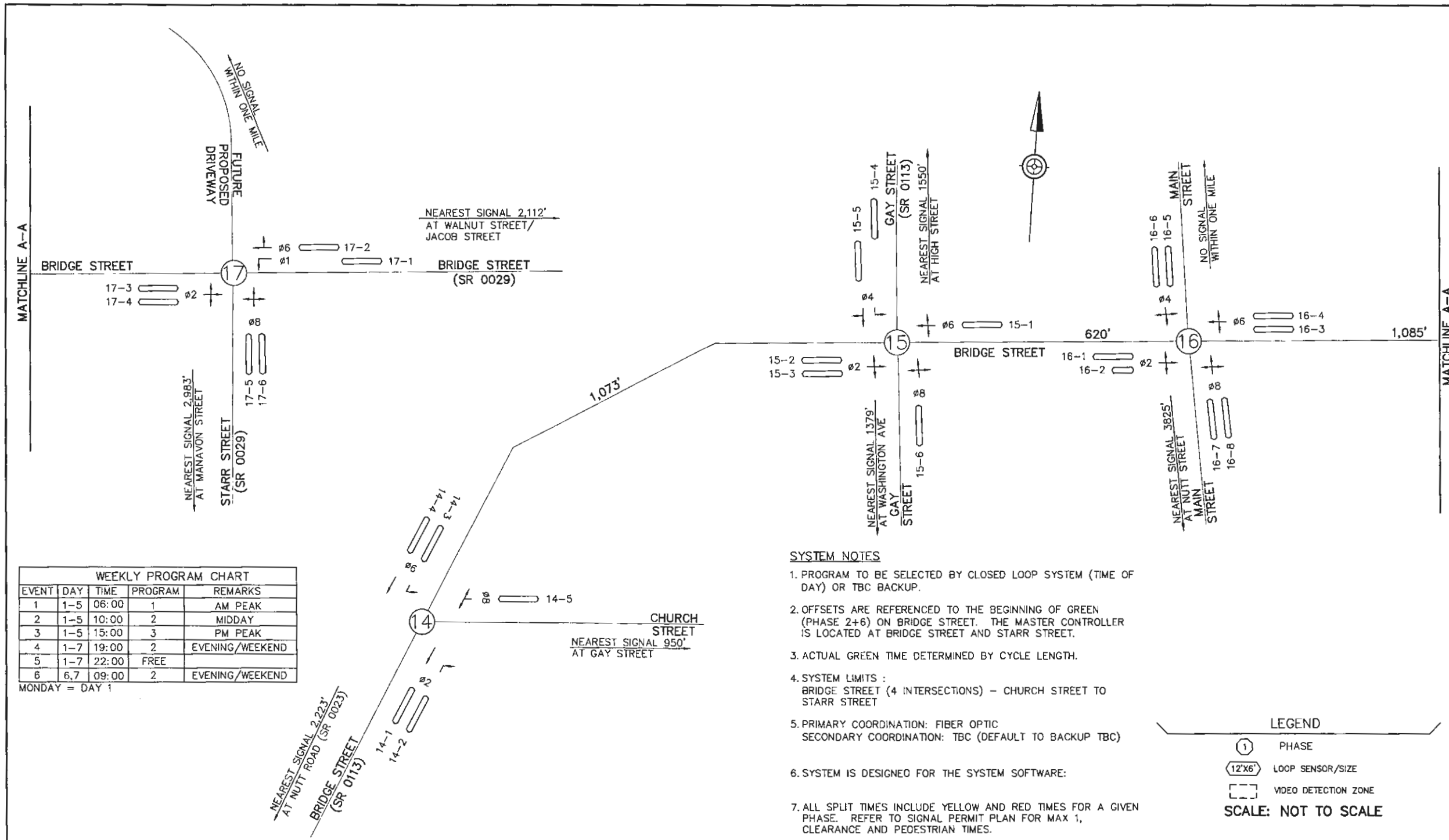
PAUL LUTZ 12/8/10

LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	MCM	3/4/16	LUTZ	3/4/16	[illegible]	3/7/16
3							
4							
5							
6							
7							
8							

SHEET 7 OF 9 PERMIT # I-0053

E:\eng\8132821\dwg\28251503.dwg, 2/9/2016 1:59:01 PM



WEEKLY PROGRAM CHART

EVENT	DAY	TIME	PROGRAM	REMARKS
1	1-5	06:00	1	AM PEAK
2	1-5	10:00	2	MIDDAY
3	1-5	15:00	3	PM PEAK
4	1-7	19:00	2	EVENING/WEEKEND
5	1-7	22:00	FREE	
6	6,7	09:00	2	EVENING/WEEKEND

MONDAY = DAY 1

SYSTEM NOTES

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF GREEN (PHASE 2+6) ON BRIDGE STREET. THE MASTER CONTROLLER IS LOCATED AT BRIDGE STREET AND STARR STREET.
3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
4. SYSTEM LIMITS :
   BRIDGE STREET (4 INTERSECTIONS) – CHURCH STREET TO STARR STREET
5. PRIMARY COORDINATION: FIBER OPTIC
   SECONDARY COORDINATION: TBC (DEFAULT TO BACKUP TBC)
6. SYSTEM IS DESIGNED FOR THE SYSTEM SOFTWARE:
7. ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE. REFER TO SIGNAL PERMIT PLAN FOR MAX 1, CLEARANCE AND PEDESTRIAN TIMES.

LEGEND

(1) PHASE
(12'X6') LOOP SENSOR/SIZE
VIDEO DETECTION ZONE

SCALE: NOT TO SCALE

PROGRAM 1			PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
14	BRIDGE ST AND CHURCH ST	0055		33				33		27		60	40	1	7	3
15	BRIDGE ST AND GAY ST	0566		32		28		32		28		60	10	1	37	3
16	BRIDGE ST AND MAIN ST	0567		28		32		28		32		60	42	1	4	3
17	BRIDGE ST AND STARR ST	0054	44(LEAD)	54(LAG)				98		22		120	0	5	0	7

PROGRAM 2			PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
14	BRIDGE ST AND CHURCH ST	0055		38				38		32		70	31	1	63	3
15	BRIDGE ST AND GAY ST	0566		39		31		39		31		70	25	1	59	3
16	BRIDGE ST AND MAIN ST	0567		39		31		39		31		70	8	1	41	3
17	BRIDGE ST AND STARR ST	0054	15(LEAD)	33(LAG)				48		22		70	0	5	0	7

PROGRAM 3			PHASE									CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9					
14	BRIDGE ST AND CHURCH ST	0055		41				41		29		70	65	1	30	3
15	BRIDGE ST AND GAY ST	0566		47		23		47		23		70	18	1	60	3
16	BRIDGE ST AND MAIN ST	0567		42		28		42		28		70	6	1	42	3
17	BRIDGE ST AND STARR ST	0054	15(LEAD)	35(LAG)				50		20		70	0	5	0	7

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: PHOENIXVILLE BOROUGH
INTERSECTION: BRIDGE STREET (S.R. 0113/S.R. 1040)
TRAFFIC SIGNAL SYSTEM, SUBSYSTEM #5

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

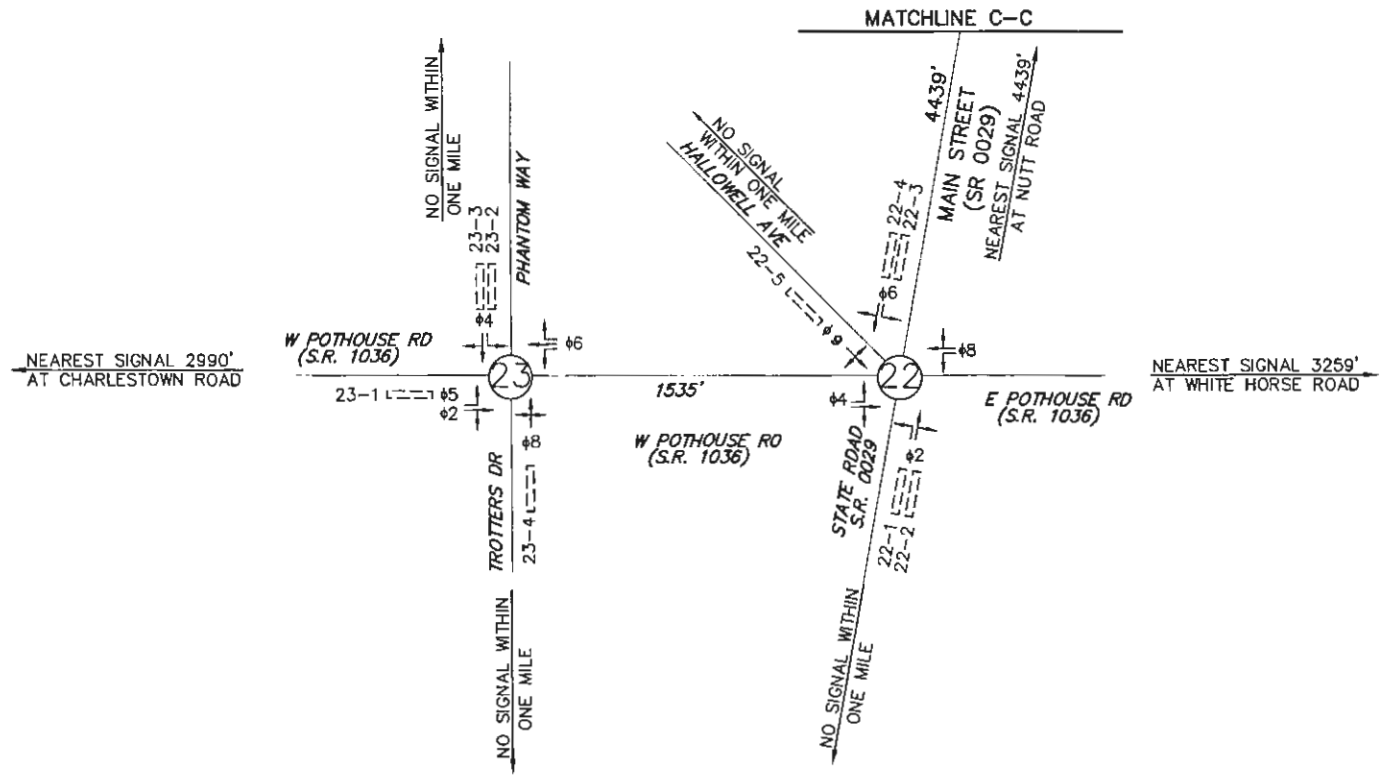
PAUL LUTZ 12/8/10

LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	MCM	3/4/16	WTB	3/4/16	[illegible]	3/7/16
3							
4							
5							
6							
7							
8							

SHEET 8 OF 9 PERMIT # 1-0053

L:\eng\8152\Dwg\280CY923.dwg, 2/15/2016 10:20 PM



PROGRAM 1		PHASE										CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	12					
22 W. POTHOUSE RD & STATE RD/HALLOWELL AVE	2270		64		52		64		52	14		130	0			
23 W. POTHOUSE RD & PHANTOM WAY/TROTTERS DR	3884		94		36	19	75		36			130	44			

PROGRAM 2		PHASE										CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	12					
22 W. POTHOUSE RD & STATE RD/HALLOWELL AVE	2270		64		52		64		52	14		130	0			
23 W. POTHOUSE RD & PHANTOM WAY/TROTTERS DR	3884		94		36	19	75		36			130	116			

PROGRAM 3		PHASE										CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	12					
22 W. POTHOUSE RD & STATE RD/HALLOWELL AVE	2270		40		51		40		51	14		105	0			
23 W. POTHOUSE RD & PHANTOM WAY/TROTTERS DR	3884		71		34	15	56		34			105	5			

PROGRAM 4		PHASE										CYCLE	OFFSET 1	REFERENCE INTERVAL 1	OFFSET 2	REFERENCE INTERVAL 2
INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9	12					
22 W. POTHOUSE RD & STATE RD/HALLOWELL AVE	2270		41		85		41		85	14		140	0			
23 W. POTHOUSE RD & PHANTOM WAY/TROTTERS DR	3884		44		26	7	37		26			70	0			

INTERSECTIONS 22-23

WEEKLY PROGRAM CHART

EVENT	DAY	TIME	PROGRAM	REMARKS
1	1-5	06:00	1	AM PEAK
2	1-5	07:15	2	AM SCHOOL
3	1-5	08:15	1	AM PEAK
4	1-5	09:00	FREE	MIDDAY
5	1-5	14:45	3	PM SCHOOL
6	1-5	15:45	4	PM PEAK
7	1-5	19:00	FREE	EVENINGS
8	6-7	00:00	FREE	WEEKENDS

MONDAY = DAY 1

SYSTEM NOTES

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF GREEN (PHASE 2+6) ON NUTT ROAD/VALLEY FORGE ROAD (SR 0023). THE MASTER CONTROLLER IS LOCATED AT VALLEY FORGE ROAD (SR 0023) AND WHITE HORSE ROAD.
3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
4. SYSTEM LIMITS :
   W. POTHOUSE RD (SR 1036) (2 INTERSECTIONS) –
   STATE RD/MAIN STREET (S.R. 0029) TO TROTTERS DR/PHANTOM WAY
5. PRIMARY COORDINATION: FIBER OPTIC
   SECONDARY COORDINATION: TBC (DEFAULT TO BACKUP TBC)
6. SYSTEM IS DESIGNED FOR THE SYSTEM SOFTWARE:
7. ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE. REFER TO SIGNAL PERMIT PLAN FOR MAX 1, CLEARANCE AND PEDESTRIAN TIMES.

LEGEND

(1) PHASE

VIDEO DETECTION ZONE

SCALE: NOT TO SCALE

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: SCHUYLKILL TOWNSHIP
INTERSECTION: W. POTHOUSE RD (S.R. 1036)
TRAFFIC SIGNAL SYSTEM, SUBSYSTEM #6

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

PAUL LUTZ 12/8/10

LOUIS BELMONTE 12/8/10
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISE INT. #1 LANE CONFIG. & TIMINGS	MCM					
2	ADDITION OF #22, 23	MCM	3/4/16	WTZ	3/4/16	CJC	3/7/16
3							
4							
5							
6							
7							
8							

SHEET 9 OF 9 PERMIT # 1-0053

\\ahq\PS\280\dwg\2825150.dwg, 2/19/2016 10:53:30 PM

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix B

Manual Turning Movement Counts

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Callowhill Rd Southbound			Nutt Rd Westbound			Callowhill Rd Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	0	0	0	121	2	2	0	1	0	264	11	401
07:15	0	0	1	0	153	0	0	0	0	0	221	11	386
07:30	4	3	0	4	176	0	1	4	1	0	242	3	438
07:45	0	0	0	5	182	1	3	0	2	3	281	9	486
Total	4	3	1	9	632	3	6	4	4	3	1008	34	1711
08:00	0	0	0	4	191	0	1	0	0	0	262	6	464
08:15	0	0	0	4	183	0	1	0	3	0	276	10	477
08:30	0	0	0	2	193	0	1	0	2	1	231	7	437
08:45	0	0	0	0	178	1	0	0	1	0	251	8	439
Total	0	0	0	10	745	1	3	0	6	1	1020	31	1817
09:00	0	0	1	1	153	0	3	0	1	0	179	4	342
09:15	0	0	0	0	178	0	1	0	0	0	239	6	424
09:30	0	0	0	1	151	1	0	0	3	2	176	3	337
09:45	0	0	0	1	184	0	3	0	2	0	185	7	382
Total	0	0	1	3	666	1	7	0	6	2	779	20	1485
10:00	0	0	0	1	155	1	1	0	3	2	146	3	312
10:15	0	0	0	1	188	0	0	0	2	0	180	2	373
10:30	1	0	1	2	151	1	4	0	1	0	174	6	341
10:45	0	0	0	3	176	10	1	0	2	0	186	4	382
Total	1	0	1	7	670	12	6	0	8	2	686	15	1408
11:00	0	0	2	5	154	1	3	0	2	1	153	4	325
11:15	0	0	0	3	174	0	0	0	6	3	163	5	354
11:30	0	0	0	2	205	0	2	0	4	0	182	5	400
11:45	0	0	2	0	196	0	0	0	0	0	167	3	368
Total	0	0	4	10	729	1	5	0	12	4	665	17	1447
12:00	0	0	1	5	222	0	0	0	0	0	199	5	432
12:15	1	0	0	6	233	0	0	0	4	0	209	5	458
12:30	0	0	0	2	204	0	3	0	4	2	204	0	419
12:45	0	0	2	3	199	0	2	0	1	2	204	9	422
Total	1	0	3	16	858	0	5	0	9	4	816	19	1731
13:00	0	0	2	2	189	0	2	0	3	1	211	7	417
13:15	0	0	0	3	190	0	4	0	4	1	197	6	405
13:30	0	0	1	2	222	0	1	0	2	0	187	4	419
13:45	0	0	0	3	207	1	1	0	1	2	219	5	439
Total	0	0	3	10	808	1	8	0	10	4	814	22	1680
14:00	0	0	0	4	195	0	1	1	1	0	189	6	397
14:15	0	0	0	2	223	1	0	0	2	0	211	5	444
14:30	0	0	0	4	237	0	0	0	2	2	206	3	454
14:45	0	0	0	2	213	0	3	1	0	3	202	7	431
Total	0	0	0	12	868	1	4	2	5	5	808	21	1726
15:00	1	0	1	2	202	1	1	0	0	2	228	7	445
15:15	0	0	0	4	251	0	4	0	3	3	211	5	481
15:30	1	0	0	2	242	0	3	0	2	0	189	6	445
15:45	0	0	1	6	297	0	3	0	5	2	221	5	540
Total	2	0	2	14	992	1	11	0	10	7	849	23	1911

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 2

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Callowhill Rd Southbound			Nutt Rd Westbound			Callowhill Rd Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	0	0	0	2	283	0	6	1	3	2	215	7	519
16:15	0	0	1	2	263	1	1	0	3	1	245	4	521
16:30	0	0	2	2	292	0	6	0	1	2	261	8	574
16:45	0	0	1	1	285	0	1	0	2	5	217	8	520
Total	0	0	4	7	1123	1	14	1	9	10	938	27	2134
17:00	0	0	2	2	294	0	2	0	4	1	230	7	542
17:15	0	0	3	0	285	0	4	0	2	0	211	11	516
17:30	0	0	1	3	273	0	2	0	4	3	232	8	526
17:45	0	0	1	4	253	0	6	0	1	2	234	6	507
Total	0	0	7	9	1105	0	14	0	11	6	907	32	2091
Grand Total	8	3	26	107	9196	22	83	7	90	48	9290	261	19141
Apprch %	21.6	8.1	70.3	1.1	98.6	0.2	46.1	3.9	50	0.5	96.8	2.7	
Total %	0	0	0.1	0.6	48	0.1	0.4	0	0.5	0.3	48.5	1.4	
Passenger Vehicles	8	3	26	98	8767	21	77	6	86	47	8876	248	18263
% Passenger Vehicles	100	100	100	91.6	95.3	95.5	92.8	85.7	95.6	97.9	95.5	95	95.4
Heavy Vehicles	0	0	0	9	429	1	6	1	4	1	414	13	878
% Heavy Vehicles	0	0	0	8.4	4.7	4.5	7.2	14.3	4.4	2.1	4.5	5	4.6

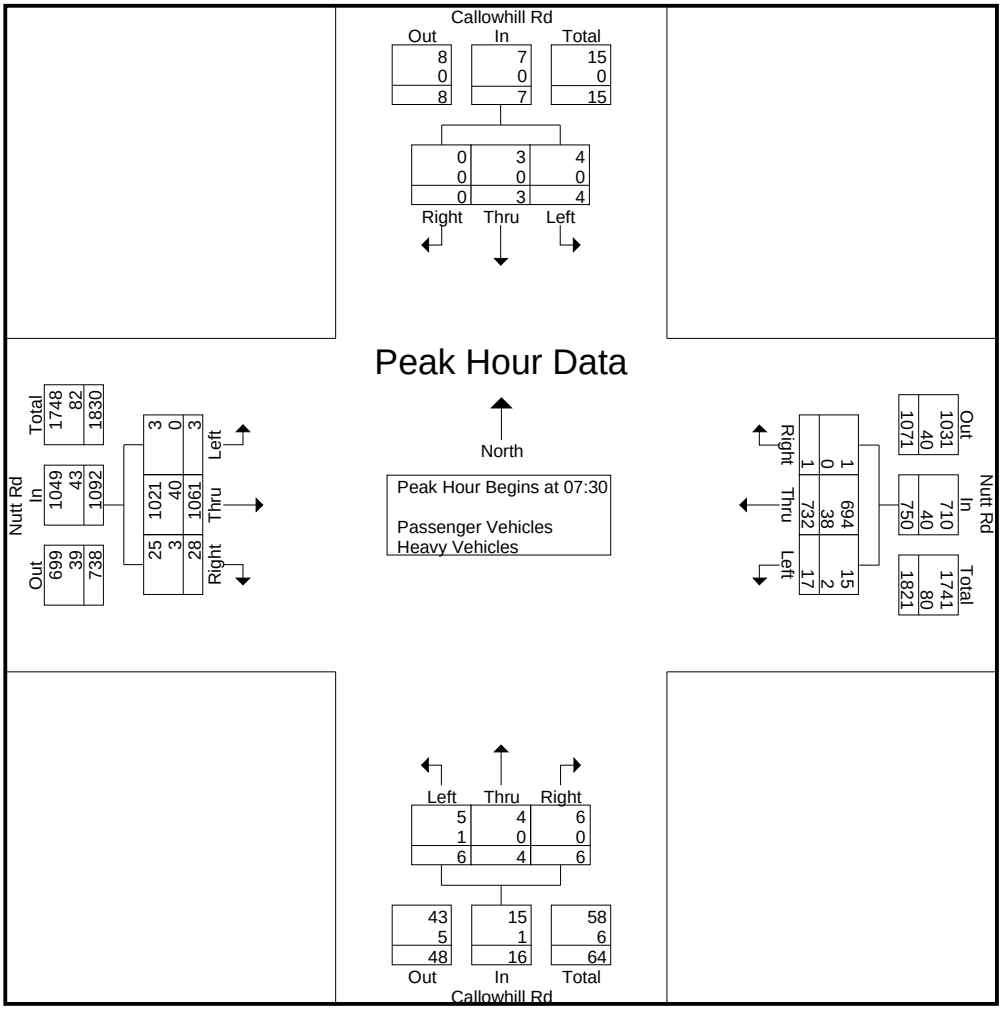
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 3

	Callowhill Rd Southbound				Nutt Rd Westbound				Callowhill Rd Northbound				Nutt Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	4	3	0	7	4	176	0	180	1	4	1	6	0	242	3	245	438
07:45	0	0	0	0	5	182	1	188	3	0	2	5	3	281	9	293	486
08:00	0	0	0	0	4	191	0	195	1	0	0	1	0	262	6	268	464
08:15	0	0	0	0	4	183	0	187	1	0	3	4	0	276	10	286	477
Total Volume	4	3	0	7	17	732	1	750	6	4	6	16	3	1061	28	1092	1865
% App. Total	57.1	42.9	0		2.3	97.6	0.1		37.5	25	37.5		0.3	97.2	2.6		
PHF	.250	.250	.000	.250	.850	.958	.250	.962	.500	.250	.500	.667	.250	.944	.700	.932	.959
Passenger Vehicles	4	3	0	7	15	694	1	710	5	4	6	15	3	1021	25	1049	1781
% Passenger Vehicles	100	100	0	100	88.2	94.8	100	94.7	83.3	100	100	93.8	100	96.2	89.3	96.1	95.5
Heavy Vehicles	0	0	0	0	2	38	0	40	1	0	0	1	0	40	3	43	84
% Heavy Vehicles	0	0	0	0	11.8	5.2	0	5.3	16.7	0	0	6.3	0	3.8	10.7	3.9	4.5



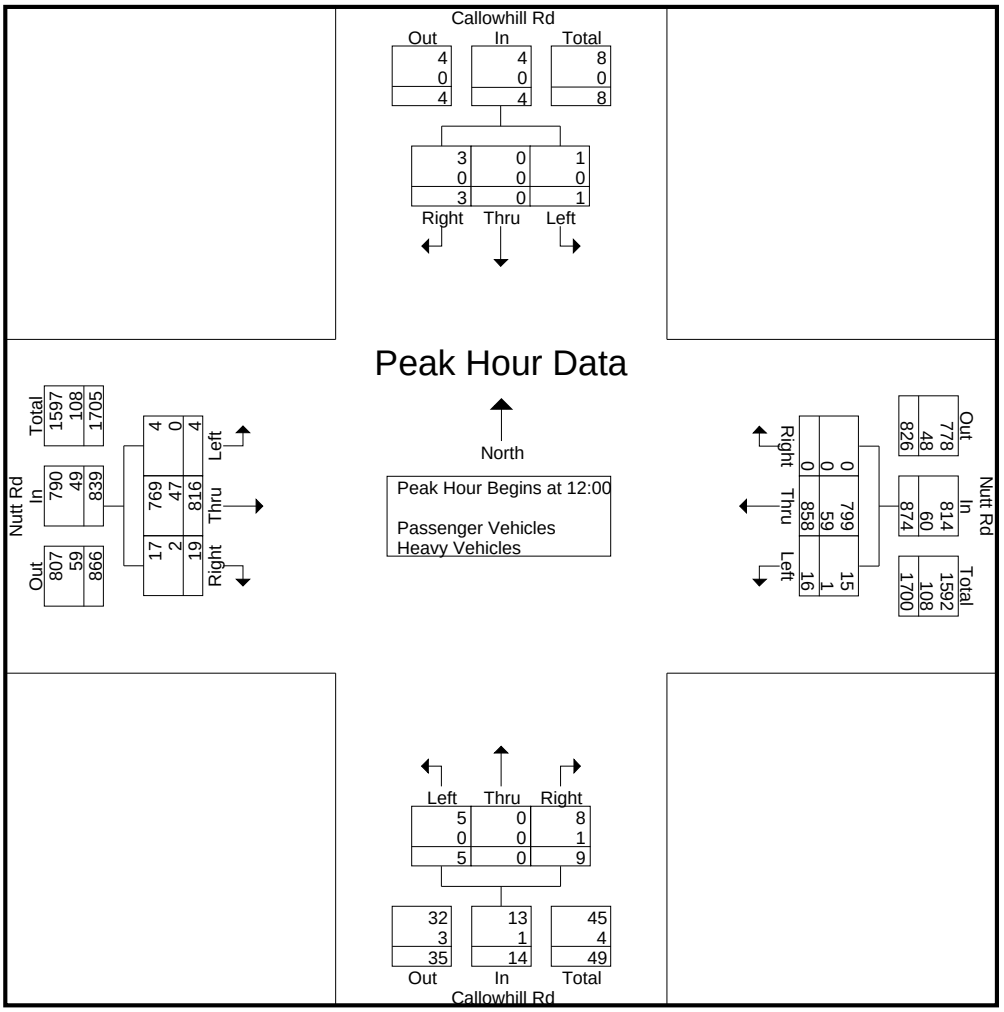
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 4

	Callowhill Rd Southbound				Nutt Rd Westbound				Callowhill Rd Northbound				Nutt Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00																	
12:00	0	0	1	1	5	222	0	227	0	0	0	0	0	199	5	204	432
12:15	1	0	0	1	6	233	0	239	0	0	4	4	0	209	5	214	458
12:30	0	0	0	0	2	204	0	206	3	0	4	7	2	204	0	206	419
12:45	0	0	2	2	3	199	0	202	2	0	1	3	2	204	9	215	422
Total Volume	1	0	3	4	16	858	0	874	5	0	9	14	4	816	19	839	1731
% App. Total	25	0	75		1.8	98.2	0		35.7	0	64.3		0.5	97.3	2.3		
PHF	.250	.000	.375	.500	.667	.921	.000	.914	.417	.000	.563	.500	.500	.976	.528	.976	.945
Passenger Vehicles	1	0	3	4	15	799	0	814	5	0	8	13	4	769	17	790	1621
% Passenger Vehicles	100	0	100	100	93.8	93.1	0	93.1	100	0	88.9	92.9	100	94.2	89.5	94.2	93.6
Heavy Vehicles	0	0	0	0	1	59	0	60	0	0	1	1	0	47	2	49	110
% Heavy Vehicles	0	0	0	0	6.3	6.9	0	6.9	0	0	11.1	7.1	0	5.8	10.5	5.8	6.4



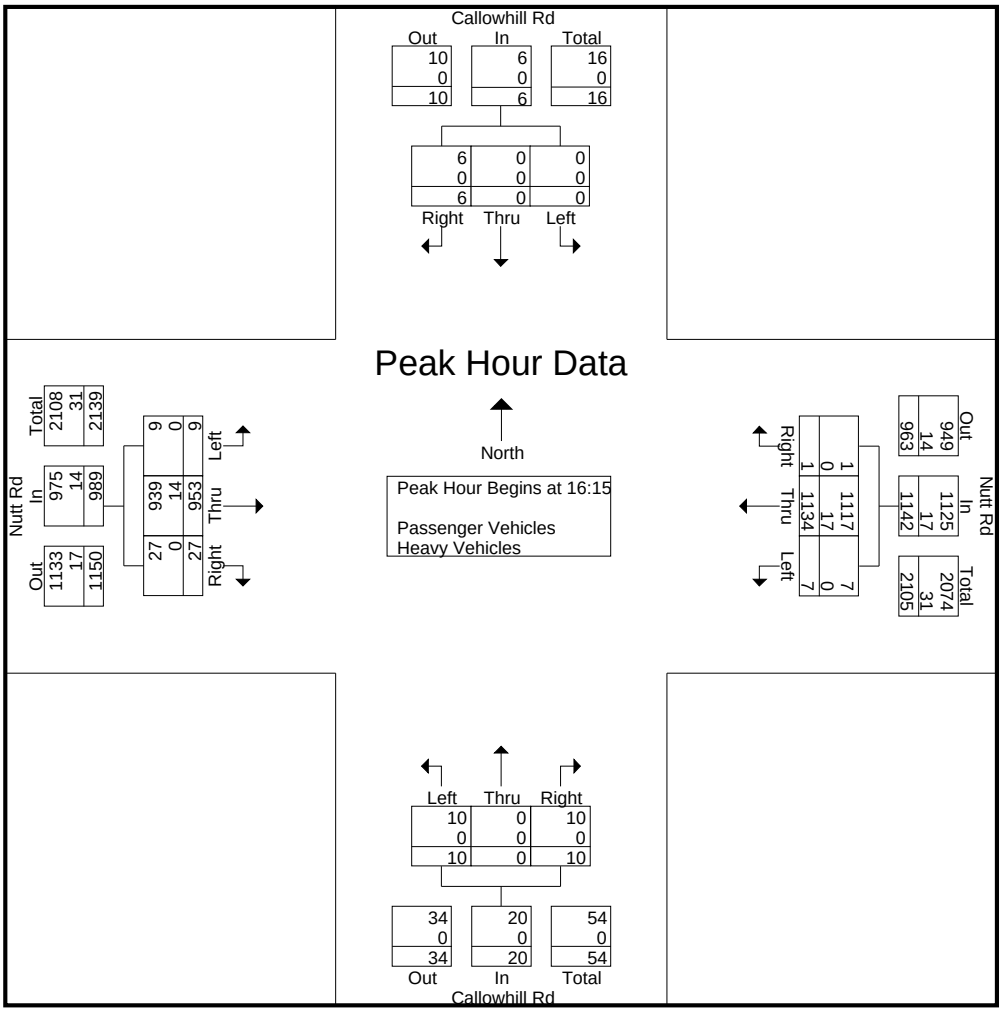
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 5

	Callowhill Rd Southbound				Nutt Rd Westbound				Callowhill Rd Northbound				Nutt Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	0	0	1	1	2	263	1	266	1	0	3	4	1	245	4	250	521
16:30	0	0	2	2	2	292	0	294	6	0	1	7	2	261	8	271	574
16:45	0	0	1	1	1	285	0	286	1	0	2	3	5	217	8	230	520
17:00	0	0	2	2	2	294	0	296	2	0	4	6	1	230	7	238	542
Total Volume	0	0	6	6	7	1134	1	1142	10	0	10	20	9	953	27	989	2157
% App. Total	0	0	100		0.6	99.3	0.1		50	0	50		0.9	96.4	2.7		
PHF	.000	.000	.750	.750	.875	.964	.250	.965	.417	.000	.625	.714	.450	.913	.844	.912	.939
Passenger Vehicles	0	0	6	6	7	1117	1	1125	10	0	10	20	9	939	27	975	2126
% Passenger Vehicles	0	0	100	100	100	98.5	100	98.5	100	0	100	100	100	98.5	100	98.6	98.6
Heavy Vehicles	0	0	0	0	0	17	0	17	0	0	0	0	0	14	0	14	31
% Heavy Vehicles	0	0	0	0	0	1.5	0	1.5	0	0	0	0	0	1.5	0	1.4	1.4



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Callowhill Rd Southbound			Nutt Rd Westbound			Callowhill Rd Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	0	0	0	5	0	0	0	0	0	15	0	20
07:15	0	0	0	0	4	0	0	0	0	0	13	0	17
07:30	0	0	0	0	8	0	1	0	0	0	10	1	20
07:45	0	0	0	0	12	0	0	0	0	0	10	0	22
Total	0	0	0	0	29	0	1	0	0	0	48	1	79
08:00	0	0	0	1	7	0	0	0	0	0	9	1	18
08:15	0	0	0	1	11	0	0	0	0	0	11	1	24
08:30	0	0	0	0	16	0	0	0	0	1	8	1	26
08:45	0	0	0	0	11	0	0	0	0	0	10	0	21
Total	0	0	0	2	45	0	0	0	0	1	38	3	89
09:00	0	0	0	0	7	0	3	0	0	0	7	0	17
09:15	0	0	0	0	8	0	0	0	0	0	13	0	21
09:30	0	0	0	0	14	0	0	0	0	0	13	0	27
09:45	0	0	0	0	11	0	0	0	0	0	12	0	23
Total	0	0	0	0	40	0	3	0	0	0	45	0	88
10:00	0	0	0	0	9	0	0	0	0	0	8	0	17
10:15	0	0	0	0	11	0	0	0	0	0	9	0	20
10:30	0	0	0	0	10	0	0	0	0	0	9	1	20
10:45	0	0	0	0	18	0	0	0	0	0	10	0	28
Total	0	0	0	0	48	0	0	0	0	0	36	1	85
11:00	0	0	0	0	10	1	1	0	0	0	7	0	19
11:15	0	0	0	0	12	0	0	0	1	0	8	1	22
11:30	0	0	0	0	5	0	0	0	0	0	16	0	21
11:45	0	0	0	0	11	0	0	0	0	0	8	0	19
Total	0	0	0	0	38	1	1	0	1	0	39	1	81
12:00	0	0	0	0	14	0	0	0	0	0	10	2	26
12:15	0	0	0	1	18	0	0	0	1	0	14	0	34
12:30	0	0	0	0	15	0	0	0	0	0	11	0	26
12:45	0	0	0	0	12	0	0	0	0	0	12	0	24
Total	0	0	0	1	59	0	0	0	1	0	47	2	110
13:00	0	0	0	0	8	0	0	0	0	0	17	0	25
13:15	0	0	0	0	11	0	0	0	0	0	11	0	22
13:30	0	0	0	1	9	0	0	0	0	0	5	0	15
13:45	0	0	0	0	9	0	1	0	0	0	7	0	17
Total	0	0	0	1	37	0	1	0	0	0	40	0	79
14:00	0	0	0	0	16	0	0	1	0	0	10	0	27
14:15	0	0	0	2	12	0	0	0	0	0	17	1	32
14:30	0	0	0	0	12	0	0	0	0	0	13	0	25
14:45	0	0	0	0	11	0	0	0	0	0	16	1	28
Total	0	0	0	2	51	0	0	1	0	0	56	2	112
15:00	0	0	0	1	10	0	0	0	0	0	7	0	18
15:15	0	0	0	1	8	0	0	0	0	0	15	0	24
15:30	0	0	0	0	9	0	0	0	1	0	12	3	25
15:45	0	0	0	1	10	0	0	0	1	0	7	0	19
Total	0	0	0	3	37	0	0	0	2	0	41	3	86

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 2

Groups Printed- Heavy Vehicles

	Callowhill Rd Southbound			Nutt Rd Westbound			Callowhill Rd Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	0	0	0	0	16	0	0	0	0	0	3	0	19
16:15	0	0	0	0	5	0	0	0	0	0	3	0	8
16:30	0	0	0	0	4	0	0	0	0	0	2	0	6
16:45	0	0	0	0	3	0	0	0	0	0	3	0	6
Total	0	0	0	0	28	0	0	0	0	0	11	0	39
17:00	0	0	0	0	5	0	0	0	0	0	6	0	11
17:15	0	0	0	0	3	0	0	0	0	0	1	0	4
17:30	0	0	0	0	5	0	0	0	0	0	5	0	10
17:45	0	0	0	0	4	0	0	0	0	0	1	0	5
Total	0	0	0	0	17	0	0	0	0	0	13	0	30
Grand Total	0	0	0	9	429	1	6	1	4	1	414	13	878
Apprch %	0	0	0	2.1	97.7	0.2	54.5	9.1	36.4	0.2	96.7	3	
Total %	0	0	0	1	48.9	0.1	0.7	0.1	0.5	0.1	47.2	1.5	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Callowhill Rd Southbound			Nutt Rd Westbound			Callowhill Rd Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	0	0	0	116	2	2	0	1	0	249	11	381
07:15	0	0	1	0	149	0	0	0	0	0	208	11	369
07:30	4	3	0	4	168	0	0	4	1	0	232	2	418
07:45	0	0	0	5	170	1	3	0	2	3	271	9	464
Total	4	3	1	9	603	3	5	4	4	3	960	33	1632
08:00	0	0	0	3	184	0	1	0	0	0	253	5	446
08:15	0	0	0	3	172	0	1	0	3	0	265	9	453
08:30	0	0	0	2	177	0	1	0	2	0	223	6	411
08:45	0	0	0	0	167	1	0	0	1	0	241	8	418
Total	0	0	0	8	700	1	3	0	6	0	982	28	1728
09:00	0	0	1	1	146	0	0	0	1	0	172	4	325
09:15	0	0	0	0	170	0	1	0	0	0	226	6	403
09:30	0	0	0	1	137	1	0	0	3	2	163	3	310
09:45	0	0	0	1	173	0	3	0	2	0	173	7	359
Total	0	0	1	3	626	1	4	0	6	2	734	20	1397
10:00	0	0	0	1	146	1	1	0	3	2	138	3	295
10:15	0	0	0	1	177	0	0	0	2	0	171	2	353
10:30	1	0	1	2	141	1	4	0	1	0	165	5	321
10:45	0	0	0	3	158	10	1	0	2	0	176	4	354
Total	1	0	1	7	622	12	6	0	8	2	650	14	1323
11:00	0	0	2	5	144	0	2	0	2	1	146	4	306
11:15	0	0	0	3	162	0	0	0	5	3	155	4	332
11:30	0	0	0	2	200	0	2	0	4	0	166	5	379
11:45	0	0	2	0	185	0	0	0	0	0	159	3	349
Total	0	0	4	10	691	0	4	0	11	4	626	16	1366
12:00	0	0	1	5	208	0	0	0	0	0	189	3	406
12:15	1	0	0	5	215	0	0	0	3	0	195	5	424
12:30	0	0	0	2	189	0	3	0	4	2	193	0	393
12:45	0	0	2	3	187	0	2	0	1	2	192	9	398
Total	1	0	3	15	799	0	5	0	8	4	769	17	1621
13:00	0	0	2	2	181	0	2	0	3	1	194	7	392
13:15	0	0	0	3	179	0	4	0	4	1	186	6	383
13:30	0	0	1	1	213	0	1	0	2	0	182	4	404
13:45	0	0	0	3	198	1	0	0	1	2	212	5	422
Total	0	0	3	9	771	1	7	0	10	4	774	22	1601
14:00	0	0	0	4	179	0	1	0	1	0	179	6	370
14:15	0	0	0	0	211	1	0	0	2	0	194	4	412
14:30	0	0	0	4	225	0	0	0	2	2	193	3	429
14:45	0	0	0	2	202	0	3	1	0	3	186	6	403
Total	0	0	0	10	817	1	4	1	5	5	752	19	1614
15:00	1	0	1	1	192	1	1	0	0	2	221	7	427
15:15	0	0	0	3	243	0	4	0	3	3	196	5	457
15:30	1	0	0	2	233	0	3	0	1	0	177	3	420
15:45	0	0	1	5	287	0	3	0	4	2	214	5	521
Total	2	0	2	11	955	1	11	0	8	7	808	20	1825

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 2

Groups Printed- Passenger Vehicles

	Callowhill Rd Southbound			Nutt Rd Westbound			Callowhill Rd Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	0	0	0	2	267	0	6	1	3	2	212	7	500
16:15	0	0	1	2	258	1	1	0	3	1	242	4	513
16:30	0	0	2	2	288	0	6	0	1	2	259	8	568
16:45	0	0	1	1	282	0	1	0	2	5	214	8	514
Total	0	0	4	7	1095	1	14	1	9	10	927	27	2095
17:00	0	0	2	2	289	0	2	0	4	1	224	7	531
17:15	0	0	3	0	282	0	4	0	2	0	210	11	512
17:30	0	0	1	3	268	0	2	0	4	3	227	8	516
17:45	0	0	1	4	249	0	6	0	1	2	233	6	502
Total	0	0	7	9	1088	0	14	0	11	6	894	32	2061
Grand Total	8	3	26	98	8767	21	77	6	86	47	8876	248	18263
Apprch %	21.6	8.1	70.3	1.1	98.7	0.2	45.6	3.6	50.9	0.5	96.8	2.7	
Total %	0	0	0.1	0.5	48	0.1	0.4	0	0.5	0.3	48.6	1.4	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Callowhill Rd Southbound	Nutt Rd Westbound	Callowhill Rd Northbound	Nutt Rd Eastbound	
Start Time	E/W	N/S	E/W	N/S	Int. Total
07:15	0	0	2	0	2
07:30	1	0	0	0	1
07:45	1	0	1	0	2
Total	2	0	3	0	5
08:00	0	1	0	1	2
08:15	0	0	2	0	2
08:30	1	0	1	0	2
08:45	2	0	0	0	2
Total	3	1	3	1	8
09:00	2	0	1	0	3
09:15	1	0	0	0	1
09:30	0	0	2	0	2
09:45	1	0	1	0	2
Total	4	0	4	0	8
10:00	0	0	1	0	1
10:30	1	0	0	0	1
10:45	1	0	1	0	2
Total	2	0	2	0	4
11:30	2	0	0	0	2
11:45	1	0	0	1	2
Total	3	0	0	1	4
12:15	2	0	1	1	4
12:45	1	0	2	0	3
Total	3	0	3	1	7
13:00	0	0	1	0	1
13:15	2	0	0	0	2
13:30	1	0	0	0	1
13:45	3	0	2	0	5
Total	6	0	3	0	9
14:00	1	0	0	0	1
14:15	0	0	1	0	1
Total	1	0	1	0	2
15:00	0	0	1	0	1
15:15	1	0	2	0	3
15:30	1	0	1	0	2
15:45	3	0	2	0	5
Total	5	0	6	0	11
16:00	1	0	1	0	2
16:15	0	0	1	0	1

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Callowhill Road
Counter/Board #: BW+HP

File Name : nutt01w
Site Code : 11111111
Start Date : 10/5/2016
Page No : 2

Groups Printed- Pedestrians

	Callowhill Rd Southbound	Nutt Rd Westbound	Callowhill Rd Northbound	Nutt Rd Eastbound	
Start Time	E/W	N/S	E/W	N/S	Int. Total
16:30	2	0	2	0	4
16:45	2	0	1	0	3
Total	5	0	5	0	10
17:00	1	0	1	0	2
17:15	4	0	1	0	5
17:30	0	0	1	1	2
17:45	0	0	1	0	1
Total	5	0	4	1	10
Grand Total	39	1	34	4	78
Apprch %	100	100	100	100	
Total %	50	1.3	43.6	5.1	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Mason St Southbound			Nutt Rd Westbound			Mason St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	1	2	2	111	1	0	0	1	2	223	6	349
07:15	2	0	1	0	131	2	0	0	1	5	183	1	326
07:30	0	0	3	0	156	0	0	0	1	3	231	1	395
07:45	1	0	5	0	172	1	1	1	0	3	232	1	417
Total	3	1	11	2	570	4	1	1	3	13	869	9	1487
08:00	2	3	5	1	154	3	0	1	0	5	221	1	396
08:15	0	0	3	1	165	1	3	0	4	3	240	0	420
08:30	1	0	0	2	167	2	2	0	1	5	199	1	380
08:45	0	0	3	2	176	1	0	0	1	2	175	0	360
Total	3	3	11	6	662	7	5	1	6	15	835	2	1556
09:00	1	1	1	0	174	0	1	1	0	3	186	0	368
09:15	1	3	5	0	116	3	0	0	1	5	177	0	311
09:30	1	1	0	0	151	2	0	0	0	1	175	0	331
09:45	0	0	2	0	133	3	1	1	1	4	146	1	292
Total	3	5	8	0	574	8	2	2	2	13	684	1	1302
10:00	1	1	1	2	64	0	1	0	1	3	84	0	158
10:15	0	0	0	0	124	2	0	0	0	2	136	0	264
10:30	3	1	5	0	110	2	0	1	1	3	98	0	224
10:45	0	0	1	0	148	5	1	0	4	2	152	0	313
Total	4	2	7	2	446	9	2	1	6	10	470	0	959
11:00	3	0	1	0	160	1	0	1	0	2	162	8	338
11:15	2	1	4	2	187	1	0	0	1	1	173	1	373
11:30	1	0	4	0	201	1	0	0	1	5	168	3	384
11:45	1	0	6	0	194	1	0	0	0	1	181	1	385
Total	7	1	15	2	742	4	0	1	2	9	684	13	1480
12:00	1	0	2	1	226	2	2	0	3	3	195	5	440
12:15	3	0	7	1	223	2	0	0	0	4	206	2	448
12:30	2	0	5	1	191	0	0	0	0	7	203	1	410
12:45	2	0	8	1	199	1	2	0	3	4	195	1	416
Total	8	0	22	4	839	5	4	0	6	18	799	9	1714
13:00	0	2	0	0	185	6	0	1	0	3	216	0	413
13:15	4	1	3	1	194	3	0	0	0	2	178	1	387
13:30	1	0	3	0	217	1	1	0	0	9	198	2	432
13:45	1	0	5	1	197	6	0	0	0	3	210	2	425
Total	6	3	11	2	793	16	1	1	0	17	802	5	1657
14:00	2	0	1	0	215	2	1	0	1	5	182	0	409
14:15	0	0	1	0	255	3	0	0	0	3	217	1	480
14:30	3	0	1	0	248	2	1	0	0	2	209	1	467
14:45	2	1	3	2	172	2	0	0	2	5	160	1	350
Total	7	1	6	2	890	9	2	0	3	15	768	3	1706
15:00	2	0	1	1	215	1	0	0	0	2	196	1	419
15:15	0	1	5	0	220	2	0	0	2	2	192	4	428
15:30	0	0	8	0	268	2	0	0	1	6	163	1	449
15:45	0	0	7	1	259	3	0	0	2	8	192	1	473
Total	2	1	21	2	962	8	0	0	5	18	743	7	1769

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 2

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Mason St Southbound			Nutt Rd Westbound			Mason St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	3	0	7	1	257	1	3	0	0	5	166	1	444
16:15	1	0	9	0	225	2	0	1	3	6	196	1	444
16:30	0	0	5	1	235	2	1	0	2	1	193	2	442
16:45	3	1	1	1	226	3	2	0	1	7	168	2	415
Total	7	1	22	3	943	8	6	1	6	19	723	6	1745
17:00	0	0	15	1	224	4	0	0	2	7	178	1	432
17:15	0	0	4	1	197	1	1	0	0	4	160	0	368
17:30	1	0	3	0	263	2	5	0	3	2	206	2	487
17:45	0	0	7	1	213	6	2	1	0	10	191	1	432
Total	1	0	29	3	897	13	8	1	5	23	735	4	1719
Grand Total	51	18	163	28	8318	91	31	9	44	170	8112	59	17094
Apprch %	22	7.8	70.3	0.3	98.6	1.1	36.9	10.7	52.4	2	97.3	0.7	
Total %	0.3	0.1	1	0.2	48.7	0.5	0.2	0.1	0.3	1	47.5	0.3	
Passenger Vehicles	45	14	148	27	7980	79	31	8	40	166	7793	56	16387
% Passenger Vehicles	88.2	77.8	90.8	96.4	95.9	86.8	100	88.9	90.9	97.6	96.1	94.9	95.9
Heavy Vehicles	6	4	15	1	338	12	0	1	4	4	319	3	707
% Heavy Vehicles	11.8	22.2	9.2	3.6	4.1	13.2	0	11.1	9.1	2.4	3.9	5.1	4.1

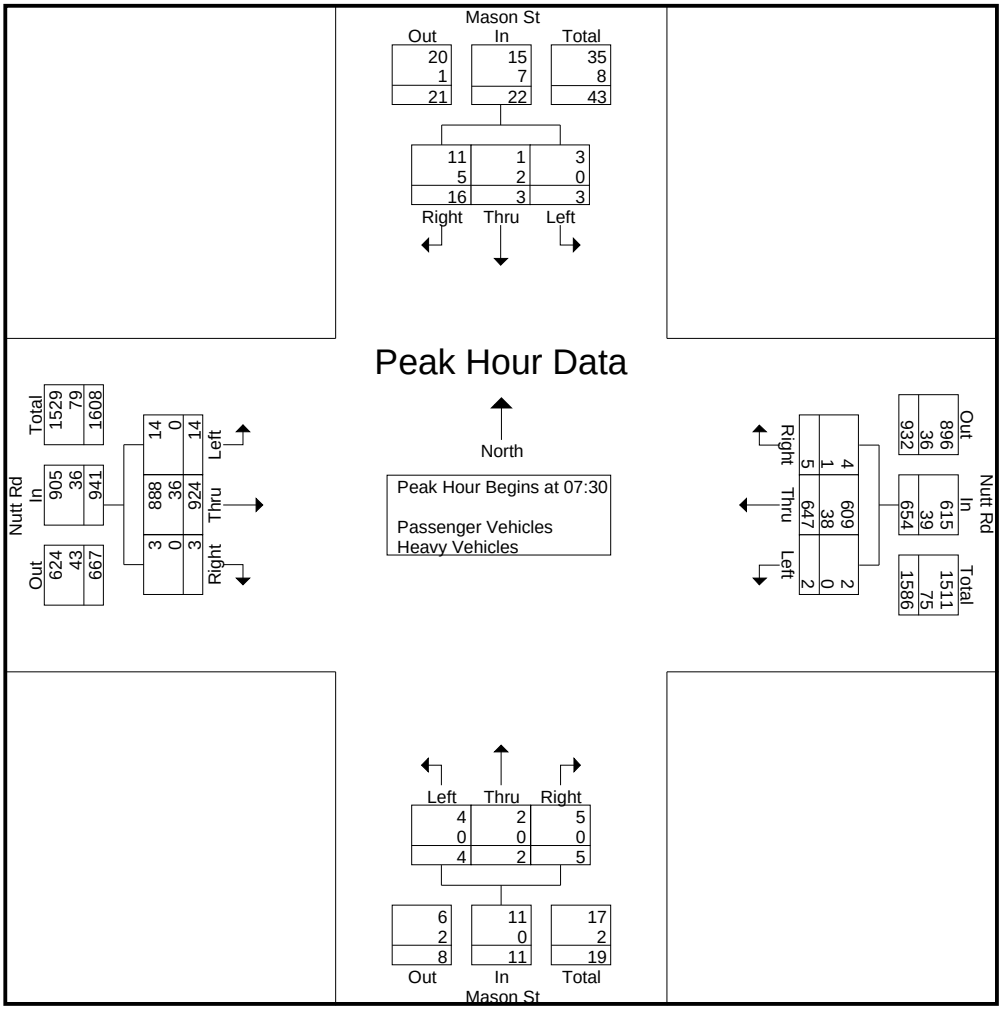
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 3

	Mason St Southbound				Nutt Rd Westbound				Mason St Northbound				Nutt Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	3	3	0	156	0	156	0	0	1	1	3	231	1	235	395
07:45	1	0	5	6	0	172	1	173	1	1	0	2	3	232	1	236	417
08:00	2	3	5	10	1	154	3	158	0	1	0	1	5	221	1	227	396
08:15	0	0	3	3	1	165	1	167	3	0	4	7	3	240	0	243	420
Total Volume	3	3	16	22	2	647	5	654	4	2	5	11	14	924	3	941	1628
% App. Total	13.6	13.6	72.7		0.3	98.9	0.8		36.4	18.2	45.5		1.5	98.2	0.3		
PHF	.375	.250	.800	.550	.500	.940	.417	.945	.333	.500	.313	.393	.700	.963	.750	.968	.969
Passenger Vehicles	3	1	11	15	2	609	4	615	4	2	5	11	14	888	3	905	1546
% Passenger Vehicles	100	33.3	68.8	68.2	100	94.1	80.0	94.0	100	100	100	100	100	96.1	100	96.2	95.0
Heavy Vehicles	0	2	5	7	0	38	1	39	0	0	0	0	0	36	0	36	82
% Heavy Vehicles	0	66.7	31.3	31.8	0	5.9	20.0	6.0	0	0	0	0	0	3.9	0	3.8	5.0



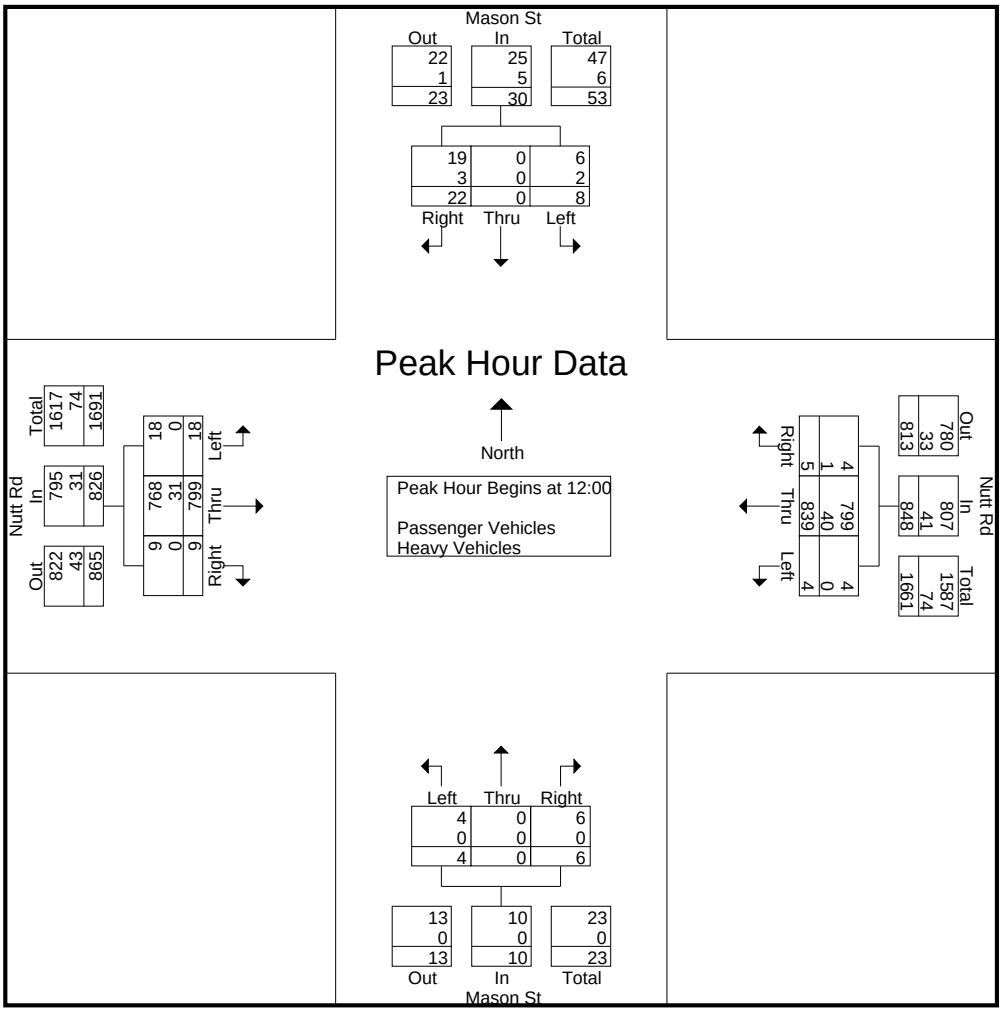
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 4

	Mason St Southbound				Nutt Rd Westbound				Mason St Northbound				Nutt Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00																	
12:00	1	0	2	3	1	226	2	229	2	0	3	5	3	195	5	203	440
12:15	3	0	7	10	1	223	2	226	0	0	0	0	4	206	2	212	448
12:30	2	0	5	7	1	191	0	192	0	0	0	0	7	203	1	211	410
12:45	2	0	8	10	1	199	1	201	2	0	3	5	4	195	1	200	416
Total Volume	8	0	22	30	4	839	5	848	4	0	6	10	18	799	9	826	1714
% App. Total	26.7	0	73.3		0.5	98.9	0.6		40	0	60		2.2	96.7	1.1		
PHF	.667	.000	.688	.750	1.00	.928	.625	.926	.500	.000	.500	.500	.643	.970	.450	.974	.956
Passenger Vehicles	6	0	19	25	4	799	4	807	4	0	6	10	18	768	9	795	1637
% Passenger Vehicles	75.0	0	86.4	83.3	100	95.2	80.0	95.2	100	0	100	100	100	96.1	100	96.2	95.5
Heavy Vehicles	2	0	3	5	0	40	1	41	0	0	0	0	0	31	0	31	77
% Heavy Vehicles	25.0	0	13.6	16.7	0	4.8	20.0	4.8	0	0	0	0	0	3.9	0	3.8	4.5



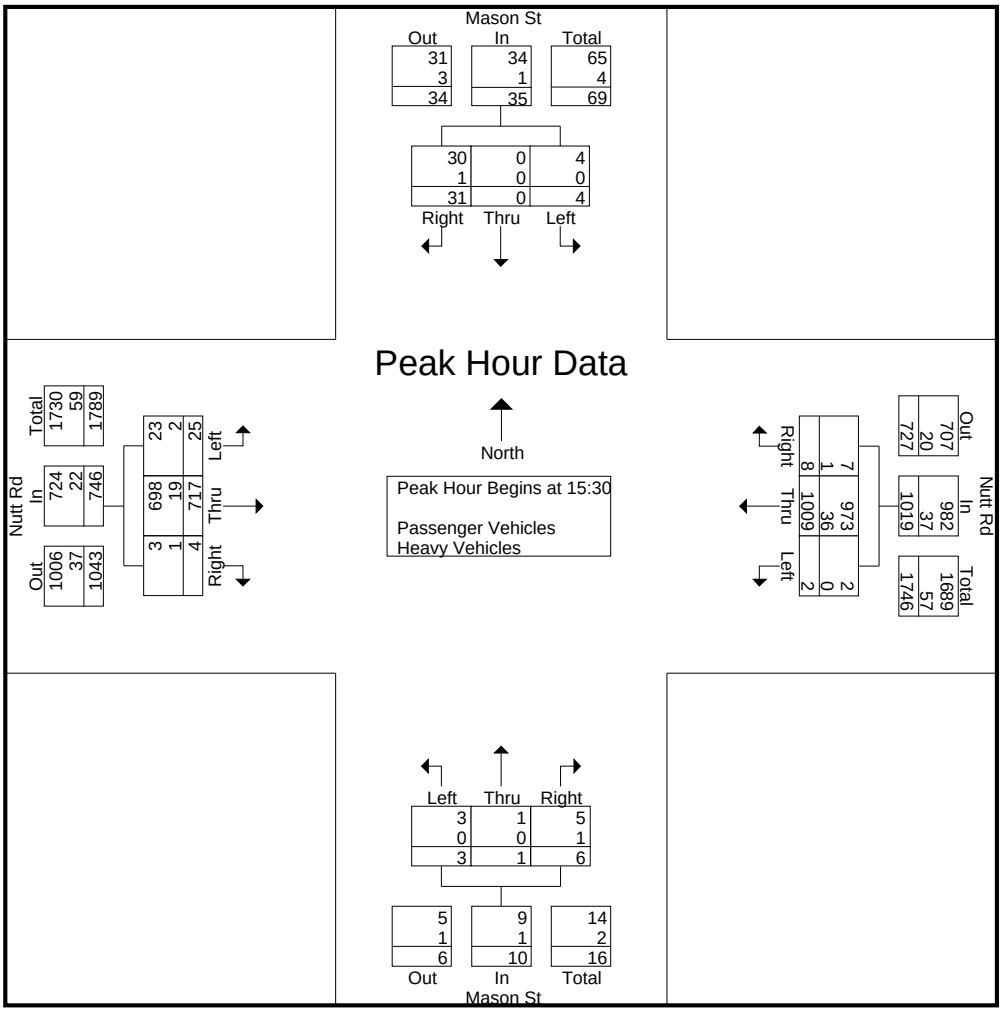
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 5

	Mason St Southbound				Nutt Rd Westbound				Mason St Northbound				Nutt Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:30																	
15:30	0	0	8	8	0	268	2	270	0	0	1	1	6	163	1	170	449
15:45	0	0	7	7	1	259	3	263	0	0	2	2	8	192	1	201	473
16:00	3	0	7	10	1	257	1	259	3	0	0	3	5	166	1	172	444
16:15	1	0	9	10	0	225	2	227	0	1	3	4	6	196	1	203	444
Total Volume	4	0	31	35	2	1009	8	1019	3	1	6	10	25	717	4	746	1810
% App. Total	11.4	0	88.6		0.2	99	0.8		30	10	60		3.4	96.1	0.5		
PHF	.333	.000	.861	.875	.500	.941	.667	.944	.250	.250	.500	.625	.781	.915	1.00	.919	.957
Passenger Vehicles	4	0	30	34	2	973	7	982	3	1	5	9	23	698	3	724	1749
% Passenger Vehicles	100	0	96.8	97.1	100	96.4	87.5	96.4	100	100	83.3	90.0	92.0	97.4	75.0	97.1	96.6
Heavy Vehicles	0	0	1	1	0	36	1	37	0	0	1	1	2	19	1	22	61
% Heavy Vehicles	0	0	3.2	2.9	0	3.6	12.5	3.6	0	0	16.7	10.0	8.0	2.6	25.0	2.9	3.4



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Mason St Southbound			Nutt Rd Westbound			Mason St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	0	0	0	4	1	0	0	0	0	10	2	17
07:15	0	0	0	0	5	0	0	0	0	0	14	0	19
07:30	0	0	0	0	9	0	0	0	0	0	8	0	17
07:45	0	0	2	0	12	0	0	0	0	0	9	0	23
Total	0	0	2	0	30	1	0	0	0	0	41	2	76
08:00	0	2	2	0	7	1	0	0	0	0	8	0	20
08:15	0	0	1	0	10	0	0	0	0	0	11	0	22
08:30	0	0	0	0	13	0	0	0	0	0	6	0	19
08:45	0	0	0	0	9	0	0	0	0	0	7	0	16
Total	0	2	3	0	39	1	0	0	0	0	32	0	77
09:00	0	0	1	0	7	0	0	0	0	0	5	0	13
09:15	0	1	2	0	5	0	0	0	0	0	15	0	23
09:30	0	1	0	0	16	0	0	0	0	0	12	0	29
09:45	0	0	1	0	7	1	0	1	0	0	7	0	17
Total	0	2	4	0	35	1	0	1	0	0	39	0	82
10:00	0	0	0	0	1	0	0	0	0	0	1	0	2
10:15	0	0	0	0	10	1	0	0	0	0	11	0	22
10:30	0	0	0	0	7	0	0	0	1	0	3	0	11
10:45	0	0	0	0	16	0	0	0	0	0	11	0	27
Total	0	0	0	0	34	1	0	0	1	0	26	0	62
11:00	1	0	0	0	8	0	0	0	0	0	9	0	18
11:15	0	0	0	0	4	0	0	0	0	0	10	0	14
11:30	0	0	0	0	7	0	0	0	0	0	12	0	19
11:45	0	0	0	0	11	0	0	0	0	0	7	0	18
Total	1	0	0	0	30	0	0	0	0	0	38	0	69
12:00	0	0	0	0	9	1	0	0	0	0	6	0	16
12:15	1	0	1	0	15	0	0	0	0	0	11	0	28
12:30	0	0	0	0	7	0	0	0	0	0	6	0	13
12:45	1	0	2	0	9	0	0	0	0	0	8	0	20
Total	2	0	3	0	40	1	0	0	0	0	31	0	77
13:00	0	0	0	0	4	0	0	0	0	0	8	0	12
13:15	1	0	0	0	8	1	0	0	0	0	6	0	16
13:30	0	0	0	0	3	0	0	0	0	0	4	0	7
13:45	0	0	0	0	8	0	0	0	0	0	4	0	12
Total	1	0	0	0	23	1	0	0	0	0	22	0	47
14:00	0	0	1	0	8	0	0	0	0	0	7	0	16
14:15	0	0	0	0	10	1	0	0	0	0	10	0	21
14:30	1	0	0	0	3	1	0	0	0	0	8	0	13
14:45	0	0	0	0	8	0	0	0	2	1	11	0	22
Total	1	0	1	0	29	2	0	0	2	1	36	0	72
15:00	0	0	1	0	11	0	0	0	0	0	5	0	17
15:15	0	0	0	0	9	0	0	0	0	1	14	0	24
15:30	0	0	1	0	12	1	0	0	1	1	7	0	23
15:45	0	0	0	0	5	0	0	0	0	1	5	0	11
Total	0	0	2	0	37	1	0	0	1	3	31	0	75

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 2

Groups Printed- Heavy Vehicles

	Mason St Southbound			Nutt Rd Westbound			Mason St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	0	0	0	0	14	0	0	0	0	0	4	0	18
16:15	0	0	0	0	5	0	0	0	0	0	3	1	9
16:30	0	0	0	1	6	1	0	0	0	0	2	0	10
16:45	0	0	0	0	0	0	0	0	0	0	4	0	4
Total	0	0	0	1	25	1	0	0	0	0	13	1	41
17:00	0	0	0	0	6	2	0	0	0	0	4	0	12
17:15	0	0	0	0	3	0	0	0	0	0	0	0	3
17:30	1	0	0	0	4	0	0	0	0	0	6	0	11
17:45	0	0	0	0	3	0	0	0	0	0	0	0	3
Total	1	0	0	0	16	2	0	0	0	0	10	0	29
Grand Total	6	4	15	1	338	12	0	1	4	4	319	3	707
Apprch %	24	16	60	0.3	96.3	3.4	0	20	80	1.2	97.9	0.9	
Total %	0.8	0.6	2.1	0.1	47.8	1.7	0	0.1	0.6	0.6	45.1	0.4	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Mason St Southbound			Nutt Rd Westbound			Mason St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	1	2	2	107	0	0	0	1	2	213	4	332
07:15	2	0	1	0	126	2	0	0	1	5	169	1	307
07:30	0	0	3	0	147	0	0	0	1	3	223	1	378
07:45	1	0	3	0	160	1	1	1	0	3	223	1	394
Total	3	1	9	2	540	3	1	1	3	13	828	7	1411
08:00	2	1	3	1	147	2	0	1	0	5	213	1	376
08:15	0	0	2	1	155	1	3	0	4	3	229	0	398
08:30	1	0	0	2	154	2	2	0	1	5	193	1	361
08:45	0	0	3	2	167	1	0	0	1	2	168	0	344
Total	3	1	8	6	623	6	5	1	6	15	803	2	1479
09:00	1	1	0	0	167	0	1	1	0	3	181	0	355
09:15	1	2	3	0	111	3	0	0	1	5	162	0	288
09:30	1	0	0	0	135	2	0	0	0	1	163	0	302
09:45	0	0	1	0	126	2	1	0	1	4	139	1	275
Total	3	3	4	0	539	7	2	1	2	13	645	1	1220
10:00	1	1	1	2	63	0	1	0	1	3	83	0	156
10:15	0	0	0	0	114	1	0	0	0	2	125	0	242
10:30	3	1	5	0	103	2	0	1	0	3	95	0	213
10:45	0	0	1	0	132	5	1	0	4	2	141	0	286
Total	4	2	7	2	412	8	2	1	5	10	444	0	897
11:00	2	0	1	0	152	1	0	1	0	2	153	8	320
11:15	2	1	4	2	183	1	0	0	1	1	163	1	359
11:30	1	0	4	0	194	1	0	0	1	5	156	3	365
11:45	1	0	6	0	183	1	0	0	0	1	174	1	367
Total	6	1	15	2	712	4	0	1	2	9	646	13	1411
12:00	1	0	2	1	217	1	2	0	3	3	189	5	424
12:15	2	0	6	1	208	2	0	0	0	4	195	2	420
12:30	2	0	5	1	184	0	0	0	0	7	197	1	397
12:45	1	0	6	1	190	1	2	0	3	4	187	1	396
Total	6	0	19	4	799	4	4	0	6	18	768	9	1637
13:00	0	2	0	0	181	6	0	1	0	3	208	0	401
13:15	3	1	3	1	186	2	0	0	0	2	172	1	371
13:30	1	0	3	0	214	1	1	0	0	9	194	2	425
13:45	1	0	5	1	189	6	0	0	0	3	206	2	413
Total	5	3	11	2	770	15	1	1	0	17	780	5	1610
14:00	2	0	0	0	207	2	1	0	1	5	175	0	393
14:15	0	0	1	0	245	2	0	0	0	3	207	1	459
14:30	2	0	1	0	245	1	1	0	0	2	201	1	454
14:45	2	1	3	2	164	2	0	0	0	4	149	1	328
Total	6	1	5	2	861	7	2	0	1	14	732	3	1634
15:00	2	0	0	1	204	1	0	0	0	2	191	1	402
15:15	0	1	5	0	211	2	0	0	2	1	178	4	404
15:30	0	0	7	0	256	1	0	0	0	5	156	1	426
15:45	0	0	7	1	254	3	0	0	2	7	187	1	462
Total	2	1	19	2	925	7	0	0	4	15	712	7	1694

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016

Groups Printed- Passenger Vehicles

	Mason St Southbound			Nutt Rd Westbound			Mason St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	3	0	7	1	243	1	3	0	0	5	162	1	426
16:15	1	0	9	0	220	2	0	1	3	6	193	0	435
16:30	0	0	5	0	229	1	1	0	2	1	191	2	432
16:45	3	1	1	1	226	3	2	0	1	7	164	2	411
Total	7	1	22	2	918	7	6	1	6	19	710	5	1704
17:00	0	0	15	1	218	2	0	0	2	7	174	1	420
17:15	0	0	4	1	194	1	1	0	0	4	160	0	365
17:30	0	0	3	0	259	2	5	0	3	2	200	2	476
17:45	0	0	7	1	210	6	2	1	0	10	191	1	429
Total	0	0	29	3	881	11	8	1	5	23	725	4	1690
Grand Total	45	14	148	27	7980	79	31	8	40	166	7793	56	16387
Apprch %	21.7	6.8	71.5	0.3	98.7	1	39.2	10.1	50.6	2.1	97.2	0.7	
Total %	0.3	0.1	0.9	0.2	48.7	0.5	0.2	0	0.2	1	47.6	0.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Mason St Southbound	Nutt Rd Westbound	Mason St Northbound	Nutt Rd Eastbound	
Start Time	E/W	N/S	E/W	N/S	Int. Total
07:15	1	0	1	0	2
07:30	1	0	0	0	1
07:45	0	0	1	0	1
Total	2	0	2	0	4
08:15	3	0	2	1	6
Total	3	0	2	1	6
09:00	1	0	1	0	2
09:15	1	1	0	0	2
09:45	0	1	0	0	1
Total	2	2	1	0	5
11:00	1	0	0	0	1
11:15	2	0	1	0	3
11:30	1	0	0	0	1
11:45	0	0	1	1	2
Total	4	0	2	1	7
12:00	1	0	1	0	2
12:30	2	1	1	0	4
Total	3	1	2	0	6
13:00	2	0	4	0	6
13:15	1	0	0	0	1
13:30	1	0	1	0	2
13:45	2	1	0	0	3
Total	6	1	5	0	12
14:00	1	0	0	0	1
14:15	2	0	1	0	3
14:30	2	0	1	0	3
14:45	1	0	1	0	2
Total	6	0	3	0	9
15:15	0	0	3	0	3
15:30	1	0	0	0	1
Total	1	0	3	0	4
16:00	2	0	0	0	2
16:15	4	0	2	0	6
16:30	1	1	1	0	3
16:45	1	0	0	0	1
Total	8	1	3	0	12

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Mason Street
Counter/Board #: LB+CC

File Name : nutt02w
Site Code : 22222222
Start Date : 10/5/2016
Page No : 2

Groups Printed- Pedestrians

	Mason St Southbound	Nutt Rd Westbound	Mason St Northbound	Nutt Rd Eastbound	
Start Time	E/W	N/S	E/W	N/S	Int. Total
17:00	3	0	0	0	3
Total	3	0	0	0	3
Grand Total	38	5	23	2	68
Apprch %	100	100	100	100	
Total %	55.9	7.4	33.8	2.9	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: LB

File Name : nutt03a
Site Code : 81649403
Start Date : 10/13/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Paradise St Southbound		Nutt Rd Westbound		Nutt Rd Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00	0	1	109	2	4	194	310
07:15	0	1	132	2	0	182	317
07:30	0	2	149	0	2	214	367
07:45	0	2	147	0	3	211	363
Total	0	6	537	4	9	801	1357
08:00	0	2	171	2	2	240	417
08:15	1	5	136	1	5	204	352
08:30	0	1	169	2	3	234	409
08:45	1	2	149	0	7	196	355
Total	2	10	625	5	17	874	1533
Grand Total	2	16	1162	9	26	1675	2890
Apprch %	11.1	88.9	99.2	0.8	1.5	98.5	
Total %	0.1	0.6	40.2	0.3	0.9	58	
Passenger Vehicles	1	12	1085	7	22	1615	2742
% Passenger Vehicles	50	75	93.4	77.8	84.6	96.4	94.9
Heavy Vehicles	1	4	77	2	4	60	148
% Heavy Vehicles	50	25	6.6	22.2	15.4	3.6	5.1

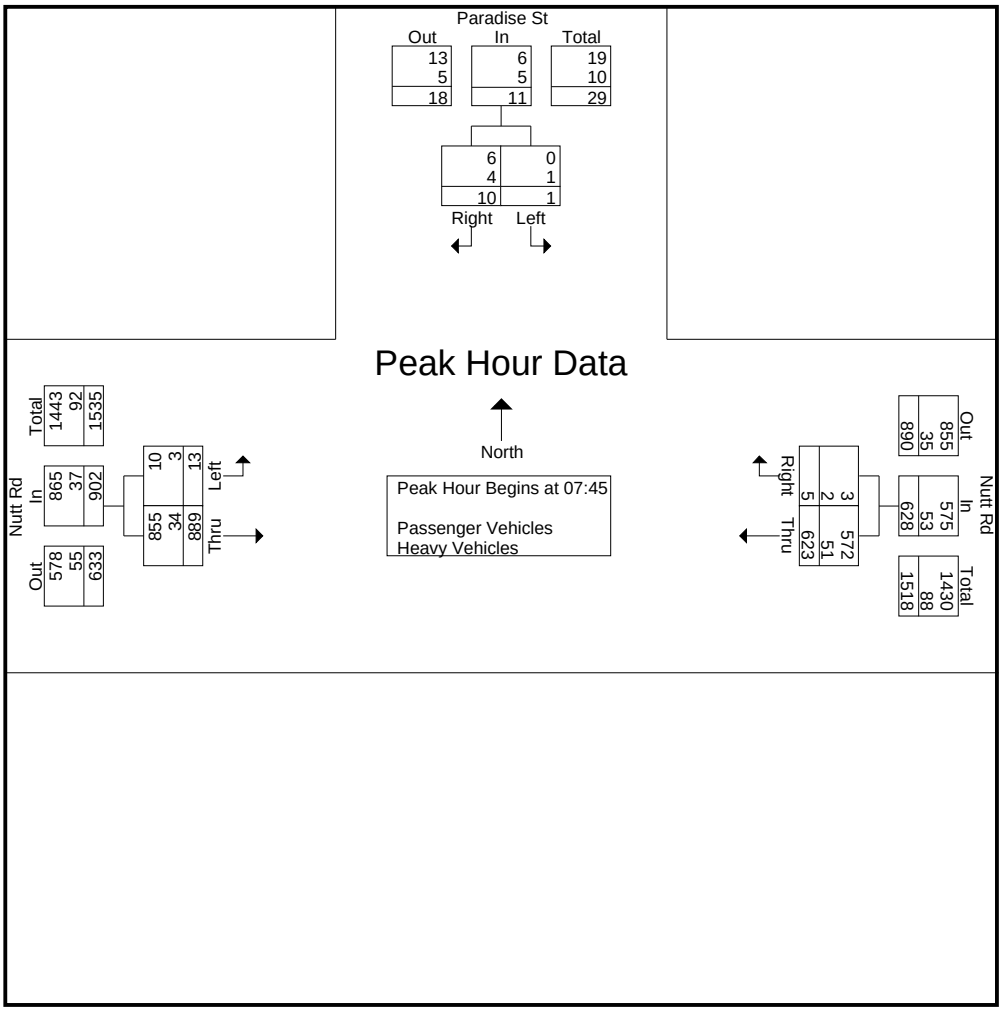
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: LB

File Name : nutt03a
Site Code : 81649403
Start Date : 10/13/2016
Page No : 2

	Paradise St Southbound			Nutt Rd Westbound			Nutt Rd Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45										
07:45	0	2	2	147	0	147	3	211	214	363
08:00	0	2	2	171	2	173	2	240	242	417
08:15	1	5	6	136	1	137	5	204	209	352
08:30	0	1	1	169	2	171	3	234	237	409
Total Volume	1	10	11	623	5	628	13	889	902	1541
% App. Total	9.1	90.9		99.2	0.8		1.4	98.6		
PHF	.250	.500	.458	.911	.625	.908	.650	.926	.932	.924
Passenger Vehicles	0	6	6	572	3	575	10	855	865	1446
% Passenger Vehicles	0	60.0	54.5	91.8	60.0	91.6	76.9	96.2	95.9	93.8
Heavy Vehicles	1	4	5	51	2	53	3	34	37	95
% Heavy Vehicles	100	40.0	45.5	8.2	40.0	8.4	23.1	3.8	4.1	6.2



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: LB

File Name : nutt03a
Site Code : 81649403
Start Date : 10/13/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Paradise St Southbound		Nutt Rd Westbound		Nutt Rd Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00	0	0	3	0	0	8	11
07:15	0	0	8	0	0	2	10
07:30	0	0	9	0	0	5	14
07:45	0	0	8	0	0	5	13
Total	0	0	28	0	0	20	48
08:00	0	2	11	2	2	13	30
08:15	1	1	13	0	0	7	22
08:30	0	1	19	0	1	9	30
08:45	0	0	6	0	1	11	18
Total	1	4	49	2	4	40	100
Grand Total	1	4	77	2	4	60	148
Apprch %	20	80	97.5	2.5	6.2	93.8	
Total %	0.7	2.7	52	1.4	2.7	40.5	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: LB

File Name : nutt03a
Site Code : 81649403
Start Date : 10/13/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Paradise St Southbound		Nutt Rd Westbound		Nutt Rd Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00	0	1	106	2	4	186	299
07:15	0	1	124	2	0	180	307
07:30	0	2	140	0	2	209	353
07:45	0	2	139	0	3	206	350
Total	0	6	509	4	9	781	1309
08:00	0	0	160	0	0	227	387
08:15	0	4	123	1	5	197	330
08:30	0	0	150	2	2	225	379
08:45	1	2	143	0	6	185	337
Total	1	6	576	3	13	834	1433
Grand Total	1	12	1085	7	22	1615	2742
Apprch %	7.7	92.3	99.4	0.6	1.3	98.7	
Total %	0	0.4	39.6	0.3	0.8	58.9	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: LB

File Name : nutt03a
Site Code : 81649403
Start Date : 10/13/2016
Page No : 1

Groups Printed- Pedestrians

	Paradise St Southbound	Nutt Rd Westbound	Nutt Rd Eastbound	
Start Time	E/W	N/S	N/S	Int. Total
07:30	2	0	0	2
07:45	3	0	0	3
Total	5	0	0	5
08:00	1	0	0	1
08:15	1	0	0	1
08:45	1	0	0	1
Total	3	0	0	3
Grand Total	8	0	0	8
Apprch %	100	0	0	
Total %	100	0	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: KB

File Name : nutt03p
Site Code : 81649403
Start Date : 9/27/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Paradise St Southbound		Nutt Rd Westbound		Nutt Rd Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
16:00	0	6	252	0	6	239	503
16:15	0	2	269	0	1	208	480
16:30	0	2	276	1	2	229	510
16:45	0	2	285	0	1	216	504
Total	0	12	1082	1	10	892	1997
17:00	0	3	270	1	5	216	495
17:15	0	3	281	1	3	212	500
17:30	0	6	313	0	2	272	593
17:45	0	3	257	0	4	272	536
Total	0	15	1121	2	14	972	2124
Grand Total	0	27	2203	3	24	1864	4121
Apprch %	0	100	99.9	0.1	1.3	98.7	
Total %	0	0.7	53.5	0.1	0.6	45.2	
Passenger Vehicles	0	25	2185	3	23	1851	4087
% Passenger Vehicles	0	92.6	99.2	100	95.8	99.3	99.2
Heavy Vehicles	0	2	18	0	1	13	34
% Heavy Vehicles	0	7.4	0.8	0	4.2	0.7	0.8

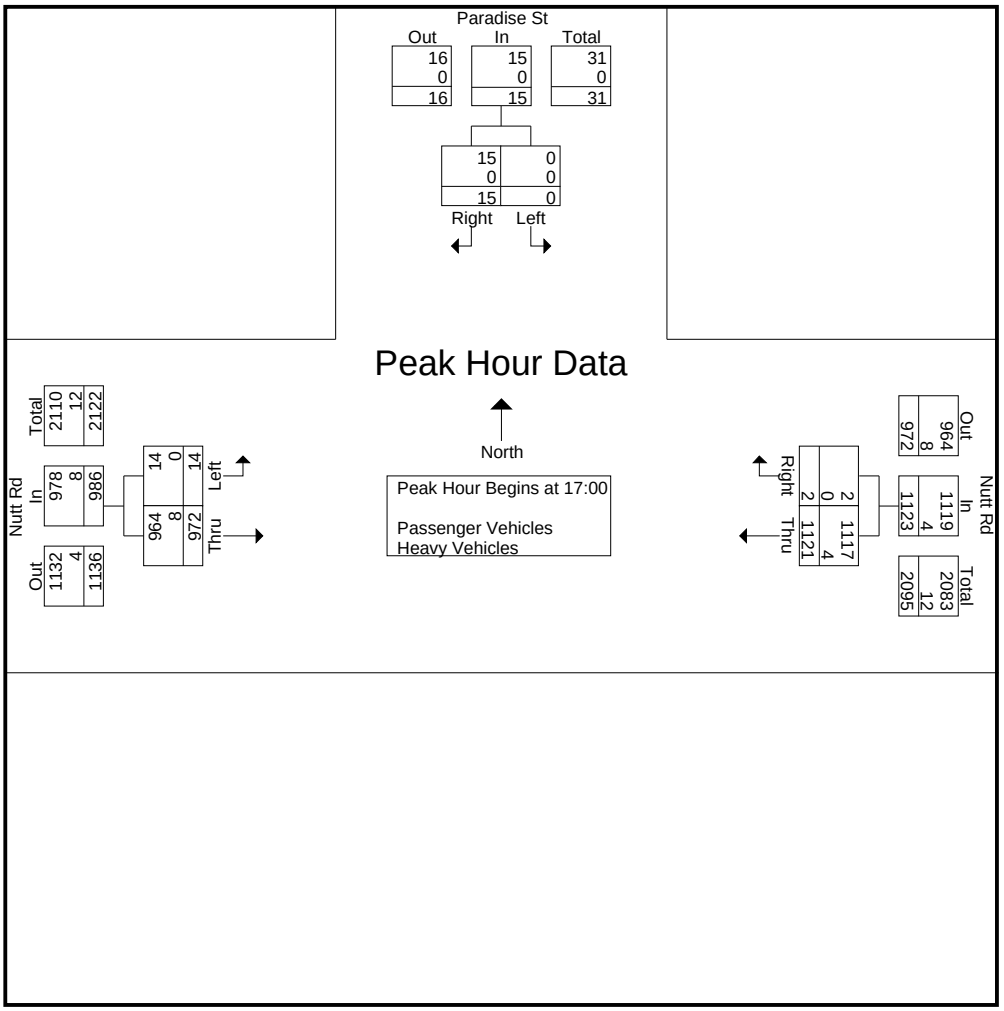
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: KB

File Name : nutt03p
Site Code : 81649403
Start Date : 9/27/2016
Page No : 2

	Paradise St Southbound			Nutt Rd Westbound			Nutt Rd Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 17:00										
17:00	0	3	3	270	1	271	5	216	221	495
17:15	0	3	3	281	1	282	3	212	215	500
17:30	0	6	6	313	0	313	2	272	274	593
17:45	0	3	3	257	0	257	4	272	276	536
Total Volume	0	15	15	1121	2	1123	14	972	986	2124
% App. Total	0	100		99.8	0.2		1.4	98.6		
PHF	.000	.625	.625	.895	.500	.897	.700	.893	.893	.895
Passenger Vehicles	0	15	15	1117	2	1119	14	964	978	2112
% Passenger Vehicles	0	100	100	99.6	100	99.6	100	99.2	99.2	99.4
Heavy Vehicles	0	0	0	4	0	4	0	8	8	12
% Heavy Vehicles	0	0	0	0.4	0	0.4	0	0.8	0.8	0.6



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: KB

File Name : nutt03p
Site Code : 81649403
Start Date : 9/27/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Paradise St Southbound		Nutt Rd Westbound		Nutt Rd Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
16:00	0	1	3	0	0	1	5
16:15	0	0	6	0	1	1	8
16:30	0	1	3	0	0	3	7
16:45	0	0	2	0	0	0	2
Total	0	2	14	0	1	5	22
17:00	0	0	1	0	0	0	1
17:15	0	0	0	0	0	4	4
17:30	0	0	3	0	0	3	6
17:45	0	0	0	0	0	1	1
Total	0	0	4	0	0	8	12
Grand Total	0	2	18	0	1	13	34
Apprch %	0	100	100	0	7.1	92.9	
Total %	0	5.9	52.9	0	2.9	38.2	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: KB

File Name : nutt03p
Site Code : 81649403
Start Date : 9/27/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Paradise St Southbound		Nutt Rd Westbound		Nutt Rd Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
16:00	0	5	249	0	6	238	498
16:15	0	2	263	0	0	207	472
16:30	0	1	273	1	2	226	503
16:45	0	2	283	0	1	216	502
Total	0	10	1068	1	9	887	1975
17:00	0	3	269	1	5	216	494
17:15	0	3	281	1	3	208	496
17:30	0	6	310	0	2	269	587
17:45	0	3	257	0	4	271	535
Total	0	15	1117	2	14	964	2112
Grand Total	0	25	2185	3	23	1851	4087
Apprch %	0	100	99.9	0.1	1.2	98.8	
Total %	0	0.6	53.5	0.1	0.6	45.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Paradise Street
Counter/Board #: KB

File Name : nutt03p
Site Code : 81649403
Start Date : 9/27/2016
Page No : 1

Groups Printed- Pedestrians

	Paradise St Southbound	Nutt Rd Westbound	Nutt Rd Eastbound	
Start Time	E/W	N/S	N/S	Int. Total
16:00	1	0	0	1
16:30	2	0	0	2
16:45	3	0	0	3
Total	6	0	0	6
17:15	1	0	0	1
Total	1	0	0	1
Grand Total	7	0	0	7
Apprch %	100	0	0	
Total %	100	0	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: BW

File Name : nutt04a
Site Code : 81649404
Start Date : 10/18/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Nutt Rd Westbound		Sherman St Northbound		Nutt Rd Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	0	152	0	1	237	4	394
07:15	2	136	1	2	231	0	372
07:30	1	182	0	0	249	1	433
07:45	0	176	0	1	284	1	462
Total	3	646	1	4	1001	6	1661
08:00	0	173	0	0	238	1	412
08:15	1	158	0	0	246	0	405
08:30	1	162	0	0	245	0	408
08:45	0	147	0	0	230	1	378
Total	2	640	0	0	959	2	1603
Grand Total	5	1286	1	4	1960	8	3264
Apprch %	0.4	99.6	20	80	99.6	0.4	
Total %	0.2	39.4	0	0.1	60	0.2	
Passenger Vehicles	5	1211	1	4	1886	8	3115
% Passenger Vehicles	100	94.2	100	100	96.2	100	95.4
Heavy Vehicles	0	75	0	0	74	0	149
% Heavy Vehicles	0	5.8	0	0	3.8	0	4.6

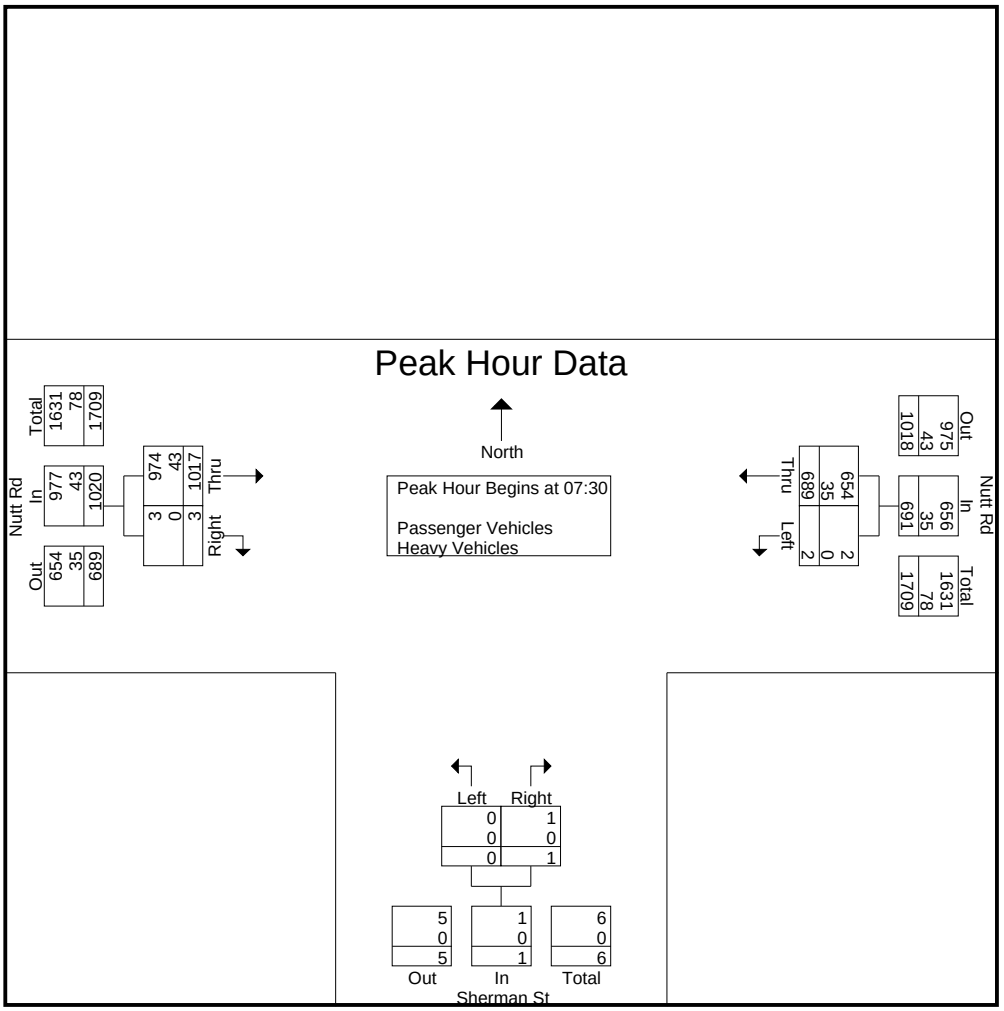
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: BW

File Name : nutt04a
Site Code : 81649404
Start Date : 10/18/2016
Page No : 2

	Nutt Rd Westbound			Sherman St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30										
07:30	1	182	183	0	0	0	249	1	250	433
07:45	0	176	176	0	1	1	284	1	285	462
08:00	0	173	173	0	0	0	238	1	239	412
08:15	1	158	159	0	0	0	246	0	246	405
Total Volume	2	689	691	0	1	1	1017	3	1020	1712
% App. Total	0.3	99.7		0	100		99.7	0.3		
PHF	.500	.946	.944	.000	.250	.250	.895	.750	.895	.926
Passenger Vehicles	2	654	656	0	1	1	974	3	977	1634
% Passenger Vehicles	100	94.9	94.9	0	100	100	95.8	100	95.8	95.4
Heavy Vehicles	0	35	35	0	0	0	43	0	43	78
% Heavy Vehicles	0	5.1	5.1	0	0	0	4.2	0	4.2	4.6



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: BW

File Name : nutt04a
Site Code : 81649404
Start Date : 10/18/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Nutt Rd Westbound		Sherman St Northbound		Nutt Rd Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	0	10	0	0	7	0	17
07:15	0	9	0	0	8	0	17
07:30	0	7	0	0	10	0	17
07:45	0	9	0	0	8	0	17
Total	0	35	0	0	33	0	68
08:00	0	6	0	0	9	0	15
08:15	0	13	0	0	16	0	29
08:30	0	10	0	0	10	0	20
08:45	0	11	0	0	6	0	17
Total	0	40	0	0	41	0	81
Grand Total	0	75	0	0	74	0	149
Apprch %	0	100	0	0	100	0	
Total %	0	50.3	0	0	49.7	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: BW

File Name : nutt04a
Site Code : 81649404
Start Date : 10/18/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Nutt Rd Westbound		Sherman St Northbound		Nutt Rd Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	0	142	0	1	230	4	377
07:15	2	127	1	2	223	0	355
07:30	1	175	0	0	239	1	416
07:45	0	167	0	1	276	1	445
Total	3	611	1	4	968	6	1593
08:00	0	167	0	0	229	1	397
08:15	1	145	0	0	230	0	376
08:30	1	152	0	0	235	0	388
08:45	0	136	0	0	224	1	361
Total	2	600	0	0	918	2	1522
Grand Total	5	1211	1	4	1886	8	3115
Apprch %	0.4	99.6	20	80	99.6	0.4	
Total %	0.2	38.9	0	0.1	60.5	0.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: BW

File Name : nutt04a
Site Code : 81649404
Start Date : 10/18/2016
Page No : 1

Groups Printed- Pedestrians

	Nutt Rd Westbound	Sherman St Northbound	Nutt Rd Eastbound	
Start Time	N/S	E/W	N/S	Int. Total
07:00	0	1	0	1
07:30	0	2	0	2
Total	0	3	0	3
08:15	1	1	1	3
Total	1	1	1	3
Grand Total	1	4	1	6
Apprch %	100	100	100	
Total %	16.7	66.7	16.7	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: KB

File Name : nutt04p
Site Code : 81649404
Start Date : 9/28/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Nutt Rd Westbound		Sherman St Northbound		Nutt Rd Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
16:00	0	288	0	1	223	0	512
16:15	0	276	0	0	199	4	479
16:30	1	233	0	1	231	5	471
16:45	1	275	1	3	225	4	509
Total	2	1072	1	5	878	13	1971
17:00	0	305	0	1	234	0	540
17:15	0	290	0	0	229	2	521
17:30	0	287	0	0	219	3	509
17:45	1	267	0	2	235	1	506
Total	1	1149	0	3	917	6	2076
Grand Total	3	2221	1	8	1795	19	4047
Apprch %	0.1	99.9	11.1	88.9	99	1	
Total %	0.1	54.9	0	0.2	44.4	0.5	
Passenger Vehicles	3	2204	1	7	1769	19	4003
% Passenger Vehicles	100	99.2	100	87.5	98.6	100	98.9
Heavy Vehicles	0	17	0	1	26	0	44
% Heavy Vehicles	0	0.8	0	12.5	1.4	0	1.1

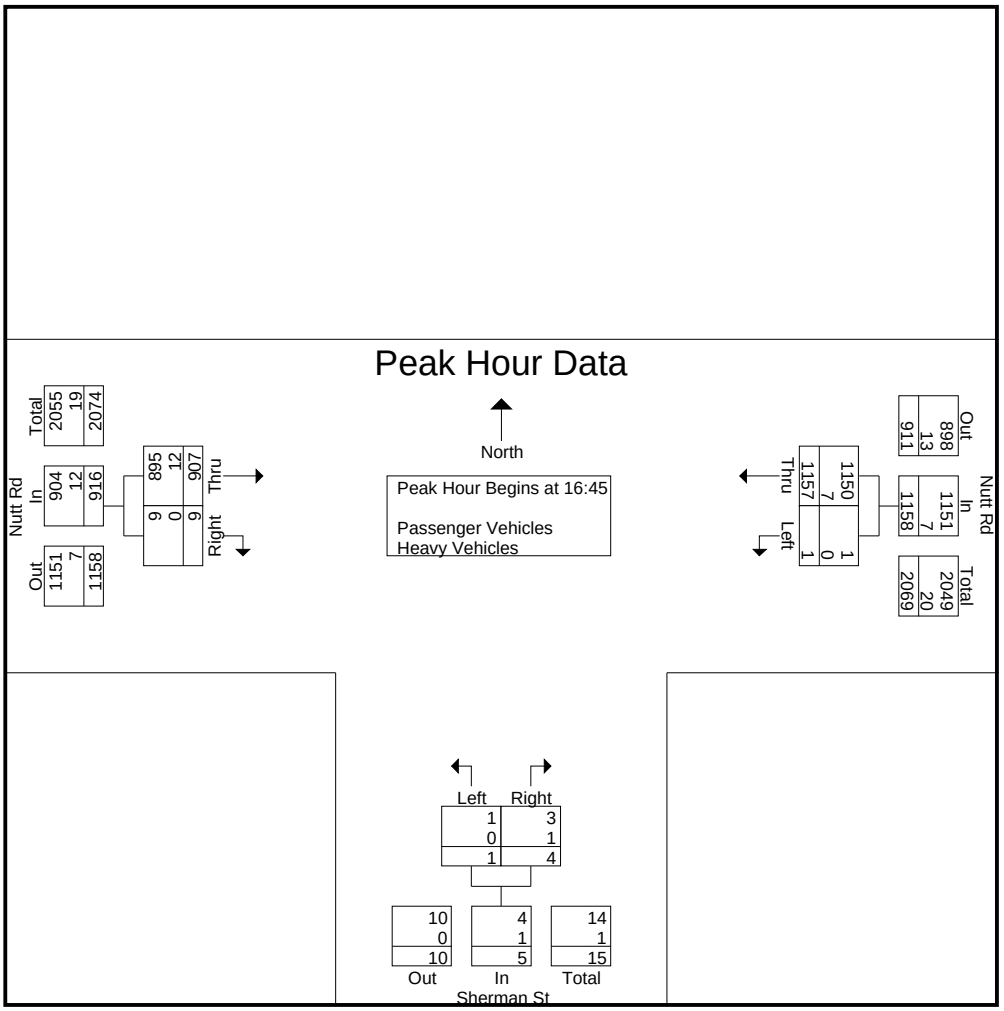
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: KB

File Name : nutt04p
Site Code : 81649404
Start Date : 9/28/2016
Page No : 2

	Nutt Rd Westbound			Sherman St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:45										
16:45	1	275	276	1	3	4	225	4	229	509
17:00	0	305	305	0	1	1	234	0	234	540
17:15	0	290	290	0	0	0	229	2	231	521
17:30	0	287	287	0	0	0	219	3	222	509
Total Volume	1	1157	1158	1	4	5	907	9	916	2079
% App. Total	0.1	99.9		20	80		99	1		
PHF	.250	.948	.949	.250	.333	.313	.969	.563	.979	.963
Passenger Vehicles	1	1150	1151	1	3	4	895	9	904	2059
% Passenger Vehicles	100	99.4	99.4	100	75.0	80.0	98.7	100	98.7	99.0
Heavy Vehicles	0	7	7	0	1	1	12	0	12	20
% Heavy Vehicles	0	0.6	0.6	0	25.0	20.0	1.3	0	1.3	1.0



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: KB

File Name : nutt04p
Site Code : 81649404
Start Date : 9/28/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Nutt Rd Westbound		Sherman St Northbound		Nutt Rd Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
16:00	0	5	0	0	5	0	10
16:15	0	0	0	0	5	0	5
16:30	0	3	0	0	3	0	6
16:45	0	4	0	1	5	0	10
Total	0	12	0	1	18	0	31
17:00	0	1	0	0	1	0	2
17:15	0	1	0	0	4	0	5
17:30	0	1	0	0	2	0	3
17:45	0	2	0	0	1	0	3
Total	0	5	0	0	8	0	13
Grand Total	0	17	0	1	26	0	44
Apprch %	0	100	0	100	100	0	
Total %	0	38.6	0	2.3	59.1	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: KB

File Name : nutt04p
Site Code : 81649404
Start Date : 9/28/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Nutt Rd Westbound		Sherman St Northbound		Nutt Rd Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
16:00	0	283	0	1	218	0	502
16:15	0	276	0	0	194	4	474
16:30	1	230	0	1	228	5	465
16:45	1	271	1	2	220	4	499
Total	2	1060	1	4	860	13	1940
17:00	0	304	0	1	233	0	538
17:15	0	289	0	0	225	2	516
17:30	0	286	0	0	217	3	506
17:45	1	265	0	2	234	1	503
Total	1	1144	0	3	909	6	2063
Grand Total	3	2204	1	7	1769	19	4003
Apprch %	0.1	99.9	12.5	87.5	98.9	1.1	
Total %	0.1	55.1	0	0.2	44.2	0.5	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Nutt Road &
Sherman Street
Counter/Board #: KB

File Name : nutt04p
Site Code : 81649404
Start Date : 9/28/2016
Page No : 1

Groups Printed- Pedestrians

	Nutt Rd Westbound	Sherman St Northbound	Nutt Rd Eastbound	
Start Time	N/S	E/W	N/S	Int. Total
16:45	0	2	0	2
Total	0	2	0	2
17:15	0	1	0	1
17:30	0	1	0	1
Total	0	2	0	2
Grand Total	0	4	0	4
Apprch %	0	100	0	
Total %	0	100	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: LB

File Name : nutt05a
Site Code : 81649405
Start Date : 10/18/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Wheatland St Southbound			Bridge St Westbound			Wheatland St Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	8	1	3	8	117	3	0	1	0	0	78	4	223
07:15	7	1	3	5	126	4	0	0	0	0	110	4	260
07:30	8	2	4	6	166	1	0	0	0	2	160	7	356
07:45	3	1	1	4	158	2	0	0	0	1	130	5	305
Total	26	5	11	23	567	10	0	1	0	3	478	20	1144
08:00	2	2	2	4	150	2	0	0	0	4	124	2	292
08:15	3	0	0	3	132	4	0	0	0	1	118	6	267
08:30	7	0	3	4	155	4	0	0	0	0	125	1	299
08:45	6	1	0	4	118	3	0	0	0	2	109	0	243
Total	18	3	5	15	555	13	0	0	0	7	476	9	1101
Grand Total	44	8	16	38	1122	23	0	1	0	10	954	29	2245
Apprch %	64.7	11.8	23.5	3.2	94.8	1.9	0	100	0	1	96.1	2.9	
Total %	2	0.4	0.7	1.7	50	1	0	0	0	0.4	42.5	1.3	
Passenger Vehicles	40	7	14	37	1073	19	0	1	0	9	906	29	2135
% Passenger Vehicles	90.9	87.5	87.5	97.4	95.6	82.6	0	100	0	90	95	100	95.1
Heavy Vehicles	4	1	2	1	49	4	0	0	0	1	48	0	110
% Heavy Vehicles	9.1	12.5	12.5	2.6	4.4	17.4	0	0	0	10	5	0	4.9

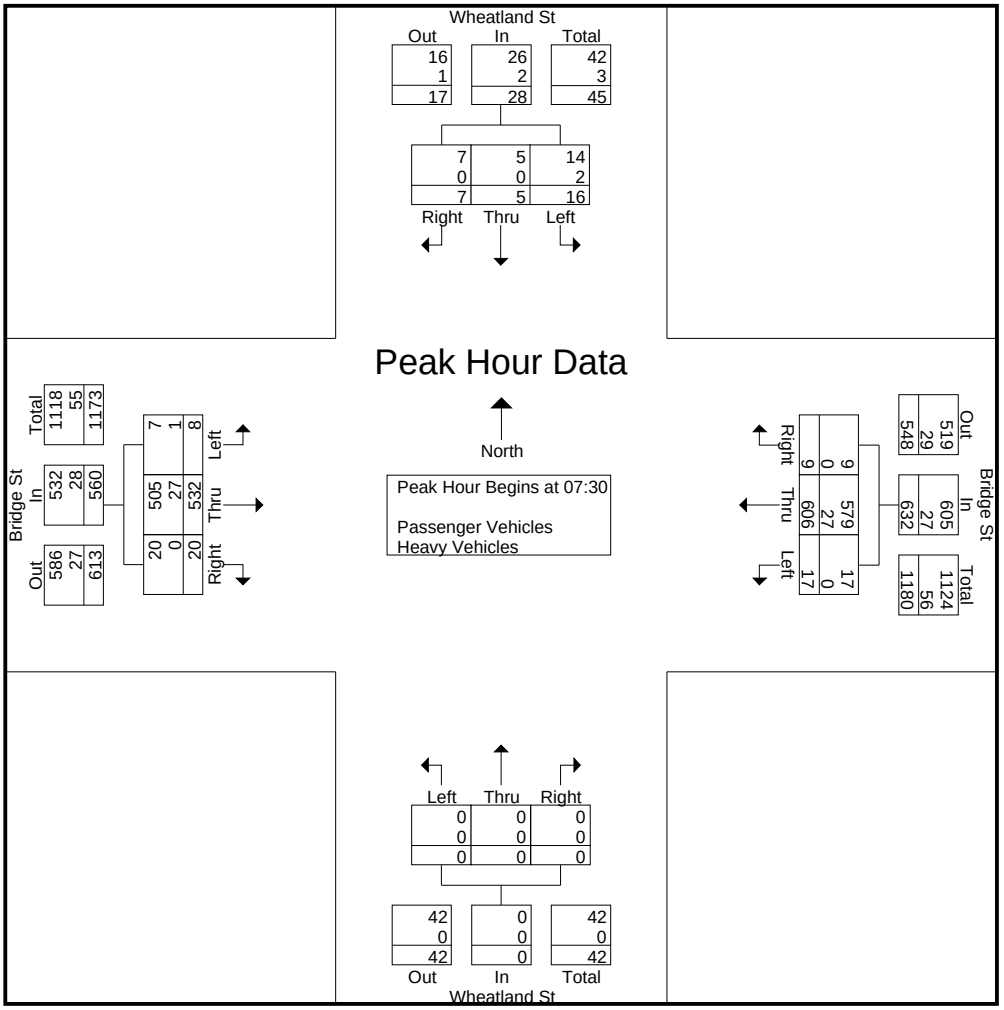
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: LB

File Name : nutt05a
Site Code : 81649405
Start Date : 10/18/2016
Page No : 2

	Wheatland St Southbound				Bridge St Westbound				Wheatland St Northbound				Bridge St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	8	2	4	14	6	166	1	173	0	0	0	0	2	160	7	169	356
07:45	3	1	1	5	4	158	2	164	0	0	0	0	1	130	5	136	305
08:00	2	2	2	6	4	150	2	156	0	0	0	0	4	124	2	130	292
08:15	3	0	0	3	3	132	4	139	0	0	0	0	1	118	6	125	267
Total Volume	16	5	7	28	17	606	9	632	0	0	0	0	8	532	20	560	1220
% App. Total	57.1	17.9	25		2.7	95.9	1.4		0	0	0		1.4	95	3.6		
PHF	.500	.625	.438	.500	.708	.913	.563	.913	.000	.000	.000	.000	.500	.831	.714	.828	.857
Passenger Vehicles	14	5	7	26	17	579	9	605	0	0	0	0	7	505	20	532	1163
% Passenger Vehicles	87.5	100	100	92.9	100	95.5	100	95.7	0	0	0	0	87.5	94.9	100	95.0	95.3
Heavy Vehicles	2	0	0	2	0	27	0	27	0	0	0	0	1	27	0	28	57
% Heavy Vehicles	12.5	0	0	7.1	0	4.5	0	4.3	0	0	0	0	12.5	5.1	0	5.0	4.7



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: LB

File Name : nutt05a
Site Code : 81649405
Start Date : 10/18/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Wheatland St Southbound			Bridge St Westbound			Wheatland St Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	1	0	2	1	4	0	0	0	0	0	2	0	10
07:15	0	0	0	0	5	1	0	0	0	0	5	0	11
07:30	1	0	0	0	8	0	0	0	0	0	9	0	18
07:45	0	0	0	0	8	0	0	0	0	0	5	0	13
Total	2	0	2	1	25	1	0	0	0	0	21	0	52
08:00	0	0	0	0	5	0	0	0	0	0	9	0	14
08:15	1	0	0	0	6	0	0	0	0	1	4	0	12
08:30	0	0	0	0	10	1	0	0	0	0	9	0	20
08:45	1	1	0	0	3	2	0	0	0	0	5	0	12
Total	2	1	0	0	24	3	0	0	0	1	27	0	58
Grand Total	4	1	2	1	49	4	0	0	0	1	48	0	110
Apprch %	57.1	14.3	28.6	1.9	90.7	7.4	0	0	0	2	98	0	
Total %	3.6	0.9	1.8	0.9	44.5	3.6	0	0	0	0.9	43.6	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: LB

File Name : nutt05a
Site Code : 81649405
Start Date : 10/18/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Wheatland St Southbound			Bridge St Westbound			Wheatland St Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	7	1	1	7	113	3	0	1	0	0	76	4	213
07:15	7	1	3	5	121	3	0	0	0	0	105	4	249
07:30	7	2	4	6	158	1	0	0	0	2	151	7	338
07:45	3	1	1	4	150	2	0	0	0	1	125	5	292
Total	24	5	9	22	542	9	0	1	0	3	457	20	1092
08:00	2	2	2	4	145	2	0	0	0	4	115	2	278
08:15	2	0	0	3	126	4	0	0	0	0	114	6	255
08:30	7	0	3	4	145	3	0	0	0	0	116	1	279
08:45	5	0	0	4	115	1	0	0	0	2	104	0	231
Total	16	2	5	15	531	10	0	0	0	6	449	9	1043
Grand Total	40	7	14	37	1073	19	0	1	0	9	906	29	2135
Apprch %	65.6	11.5	23	3.3	95	1.7	0	100	0	1	96	3.1	
Total %	1.9	0.3	0.7	1.7	50.3	0.9	0	0	0	0.4	42.4	1.4	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: LB

File Name : nutt05a
Site Code : 81649405
Start Date : 10/18/2016
Page No : 1

Groups Printed- Pedestrians

	Wheatland St Southbound	Bridge St Westbound	Wheatland St Northbound	Bridge St Eastbound	
Start Time	E/W	N/S	E/W	N/S	Int. Total
07:15	0	0	1	0	1
07:30	0	0	1	0	1
07:45	0	0	1	0	1
Total	0	0	3	0	3
08:00	0	1	1	1	3
08:15	1	0	2	0	3
08:30	0	0	2	0	2
08:45	1	0	1	0	2
Total	2	1	6	1	10
Grand Total	2	1	9	1	13
Apprch %	100	100	100	100	
Total %	15.4	7.7	69.2	7.7	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: KB

File Name : nutt05p
Site Code : 81649405
Start Date : 10/4/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Wheatland St Southbound			Nutt Rd Westbound			Wheatland St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	7	2	5	7	127	7	0	0	0	2	140	3	300
16:15	10	0	6	5	153	7	0	0	0	5	134	2	322
16:30	3	2	4	5	151	3	0	0	0	6	134	8	316
16:45	5	1	2	2	153	12	0	0	0	11	156	4	346
Total	25	5	17	19	584	29	0	0	0	24	564	17	1284
17:00	13	0	12	5	163	5	0	0	0	2	173	5	378
17:15	5	1	6	6	180	3	0	0	0	1	163	4	369
17:30	4	0	4	5	146	2	0	0	0	0	168	5	334
17:45	4	1	3	4	140	5	0	0	0	6	171	3	337
Total	26	2	25	20	629	15	0	0	0	9	675	17	1418
Grand Total	51	7	42	39	1213	44	0	0	0	33	1239	34	2702
Apprch %	51	7	42	3	93.6	3.4	0	0	0	2.5	94.9	2.6	
Total %	1.9	0.3	1.6	1.4	44.9	1.6	0	0	0	1.2	45.9	1.3	
Passenger Vehicles	51	7	42	39	1193	44	0	0	0	30	1228	34	2668
% Passenger Vehicles	100	100	100	100	98.4	100	0	0	0	90.9	99.1	100	98.7
Heavy Vehicles	0	0	0	0	20	0	0	0	0	3	11	0	34
% Heavy Vehicles	0	0	0	0	1.6	0	0	0	0	9.1	0.9	0	1.3

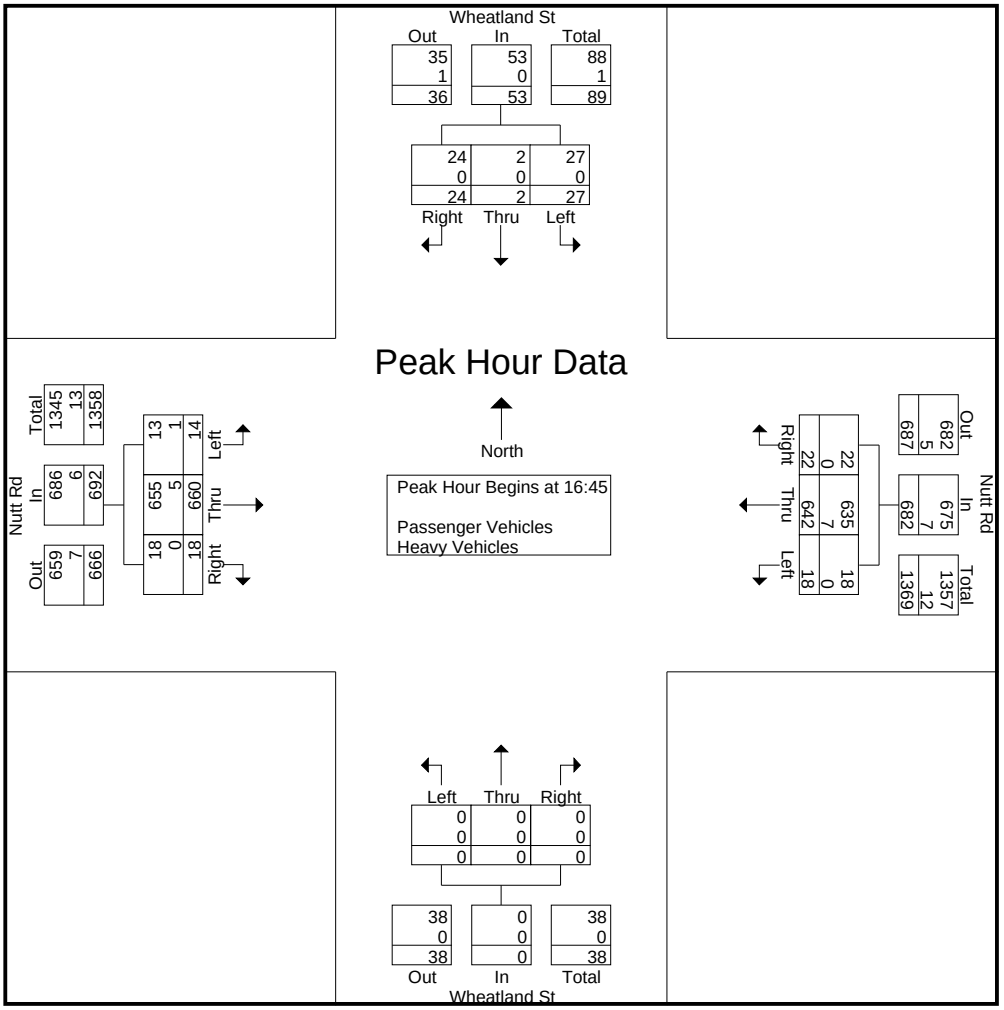
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: KB

File Name : nutt05p
Site Code : 81649405
Start Date : 10/4/2016
Page No : 2

	Wheatland St Southbound				Nutt Rd Westbound				Wheatland St Northbound				Nutt Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	5	1	2	8	2	153	12	167	0	0	0	0	11	156	4	171	346
17:00	13	0	12	25	5	163	5	173	0	0	0	0	2	173	5	180	378
17:15	5	1	6	12	6	180	3	189	0	0	0	0	1	163	4	168	369
17:30	4	0	4	8	5	146	2	153	0	0	0	0	0	168	5	173	334
Total Volume	27	2	24	53	18	642	22	682	0	0	0	0	14	660	18	692	1427
% App. Total	50.9	3.8	45.3		2.6	94.1	3.2		0	0	0		2	95.4	2.6		
PHF	.519	.500	.500	.530	.750	.892	.458	.902	.000	.000	.000	.000	.318	.954	.900	.961	.944
Passenger Vehicles	27	2	24	53	18	635	22	675	0	0	0	0	13	655	18	686	1414
% Passenger Vehicles	100	100	100	100	100	98.9	100	99.0	0	0	0	0	92.9	99.2	100	99.1	99.1
Heavy Vehicles	0	0	0	0	0	7	0	7	0	0	0	0	1	5	0	6	13
% Heavy Vehicles	0	0	0	0	0	1.1	0	1.0	0	0	0	0	7.1	0.8	0	0.9	0.9



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: KB

File Name : nutt05p
Site Code : 81649405
Start Date : 10/4/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Wheatland St Southbound			Nutt Rd Westbound			Wheatland St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	0	0	0	0	5	0	0	0	0	0	1	0	6
16:15	0	0	0	0	5	0	0	0	0	1	3	0	9
16:30	0	0	0	0	0	0	0	0	0	1	1	0	2
16:45	0	0	0	0	3	0	0	0	0	1	0	0	4
Total	0	0	0	0	13	0	0	0	0	3	5	0	21
17:00	0	0	0	0	2	0	0	0	0	0	1	0	3
17:15	0	0	0	0	1	0	0	0	0	0	1	0	2
17:30	0	0	0	0	1	0	0	0	0	0	3	0	4
17:45	0	0	0	0	3	0	0	0	0	0	1	0	4
Total	0	0	0	0	7	0	0	0	0	0	6	0	13
Grand Total	0	0	0	0	20	0	0	0	0	3	11	0	34
Apprch %	0	0	0	0	100	0	0	0	0	21.4	78.6	0	
Total %	0	0	0	0	58.8	0	0	0	0	8.8	32.4	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: KB

File Name : nutt05p
Site Code : 81649405
Start Date : 10/4/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Wheatland St Southbound			Nutt Rd Westbound			Wheatland St Northbound			Nutt Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
16:00	7	2	5	7	122	7	0	0	0	2	139	3	294
16:15	10	0	6	5	148	7	0	0	0	4	131	2	313
16:30	3	2	4	5	151	3	0	0	0	5	133	8	314
16:45	5	1	2	2	150	12	0	0	0	10	156	4	342
Total	25	5	17	19	571	29	0	0	0	21	559	17	1263
17:00	13	0	12	5	161	5	0	0	0	2	172	5	375
17:15	5	1	6	6	179	3	0	0	0	1	162	4	367
17:30	4	0	4	5	145	2	0	0	0	0	165	5	330
17:45	4	1	3	4	137	5	0	0	0	6	170	3	333
Total	26	2	25	20	622	15	0	0	0	9	669	17	1405
Grand Total	51	7	42	39	1193	44	0	0	0	30	1228	34	2668
Apprch %	51	7	42	3.1	93.5	3.4	0	0	0	2.3	95	2.6	
Total %	1.9	0.3	1.6	1.5	44.7	1.6	0	0	0	1.1	46	1.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Wheatland Street
Counter/Board #: KB

File Name : nutt05p
Site Code : 81649405
Start Date : 10/4/2016
Page No : 1

Groups Printed- Pedestrians

	Wheatland St Southbound	Nutt Rd Westbound	Wheatland St Northbound	Nutt Rd Eastbound	
Start Time	E/W	N/S	E/W	N/S	Int. Total
16:00	0	0	1	0	1
16:15	2	0	0	0	2
16:45	1	0	1	0	2
Total	3	0	2	0	5
17:15	0	0	3	0	3
17:30	1	0	2	0	3
Total	1	0	5	0	6
Grand Total	4	0	7	0	11
Apprch %	100	0	100	0	
Total %	36.4	0	63.6	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Pennsylvania Avenue / Ringold Street
Counter/Board #: HP+KB

File Name : nutt06w
Site Code : 81649406
Start Date : 10/5/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Pennsylvania Ave Southbound			Bridge St Westbound			Ringold St Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	3	1	12	0	82	2	4	0	3	2	51	0	160
07:15	7	2	13	0	89	1	5	0	3	4	59	0	183
07:30	3	2	12	2	115	1	2	1	3	1	51	3	196
07:45	3	2	15	1	82	1	2	0	2	3	63	3	177
Total	16	7	52	3	368	5	13	1	11	10	224	6	716
08:00	3	1	9	2	84	2	2	0	0	0	50	1	154
08:15	2	4	5	2	96	2	1	0	0	0	62	2	176
08:30	3	1	2	1	86	2	3	1	3	3	58	0	163
08:45	5	0	5	2	68	1	2	0	3	3	49	2	140
Total	13	6	21	7	334	7	8	1	6	6	219	5	633
16:00	2	2	4	2	67	2	4	2	2	6	94	5	192
16:15	2	3	2	0	68	1	3	1	0	4	72	3	159
16:30	3	1	6	2	72	2	4	0	2	6	89	7	194
16:45	3	2	5	3	70	5	5	1	3	4	92	4	197
Total	10	8	17	7	277	10	16	4	7	20	347	19	742
17:00	2	0	4	1	76	8	5	1	2	8	104	4	215
17:15	4	1	4	1	77	2	2	1	1	11	103	5	212
17:30	0	1	6	3	82	3	5	0	2	6	103	7	218
17:45	0	2	5	1	75	4	2	2	0	6	111	8	216
Total	6	4	19	6	310	17	14	4	5	31	421	24	861
Grand Total	45	25	109	23	1289	39	51	10	29	67	1211	54	2952
Apprch %	25.1	14	60.9	1.7	95.4	2.9	56.7	11.1	32.2	5	90.9	4.1	
Total %	1.5	0.8	3.7	0.8	43.7	1.3	1.7	0.3	1	2.3	41	1.8	
Passenger Vehicles	45	24	106	21	1245	37	50	10	29	63	1172	54	2856
% Passenger Vehicles	100	96	97.2	91.3	96.6	94.9	98	100	100	94	96.8	100	96.7
Heavy Vehicles	0	1	3	2	44	2	1	0	0	4	39	0	96
% Heavy Vehicles	0	4	2.8	8.7	3.4	5.1	2	0	0	6	3.2	0	3.3

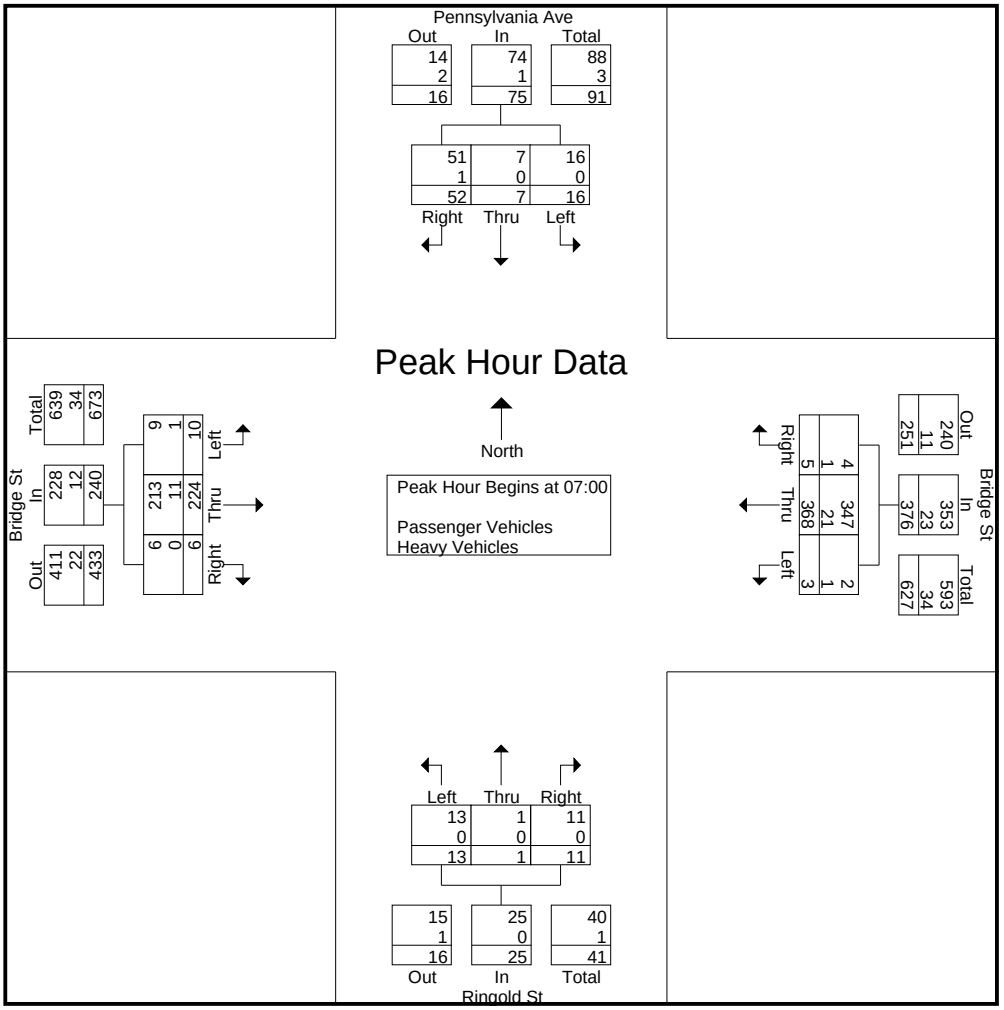
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Pennsylvania Avenue / Ringold Street
Counter/Board #: HP+KB

File Name : nutt06w
Site Code : 81649406
Start Date : 10/5/2016
Page No : 2

	Pennsylvania Ave Southbound				Bridge St Westbound				Ringold St Northbound				Bridge St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	3	1	12	16	0	82	2	84	4	0	3	7	2	51	0	53	160
07:15	7	2	13	22	0	89	1	90	5	0	3	8	4	59	0	63	183
07:30	3	2	12	17	2	115	1	118	2	1	3	6	1	51	3	55	196
07:45	3	2	15	20	1	82	1	84	2	0	2	4	3	63	3	69	177
Total Volume	16	7	52	75	3	368	5	376	13	1	11	25	10	224	6	240	716
% App. Total	21.3	9.3	69.3		0.8	97.9	1.3		52	4	44		4.2	93.3	2.5		
PHF	.571	.875	.867	.852	.375	.800	.625	.797	.650	.250	.917	.781	.625	.889	.500	.870	.913
Passenger Vehicles	16	7	51	74	2	347	4	353	13	1	11	25	9	213	6	228	680
% Passenger Vehicles	100	100	98.1	98.7	66.7	94.3	80.0	93.9	100	100	100	100	90.0	95.1	100	95.0	95.0
Heavy Vehicles	0	0	1	1	1	21	1	23	0	0	0	0	1	11	0	12	36
% Heavy Vehicles	0	0	1.9	1.3	33.3	5.7	20.0	6.1	0	0	0	0	10.0	4.9	0	5.0	5.0



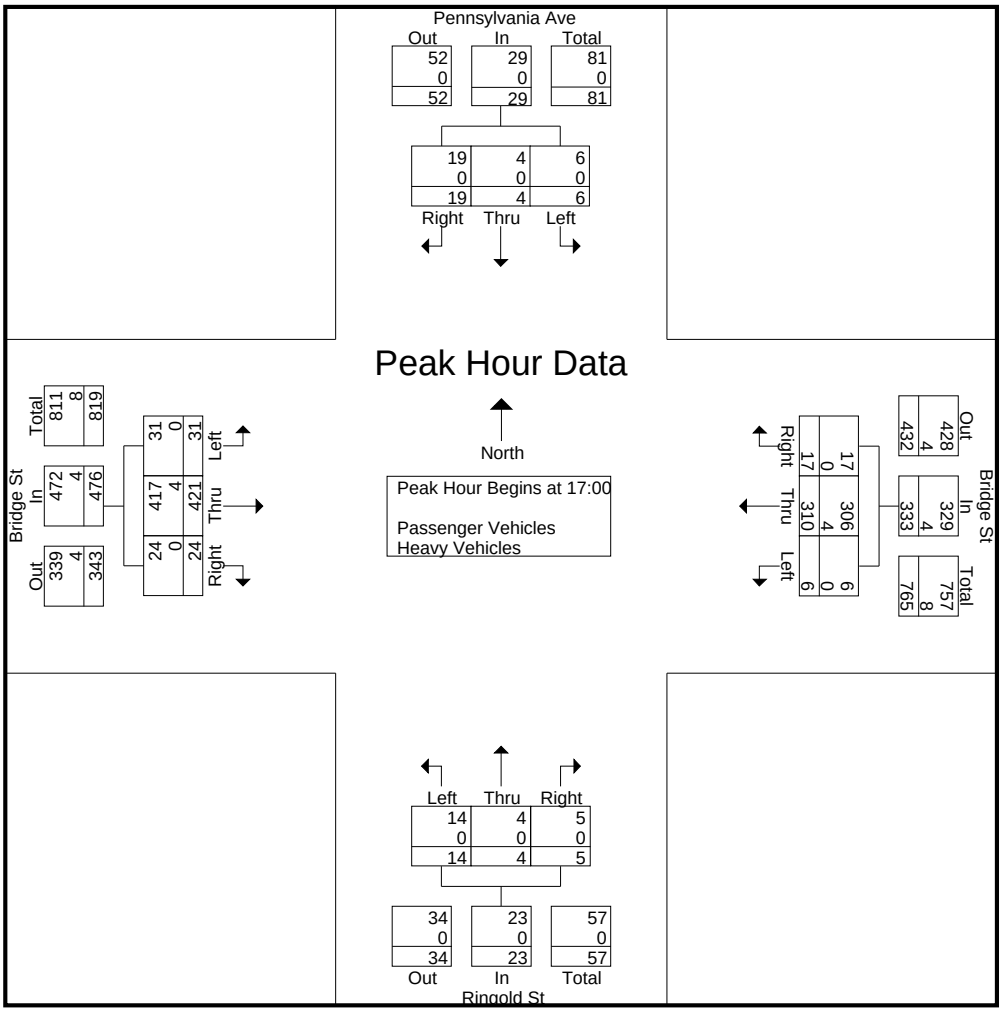
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Pennsylvania Avenue / Ringold Street
Counter/Board #: HP+KB

File Name : nutt06w
Site Code : 81649406
Start Date : 10/5/2016
Page No : 3

	Pennsylvania Ave Southbound				Bridge St Westbound				Ringold St Northbound				Bridge St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	2	0	4	6	1	76	8	85	5	1	2	8	8	104	4	116	215
17:15	4	1	4	9	1	77	2	80	2	1	1	4	11	103	5	119	212
17:30	0	1	6	7	3	82	3	88	5	0	2	7	6	103	7	116	218
17:45	0	2	5	7	1	75	4	80	2	2	0	4	6	111	8	125	216
Total Volume	6	4	19	29	6	310	17	333	14	4	5	23	31	421	24	476	861
% App. Total	20.7	13.8	65.5		1.8	93.1	5.1		60.9	17.4	21.7		6.5	88.4	5		
PHF	.375	.500	.792	.806	.500	.945	.531	.946	.700	.500	.625	.719	.705	.948	.750	.952	.987
Passenger Vehicles	6	4	19	29	6	306	17	329	14	4	5	23	31	417	24	472	853
% Passenger Vehicles	100	100	100	100	100	98.7	100	98.8	100	100	100	100	100	99.0	100	99.2	99.1
Heavy Vehicles	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
% Heavy Vehicles	0	0	0	0	0	1.3	0	1.2	0	0	0	0	0	1.0	0	0.8	0.9



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Pennsylvania Avenue / Ringold Street
Counter/Board #: HP+KB

File Name : nutt06w
Site Code : 81649406
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Pennsylvania Ave Southbound			Bridge St Westbound			Ringold St Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	0	0	0	5	0	0	0	0	0	2	0	7
07:15	0	0	0	0	2	0	0	0	0	1	0	0	3
07:30	0	0	1	0	6	0	0	0	0	0	7	0	14
07:45	0	0	0	1	8	1	0	0	0	0	2	0	12
Total	0	0	1	1	21	1	0	0	0	1	11	0	36
08:00	0	0	2	1	3	1	0	0	0	0	7	0	14
08:15	0	0	0	0	3	0	0	0	0	0	3	0	6
08:30	0	0	0	0	6	0	1	0	0	0	5	0	12
08:45	0	0	0	0	3	0	0	0	0	1	1	0	5
Total	0	0	2	1	15	1	1	0	0	1	16	0	37
16:00	0	0	0	0	0	0	0	0	0	1	4	0	5
16:15	0	1	0	0	4	0	0	0	0	1	1	0	7
16:30	0	0	0	0	0	0	0	0	0	0	2	0	2
16:45	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	1	0	0	4	0	0	0	0	2	8	0	15
17:00	0	0	0	0	0	0	0	0	0	0	3	0	3
17:15	0	0	0	0	1	0	0	0	0	0	0	0	1
17:30	0	0	0	0	1	0	0	0	0	0	0	0	1
17:45	0	0	0	0	2	0	0	0	0	0	1	0	3
Total	0	0	0	0	4	0	0	0	0	0	4	0	8
Grand Total	0	1	3	2	44	2	1	0	0	4	39	0	96
Apprch %	0	25	75	4.2	91.7	4.2	100	0	0	9.3	90.7	0	
Total %	0	1	3.1	2.1	45.8	2.1	1	0	0	4.2	40.6	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Pennsylvania Avenue / Ringold Street
Counter/Board #: HP+KB

File Name : nutt06w
Site Code : 81649406
Start Date : 10/5/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Pennsylvania Ave Southbound			Bridge St Westbound			Ringold St Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	3	1	12	0	77	2	4	0	3	2	49	0	153
07:15	7	2	13	0	87	1	5	0	3	3	59	0	180
07:30	3	2	11	2	109	1	2	1	3	1	44	3	182
07:45	3	2	15	0	74	0	2	0	2	3	61	3	165
Total	16	7	51	2	347	4	13	1	11	9	213	6	680
08:00	3	1	7	1	81	1	2	0	0	0	43	1	140
08:15	2	4	5	2	93	2	1	0	0	0	59	2	170
08:30	3	1	2	1	80	2	2	1	3	3	53	0	151
08:45	5	0	5	2	65	1	2	0	3	2	48	2	135
Total	13	6	19	6	319	6	7	1	6	5	203	5	596
16:00	2	2	4	2	67	2	4	2	2	5	90	5	187
16:15	2	2	2	0	64	1	3	1	0	3	71	3	152
16:30	3	1	6	2	72	2	4	0	2	6	87	7	192
16:45	3	2	5	3	70	5	5	1	3	4	91	4	196
Total	10	7	17	7	273	10	16	4	7	18	339	19	727
17:00	2	0	4	1	76	8	5	1	2	8	101	4	212
17:15	4	1	4	1	76	2	2	1	1	11	103	5	211
17:30	0	1	6	3	81	3	5	0	2	6	103	7	217
17:45	0	2	5	1	73	4	2	2	0	6	110	8	213
Total	6	4	19	6	306	17	14	4	5	31	417	24	853
Grand Total	45	24	106	21	1245	37	50	10	29	63	1172	54	2856
Apprch %	25.7	13.7	60.6	1.6	95.5	2.8	56.2	11.2	32.6	4.9	90.9	4.2	
Total %	1.6	0.8	3.7	0.7	43.6	1.3	1.8	0.4	1	2.2	41	1.9	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Pennsylvania Avenue / Ringold Street
Counter/Board #: HP+KB

File Name : nutt06w
Site Code : 81649406
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Pennsylvania Ave Southbound	Bridge St Westbound	Ringold St Northbound	Bridge St Eastbound	
Start Time	Thru	Thru	Thru	Right	Int. Total
07:00	0	0	1	0	1
07:15	2	0	0	0	2
07:30	0	0	1	0	1
07:45	1	0	0	0	1
Total	3	0	2	0	5
08:00	1	0	2	0	3
08:30	0	0	2	0	2
Total	1	0	4	0	5
16:00	0	0	1	0	1
16:15	1	0	0	0	1
16:30	2	0	0	0	2
16:45	1	0	2	0	3
Total	4	0	3	0	7
17:00	0	0	1	0	1
17:15	0	1	0	0	1
17:30	1	0	2	0	3
17:45	0	0	1	0	1
Total	1	1	4	0	6
Grand Total	9	1	13	0	23
Apprch %	100	100	100	0	
Total %	39.1	4.3	56.5	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Chester Avenue
Counter/Board #: CC

File Name : nutt07w
Site Code : 00000000
Start Date : 10/6/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Chester Ave Southbound			Bridge St Westbound			Chester Ave Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	2	39	4	13	90	1	4	8	3	2	33	22	221
07:15	1	16	2	11	102	1	8	10	13	0	28	8	200
07:30	1	11	4	10	115	0	7	5	6	1	53	7	220
07:45	4	6	1	6	99	2	5	3	7	0	63	11	207
Total	8	72	11	40	406	4	24	26	29	3	177	48	848
08:00	3	9	2	2	69	0	3	1	1	2	51	6	149
08:15	2	8	5	1	94	0	4	0	5	1	52	5	177
08:30	2	4	2	1	87	0	2	2	2	2	71	6	181
08:45	1	1	1	4	77	2	9	3	4	1	54	4	161
Total	8	22	10	8	327	2	18	6	12	6	228	21	668
16:00	2	3	1	2	62	3	9	6	6	0	89	7	190
16:15	1	5	0	3	84	4	7	6	7	2	105	6	230
16:30	0	7	4	5	72	2	5	8	8	2	78	2	193
16:45	1	6	0	7	66	2	4	4	6	2	70	6	174
Total	4	21	5	17	284	11	25	24	27	6	342	21	787
17:00	0	0	2	4	64	1	12	8	5	3	108	7	214
17:15	0	1	1	3	74	2	10	4	9	8	104	8	224
17:30	1	5	0	8	94	4	12	10	8	3	99	7	251
17:45	1	4	2	2	88	2	18	6	3	4	117	9	256
Total	2	10	5	17	320	9	52	28	25	18	428	31	945
Grand Total	22	125	31	82	1337	26	119	84	93	33	1175	121	3248
Apprch %	12.4	70.2	17.4	5.7	92.5	1.8	40.2	28.4	31.4	2.5	88.4	9.1	
Total %	0.7	3.8	1	2.5	41.2	0.8	3.7	2.6	2.9	1	36.2	3.7	
Passenger Vehicles	22	123	29	81	1311	22	115	84	91	30	1144	120	3172
% Passenger Vehicles	100	98.4	93.5	98.8	98.1	84.6	96.6	100	97.8	90.9	97.4	99.2	97.7
Heavy Vehicles	0	2	2	1	26	4	4	0	2	3	31	1	76
% Heavy Vehicles	0	1.6	6.5	1.2	1.9	15.4	3.4	0	2.2	9.1	2.6	0.8	2.3

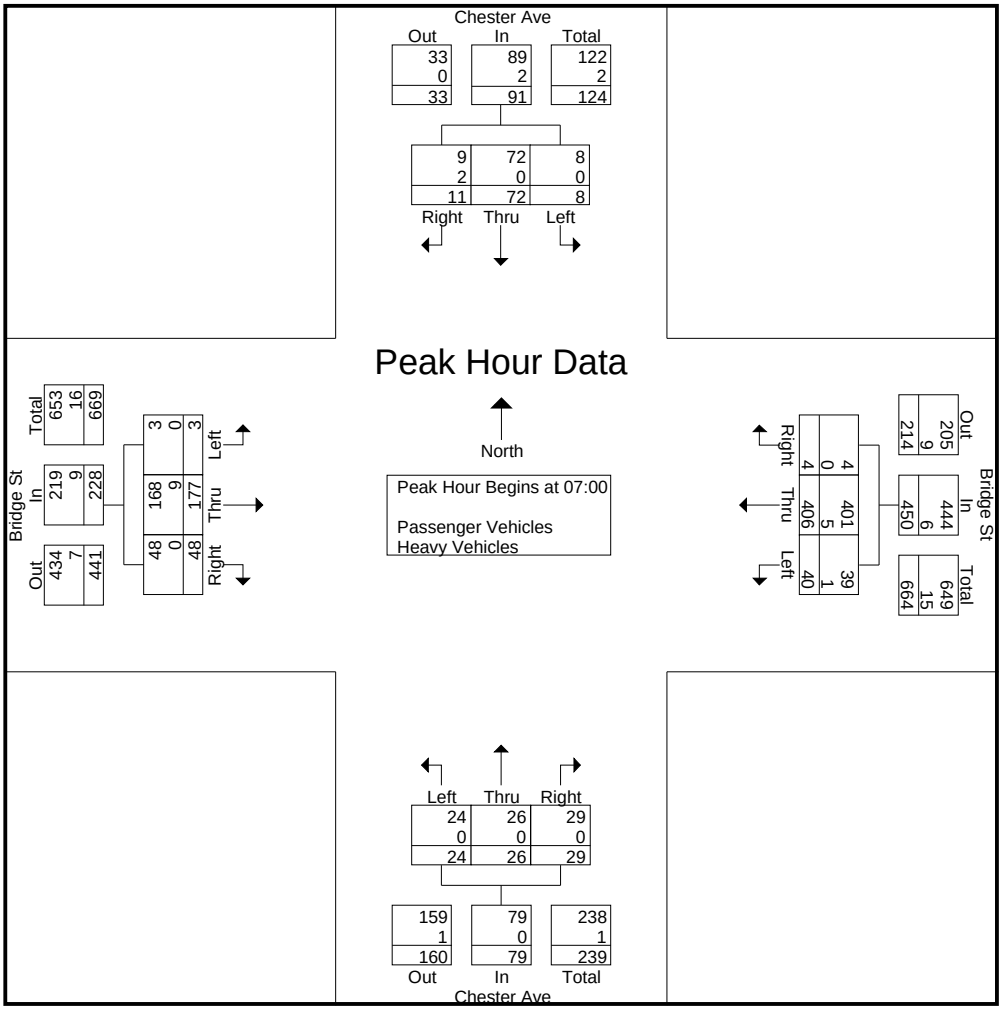
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Chester Avenue
Counter/Board #: CC

File Name : nutt07w
Site Code : 00000000
Start Date : 10/6/2016
Page No : 2

	Chester Ave Southbound				Bridge St Westbound				Chester Ave Northbound				Bridge St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 10:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	2	39	4	45	13	90	1	104	4	8	3	15	2	33	22	57	221
07:15	1	16	2	19	11	102	1	114	8	10	13	31	0	28	8	36	200
07:30	1	11	4	16	10	115	0	125	7	5	6	18	1	53	7	61	220
07:45	4	6	1	11	6	99	2	107	5	3	7	15	0	63	11	74	207
Total Volume	8	72	11	91	40	406	4	450	24	26	29	79	3	177	48	228	848
% App. Total	8.8	79.1	12.1		8.9	90.2	0.9		30.4	32.9	36.7		1.3	77.6	21.1		
PHF	.500	.462	.688	.506	.769	.883	.500	.900	.750	.650	.558	.637	.375	.702	.545	.770	.959
Passenger Vehicles	8	72	9	89	39	401	4	444	24	26	29	79	3	168	48	219	831
% Passenger Vehicles	100	100	81.8	97.8	97.5	98.8	100	98.7	100	100	100	100	100	94.9	100	96.1	98.0
Heavy Vehicles	0	0	2	2	1	5	0	6	0	0	0	0	0	9	0	9	17
% Heavy Vehicles	0	0	18.2	2.2	2.5	1.2	0	1.3	0	0	0	0	0	5.1	0	3.9	2.0



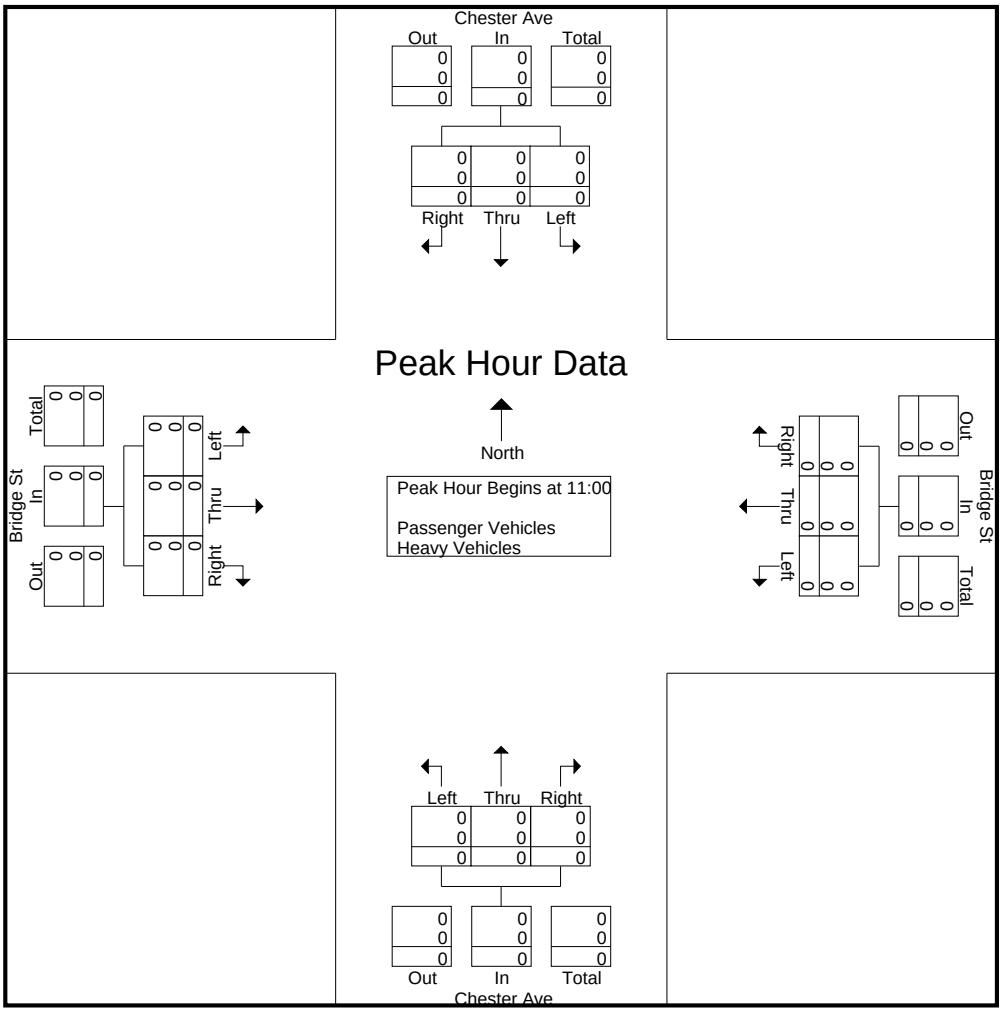
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Chester Avenue
Counter/Board #: CC

File Name : nutt07w
Site Code : 00000000
Start Date : 10/6/2016
Page No : 3

	Chester Ave Southbound				Bridge St Westbound				Chester Ave Northbound				Bridge St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 to 14:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:00																	
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Passenger Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Passenger Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



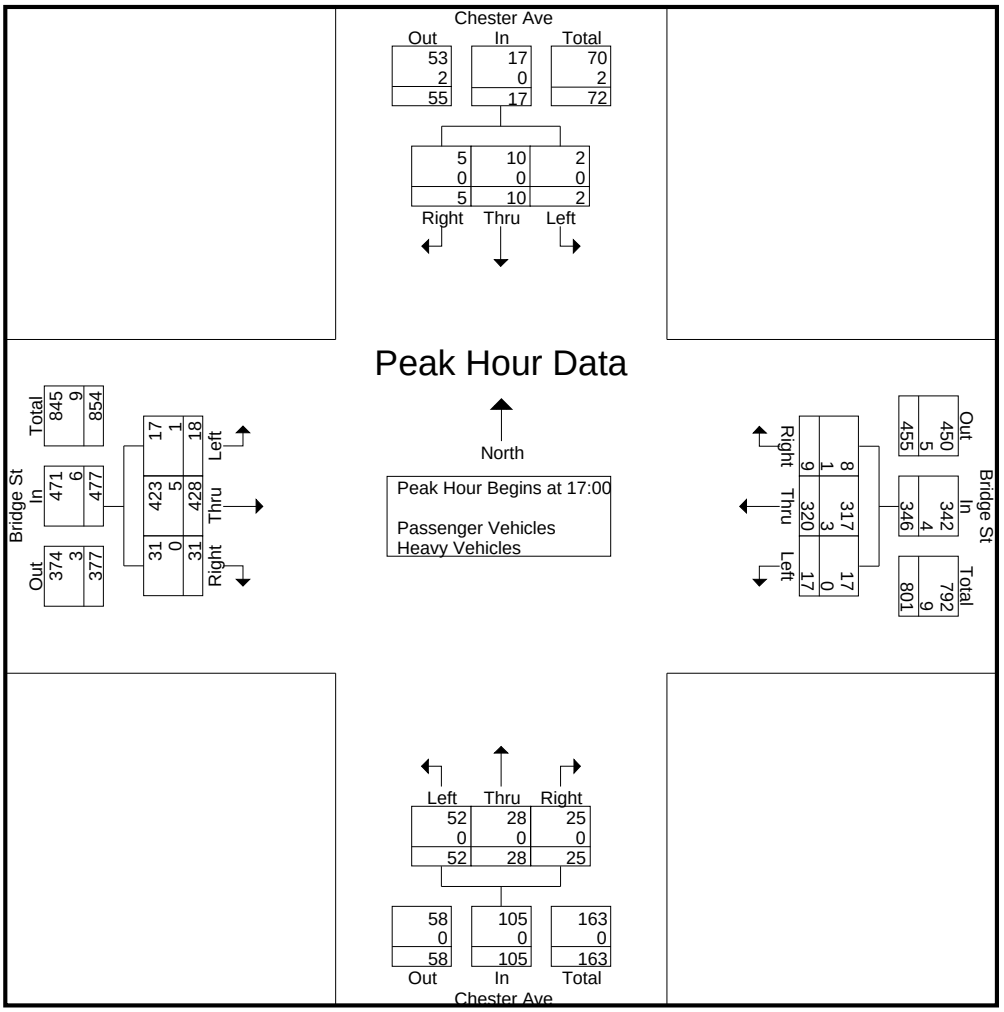
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Chester Avenue
Counter/Board #: CC

File Name : nutt07w
Site Code : 00000000
Start Date : 10/6/2016
Page No : 4

	Chester Ave Southbound				Bridge St Westbound				Chester Ave Northbound				Bridge St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	0	2	2	4	64	1	69	12	8	5	25	3	108	7	118	214
17:15	0	1	1	2	3	74	2	79	10	4	9	23	8	104	8	120	224
17:30	1	5	0	6	8	94	4	106	12	10	8	30	3	99	7	109	251
17:45	1	4	2	7	2	88	2	92	18	6	3	27	4	117	9	130	256
Total Volume	2	10	5	17	17	320	9	346	52	28	25	105	18	428	31	477	945
% App. Total	11.8	58.8	29.4		4.9	92.5	2.6		49.5	26.7	23.8		3.8	89.7	6.5		
PHF	.500	.500	.625	.607	.531	.851	.563	.816	.722	.700	.694	.875	.563	.915	.861	.917	.923
Passenger Vehicles	2	10	5	17	17	317	8	342	52	28	25	105	17	423	31	471	935
% Passenger Vehicles	100	100	100	100	100	99.1	88.9	98.8	100	100	100	100	94.4	98.8	100	98.7	98.9
Heavy Vehicles	0	0	0	0	0	3	1	4	0	0	0	0	1	5	0	6	10
% Heavy Vehicles	0	0	0	0	0	0.9	11.1	1.2	0	0	0	0	5.6	1.2	0	1.3	1.1



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Chester Avenue
Counter/Board #: CC

File Name : nutt07w
Site Code : 00000000
Start Date : 10/6/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Chester Ave Southbound			Bridge St Westbound			Chester Ave Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	0	1	1	0	0	0	0	0	0	2	0	4
07:15	0	0	0	0	2	0	0	0	0	0	1	0	3
07:30	0	0	1	0	2	0	0	0	0	0	2	0	5
07:45	0	0	0	0	1	0	0	0	0	0	4	0	5
Total	0	0	2	1	5	0	0	0	0	0	9	0	17
08:00	0	0	0	0	3	0	0	0	0	0	3	0	6
08:15	0	1	0	0	3	0	0	0	0	1	2	1	8
08:30	0	1	0	0	7	0	0	0	1	0	2	0	11
08:45	0	0	0	0	3	0	2	0	0	0	3	0	8
Total	0	2	0	0	16	0	2	0	1	1	10	1	33
16:00	0	0	0	0	1	0	1	0	1	0	1	0	4
16:15	0	0	0	0	1	3	1	0	0	0	2	0	7
16:30	0	0	0	0	0	0	0	0	0	0	3	0	3
16:45	0	0	0	0	0	0	0	0	0	1	1	0	2
Total	0	0	0	0	2	3	2	0	1	1	7	0	16
17:00	0	0	0	0	0	0	0	0	0	0	2	0	2
17:15	0	0	0	0	1	0	0	0	0	1	1	0	3
17:30	0	0	0	0	1	1	0	0	0	0	1	0	3
17:45	0	0	0	0	1	0	0	0	0	0	1	0	2
Total	0	0	0	0	3	1	0	0	0	1	5	0	10
Grand Total	0	2	2	1	26	4	4	0	2	3	31	1	76
Apprch %	0	50	50	3.2	83.9	12.9	66.7	0	33.3	8.6	88.6	2.9	
Total %	0	2.6	2.6	1.3	34.2	5.3	5.3	0	2.6	3.9	40.8	1.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Chester Avenue
Counter/Board #: CC

File Name : nutt07w
Site Code : 00000000
Start Date : 10/6/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Chester Ave Southbound			Bridge St Westbound			Chester Ave Northbound			Bridge St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	2	39	3	12	90	1	4	8	3	2	31	22	217
07:15	1	16	2	11	100	1	8	10	13	0	27	8	197
07:30	1	11	3	10	113	0	7	5	6	1	51	7	215
07:45	4	6	1	6	98	2	5	3	7	0	59	11	202
Total	8	72	9	39	401	4	24	26	29	3	168	48	831
08:00	3	9	2	2	66	0	3	1	1	2	48	6	143
08:15	2	7	5	1	91	0	4	0	5	0	50	4	169
08:30	2	3	2	1	80	0	2	2	1	2	69	6	170
08:45	1	1	1	4	74	2	7	3	4	1	51	4	153
Total	8	20	10	8	311	2	16	6	11	5	218	20	635
16:00	2	3	1	2	61	3	8	6	5	0	88	7	186
16:15	1	5	0	3	83	1	6	6	7	2	103	6	223
16:30	0	7	4	5	72	2	5	8	8	2	75	2	190
16:45	1	6	0	7	66	2	4	4	6	1	69	6	172
Total	4	21	5	17	282	8	23	24	26	5	335	21	771
17:00	0	0	2	4	64	1	12	8	5	3	106	7	212
17:15	0	1	1	3	73	2	10	4	9	7	103	8	221
17:30	1	5	0	8	93	3	12	10	8	3	98	7	248
17:45	1	4	2	2	87	2	18	6	3	4	116	9	254
Total	2	10	5	17	317	8	52	28	25	17	423	31	935
Grand Total	22	123	29	81	1311	22	115	84	91	30	1144	120	3172
Apprch %	12.6	70.7	16.7	5.7	92.7	1.6	39.7	29	31.4	2.3	88.4	9.3	
Total %	0.7	3.9	0.9	2.6	41.3	0.7	3.6	2.6	2.9	0.9	36.1	3.8	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Bridge Street &
Chester Avenue
Counter/Board #: CC

File Name : nutt07w
Site Code : 00000000
Start Date : 10/6/2016
Page No : 1

Groups Printed- Pedestrians

	Chester Ave Southbound	Bridge St Westbound	Chester Ave Northbound	Bridge St Eastbound	
Start Time	E/W	N/S	E/W	N/S	Int. Total
07:00	0	1	3	0	4
07:15	1	0	1	0	2
07:30	2	0	0	0	2
07:45	1	0	2	0	3
Total	4	1	6	0	11
08:15	2	0	0	0	2
08:30	0	0	1	0	1
08:45	0	0	0	2	2
Total	2	0	1	2	5
16:00	0	0	1	0	1
16:30	0	0	3	0	3
16:45	1	0	1	0	2
Total	1	0	5	0	6
17:00	3	0	0	0	3
17:15	0	0	1	0	1
17:30	0	1	0	0	1
Total	3	1	1	0	5
Grand Total	10	2	13	2	27
Apprch %	100	100	100	100	
Total %	37	7.4	48.1	7.4	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Route 23 (Nutt Road) &
Bridge Street / Mellon St
Counter/Board #: BW+RS+BW

File Name : phxville06w
Site Code : 81328206
Start Date : 3/12/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Bridge St Southbound				Rt 23 (Nutt Rd) Westbound				Bridge St Northbound				Rt 23 (Nutt Rd) Eastbound				Mellon St Southeastbound				
Start Time	Left	Thru	Right	Hard Right	Left	Thru	Bear Right	Right	Left	Bear Left	Thru	Right	Hard Left	Left	Thru	Right	Hard Left	Bear Left	Bear Right	Hard Right	Int. Total
07:00	0	38	60	0	9	78	0	4	15	0	23	3	0	56	142	11	0	0	0	0	439
07:15	2	51	55	0	8	74	0	1	13	0	24	5	0	86	169	18	0	0	0	0	506
07:30	2	44	91	0	19	90	0	4	19	0	32	18	0	82	158	16	0	0	0	0	575
07:45	3	41	70	0	14	82	0	0	14	0	40	17	0	93	145	14	0	0	0	0	533
Total	7	174	276	0	50	324	0	9	61	0	119	43	0	317	614	59	0	0	0	0	2053
08:00	2	40	63	3	12	74	0	3	18	0	38	11	0	95	137	12	0	0	0	0	508
08:15	5	35	58	1	10	107	0	3	15	0	33	6	0	108	171	17	0	0	0	0	569
08:30	1	39	71	3	13	94	0	5	19	0	30	15	0	86	130	13	0	0	0	0	519
08:45	0	22	67	3	9	74	0	7	14	0	23	10	0	99	132	16	0	0	0	0	476
Total	8	136	259	10	44	349	0	18	66	0	124	42	0	388	570	58	0	0	0	0	2072
09:00	6	23	57	1	7	73	0	10	25	0	29	14	0	70	133	8	0	0	0	0	456
09:15	3	21	53	3	4	62	0	4	20	0	23	11	0	83	105	12	0	0	0	0	404
09:30	0	22	59	3	8	93	0	5	26	0	30	15	0	53	126	13	0	0	0	0	453
09:45	2	23	57	2	8	77	0	8	20	0	19	13	0	72	104	8	0	0	0	0	413
Total	11	89	226	9	27	305	0	27	91	0	101	53	0	278	468	41	0	0	0	0	1726
10:00	1	15	60	0	9	71	0	5	14	0	20	8	0	61	107	6	0	0	0	0	377
10:15	0	12	54	3	5	79	0	4	17	0	18	6	0	49	117	16	0	0	0	0	380
10:30	1	19	56	3	5	82	0	6	16	0	18	15	0	50	118	4	0	0	0	0	393
10:45	0	22	31	1	4	46	0	1	9	0	24	4	0	52	93	7	0	0	0	0	294
Total	2	68	201	7	23	278	0	16	56	0	80	33	0	212	435	33	0	0	0	0	1444
11:00	2	21	70	0	11	68	0	7	17	0	15	5	0	58	65	3	0	0	0	0	342
11:15	4	16	54	0	7	88	0	0	27	0	23	11	0	76	86	8	0	0	0	0	400
11:30	3	24	74	1	12	79	0	1	17	0	30	16	0	65	77	5	0	0	0	0	404
11:45	2	21	66	0	8	102	0	1	14	0	18	7	0	75	95	6	0	0	0	0	415
Total	11	82	264	1	38	337	0	9	75	0	86	39	0	274	323	22	0	0	0	0	1561
12:00	4	18	75	0	9	74	0	6	16	0	29	12	0	79	71	4	0	0	0	0	397
12:15	3	19	68	0	6	70	0	2	21	0	32	7	0	85	79	5	0	0	0	0	397
12:30	4	22	62	0	5	69	0	2	19	0	19	8	0	80	83	9	0	0	0	0	382
12:45	2	30	56	0	10	70	0	1	23	0	31	11	0	79	100	10	0	0	0	0	423
Total	13	89	261	0	30	283	0	11	79	0	111	38	0	323	333	28	0	0	0	0	1599
13:00	2	32	65	0	8	105	0	3	23	0	17	5	0	89	87	4	0	0	0	0	440
13:15	3	22	69	0	14	81	0	2	21	0	29	3	0	69	110	8	0	0	0	0	431
13:30	4	13	65	2	6	69	0	4	30	0	27	9	0	58	89	4	0	0	0	0	380
13:45	1	22	69	0	11	74	0	4	18	0	24	9	0	82	94	6	0	0	0	0	414
Total	10	89	268	2	39	329	0	13	92	0	97	26	0	298	380	22	0	0	0	0	1665
14:00	2	25	66	1	5	68	0	0	12	0	19	12	0	86	94	10	0	0	0	0	400
14:15	4	21	53	1	6	90	0	2	32	0	35	7	0	68	88	7	0	0	0	0	414
14:30	7	35	55	0	4	109	0	2	27	0	24	6	0	87	84	16	0	0	0	0	456
14:45	3	17	59	2	10	87	0	3	19	0	24	7	0	62	92	8	0	0	0	0	393
Total	16	98	233	4	25	354	0	7	90	0	102	32	0	303	358	41	0	0	0	0	1663
15:00	6	30	65	1	9	145	0	5	27	0	34	10	0	96	110	16	0	0	0	0	554
15:15	0	27	92	0	16	135	0	6	31	0	29	6	0	70	110	11	0	0	0	0	533
15:30	0	33	104	5	19	136	0	6	34	0	35	14	0	83	110	12	0	0	0	0	591
15:45	7	33	94	2	19	146	0	4	24	0	50	10	0	78	90	18	0	0	0	0	575
Total	13	123	355	8	63	562	0	21	116	0	148	40	0	327	420	57	0	0	0	0	2253
16:00	2	30	88	1	18	137	0	5	27	0	45	6	0	84	107	10	0	0	0	0	560
16:15	2	30	100	3	15	115	0	6	32	0	41	15	0	76	102	15	0	0	0	0	552
16:30	5	46	97	1	13	135	0	4	41	0	61	16	0	98	101	17	0	0	0	0	635
16:45	3	44	95	0	10	146	0	2	24	0	53	7	0	91	135	18	0	0	0	0	628
Total	12	150	380	5	56	533	0	17	124	0	200	44	0	349	445	60	0	0	0	0	2375
17:00	1	33	100	4	25	138	0	1	28	0	45	11	0	84	119	8	0	0	0	0	597
17:15	0	29	97	1	21	139	0	6	33	0	49	10	0	96	104	15	0	0	0	0	600
17:30	2	37	97	1	17	124	0	5	26	0	59	6	0	108	105	13	0	0	0	0	600
17:45	6	26	93	6	10	124	0	3	34	0	50	10	0	83	110	14	0	0	0	0	569
Total	9	125	387	12	73	525	0	15	121	0	203	37	0	371	438	50	0	0	0	0	2366
18:00	0	26	93	0	8	128	0	5	22	0	46	6	0	97	109	15	0	0	0	0	555
18:15	1	25	62	1	6	118	0	7	31	0	51	11	0	101	125	21	0	0	0	0	560
18:30	1	31	70	0	15	110	0	1	32	0	44	11	0	90	101	15	0	0	0	0	521
18:45	4	21	59	1	13	118	0	4	24	0	24	9	0	80	113	12	0	0	0	0	482
Total	6	103	284	2	42	474	0	17	109	0	165	37	0	368	448	63	0	0	0	0	2118
Grand Total	118	1326	3394	60	510	4653	0	180	1080	0	1536	464	0	3808	5232	534	0	0	0	0	22895
Apprch %	2.4	27.1	69.3	1.2	9.5	87.1	0	3.4	35.1	0	49.9	15.1	0	39.8	54.6	5.6	0	0	0	0	
Total %	0.5	5.8	14.8	0.3	2.2	20.3	0	0.8	4.7	0	6.7	2	0	16.6	22.9	2.3	0	0	0	0	
Passenger Vehicles																					
% Passenger Vehicles	98.3	96.1	95.7	100	96.5	96.9	0	93.9	96.6	0	95.4	95.7	0	96.5	97	98.3	0	0	0	0	96.5
Heavy Vehicles	2	52	147	0	18	146	0	11	37	0	71	20	0	135	155	9	0	0	0	0	803
% Heavy Vehicles	1.7	3.9	4.3	0	3.5	3.1	0	6.1	3.4	0	4.6	4.3	0	3.5	3	1.7	0	0	0	0	3.5

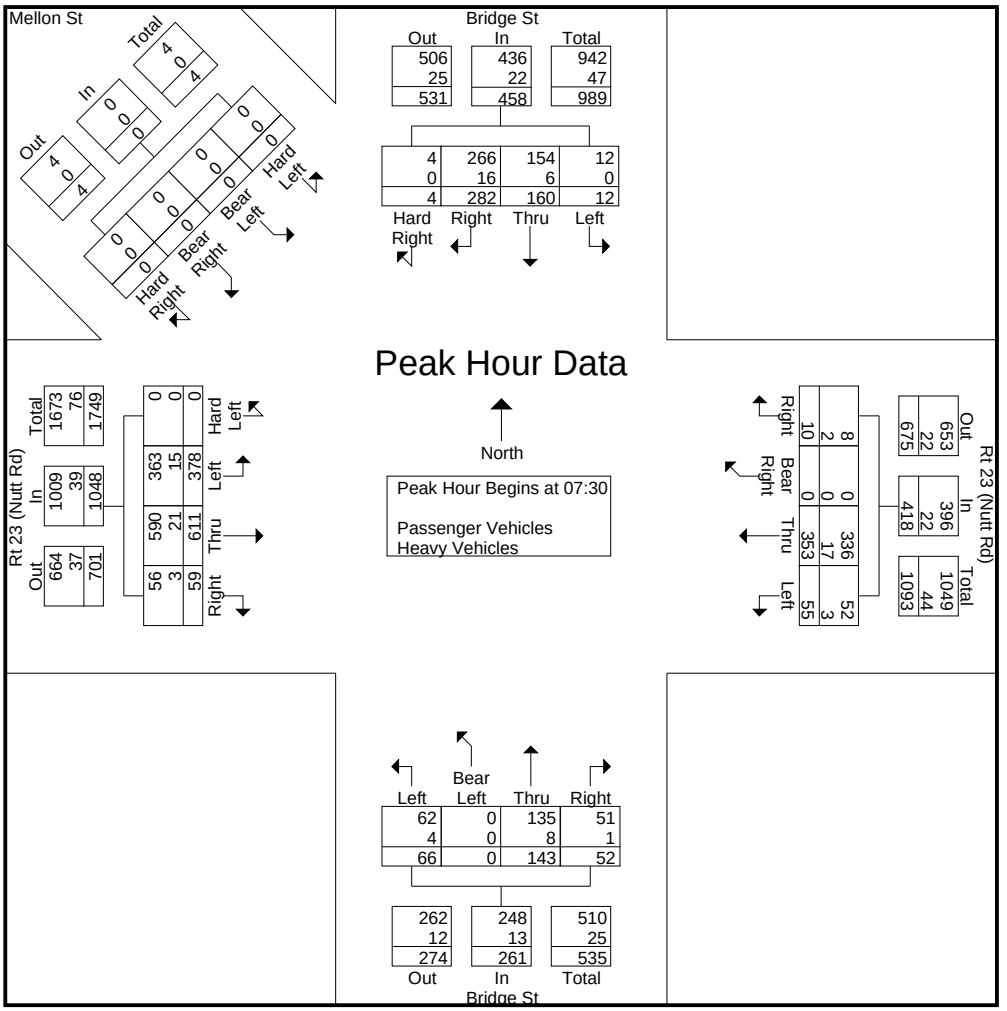
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Route 23 (Nutt Road) &
Bridge Street / Mellon St
Counter/Board #: BW+RS+BW

File Name : phxville06w
Site Code : 81328206
Start Date : 3/12/2015
Page No : 2

	Bridge St Southbound					Rt 23 (Nutt Rd) Westbound					Bridge St Northbound					Rt 23 (Nutt Rd) Eastbound					Mellon St Southeastbound					
Start Time	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 10:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:30																										
07:30	2	**44**	**91**	0	**137**	**19**	90	0	**4**	113	**19**	0	32	**18**	69	0	82	158	16	256	0	0	0	0	0	**575**
07:45	3	41	70	0	114	14	82	0	0	96	14	0	**40**	17	**71**	0	93	145	14	252	0	0	0	0	0	533
08:00	2	40	63	**3**														137	12	244	0	0	0	0	0	508
08:15	**5**						**107**	**0**	**3**	**120**							**108**	**171**	**17**	**296**						
Total Volume	12	160	282	4	458	55	353	0	10	418	66	0	143	52	261	0	378	611	59	1048	0	0	0	0	0	2185
% App. Total	2.6	34.9	61.6	0.9		13.2	84.4		2.4		25.3		54.8	19.9			36.1	58.3	5.6							
PHF	.600	.909	.775	.333	.836	.724	.825	.000	.625	.871	.868	.000	.894	.722	.919	.000	.875	.893	.868	.885	.000	.000	.000	.000	.000	.950
Passenger Vehicles	12	154	266	4	436	52	336	0	8	396	62	0	135	51	248	0	363	590	56	1009	0	0	0	0	0	2089
% Passenger Vehicles	100	96.3	94.3	100	95.2	94.5	95.2	0	80.0	94.7	93.9	0	94.4	98.1	95.0	0	96.0	96.6	94.9	96.3	0	0	0	0	0	95.6
Heavy Vehicles	0	6	16	0	22	3	17	0	2	22	4	0	8	1	13	0	15	21	3	39	0	0	0	0	0	96
% Heavy Vehicles	0	3.8	5.7	0	4.8	5.5	4.8	0	20.0	5.3	6.1	0	5.6	1.9	5.0	0	4.0	3.4	5.1	3.7	0	0	0	0	0	4.4



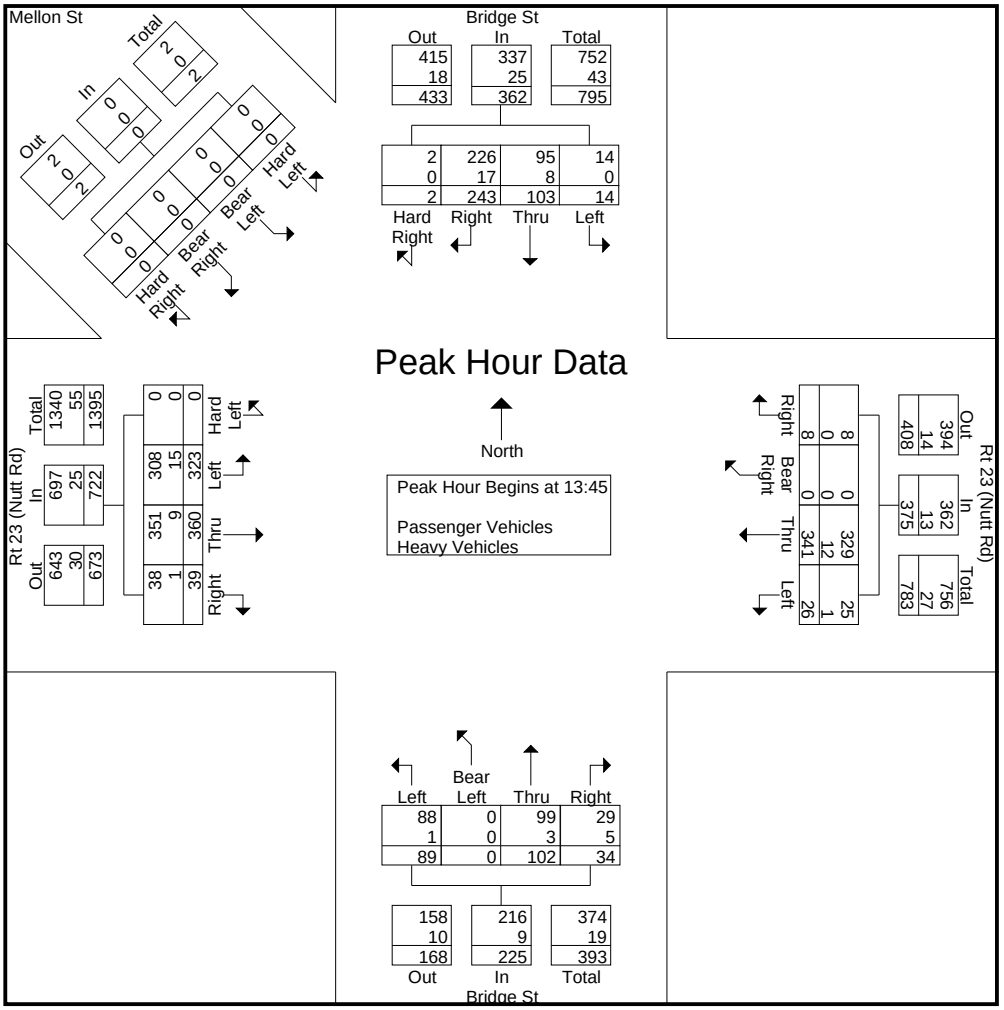
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Route 23 (Nutt Road) &
Bridge Street / Mellon St
Counter/Board #: BW+RS+BW

File Name : phxville06w
Site Code : 81328206
Start Date : 3/12/2015
Page No : 3

	Bridge St Southbound					Rt 23 (Nutt Rd) Westbound					Bridge St Northbound					Rt 23 (Nutt Rd) Eastbound					Mellon St Southeastbound					
Start Time	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 to 14:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 13:45																										
13:45	1	22	**69**	0	92	**11**	74	0	**4**	89	18	0	24	9	51	0	82	**94**	6	182	0	0	0	0	0	414
14:00	2	25	66	**1**	94	5	68	0	0	73	12	0	19	**12**	43	0	86	94	10	**190**	0	0	0	0	0	400
14:15	4	21	53	1	79	6	90	0	2	98	**32**	0	**35**	7	**74**	0	68	88	7	163	0	0	0	0	0	414
14:30	**7**	**35**	55	0	**97**	4	**109**	**0**	**2**	**115**	27	0	24	6	57	0	**87**	84	**16**	187	0	0	0	0	0	**456**
Total Volume	14	103	243	2	362	26	341	0	8	375	89	0	102	34	225	0	323	360	39	722	0	0	0	0	0	1684
% App. Total	3.9	28.5	67.1	0.6		6.9	90.9		2.1		39.6		45.3	15.1			44.7	49.9	5.4							
PHF	.500	.736	.880	.500	.933	.591	.782	.000	.500	.815	.695	.000	.729	.708	.760	.000	.928	.957	.609	.950	.000	.000	.000	.000	.000	.923
Passenger Vehicles	14	95	226	2	337	25	329	0	8	362	88	0	99	29	216	0	308	351	38	697	0	0	0	0	0	1612
% Passenger Vehicles	100	92.2	93.0	100	93.1	96.2	96.5	0	100	96.5	98.9	0	97.1	85.3	96.0	0	95.4	97.5	97.4	96.5	0	0	0	0	0	95.7
Heavy Vehicles	0	8	17	0	25	1	12	0	0	13	1	0	3	5	9	0	15	9	1	25	0	0	0	0	0	72
% Heavy Vehicles	0	7.8	7.0	0	6.9	3.8	3.5	0	0	3.5	1.1	0	2.9	14.7	4.0	0	4.6	2.5	2.6	3.5	0	0	0	0	0	4.3



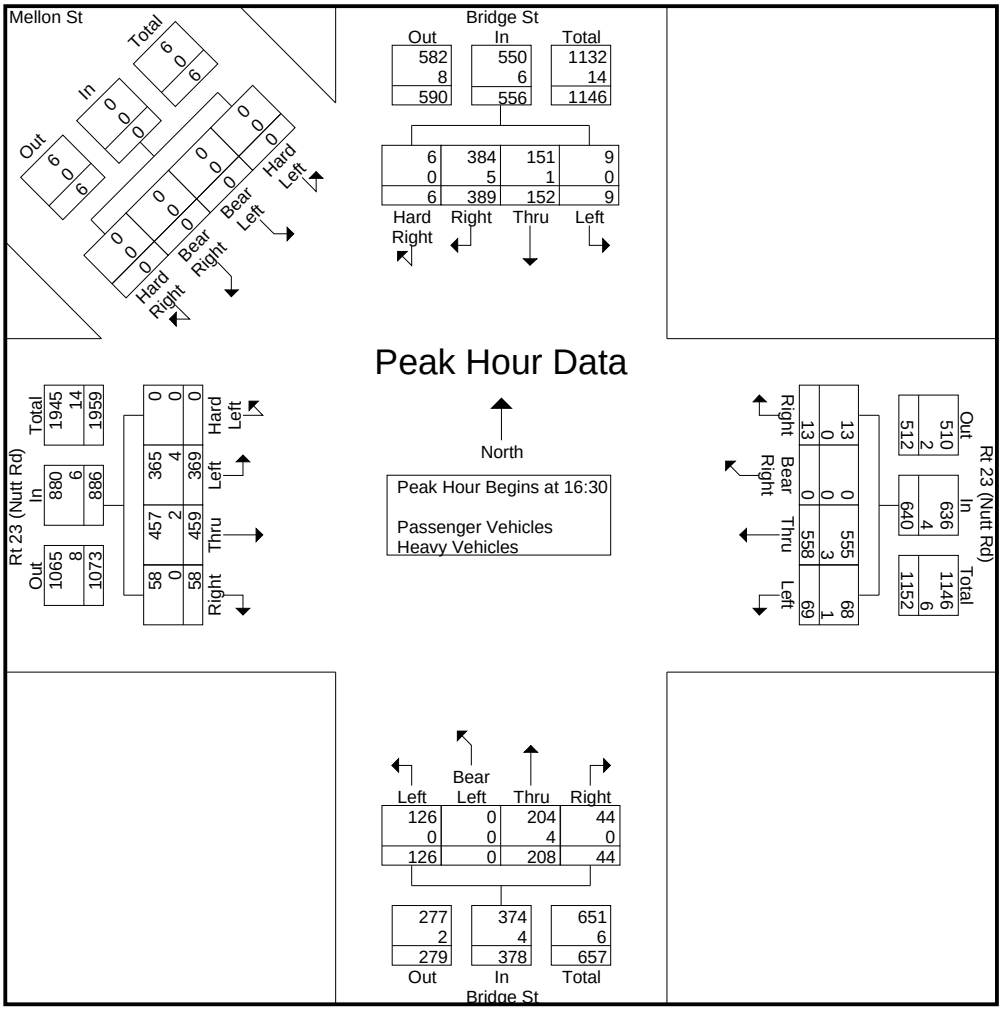
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Route 23 (Nutt Road) &
Bridge Street / Mellon St
Counter/Board #: BW+RS+BW

File Name : phxville06w
Site Code : 81328206
Start Date : 3/12/2015
Page No : 4

	Bridge St Southbound					Rt 23 (Nutt Rd) Westbound					Bridge St Northbound					Rt 23 (Nutt Rd) Eastbound					Mellon St Southeastbound					
Start Time	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 16:30																										
16:30	**5**	**46**	97	1	**149**	13	135	0	4	152	**41**	0	**61**	**16**	**118**	0	**98**	101	17	216	0	0	0	0	0	**635**
16:45	3	44	95	0	142	10	**146**	**0**	**2**	**158**	**24**	**0**	**53**	**7**	**84**	**0**	**91**	**135**	**18**	**244**	0	0	0	0	0	628
17:00	1	33	**100**	**4**	138	**25**	138	0	1	164	28	0	45	11	84	0	84	119	8	211	0	0	0	0	0	597
17:15	0	29	97	1	127	21	139	0	**6**	**166**								104	15	215	0	0	0	0	0	600
Total Volume		152	389	6	556	69	558	0	13	640	126	0	208	44	378	0	369	459	58	886	0	0	0	0	0	2460
% App. Total	1.6	27.3		1.1		10.8	87.2				33.3			11.6			41.6	51.8	6.5							
PHF	.450	.826	.973	.375	.933	.690	.955	.000	.542	.964	.768	.000	.852	.688	.801	.000	.941	.850	.806	.908	.000	.000	.000	.000	.000	.969
Passenger Vehicles	9	151	384	6	550	68	555	0	13	636	126	0	204	44	374	0	365	457	58	880	0	0	0	0	0	2440
% Passenger Vehicles	100	99.3	98.7	100	98.9	98.6	99.5	0	100	99.4	100	0	98.1	100	98.9	0	98.9	99.6	100	99.3	0	0	0	0	0	99.2
Heavy Vehicles	0	1	5	0	6	1	3	0	0	4	0	0	4	0	4	0	4	2	0	6	0	0	0	0	0	20
% Heavy Vehicles	0	0.7	1.3	0	1.1	1.4	0.5	0	0	0.6	0	0	1.9	0	1.1	0	1.1	0.4	0	0.7	0	0	0	0	0	0.8



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Route 23 (Nutt Road) &
Bridge Street / Mellon St
Counter/Board #: BW+RS+BW

File Name : phxville06w
Site Code : 81328206
Start Date : 3/12/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Bridge St Southbound				Rt 23 (Nutt Rd) Westbound				Bridge St Northbound				Rt 23 (Nutt Rd) Eastbound				Mellon St Southeastbound				
Start Time	Left	Thru	Right	Hard Right	Left	Thru	Bear Right	Right	Left	Bear Left	Thru	Right	Hard Left	Left	Thru	Right	Hard Left	Bear Left	Bear Right	Hard Right	Int. Total
07:00	0	4	1	0	0	3	0	0	1	0	5	0	0	3	4	0	0	0	0	0	21
07:15	0	0	8	0	0	2	0	0	0	0	0	0	0	4	4	0	0	0	0	0	18
07:30	0	2	5	0	2	2	0	0	0	0	2	0	0	3	6	1	0	0	0	0	23
07:45	0	2	4	0	0	3	0	0	3	0	2	0	0	3	4	0	0	0	0	0	21
Total	0	8	18	0	2	10	0	0	4	0	9	0	0	13	18	1	0	0	0	0	83
08:00	0	1	5	0	1	5	0	2	0	0	4	0	0	6	7	2	0	0	0	0	33
08:15	0	1	2	0	0	7	0	0	1	0	0	1	0	3	4	0	0	0	0	0	19
08:30	0	3	6	0	4	10	0	0	0	0	2	3	0	2	2	0	0	0	0	0	32
08:45	0	0	1	0	1	2	0	0	1	0	1	0	0	5	6	1	0	0	0	0	18
Total	0	5	14	0	6	24	0	2	2	0	7	4	0	16	19	3	0	0	0	0	102
09:00	0	1	1	0	0	6	0	0	2	0	1	0	0	2	3	0	0	0	0	0	16
09:15	0	2	4	0	0	3	0	0	0	0	2	0	0	3	3	2	0	0	0	0	19
09:30	0	0	4	0	1	2	0	1	2	0	0	0	0	4	3	0	0	0	0	0	17
09:45	0	0	7	0	1	2	0	1	0	0	1	1	0	11	5	1	0	0	0	0	30
Total	0	3	16	0	2	13	0	2	4	0	4	1	0	20	14	3	0	0	0	0	82
10:00	0	1	2	0	1	1	0	0	3	0	2	1	0	2	7	0	0	0	0	0	20
10:15	0	2	3	0	0	6	0	1	1	0	1	0	0	2	8	0	0	0	0	0	24
10:30	0	4	3	0	0	3	0	0	1	0	1	1	0	5	7	0	0	0	0	0	25
10:45	0	0	2	0	0	2	0	0	0	0	5	0	0	2	5	0	0	0	0	0	16
Total	0	7	10	0	1	12	0	1	5	0	9	2	0	11	27	0	0	0	0	0	85
11:00	1	1	6	0	0	0	0	0	6	0	2	0	0	1	2	0	0	0	0	0	19
11:15	0	0	2	0	1	3	0	0	2	0	11	2	0	2	4	0	0	0	0	0	27
11:30	0	3	2	0	0	5	0	1	0	0	3	1	0	7	1	0	0	0	0	0	23
11:45	0	2	6	0	0	6	0	0	1	0	0	0	0	1	4	0	0	0	0	0	20
Total	1	6	16	0	1	14	0	1	9	0	16	3	0	11	11	0	0	0	0	0	89
12:00	0	0	5	0	0	6	0	0	2	0	2	0	0	6	4	0	0	0	0	0	25
12:15	0	0	5	0	0	3	0	0	1	0	0	0	0	2	3	0	0	0	0	0	14
12:30	0	1	4	0	0	2	0	1	0	0	0	1	0	4	4	0	0	0	0	0	17
12:45	0	2	3	0	0	2	0	0	0	0	0	0	0	4	4	0	0	0	0	0	15
Total	0	3	17	0	0	13	0	1	3	0	2	1	0	16	15	0	0	0	0	0	71
13:00	0	0	1	0	0	8	0	0	2	0	1	0	0	5	1	0	0	0	0	0	18
13:15	0	0	3	0	0	4	0	0	1	0	2	0	0	5	6	0	0	0	0	0	21
13:30	0	2	7	0	1	2	0	0	2	0	4	1	0	2	1	0	0	0	0	0	22
13:45	0	1	4	0	0	0	0	0	0	0	0	0	0	5	4	1	0	0	0	0	15
Total	0	3	15	0	1	14	0	0	5	0	7	1	0	17	12	1	0	0	0	0	76
14:00	0	0	4	0	1	4	0	0	0	0	1	2	0	3	1	0	0	0	0	0	16
14:15	0	0	5	0	0	2	0	0	1	0	2	3	0	4	3	0	0	0	0	0	20
14:30	0	7	4	0	0	6	0	0	0	0	0	0	0	3	1	0	0	0	0	0	21
14:45	0	2	3	0	0	10	0	0	1	0	5	0	0	0	3	0	0	0	0	0	24
Total	0	9	16	0	1	22	0	0	2	0	8	5	0	10	8	0	0	0	0	0	81
15:00	1	1	2	0	0	7	0	1	0	0	0	1	0	5	10	0	0	0	0	0	28
15:15	0	3	5	0	1	4	0	0	1	0	0	1	0	1	3	0	0	0	0	0	19
15:30	0	0	3	0	1	1	0	0	0	0	1	1	0	2	4	1	0	0	0	0	14
15:45	0	1	2	0	0	2	0	3	0	0	2	0	0	4	2	0	0	0	0	0	16
Total	1	5	12	0	2	14	0	4	1	0	3	3	0	12	19	1	0	0	0	0	77
16:00	0	1	3	0	1	0	0	0	1	0	0	0	0	2	2	0	0	0	0	0	10
16:15	0	0	1	0	0	1	0	0	0	0	1	0	0	2	2	0	0	0	0	0	7
16:30	0	0	2	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5
16:45	0	0	1	0	1	2	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6
Total	0	1	7	0	2	4	0	0	1	0	4	0	0	5	4	0	0	0	0	0	28
17:00	0	1	2	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	6
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3
17:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
17:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	2	0	0	1	0	0	0	0	2	0	0	3	2	0	0	0	0	0	11
18:00	0	0	1	0	0	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	5
18:15	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5
18:30	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	4
18:45	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4
Total	0	1	4	0	0	5	0	0	1	0	0	0	0	1	6	0	0	0	0	0	18
Grand Total	2	52	147	0	18	146	0	11	37	0	71	20	0	135	155	9	0	0	0	0	803
Apprch %	1	25.9	73.1	0	10.3	83.4	0	6.3	28.9	0	55.5	15.6	0	45.2	51.8	3	0	0	0	0	
Total %	0.2	6.5	18.3	0	2.2	18.2	0	1.4	4.6	0	8.8	2.5	0	16.8	19.3	1.1	0	0	0	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Phoenixville
Location: Route 23 (Nutt Road) &
Bridge Street / Mellon St
Counter/Board #: BW+RS+BW

File Name : phxville06w
Site Code : 81328206
Start Date : 3/12/2015
Page No : 1

Groups Printed- Passenger Vehicles

	Bridge St Southbound				Rt 23 (Nutt Rd) Westbound				Bridge St Northbound				Rt 23 (Nutt Rd) Eastbound				Mellon St Southeastbound				
Start Time	Left	Thru	Right	Hard Right	Left	Thru	Bear Right	Right	Left	Bear Left	Thru	Right	Hard Left	Left	Thru	Right	Hard Left	Bear Left	Bear Right	Hard Right	Int. Total
07:00	0	34	59	0	9	75	0	4	14	0	18	3	0	53	138	11	0	0	0	0	418
07:15	2	51	47	0	8	72	0	1	13	0	24	5	0	82	165	18	0	0	0	0	488
07:30	2	42	86	0	17	88	0	4	19	0	30	18	0	79	152	15	0	0	0	0	552
07:45	3	39	66	0	14	79	0	0	11	0	38	17	0	90	141	14	0	0	0	0	512
Total	7	166	258	0	48	314	0	9	57	0	110	43	0	304	596	58	0	0	0	0	1970
08:00	2	39	58	3	11	69	0	1	18	0	34	11	0	89	130	10	0	0	0	0	475
08:15	5	34	56	1	10	100	0	3	14	0	33	5	0	105	167	17	0	0	0	0	550
08:30	1	36	65	3	9	84	0	5	19	0	28	12	0	84	128	13	0	0	0	0	487
08:45	0	22	66	3	8	72	0	7	13	0	22	10	0	94	126	15	0	0	0	0	458
Total	8	131	245	10	38	325	0	16	64	0	117	38	0	372	551	55	0	0	0	0	1970
09:00	6	22	56	1	7	67	0	10	23	0	28	14	0	68	130	8	0	0	0	0	440
09:15	3	19	49	3	4	59	0	4	20	0	21	11	0	80	102	10	0	0	0	0	385
09:30	0	22	55	3	7	91	0	4	24	0	30	15	0	49	123	13	0	0	0	0	436
09:45	2	23	50	2	7	75	0	7	20	0	18	12	0	61	99	7	0	0	0	0	383
Total	11	86	210	9	25	292	0	25	87	0	97	52	0	258	454	38	0	0	0	0	1644
10:00	1	14	58	0	8	70	0	5	11	0	18	7	0	59	100	6	0	0	0	0	357
10:15	0	10	51	3	5	73	0	3	16	0	17	6	0	47	109	16	0	0	0	0	356
10:30	1	15	53	3	5	79	0	6	15	0	17	14	0	45	111	4	0	0	0	0	368
10:45	0	22	29	1	4	44	0	1	9	0	19	4	0	50	88	7	0	0	0	0	278
Total	2	61	191	7	22	266	0	15	51	0	71	31	0	201	408	33	0	0	0	0	1359
11:00	1	20	64	0	11	68	0	7	11	0	13	5	0	57	63	3	0	0	0	0	323
11:15	4	16	52	0	6	85	0	0	25	0	12	9	0	74	82	8	0	0	0	0	373
11:30	3	21	72	1	12	74	0	0	17	0	27	15	0	58	76	5	0	0	0	0	381
11:45	2	19	60	0	8	96	0	1	13	0	18	7	0	74	91	6	0	0	0	0	395
Total	10	76	248	1	37	323	0	8	66	0	70	36	0	263	312	22	0	0	0	0	1472
12:00	4	18	70	0	9	68	0	6	14	0	27	12	0	73	67	4	0	0	0	0	372
12:15	3	19	63	0	6	67	0	2	20	0	32	7	0	83	76	5	0	0	0	0	383
12:30	4	21	58	0	5	67	0	1	19	0	19	7	0	76	79	9	0	0	0	0	365
12:45	2	28	53	0	10	68	0	1	23	0	31	11	0	75	96	10	0	0	0	0	408
Total	13	86	244	0	30	270	0	10	76	0	109	37	0	307	318	28	0	0	0	0	1528
13:00	2	32	64	0	8	97	0	3	21	0	16	5	0	84	86	4	0	0	0	0	422
13:15	3	22	66	0	14	77	0	2	20	0	27	3	0	64	104	8	0	0	0	0	410
13:30	4	11	58	2	5	67	0	4	28	0	23	8	0	56	88	4	0	0	0	0	358
13:45	1	21	65	0	11	74	0	4	18	0	24	9	0	77	90	5	0	0	0	0	399
Total	10	86	253	2	38	315	0	13	87	0	90	25	0	281	368	21	0	0	0	0	1589
14:00	2	25	62	1	4	64	0	0	12	0	18	10	0	83	93	10	0	0	0	0	384
14:15	4	21	48	1	6	88	0	2	31	0	33	4	0	64	85	7	0	0	0	0	394
14:30	7	28	51	0	4	103	0	2	27	0	24	6	0	84	83	16	0	0	0	0	435
14:45	3	15	56	2	10	77	0	3	18	0	19	7	0	62	89	8	0	0	0	0	369
Total	16	89	217	4	24	332	0	7	88	0	94	27	0	293	350	41	0	0	0	0	1582
15:00	5	29	63	1	9	138	0	4	27	0	34	9	0	91	100	16	0	0	0	0	526
15:15	0	24	87	0	15	131	0	6	30	0	29	5	0	69	107	11	0	0	0	0	514
15:30	0	33	101	5	18	135	0	6	34	0	34	13	0	81	106	11	0	0	0	0	577
15:45	7	32	92	2	19	144	0	1	24	0	48	10	0	74	88	18	0	0	0	0	559
Total	12	118	343	8	61	548	0	17	115	0	145	37	0	315	401	56	0	0	0	0	2176
16:00	2	29	85	1	17	137	0	5	26	0	45	6	0	82	105	10	0	0	0	0	550
16:15	2	30	99	3	15	114	0	6	32	0	40	15	0	74	100	15	0	0	0	0	545
16:30	5	46	95	1	13	134	0	4	41	0	59	16	0	98	101	17	0	0	0	0	630
16:45	3	44	94	0	9	144	0	2	24	0	52	7	0	90	135	18	0	0	0	0	622
Total	12	149	373	5	54	529	0	17	123	0	196	44	0	344	441	60	0	0	0	0	2347
17:00	1	32	98	4	25	138	0	1	28	0	44	11	0	82	119	8	0	0	0	0	591
17:15	0	29	97	1	21	139	0	6	33	0	49	10	0	95	102	15	0	0	0	0	597
17:30	2	37	97	1	17	124	0	5	26	0	58	6	0	108	105	13	0	0	0	0	599
17:45	6	26	93	6	10	123	0	3	34	0	50	10	0	83	110	14	0	0	0	0	568
Total	9	124	385	12	73	524	0	15	121	0	201	37	0	368	436	50	0	0	0	0	2355
18:00	0	26	92	0	8	126	0	5	22	0	46	6	0	96	108	15	0	0	0	0	550
18:15	1	24	61	1	6	117	0	7	31	0	51	11	0	101	123	21	0	0	0	0	555
18:30	1	31	69	0	15	109	0	1	31	0	44	11	0	90	100	15	0	0	0	0	517
18:45	4	21	58	1	13	117	0	4	24	0	24	9	0	80	111	12	0	0	0	0	478
Total	6	102	280	2	42	469	0	17	108	0	165	37	0	367	442	63	0	0	0	0	2100
Grand Total	116	1274	3247	60	492	4507	0	169	1043	0	1465	444	0	3673	5077	525	0	0	0	0	22092
Apprch %	2.5	27.1	69.1	1.3	9.5	87.2	0	3.3	35.3	0	49.6	15	0	39.6	54.7	5.7	0	0	0	0	
Total %	0.5	5.8	14.7	0.3	2.2	20.4	0	0.8	4.7	0	6.6	2	0	16.6	23	2.4	0	0	0	0	

Appendix C

Developments within Phoenixville Borough and Surrounding Municipalities

Project Information	
Project Name:	Proposed Developments
McMahon Project No:	816494
Date:	2/2/2017
City/Municipality:	Phoenixville Borough
State:	PA
Client Name:	Phoenixville Borough
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 9th Edition

Anticipated Major Land Development Projects
Assumed to Be Completed by 2022 within Phoenixville Borough

Map ID	Property Name	Land Use Code	Estimated Size and Unit Type Total	Estimated Size and Unit Type Remaining	Daily			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
					In	Out	Total	In	Out	Total	In	Out	Total
01	Barto Property	Total Trips	336 apartments 36,700 SF retail		1864	1864	3728	65	151	216	193	130	323
		- Pass-by			167	168	335	16	9	25	40	33	73
		Total "New" Trips			**1697**	**1696**	**3393**	**49**	**142**	**191**	**153**	**97**	**250**
02	Church Street Commons - Apartments	252 - Senior Adult Housing - Attached	60 senior apartments		**103**	**103**	**206**	**4**	**8**	**12**	**8**	**7**	**15**
03	Fillmore Village - Townhomes	230 - Residential Condominium / Townhouse	141 townhomes		**434**	**433**	**867**	**12**	**56**	**68**	**54**	**26**	**80**
05	Riverworks - Apartments	220 - Apartments	349 apartments		**1120**	**1119**	**2239**	**35**	**140**	**175**	**137**	**73**	**210**
06	Residences at French Creek - Mixed Use	unkown retail	unknown										
		- Pass-by											
		Total "New" Trips											
		230 - Residential Condominium / Townhouse	311 townhomes		**863**	**863**	**1726**	**22**	**106**	**128**	**102**	**50**	**152**
		220 - Apartments	240 apartments		**789**	**789**	**1578**	**24**	**97**	**121**	**98**	**52**	**150**
07	Heckle Street - Apartments	220 - Apartments	10 apartments		**34**	**33**	**67**	**1**	**4**	**5**	**4**	**2**	**6**
08	Odessa - Apartments and Assisted Living	220 - apartments	240 apartments		**789**	**789**	**1578**	**24**	**97**	**121**	**98**	**52**	**150**
		254 - Assisted Living	260 beds		**356**	**356**	**712**	**43**	**17**	**60**	**37**	**59**	**96**
09/10	Phoenix Village - Commercial / Retail	820 - Shopping Center	20,000 square feet		427	427	854	12	7	19	36	38	74
		- Pass-by			102	102	204	4	2	6	9	10	19
		Total "New" Trips			**325**	**325**	**650**	**8**	**5**	**13**	**27**	**28**	**55**
		220 - Apartments	275 apartments		**895**	**895**	**1790**	**28**	**110**	**138**	**110**	**59**	**169**
12	Eland Point Crossing	220 - apartments	193 apartments		**646**	**647**	**1293**	**20**	**78**	**98**	**81**	**43**	**124**
13	100 First Avenue - Commercial	720 - Medical-Dental Office Building	6,400 square feet of medical office space		**24**	**23**	**47**	**2**	**4**	**6**	**6**	**17**	**23**
14	116 Railroad Street	210 - Single Family Detached	8 single family homes		**38**	**38**	**76**	**2**	**4**	**6**	**5**	**3**	**8**
17	191 Bridge Street - Residential Lofts	220 - Apartments	31 apartments		**156**	**155**	**311**	**4**	**15**	**19**	**23**	**12**	**35**
18	2 Railroad Street - Residential	230 - Residential Condominium / Townhouse	11 townhomes		**47**	**47**	**94**	**2**	**7**	**9**	**7**	**3**	**10**
19	240 Dayton Street - Residential	210 - Single Family Detached	4 single family homes		**19**	**19**	**38**	**1**	**2**	**3**	**3**	**1**	**4**
20	31 Main Street - Loft Apartments	220 - Apartments	6 apartments		**20**	**20**	**40**	**1**	**2**	**3**	**3**	**1**	**4**
21	345 Walnut - Apartments	220 - Apartments	28 apartments		**147**	**146**	**293**	**3**	**14**	**17**	**21**	**12**	**33**
22	416-418 Dayton Street - Residential	230 - Residential Condominium / Townhouse	6 townhomes		**28**	**28**	**56**	**1**	**2**	**3**	**2**	**1**	**3**
24	502 Emmett Street - Residential	210 - Single Family Detached	4 single family homes		**19**	**19**	**38**	**1**	**2**	**3**	**3**	**1**	**4**
26	701 South Main Street - Apartments	220 - Apartments	22 apartments		**129**	**128**	**257**	**3**	**12**	**15**	**20**	**10**	**30**
27	St Mary's Street - Residential	210 - Single Family Detached	1 single family home		**5**	**5**	**10**	**0**	**1**	**1**	**1**	**0**	**1**
28	Steeltown Village	220 - Apartments	48 apartments		**207**	**207**	**414**	**5**	**22**	**27**	**29**	**15**	**44**
			TOTAL "NEW"* TRIPS		***8890***	***8883***	***17773***	***295***	***947***	***1242***	***1032***	***624***	***1656***

Project Information	
Project Name:	Proposed Developments in East Pikeland
McMahon Project No:	816494
Date:	2/2/2017
City/Municipality:	East Pikeland Township
State:	PA
Client Name:	Phoenixville Borough
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 9th Edition

Anticipated Major Land Development Projects
Assumed to Be Completed by 2022 within East Pikeland Township

Property Name	Land Use Code	Estimated Size and Unit Type Total	Estimated Size and Unit Type Remaining	Daily			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
400 Westside	820 - Shopping Center	2,100 square feet		45	45	90	1	1	2	22	23	45
	- Pass-by			11	11	22	0	0	0	7	8	15
	Total "New" Trips			34	34	68	1	1	2	15	15	30
	220 - Apartments	171 apartments		729	728	1457	22	90	112	90	49	139
Pikeland Glen	251 - Senior Adult Housing - Detached	285 units		601	600	1201	27	51	78	60	38	98
Kimberton Glen	210 - Single-Family Detached	168 units		847	846	1693	32	95	127	106	62	168
	251 - Senior Adult Housing - Detached	164 units		367	367	734	20	38	58	40	25	65
		TOTAL"NEW" TRIPS		***2578***	***2575***	***5153***	***102***	***275***	***377***	***311***	***189***	***500***

Project Information	
Project Name:	Proposed Developments in Schyulkill Twp
McMahon Project No:	816494
Date:	2/2/2017
City/Municipality:	Schuylkill Township
State:	PA
Client Name:	Phoenixville Borough
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 9th Edition

Anticipated Major Land Development Projects
Assumed to Be Completed by 2022 within Schuylkill Township

Property Name	Land Use Code	Estimated Size and Unit Type Total	Estimated Size and Unit Type Remaining	Daily			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
Pawlings Road Apartments	220 - Apartments	72 apartments		**280**	**280**	**560**	**8**	**31**	**39**	**37**	**20**	**57**
The Reeves Tract	251 - Senior Adult Housing - Detached	94 units		**224**	**223**	**447**	**16**	**30**	**46**	**26**	**17**	**43**
		TOTAL"NEW" TRIPS		***504***	***503***	***1007***	***24***	***61***	***85***	***63***	***37***	***100***

Appendix D

2022 Future Volume Worksheets

INTERSECTION VOLUME SUMMARY
Paradise Street/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS.
Build-Out Year (2016)

Weekday 7-9 AM

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Paradise Street			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Paradise Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		13	889	0	0	0	0	0	623	5	1	0	10
Seasonal Adjustment Factor	1.000	13	889	0	0	0	0	0	623	5	1	0	10
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**13**	**889**	**0**	**0**	**0**	**0**	**0**	**623**	**5**	**1**	**0**	**10**
Background Growth	3.04 %	0	27	0	0	0	0	0	19	0	0	0	0
EXISTING W/ BACKGROUND		13	916	0	0	0	0	0	642	5	1	0	10
TOTAL "OTHER" DEVELOPMENTS		78	148	0	0	0	0	0	104	4	9	0	204
Group 1 Developments		0	31	0	0	0	0	0	8	0	0	0	0
Group 2 Developments		0	1	0	0	0	0	0	2	0	0	0	0
Group 3 Developments		3	10	0	0	0	0	0	31	0	0	0	0
Group 4 Developments		1	1	0	0	0	0	0	2	0	0	0	2
Group 5 Developments		32	0	0	0	0	0	0	0	0	0	0	123
Group 6 Developments		16	0	0	0	0	0	0	0	4	9	0	35
Group 7 Developments		0	2	0	0	0	0	0	7	0	0	0	0
Group 8 Developments - E. Pikeland		0	96	0	0	0	0	0	36	0	0	0	0
Group 9 Developments - Schuylkill		0	7	0	0	0	0	0	18	0	0	0	0
Paradise Street Connector Diversions		26	0	0	0	0	0	0	0	0	0	0	44
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**91**	**1064**	**0**	**0**	**0**	**0**	**0**	**746**	**9**	**10**	**0**	**214**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**91**	**1064**	**0**	**0**	**0**	**0**	**0**	**746**	**9**	**10**	**0**	**214**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Paradise Street/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS.
Build-Out Year (2016)

Weekday 4-6 PM

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Paradise Street			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Paradise Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		14	972	0	0	0	0	0	1121	2	0	0	15
Seasonal Adjustment Factor	1.000	14	972	0	0	0	0	0	1121	2	0	0	15
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**14**	**972**	**0**	**0**	**0**	**0**	**0**	**1121**	**2**	**0**	**0**	**15**
Background Growth	3.04 %	0	30	0	0	0	0	0	34	0	0	0	0
EXISTING W/ BACKGROUND		14	1002	0	0	0	0	0	1155	2	0	0	15
TOTAL "OTHER" DEVELOPMENTS		199	153	0	0	0	0	0	185	10	7	0	159
Group 1 Developments		0	17	0	0	0	0	0	32	0	0	0	0
Group 2 Developments		0	4	0	0	0	0	0	2	0	0	0	0
Group 3 Developments		9	35	0	0	0	0	0	22	0	0	0	0
Group 4 Developments		3	3	0	0	0	0	0	4	0	0	0	4
Group 5 Developments		130	0	0	0	0	0	0	0	0	0	0	71
Group 6 Developments		39	0	0	0	0	0	0	0	10	7	0	28
Group 7 Developments		0	9	0	0	0	0	0	5	0	0	0	0
Group 8 Developments - E. Pikeland		0	66	0	0	0	0	0	109	0	0	0	0
Group 9 Developments - Schuylkill		0	19	0	0	0	0	0	11	0	0	0	0
Paradise Street Connector Diversions		18	0	0	0	0	0	0	0	0	0	0	56
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**213**	**1155**	**0**	**0**	**0**	**0**	**0**	**1340**	**12**	**7**	**0**	**174**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**213**	**1155**	**0**	**0**	**0**	**0**	**0**	**1340**	**12**	**7**	**0**	**174**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Callowhill Street/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 7-9 AM

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Callowhill Street			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Callowhill Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		3	1061	28	6	4	6	17	732	1	4	3	0
Seasonal Adjustment Factor	1.000	3	1061	28	6	4	6	17	732	1	4	3	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**3**	**1061**	**28**	**6**	**4**	**6**	**17**	**732**	**1**	**4**	**3**	**0**
Background Growth	3.04 %	0	32	1	0	0	0	1	22	0	0	0	0
EXISTING W/ BACKGROUND		3	1093	29	6	4	6	18	754	1	4	3	0
TOTAL "OTHER" DEVELOPMENTS		0	157	0	0	0	0	0	108	0	0	0	0
Group 1 Developments		0	31	0	0	0	0	0	8	0	0	0	0
Group 2 Developments		0	1	0	0	0	0	0	2	0	0	0	0
Group 3 Developments		0	10	0	0	0	0	0	31	0	0	0	0
Group 4 Developments		0	1	0	0	0	0	0	2	0	0	0	0
Group 5 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 6 Developments		0	9	0	0	0	0	0	4	0	0	0	0
Group 7 Developments		0	2	0	0	0	0	0	7	0	0	0	0
Group 8 Developments - E. Pikeland		0	96	0	0	0	0	0	36	0	0	0	0
Group 9 Developments - Schuylkill		0	7	0	0	0	0	0	18	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**3**	**1250**	**29**	**6**	**4**	**6**	**18**	**862**	**1**	**4**	**3**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**3**	**1250**	**29**	**6**	**4**	**6**	**18**	**862**	**1**	**4**	**3**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Callowhill Street/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 4-6 PM

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Callowhill Street			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Callowhill Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		9	953	27	10	0	10	7	1134	1	0	0	6
Seasonal Adjustment Factor	1.000	9	953	27	10	0	10	7	1134	1	0	0	6
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**9**	**953**	**27**	**10**	**0**	**10**	**7**	**1134**	**1**	**0**	**0**	**6**
Background Growth	3.04 %	0	29	1	0	0	0	0	34	0	0	0	0
EXISTING W/ BACKGROUND		9	982	28	10	0	10	7	1168	1	0	0	6
TOTAL "OTHER" DEVELOPMENTS		0	160	0	0	0	0	0	195	0	0	0	0
Group 1 Developments		0	17	0	0	0	0	0	32	0	0	0	0
Group 2 Developments		0	4	0	0	0	0	0	2	0	0	0	0
Group 3 Developments		0	35	0	0	0	0	0	22	0	0	0	0
Group 4 Developments		0	3	0	0	0	0	0	4	0	0	0	0
Group 5 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 6 Developments		0	7	0	0	0	0	0	10	0	0	0	0
Group 7 Developments		0	9	0	0	0	0	0	5	0	0	0	0
Group 8 Developments - E. Pikeland		0	66	0	0	0	0	0	109	0	0	0	0
Group 9 Developments - Schuylkill		0	19	0	0	0	0	0	11	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**9**	**1142**	**28**	**10**	**0**	**10**	**7**	**1363**	**1**	**0**	**0**	**6**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**9**	**1142**	**28**	**10**	**0**	**10**	**7**	**1363**	**1**	**0**	**0**	**6**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Mason Street/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS **Weekday 7-9 AM**
Build-Out Year (2016)

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Mason Street			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Mason Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		14	924	3	4	2	5	2	647	5	3	3	16
Seasonal Adjustment Factor	1.000	14	924	3	4	2	5	2	647	5	3	3	16
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**14**	**924**	**3**	**4**	**2**	**5**	**2**	**647**	**5**	**3**	**3**	**16**
Background Growth	3.04 %	0	28	0	0	0	0	0	20	0	0	0	0
EXISTING W/ BACKGROUND		14	952	3	4	2	5	2	667	5	3	3	16
TOTAL "OTHER" DEVELOPMENTS		2	125	0	0	0	0	0	94	1	2	2	5
Group 1 Developments		0	31	0	0	0	0	0	8	0	0	0	0
Group 2 Developments		0	1	0	0	0	0	0	2	0	0	0	0
Group 3 Developments		0	10	0	0	0	0	0	31	0	0	0	0
Group 4 Developments		0	1	0	0	0	0	0	2	0	0	0	0
Group 5 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 6 Developments		0	9	0	0	0	0	0	4	0	0	0	0
Group 7 Developments		2	0	0	0	0	0	0	0	1	2	2	5
Group 8 Developments - E. Pikeland		0	66	0	0	0	0	0	36	0	0	0	0
Group 9 Developments - Schuylkill		0	7	0	0	0	0	0	11	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**16**	**1077**	**3**	**4**	**2**	**5**	**2**	**761**	**6**	**5**	**5**	**21**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**16**	**1077**	**3**	**4**	**2**	**5**	**2**	**761**	**6**	**5**	**5**	**21**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Mason Street/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 4-6 PM

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Mason Street			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Mason Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		25	717	4	3	1	6	2	1009	8	4	0	31
Seasonal Adjustment Factor	1.000	25	717	4	3	1	6	2	1009	8	4	0	31
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**25**	**717**	**4**	**3**	**1**	**6**	**2**	**1009**	**8**	**4**	**0**	**31**
Background Growth	3.04 %	1	22	0	0	0	0	0	31	0	0	0	1
EXISTING W/ BACKGROUND		26	739	4	3	1	6	2	1040	8	4	0	32
TOTAL "OTHER" DEVELOPMENTS		9	181	0	0	1	0	0	197	7	2	2	7
Group 1 Developments		0	17	0	0	0	0	0	32	0	0	0	0
Group 2 Developments		0	4	0	0	0	0	0	2	0	0	0	0
Group 3 Developments		0	35	0	0	0	0	0	22	0	0	0	0
Group 4 Developments		0	3	0	0	0	0	0	4	0	0	0	0
Group 5 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 6 Developments		0	7	0	0	0	0	0	10	0	0	0	0
Group 7 Developments		9	0	0	0	1	0	0	0	7	2	2	7
Group 8 Developments - E. Pikeland		0	96	0	0	0	0	0	109	0	0	0	0
Group 9 Developments - Schuylkill		0	19	0	0	0	0	0	18	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**35**	**920**	**4**	**3**	**2**	**6**	**2**	**1237**	**15**	**6**	**2**	**39**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**35**	**920**	**4**	**3**	**2**	**6**	**2**	**1237**	**15**	**6**	**2**	**39**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Sherman Street/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS **Weekday 7-9 AM**
Build-Out Year (2016)

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Sherman Street			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Sherman Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	1017	3	0	0	1	2	689	0	0	0	0
Seasonal Adjustment Factor	1.000	0	1017	3	0	0	1	2	689	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**1017**	**3**	**0**	**0**	**1**	**2**	**689**	**0**	**0**	**0**	**0**
Background Growth	3.04 %	0	31	0	0	0	0	0	21	0	0	0	0
EXISTING W/ BACKGROUND		0	1048	3	0	0	1	2	710	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	157	0	0	0	0	0	102	0	0	0	0
Group 1 Developments		0	31	0	0	0	0	0	8	0	0	0	0
Group 2 Developments		0	1	0	0	0	0	0	2	0	0	0	0
Group 3 Developments		0	10	0	0	0	0	0	31	0	0	0	0
Group 4 Developments		0	1	0	0	0	0	0	2	0	0	0	0
Group 5 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 6 Developments		0	9	0	0	0	0	0	4	0	0	0	0
Group 7 Developments		0	2	0	0	0	0	0	1	0	0	0	0
Group 8 Developments - E. Pikeland		0	96	0	0	0	0	0	36	0	0	0	0
Group 9 Developments - Schuylkill		0	7	0	0	0	0	0	18	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**1205**	**3**	**0**	**0**	**1**	**2**	**812**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**1205**	**3**	**0**	**0**	**1**	**2**	**812**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Sherman Street/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 4-6 PM

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Sherman Street			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Sherman Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	907	9	1	0	4	1	1157	0	0	0	0
Seasonal Adjustment Factor	1.000	0	907	9	1	0	4	1	1157	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**907**	**9**	**1**	**0**	**4**	**1**	**1157**	**0**	**0**	**0**	**0**
Background Growth	3.04 %	0	28	0	0	0	0	0	35	0	0	0	0
EXISTING W/ BACKGROUND		0	935	9	1	0	4	1	1192	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	153	0	0	0	0	0	197	0	0	0	0
Group 1 Developments		0	17	0	0	0	0	0	32	0	0	0	0
Group 2 Developments		0	4	0	0	0	0	0	2	0	0	0	0
Group 3 Developments		0	35	0	0	0	0	0	22	0	0	0	0
Group 4 Developments		0	3	0	0	0	0	0	4	0	0	0	0
Group 5 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 6 Developments		0	7	0	0	0	0	0	10	0	0	0	0
Group 7 Developments		0	2	0	0	0	0	0	7	0	0	0	0
Group 8 Developments - E. Pikeland		0	66	0	0	0	0	0	109	0	0	0	0
Group 9 Developments - Schuylkill		0	19	0	0	0	0	0	11	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**1088**	**9**	**1**	**0**	**4**	**1**	**1389**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**1088**	**9**	**1**	**0**	**4**	**1**	**1389**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Bridge Street (S.R. 0113)/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 7-9 AM

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Bridge Street (S.R. 0113)			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Bridge Street (S.R. 0113)			
		L	S	R	L	S	R	L	S	R	L	S	R	
EXISTING TRAFFIC		378	611	59	66	143	52	55	353	10	12	160	282	
Seasonal Adjustment Factor	1.000	378	611	59	66	143	52	55	353	10	12	160	282	
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0	
ADJUSTED EXISTING TRAFFIC		**378**	**611**	**59**	**66**	**143**	**52**	**55**	**353**	**10**	**12**	**160**	**282**	
Background Growth	3.04 %	11	19	2	2	4	2	2	11	0	0	5	9	
EXISTING W/ BACKGROUND		389	630	61	68	147	54	57	364	10	12	165	291	2248
TOTAL "OTHER" DEVELOPMENTS		55	93	9	4	35	0	0	51	0	0	32	51	330
Group 1 Developments		16	16	0	0	0	0	0	4	0	0	0	8	
Group 2 Developments		0	1	0	0	0	0	0	2	0	0	0	0	
Group 3 Developments		10	0	0	0	8	0	0	0	0	0	23	31	
Group 4 Developments		1	0	0	0	1	0	0	0	0	0	3	2	
Group 5 Developments		0	0	0	0	25	0	0	0	0	0	6	0	
Group 6 Developments		0	0	9	4	0	0	0	0	0	0	0	0	
Group 7 Developments		0	0	0	0	1	0	0	1	0	0	0	0	
Group 8 Developments - E. Pikeland		28	69	0	0	0	0	0	26	0	0	0	10	
Group 9 Developments - Schuylkill		0	7	0	0	0	0	0	18	0	0	0	0	
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0	
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0	
FUTURE TRAFFIC W/O PROJECT		**444**	**723**	**70**	**72**	**182**	**54**	**57**	**415**	**10**	**12**	**197**	**342**	
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0	
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0	
FUTURE TRAFFIC W/ PROJECT		**444**	**723**	**70**	**72**	**182**	**54**	**57**	**415**	**10**	**12**	**197**	**342**	
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

INTERSECTION VOLUME SUMMARY
Bridge Street (S.R. 0113)/Nutt Road (S.R. 0023)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS **Weekday 4-6 PM**
Build-Out Year (2016)

Traffic Component		EASTBOUND Nutt Road (S.R. 0023)			NORTHBOUND Bridge Street (S.R. 0113)			WESTBOUND Nutt Road (S.R. 0023)			SOUTHBOUND Bridge Street (S.R. 0113)			
		L	S	R	L	S	R	L	S	R	L	S	R	
EXISTING TRAFFIC		369	459	58	126	208	44	69	558	13	9	152	389	
Seasonal Adjustment Factor	1.000	369	459	58	126	208	44	69	558	13	9	152	389	
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0	
ADJUSTED EXISTING TRAFFIC		**369**	**459**	**58**	**126**	**208**	**44**	**69**	**558**	**13**	**9**	**152**	**389**	
Background Growth	3.04 %	11	14	2	4	6	1	2	17	0	0	5	12	
EXISTING W/ BACKGROUND		380	473	60	130	214	45	71	575	13	9	157	401	##
TOTAL "OTHER" DEVELOPMENTS		66	79	7	11	46	0	0	113	0	0	47	89	##
Group 1 Developments		9	9	0	0	0	0	0	16	0	0	0	32	
Group 2 Developments		0	4	0	0	0	0	0	2	0	0	0	0	
Group 3 Developments		35	0	0	0	26	0	0	0	0	0	16	22	
Group 4 Developments		3	0	0	0	3	0	0	0	0	0	5	4	
Group 5 Developments		0	0	0	0	14	0	0	0	0	0	26	0	
Group 6 Developments		0	0	7	10	0	0	0	0	0	0	0	0	
Group 7 Developments		0	0	0	1	3	0	0	6	0	0	0	0	
Group 8 Developments - E. Pikeland		19	47	0	0	0	0	0	78	0	0	0	31	
Group 9 Developments - Schuylkill		0	19	0	0	0	0	0	11	0	0	0	0	
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0	
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0	
FUTURE TRAFFIC W/O PROJECT		**446**	**552**	**67**	**141**	**260**	**45**	**71**	**688**	**13**	**9**	**204**	**490**	
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0	
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0	
FUTURE TRAFFIC W/ PROJECT		**446**	**552**	**67**	**141**	**260**	**45**	**71**	**688**	**13**	**9**	**204**	**490**	
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

INTERSECTION VOLUME SUMMARY
Mellon Street/Bridge Street/Nutt Road

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS **Weekday 7-9 AM**
Build-Out Year (2016)

Traffic Component		EASTBOUND Bridge Street/Nutt Road			NORTHBOUND Mellon Street			WESTBOUND Bridge Street/Nutt Road			SOUTHBOUND Mellon Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	0	0	0	0	0	0	0	4
Seasonal Adjustment Factor	1.000	0	0	0	0	0	0	0	0	0	0	0	4
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
Background Growth	3.04 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND		0	0	0	0	0	0	0	0	0	0	0	4
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Group 1 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 2 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 3 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 4 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 5 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 6 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 7 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 8 Developments - E. Pikeland		0	0	0	0	0	0	0	0	0	0	0	0
Group 9 Developments - Schuylkill		0	0	0	0	0	0	0	0	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Mellon Street/Bridge Street/Nutt Road

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 4-6 PM

Traffic Component		EASTBOUND Bridge Street/Nutt Road			NORTHBOUND Mellon Street			WESTBOUND Bridge Street/Nutt Road			SOUTHBOUND Mellon Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	0	0	0	0	0	0	0	6
Seasonal Adjustment Factor	1.000	0	0	0	0	0	0	0	0	0	0	0	6
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
Background Growth	3.04 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND		0	0	0	0	0	0	0	0	0	0	0	6
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Group 1 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 2 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 3 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 4 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 5 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 6 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 7 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 8 Developments - E. Pikeland		0	0	0	0	0	0	0	0	0	0	0	0
Group 9 Developments - Schuylkill		0	0	0	0	0	0	0	0	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Wheatland Street/Bridge Street (S.R. 0113)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 7-9 AM

Traffic Component		EASTBOUND Bridge Street (S.R. 0113)			NORTHBOUND Wheatland Street			WESTBOUND Bridge Street (S.R. 0113)			SOUTHBOUND Wheatland Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		8	532	20	0	0	0	17	606	9	16	5	7
Seasonal Adjustment Factor	1.000	8	532	20	0	0	0	17	606	9	16	5	7
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**8**	**532**	**20**	**0**	**0**	**0**	**17**	**606**	**9**	**16**	**5**	**7**
Background Growth	3.04 %	0	16	1	0	0	0	1	18	0	0	0	0
EXISTING W/ BACKGROUND		8	548	21	0	0	0	18	624	9	16	5	7
TOTAL "OTHER" DEVELOPMENTS		1	93	0	0	0	0	0	93	9	6	9	0
Group 1 Developments		0	16	0	0	0	0	0	8	0	0	0	0
Group 2 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 3 Developments		0	18	0	0	0	0	0	55	8	0	3	0
Group 4 Developments		0	2	0	0	0	0	0	5	0	0	0	0
Group 5 Developments		0	25	0	0	0	0	0	6	0	0	0	0
Group 6 Developments		0	4	0	0	0	0	0	9	0	0	0	0
Group 7 Developments		1	0	0	0	0	0	0	0	1	6	6	0
Group 8 Developments - E. Pikeland		0	28	0	0	0	0	0	10	0	0	0	0
Group 9 Developments - Schuylkill		0	0	0	0	0	0	0	0	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**9**	**641**	**21**	**0**	**0**	**0**	**18**	**717**	**18**	**22**	**14**	**7**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**9**	**641**	**21**	**0**	**0**	**0**	**18**	**717**	**18**	**22**	**14**	**7**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Wheatland Street/Bridge Street (S.R. 0113)

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 4-6 PM

Traffic Component		EASTBOUND Bridge Street (S.R. 0113)			NORTHBOUND Wheatland Street			WESTBOUND Bridge Street (S.R. 0113)			SOUTHBOUND Wheatland Street		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		14	660	18	0	0	0	18	642	22	27	2	24
Seasonal Adjustment Factor	1.000	14	660	18	0	0	0	18	642	22	27	2	24
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**14**	**660**	**18**	**0**	**0**	**0**	**18**	**642**	**22**	**27**	**2**	**24**
Background Growth	3.04 %	0	20	1	0	0	0	1	20	1	1	0	1
EXISTING W/ BACKGROUND		14	680	19	0	0	0	19	662	23	28	2	25
TOTAL "OTHER" DEVELOPMENTS		3	119	0	0	0	0	0	143	12	4	13	0
Group 1 Developments		0	9	0	0	0	0	0	32	0	0	0	0
Group 2 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 3 Developments		0	61	0	0	0	0	0	38	5	0	9	0
Group 4 Developments		0	6	0	0	0	0	0	9	0	0	0	0
Group 5 Developments		0	14	0	0	0	0	0	26	0	0	0	0
Group 6 Developments		0	10	0	0	0	0	0	7	0	0	0	0
Group 7 Developments		3	0	0	0	0	0	0	0	7	4	4	0
Group 8 Developments - E. Pikeland		0	19	0	0	0	0	0	31	0	0	0	0
Group 9 Developments - Schuylkill		0	0	0	0	0	0	0	0	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**17**	**799**	**19**	**0**	**0**	**0**	**19**	**805**	**35**	**32**	**15**	**25**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**17**	**799**	**19**	**0**	**0**	**0**	**19**	**805**	**35**	**32**	**15**	**25**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Pennsylvania Ave/Ringold St/W Bridge Street

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS **Weekday 7-9 AM**
Build-Out Year (2016)

Traffic Component		EASTBOUND W Bridge Street			NORTHBOUND Pennsylvania Ave/Ringold St			WESTBOUND W Bridge Street			SOUTHBOUND Pennsylvania Ave/Ringold St		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		10	224	6	13	1	11	3	368	5	16	7	52
Seasonal Adjustment Factor	1.000	10	224	6	13	1	11	3	368	5	16	7	52
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**10**	**224**	**6**	**13**	**1**	**11**	**3**	**368**	**5**	**16**	**7**	**52**
Background Growth	3.04 %	0	7	0	0	0	0	0	11	0	0	0	2
EXISTING W/ BACKGROUND		10	231	6	13	1	11	3	379	5	16	7	54
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	39	0	0	0	0	0	43	0
Group 1 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 2 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 3 Developments		0	0	0	0	8	0	0	0	0	0	23	0
Group 4 Developments		0	0	0	0	1	0	0	0	0	0	3	0
Group 5 Developments		0	0	0	0	25	0	0	0	0	0	6	0
Group 6 Developments		0	0	0	0	4	0	0	0	0	0	9	0
Group 7 Developments		0	0	0	0	1	0	0	0	0	0	2	0
Group 8 Developments - E. Pikeland		0	0	0	0	0	0	0	0	0	0	0	0
Group 9 Developments - Schuylkill		0	0	0	0	0	0	0	0	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**10**	**231**	**6**	**13**	**40**	**11**	**3**	**379**	**5**	**16**	**50**	**54**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**10**	**231**	**6**	**13**	**40**	**11**	**3**	**379**	**5**	**16**	**50**	**54**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Pennsylvania Ave/Ringold St/W Bridge Street

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 4-6 PM

Traffic Component		EASTBOUND W Bridge Street			NORTHBOUND Pennsylvania Ave/Ringold St			WESTBOUND W Bridge Street			SOUTHBOUND Pennsylvania Ave/Ringold St		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		31	421	24	14	4	5	6	310	17	6	4	19
Seasonal Adjustment Factor	1.000	31	421	24	14	4	5	6	310	17	6	4	19
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**31**	**421**	**24**	**14**	**4**	**5**	**6**	**310**	**17**	**6**	**4**	**19**
Background Growth	3.04 %	1	13	1	0	0	0	0	9	1	0	0	1
EXISTING W/ BACKGROUND		32	434	25	14	4	5	6	319	18	6	4	20
TOTAL "OTHER" DEVELOPMENTS		0	0	0	1	57	0	0	0	0	0	56	0
Group 1 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 2 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 3 Developments		0	0	0	0	26	0	0	0	0	0	16	0
Group 4 Developments		0	0	0	0	3	0	0	0	0	0	5	0
Group 5 Developments		0	0	0	0	14	0	0	0	0	0	26	0
Group 6 Developments		0	0	0	0	10	0	0	0	0	0	7	0
Group 7 Developments		0	0	0	1	4	0	0	0	0	0	2	0
Group 8 Developments - E. Pikeland		0	0	0	0	0	0	0	0	0	0	0	0
Group 9 Developments - Schuylkill		0	0	0	0	0	0	0	0	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**32**	**434**	**25**	**15**	**61**	**5**	**6**	**319**	**18**	**6**	**60**	**20**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**32**	**434**	**25**	**15**	**61**	**5**	**6**	**319**	**18**	**6**	**60**	**20**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Chester Avenue/W Bridge Street

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS **Weekday 7-9 AM**
Build-Out Year (2016)

Traffic Component		EASTBOUND W Bridge Street			NORTHBOUND Chester Avenue			WESTBOUND W Bridge Street			SOUTHBOUND Chester Avenue		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		3	177	48	24	26	29	40	406	4	8	72	11
Seasonal Adjustment Factor	1.000	3	177	48	24	26	29	40	406	4	8	72	11
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**3**	**177**	**48**	**24**	**26**	**29**	**40**	**406**	**4**	**8**	**72**	**11**
Background Growth	3.04 %	0	5	1	1	1	1	1	12	0	0	2	0
EXISTING W/ BACKGROUND		3	182	49	25	27	30	41	418	4	8	74	11
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	35	0	0	0	0	0	34	0
Group 1 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 2 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 3 Developments		0	0	0	0	8	0	0	0	0	0	23	0
Group 4 Developments		0	0	0	0	1	0	0	0	0	0	3	0
Group 5 Developments		0	0	0	0	25	0	0	0	0	0	6	0
Group 6 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 7 Developments		0	0	0	0	1	0	0	0	0	0	2	0
Group 8 Developments - E. Pikeland		0	0	0	0	0	0	0	0	0	0	0	0
Group 9 Developments - Schuylkill		0	0	0	0	0	0	0	0	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**3**	**182**	**49**	**25**	**62**	**30**	**41**	**418**	**4**	**8**	**108**	**11**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**3**	**182**	**49**	**25**	**62**	**30**	**41**	**418**	**4**	**8**	**108**	**11**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Chester Avenue/W Bridge Street

Nutt Road (S.R. 0023) Traffic Study
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\[2022 SDS
Build-Out Year (2016)

Weekday 4-6 PM

Traffic Component		EASTBOUND W Bridge Street			NORTHBOUND Chester Avenue			WESTBOUND W Bridge Street			SOUTHBOUND Chester Avenue		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		18	428	31	52	28	25	17	320	9	2	10	5
Seasonal Adjustment Factor	1.000	18	428	31	52	28	25	17	320	9	2	10	5
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**18**	**428**	**31**	**52**	**28**	**25**	**17**	**320**	**9**	**2**	**10**	**5**
Background Growth	3.04 %	1	13	1	2	1	1	1	10	0	0	0	0
EXISTING W/ BACKGROUND		19	441	32	54	29	26	18	330	9	2	10	5
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	49	0	0	0	0	0	49	0
Group 1 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 2 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 3 Developments		0	0	0	0	26	0	0	0	0	0	16	0
Group 4 Developments		0	0	0	0	3	0	0	0	0	0	5	0
Group 5 Developments		0	0	0	0	14	0	0	0	0	0	26	0
Group 6 Developments		0	0	0	0	0	0	0	0	0	0	0	0
Group 7 Developments		0	0	0	0	6	0	0	0	0	0	2	0
Group 8 Developments - E. Pikeland		0	0	0	0	0	0	0	0	0	0	0	0
Group 9 Developments - Schuylkill		0	0	0	0	0	0	0	0	0	0	0	0
Paradise Street Connector Diversions		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**19**	**441**	**32**	**54**	**78**	**26**	**18**	**330**	**9**	**2**	**59**	**5**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**19**	**441**	**32**	**54**	**78**	**26**	**18**	**330**	**9**	**2**	**59**	**5**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix E

Capacity/Level-of-Service Methodology

CAPACITY/LEVEL-OF-SERVICE ANALYSIS METHODOLOGY

The detailed capacity/level-of-service analysis contained in this transportation impact study was performed in accordance with the standard techniques contained in the *Highway Capacity Manual 2010.* By definition, capacity represents "the maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions." The level at which an intersection or a uniform section of a lane or roadway function can be expressed in terms of a level of service. Level of service (LOS) is defined as "a quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst."

Stop-Controlled Intersections

At unsignalized stop-controlled intersections, such as two-way stop-controlled (TWSC) or all-way stop-controlled (AWSC), a methodology for evaluating the relative functioning of these intersections is based upon the control delay. For these types of unsignalized intersections, the analysis of the control delay is based upon the following data:

- Number and configuration of lanes on each approach;
- Percentage of heavy vehicles on each approach;
- Demand flow rate for each entering vehicular movement and pedestrian crossing movement;
- Unique geometric factors such as, channelization aspects; two-way left-turn lanes, raised or striped median storage; approach grades, flared approaches on the minor street; and upstream signals within 0.25 miles.

At TWSC intersections, only drivers on the minor street approaches are required to stop before proceeding into the intersection and left-turning drivers from the major street may have to yield to on-coming major street through or right-turning traffic, but are not required to stop in the absence of on-coming traffic. The capacity at stop-controlled legs is based primarily on three factors: the distribution of gaps in the major stream, driver judgment in selecting the gaps, and the follow-up headways required by each driver in a queue.

At AWSC intersections, every vehicle is required to stop at the intersection before proceeding, and as a result, the decision to proceed is a function of the traffic conditions on the other approaches. Each driver proceeds only after determining that no vehicles are currently in the intersection and that it is the driver's turn to proceed. Capacity at an AWSC intersection is described by the saturation headway or time between departures of successive vehicles on a given approach for a particular case assuming a continuous queue; departure headway or the average time between departures of successive vehicles on a given approach accounting for the probability of each possible case; and service time or the average time sent by a vehicle in first position waiting to depart.

At both TWSC and AWSC intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. For TWSC intersections, the level of service is not calculated for major-street approaches or for the intersection as a whole; however, the intersection-wide level of service is calculated for AWSC intersections. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for TWSC and AWSC intersections.

Control Delay (Sec/Veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

Signalized Intersections

At three or four-legged signalized intersections, a methodology for evaluating the capacity and quality of service provided to road users traveling through the signalized intersection. For signalized intersections, the level of service can be characterized for the entire intersection, each approach, and each lane group. The level of service is based upon the control delay and volume-to-capacity ratio. The delay quantifies the increase in travel time due to the traffic signal control and is a surrogate measure of driver discomfort and fuel consumption, while the volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group. Input data in determining the delay and volume-to-capacity ratio include:

- Demand flow rate for each entering vehicular movement and pedestrian crossing movement, including right-turn on red volumes and percent of heavy vehicles;
- Initial queue for each lane group;
- Number and configuration of lanes on each approach;
- Type of signal control and phase sequence;
- Allocation of minimum/maximum green times and clearance intervals (Yellow plus All Red phases); and
- Phase recall.

At signalized intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for signalized intersections.

Control Delay (Sec/Veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 – 20	B	F
> 20 – 35	C	F
> 35 – 55	D	F
> 55 – 80	E	F
> 80	F	F

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix F

Existing Capacity/Level-of-Service Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	378	611	59	55	353	10	66	143	52	12	160	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	10	11	12	12	10	10
Grade (%)		1%			0%			-2%			1%	
Storage Length (ft)	350		0	720		0	100		0	205		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.996			0.960				
Flt Protected	0.950			0.950			0.950				0.996	
Satd. Flow (prot)	1527	1828	0	1506	1700	0	1521	1608	0	0	1605	0
Flt Permitted	0.950			0.950			0.402				0.953	
Satd. Flow (perm)	1527	1828	0	1506	1700	0	644	1608	0	0	1536	0
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		106			901			523			731	
Travel Time (s)		2.1			17.6			14.3			19.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	5%	6%	5%	20%	6%	6%	2%	0%	4%	6%
Adj. Flow (vph)	398	643	62	58	372	11	69	151	55	13	168	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	398	705	0	58	383	0	69	206	0	0	181	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.18	0.99	1.08	1.17	1.07	1.07	1.16	1.11	1.06	1.08	1.18	1.18
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	3	
Detector Template				Left	Thru		Left	Thru		Left		
Leading Detector (ft)	35	35		35	35		35	35		20	60	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5		0	0	
Detector 1 Position(ft)	-5	-5		-5	-5		-5	-5		0	0	
Detector 1 Size(ft)	40	40		40	40		40	40		20	5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)											15	
Detector 2 Size(ft)											5	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Detector 3 Position(ft)											35	

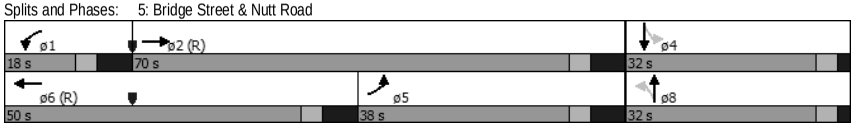
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)											25	
Detector 3 Type											Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)											0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	23.0		15.0	23.0		12.0	12.0		20.0	20.0	
Total Split (s)	38.0	70.0		18.0	50.0		32.0	32.0		32.0	32.0	
Total Split (%)	31.7%	58.3%		15.0%	41.7%		26.7%	26.7%		26.7%	26.7%	
Maximum Green (s)	30.0	62.0		10.0	42.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	5.0	5.0		5.0	5.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0			-1.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	4.0			4.0	
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		10.0			10.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
v/c Ratio	1.01	0.63		0.44	0.55		0.60	0.72			0.66	
Control Delay	92.6	20.8		62.6	31.6		65.8	60.0			56.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	92.6	20.8		62.6	31.6		65.8	60.0			56.9	
Queue Length 50th (ft)	~314	357		43	222		50	151			132	
Queue Length 95th (ft)	#520	563		88	352		97	222			197	
Internal Link Dist (ft)		26			821			443			651	
Turn Bay Length (ft)	350			720			100					
Base Capacity (vph)	394	1113		143	701		150	375			358	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	1.01	0.63		0.41	0.55		0.46	0.55			0.51	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection
Natural Cycle: 80
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Bridge Street & Nutt Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	378	611	59	55	353	10	66	143	52	12	160	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1722	1805	1791	1698	1707	1800	1715	1733	1818	1791	1727	0
Adj Flow Rate, veh/h	398	643	62	58	372	11	69	151	55	13	168	0
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	6	5	5	6	6	6	4	4	0
Cap, veh/h	516	997	96	94	591	17	171	214	78	39	237	0
Arrive On Green	0.31	0.61	0.61	0.06	0.36	0.35	0.18	0.18	0.17	0.17	0.18	0.00
Sat Flow, veh/h	1640	1621	156	1617	1650	49	1116	1213	442	36	1338	0
Grp Volume(v), veh/h	398	0	705	58	0	383	69	0	206	181	0	0
Grp Sat Flow(s),veh/h/ln	1640	0	1778	1617	0	1699	1116	0	1655	1374	0	0
Q Serve(g_s), s	26.3	0.0	30.4	4.2	0.0	22.4	0.9	0.0	14.1	2.0	0.0	0.0
Cycle Q Clear(g_c), s	26.3	0.0	30.4	4.2	0.0	22.4	16.5	0.0	14.1	16.1	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.03	1.00		0.27	0.07		0.00
Lane Grp Cap(c), veh/h	516	0	1093	94	0	609	171	0	293	264	0	0
V/C Ratio(X)	0.77	0.00	0.64	0.62	0.00	0.63	0.40	0.00	0.70	0.69	0.00	0.00
Avail Cap(c_a), veh/h	516	0	1093	148	0	609	234	0	386	357	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	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.2	0.0	14.8	55.2	0.0	31.9	48.0	0.0	46.6	46.0	0.0	0.0
Incr Delay (d2), s/veh	7.0	0.0	2.9	6.4	0.0	4.9	1.5	0.0	3.8	3.3	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	12.9	0.0	15.8	2.1	0.0	11.4	2.3	0.0	6.7	6.1	0.0	0.0
LnGrp Delay(d),s/veh	44.2	0.0	17.7	61.6	0.0	36.8	49.5	0.0	50.4	49.3	0.0	0.0
LnGrp LOS	D		B	E		D	D		D	D		
Approach Vol, veh/h		1103			441			275			181	
Approach Delay, s/veh		27.3			40.0			50.2			49.3	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.0	80.8		25.2	44.8	50.0		25.2
Change Period (Y+Rc), s	8.0	8.0		5.0	8.0	8.0		5.0
Max Green Setting (Gmax), s	10.0	62.0		27.0	30.0	42.0		27.0
Max Q Clear Time (g_c+I1), s	6.7	32.4		18.1	28.8	24.4		19.0
Green Ext Time (p_c), s	0.0	4.7		1.3	0.2	1.2		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	0	419	0	0	282
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		1%	0%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	1756	1765	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	1756	1765	0	0	1526
Link Speed (mph)		35	35		30	
Link Distance (ft)		344	106		404	
Travel Time (s)		6.7	2.1		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	455	0	0	307
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	455	0	0	307
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		10	10		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes				
Headway Factor	1.08	1.08	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	419	0	0	282
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	455	0	0	307

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	455	0	-	0	455	455
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	0	-
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	1106	-	-	-	563	605
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1106	-	-	-	563	605
Mov Cap-2 Maneuver	-	-	-	-	563	-
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1106	-	-	-	605
HCM Lane V/C Ratio	-	-	-	-	0.507
HCM Control Delay (s)	0	-	-	-	16.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	2.9

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	13	889	623	5	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.876	
Flt Protected	0.950				0.996	
Satd. Flow (prot)	1467	1827	1754	0	1143	0
Flt Permitted	0.950				0.996	
Satd. Flow (perm)	1467	1827	1754	0	1143	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		295	435		302	
Travel Time (s)		5.7	8.5		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	23%	4%	8%	40%	100%	40%
Adj. Flow (vph)	14	966	677	5	1	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	966	682	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	13	889	623	5	1	10
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	23	4	8	40	100	40
Mvmt Flow	14	966	677	5	1	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	683	0	-	0	1675	680
Stage 1	-	-	-	-	680	-
Stage 2	-	-	-	-	995	-
Critical Hdwy	4.5	-	-	-	7.4	6.6
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	3.2	-	-	-	3.9	3.5
Pot Cap-1 Maneuver	*585	-	-	-	*26	*535
Stage 1	-	-	-	-	*480	-
Stage 2	-	-	-	-	*257	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*585	-	-	-	*25	*535
Mov Cap-2 Maneuver	-	-	-	-	*161	-
Stage 1	-	-	-	-	*480	-
Stage 2	-	-	-	-	*251	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	* 585	-	-	-	442
HCM Lane V/C Ratio	0.024	-	-	-	0.027
HCM Control Delay (s)	11.3	-	-	-	13.4
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	1061	28	17	732	1	6	4	6	4	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996						0.949				
Flt Protected	0.950			0.950				0.982			0.972	
Satd. Flow (prot)	1805	1816	0	1612	1810	0	0	1665	0	0	1847	0
Flt Permitted	0.950			0.950				0.982			0.972	
Satd. Flow (perm)	1805	1816	0	1612	1810	0	0	1665	0	0	1847	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		435			416			302			308	
Travel Time (s)		8.5			8.1			8.2			8.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	11%	12%	5%	0%	17%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	1105	29	18	763	1	6	4	6	4	3	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1134	0	18	763	0	0	16	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	1061	28	17	732	1	6	4	6	4	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	4	11	12	5	0	17	0	0	0	0	0
Mvmt Flow	3	1105	29	18	762	1	6	4	6	4	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	764	0	0	1134	0	0	1926	1925	1120	1929	1939	763
Stage 1	-	-	-	-	-	-	1126	1126	-	798	798	-
Stage 2	-	-	-	-	-	-	800	799	-	1131	1141	-
Critical Hdwy	4.3	-	-	4.4	-	-	7.27	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.27	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.27	5.5	-	6.1	5.5	-
Follow-up Hdwy	3	-	-	3.1	-	-	3.2	4	3.1	3	4	3.1
Pot Cap-1 Maneuver	*539	-	-	455	-	-	*9	*14	263	*10	*13	*521
Stage 1	-	-	-	-	-	-	*251	*282	-	*539	*404	-
Stage 2	-	-	-	-	-	-	*505	*404	-	*273	*278	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*539	-	-	455	-	-	*7	*14	263	*7	*13	*521
Mov Cap-2 Maneuver	-	-	-	-	-	-	*7	*14	-	*7	*13	-
Stage 1	-	-	-	-	-	-	*250	*280	-	*536	*388	-
Stage 2	-	-	-	-	-	-	*481	*388	-	*261	*276	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	$ 678.6	$ 746.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	14	* 539	-	-	455	-	-	9
HCM Lane V/C Ratio	1.19	0.006	-	-	0.039	-	-	0.81
HCM Control Delay (s)	$ 678.6	11.7	-	-	13.2	-	-	$ 746.6
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.7	0	-	-	0.1	-	-	1.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	924	3	2	647	5	4	2	5	3	3	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999			0.939			0.902	
Flt Protected	0.950			0.950				0.982			0.993	
Satd. Flow (prot)	1805	1827	0	1805	1789	0	0	1752	0	0	1292	0
Flt Permitted	0.950			0.950				0.982			0.993	
Satd. Flow (perm)	1805	1827	0	1805	1789	0	0	1752	0	0	1292	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		416			345			307			313	
Travel Time (s)		8.1			6.7			8.4			8.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	0%	0%	6%	20%	0%	0%	0%	0%	67%	31%
Adj. Flow (vph)	14	953	3	2	667	5	4	2	5	3	3	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	956	0	2	672	0	0	11	0	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	14	924	3	2	647	5	4	2	5	3	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	4	0	0	6	20	0	0	0	0	67	31
Mvmt Flow	14	953	3	2	667	5	4	2	5	3	3	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	672	0	0	956	0	0	1667	1659	954	1661	1659	670
Stage 1	-	-	-	-	-	-	983	983	-	674	674	-
Stage 2	-	-	-	-	-	-	684	676	-	987	985	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.1	6.5	6.2	7.1	7.17	6.51
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	6.17	-
Follow-up Hdwy	3	-	-	3	-	-	3	4	3.1	3	4.603	3.4
Pot Cap-1 Maneuver	*596	-	-	556	-	-	*31	*39	329	*32	*27	*525
Stage 1	-	-	-	-	-	-	*332	*329	-	*595	*388	-
Stage 2	-	-	-	-	-	-	*595	*447	-	*331	*254	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*596	-	-	556	-	-	*27	*38	329	*29	*26	*525
Mov Cap-2 Maneuver	-	-	-	-	-	-	*27	*38	-	*29	*26	-
Stage 1	-	-	-	-	-	-	*324	*321	-	*581	*387	-
Stage 2	-	-	-	-	-	-	*570	*445	-	*316	*248	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	94.7	59.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	51	* 596	-	-	556	-	-	88
HCM Lane V/C Ratio	0.222	0.024	-	-	0.004	-	-	0.258
HCM Control Delay (s)	94.7	11.2	-	-	11.5	-	-	59.6
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	0.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1017	3	2	689	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected						
Satd. Flow (prot)	1827	0	0	1810	1644	0
Flt Permitted						
Satd. Flow (perm)	1827	0	0	1810	1644	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	345			344	306	
Travel Time (s)	6.7			6.7	8.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	0%	0%	5%	0%	0%
Adj. Flow (vph)	1094	3	2	741	0	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1097	0	0	743	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1017	3	2	689	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	4	0	0	5	0	0
Mvmt Flow	1094	3	2	741	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1097	0	1840	1095
Stage 1	-	-	-	-	1095	-
Stage 2	-	-	-	-	745	-
Critical Hdwy	-	-	4.3	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	494	-	*24	272
Stage 1	-	-	-	-	*354	-
Stage 2	-	-	-	-	*567	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	494	-	*24	272
Mov Cap-2 Maneuver	-	-	-	-	*209	-
Stage 1	-	-	-	-	*354	-
Stage 2	-	-	-	-	*563	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	272	-	-	494	-
HCM Lane V/C Ratio	0.004	-	-	0.004	-
HCM Control Delay (s)	18.3	-	-	12.3	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	7	0	0	0	8	532	20	17	606	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967						0.995			0.998	
Flt Protected		0.972						0.999			0.999	
Satd. Flow (prot)	0	1648	0	0	1810	0	0	1889	0	0	1888	0
Flt Permitted		0.972						0.999			0.999	
Satd. Flow (perm)	0	1648	0	0	1810	0	0	1889	0	0	1888	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		301			300			731			305	
Travel Time (s)		8.2			8.2			14.2			5.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	13%	5%	0%	0%	5%	0%	0%	0%	0%	13%	0%	0%
Adj. Flow (vph)	19	6	8	0	0	0	9	619	23	20	705	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	0	0	0	651	0	0	735	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

McMahon Associates, Inc.
7: Bridge Street & Wheatland Street
West Nutt Road Traffic Study
2016 Existing Weekday AM Peak Hour

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	5	7	0	0	0	8	532	20	17	606	9
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	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	13	5	0	0	5	0	0	0	0	13	0	0
Mvmt Flow	19	6	8	0	0	0	9	619	23	20	705	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1398	1409	710	1405	1404	630	715	0	0	642	0	0
Stage 1	749	749	-	649	649	-	-	-	-	-	-	-
Stage 2	649	660	-	756	755	-	-	-	-	-	-	-
Critical Hdwy	7.23	6.55	6.2	7.1	6.55	6.2	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.23	5.55	-	6.1	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.23	5.55	-	6.1	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4.045	3.1	3	4.045	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	121	137	457	127	138	508	678	-	-	690	-	-
Stage 1	431	415	-	517	461	-	-	-	-	-	-	-
Stage 2	493	456	-	449	412	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	115	128	457	114	129	508	678	-	-	690	-	-
Mov Cap-2 Maneuver	115	128	-	114	129	-	-	-	-	-	-	-
Stage 1	422	395	-	506	451	-	-	-	-	-	-	-
Stage 2	483	446	-	414	392	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	36.9	0	0.1	0.3
HCM LOS	E	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	678	-	-	145	-	690	-	-
HCM Lane V/C Ratio	0.014	-	-	0.225	-	0.029	-	-
HCM Control Delay (s)	10.4	0	-	36.9	0	10.4	0	-
HCM Lane LOS	B	A	-	E	A	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	7	16	13	1	11	10	224	6	5	368	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.940			0.996			0.999	
Flt Protected		0.967			0.975			0.998			0.999	
Satd. Flow (prot)	0	1776	0	0	1741	0	0	1797	0	0	1782	0
Flt Permitted		0.967			0.975			0.998			0.999	
Satd. Flow (perm)	0	1776	0	0	1741	0	0	1797	0	0	1782	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		308			307			404			523	
Travel Time (s)		8.4			8.4			7.9			10.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	10%	5%	0%	33%	6%	20%
Adj. Flow (vph)	57	8	18	14	1	12	11	246	7	5	404	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	27	0	0	264	0	0	412	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	52	7	16	13	1	11	10	224	6	5	368	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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	0	0	0	10	5	0	33	6	20
Mvmt Flow	57	8	18	14	1	12	11	246	7	5	404	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	695	692	406	701	690	249	408	0	0	253	0	0
Stage 1	417	417	-	271	271	-	-	-	-	-	-	-
Stage 2	278	275	-	430	419	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.22	7.1	6.5	6.2	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4	3.1	3.3	4	3.3	3	-	-	3	-	-
Pot Cap-1 Maneuver	392	370	682	371	371	795	870	-	-	984	-	-
Stage 1	682	595	-	778	689	-	-	-	-	-	-	-
Stage 2	815	686	-	637	593	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	379	362	682	350	363	795	870	-	-	984	-	-
Mov Cap-2 Maneuver	379	362	-	350	363	-	-	-	-	-	-	-
Stage 1	672	591	-	766	679	-	-	-	-	-	-	-
Stage 2	789	676	-	608	589	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.7	13.2	0.4	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	870	-	-	417	465	984	-	-
HCM Lane V/C Ratio	0.013	-	-	0.198	0.059	0.006	-	-
HCM Control Delay (s)	9.2	0	-	15.7	13.2	8.7	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	72	8	24	26	29	3	177	48	4	406	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.951			0.972			0.988	
Flt Protected		0.994			0.985			0.999				
Satd. Flow (prot)	0	1838	0	0	1780	0	0	1776	0	0	1860	0
Flt Permitted		0.994			0.985			0.999				
Satd. Flow (perm)	0	1838	0	0	1780	0	0	1776	0	0	1860	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		299			304			301			404	
Travel Time (s)		8.2			8.3			5.9			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	19%	0%	0%	0%	0%	5%	0%	3%	1%	0%
Adj. Flow (vph)	11	75	8	25	27	30	3	184	50	4	423	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	82	0	0	237	0	0	469	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	11	72	8	24	26	29	3	177	48	4	406	40
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	19	0	0	0	0	5	0	3	1	0
Mvmt Flow	11	75	8	25	27	30	3	184	50	4	423	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	696	693	444	710	689	209	465	0	0	234	0	0
Stage 1	452	452	-	216	216	-	-	-	-	-	-	-
Stage 2	244	241	-	494	473	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.39	7.1	6.5	6.2	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	401	369	635	392	371	885	831	-	-	999	-	-
Stage 1	670	574	-	909	728	-	-	-	-	-	-	-
Stage 2	877	710	-	634	562	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	363	366	635	324	368	885	831	-	-	999	-	-
Mov Cap-2 Maneuver	363	366	-	324	368	-	-	-	-	-	-	-
Stage 1	667	571	-	905	725	-	-	-	-	-	-	-
Stage 2	812	707	-	541	559	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.6	14.9	0.1	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	831	-	-	380	445	999	-	-
HCM Lane V/C Ratio	0.004	-	-	0.249	0.185	0.004	-	-
HCM Control Delay (s)	9.3	0	-	17.6	14.9	8.6	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1	0.7	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	369	459	58	69	558	13	126	208	44	9	152	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	10	11	12	12	10	10
Grade (%)		1%			0%			-2%			1%	
Storage Length (ft)	350		0	720		0	100		0	205		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.997			0.974				
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1512	1823	0	1535	1727	0	1596	1629	0	0	1550	0
Flt Permitted	0.950			0.950			0.451				0.859	
Satd. Flow (perm)	1512	1823	0	1535	1727	0	758	1629	0	0	1335	0
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		106			901			523			731	
Travel Time (s)		2.1			17.6			14.3			19.9	
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
Heavy Vehicles (%)	5%	3%	3%	4%	4%	0%	1%	3%	15%	0%	8%	7%
Adj. Flow (vph)	401	499	63	75	607	14	137	226	48	10	165	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	401	562	0	75	621	0	137	274	0	0	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.18	0.99	1.08	1.17	1.07	1.07	1.16	1.11	1.06	1.08	1.18	1.18
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	3	
Detector Template										Left		
Leading Detector (ft)	35	35		35	35		35	35		20	60	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5		0	0	
Detector 1 Position(ft)	-5	-5		-5	-5		-5	-5		0	0	
Detector 1 Size(ft)	40	40		40	40		40	40		20	5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)											15	
Detector 2 Size(ft)											5	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Detector 3 Position(ft)											35	

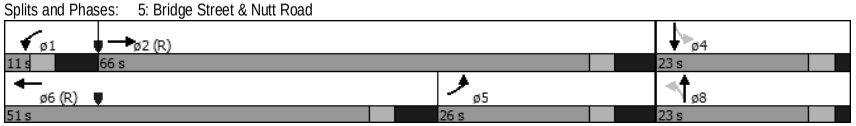
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)											25	
Detector 3 Type											Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)											0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	23.0		15.0	23.0		12.0	12.0		12.0	12.0	
Total Split (s)	26.0	66.0		11.0	51.0		23.0	23.0		23.0	23.0	
Total Split (%)	26.0%	66.0%		11.0%	51.0%		23.0%	23.0%		23.0%	23.0%	
Maximum Green (s)	18.0	58.0		3.0	43.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	5.0	5.0		5.0	5.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0			-1.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	4.0			4.0	
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		10.0			10.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
v/c Ratio	1.40	0.52		1.23	0.82		0.95	0.89			0.69	
Control Delay	231.7	14.3		231.9	35.1		105.9	70.0			53.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	231.7	14.3		231.9	35.1		105.9	70.0			53.5	
Queue Length 50th (ft)	~343	197		~59	337		87	172			105	
Queue Length 95th (ft)	#527	287		#151	#534		#208	#318			#198	
Internal Link Dist (ft)		26			821			443			651	
Turn Bay Length (ft)	350			720			100					
Base Capacity (vph)	287	1075		61	759		144	309			253	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	1.40	0.52		1.23	0.82		0.95	0.89			0.69	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Bridge Street & Nutt Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	369	459	58	69	558	13	126	208	44	9	152	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1706	1808	1791	1731	1732	1800	1800	1730	1818	1791	1665	0
Adj Flow Rate, veh/h	401	499	63	75	607	14	137	226	48	10	165	0
Adj No. of Lanes	1	1	0	1	1	0	1	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, %	5	3	3	4	4	4	1	3	3	8	8	0
Cap, veh/h	309	929	117	66	742	17	178	263	56	40	215	0
Arrive On Green	0.19	0.59	0.58	0.04	0.44	0.43	0.19	0.19	0.18	0.18	0.19	0.00
Sat Flow, veh/h	1624	1575	199	1648	1687	39	1175	1384	294	11	1132	0
Grp Volume(v), veh/h	401	0	562	75	0	621	137	0	274	175	0	0
Grp Sat Flow(s),veh/h/ln	1624	0	1773	1648	0	1725	1175	0	1678	1144	0	0
Q Serve(g_s), s	19.0	0.0	19.1	4.0	0.0	31.5	3.0	0.0	15.8	0.7	0.0	0.0
Cycle Q Clear(g_c), s	19.0	0.0	19.1	4.0	0.0	31.5	19.0	0.0	15.8	16.5	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.02	1.00		0.18	0.06		0.00
Lane Grp Cap(c), veh/h	309	0	1046	66	0	759	178	0	319	244	0	0
V/C Ratio(X)	1.30	0.00	0.54	1.14	0.00	0.82	0.77	0.00	0.86	0.72	0.00	0.00
Avail Cap(c_a), veh/h	309	0	1046	66	0	759	178	0	319	244	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	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.5	0.0	12.3	48.0	0.0	24.5	43.9	0.0	39.3	36.9	0.0	0.0
Incr Delay (d2), s/veh	156.4	0.0	2.0	153.1	0.0	9.5	18.1	0.0	20.4	9.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	39.4	0.0	14.9	8.3	0.0	23.6	8.2	0.0	14.1	8.8	0.0	0.0
LnGrp Delay(d),s/veh	196.9	0.0	14.3	201.2	0.0	34.1	62.0	0.0	59.7	46.6	0.0	0.0
LnGrp LOS	F		B	F		C	E		E	D		
Approach Vol, veh/h		963			696			411			175	
Approach Delay, s/veh		90.4			52.1			60.4			46.6	
Approach LOS		F			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	66.0		23.0	26.0	51.0		23.0
Change Period (Y+Rc), s	8.0	8.0		5.0	8.0	8.0		5.0
Max Green Setting (Gmax), s	3.0	58.0		18.0	18.0	43.0		18.0
Max Q Clear Time (g_c+I1), s	6.5	21.1		18.5	21.5	33.5		21.5
Green Ext Time (p_c), s	0.0	3.9		0.0	0.0	1.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	69.6
HCM 2010 LOS	E

Notes

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	886	684	0	0	395
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		1%	0%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	1756	1765	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	1756	1765	0	0	1526
Link Speed (mph)		35	35		30	
Link Distance (ft)		344	106		404	
Travel Time (s)		6.7	2.1		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	963	743	0	0	429
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	963	743	0	0	429
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		10	10		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes				
Headway Factor	1.08	1.08	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	17.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	886	684	0	0	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	963	743	0	0	429

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	743	0	-	0	1706	743
Stage 1	-	-	-	-	743	-
Stage 2	-	-	-	-	963	-
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	864	-	-	-	100	~ 415
Stage 1	-	-	-	-	470	-
Stage 2	-	-	-	-	370	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	864	-	-	-	100	~ 415
Mov Cap-2 Maneuver	-	-	-	-	100	-
Stage 1	-	-	-	-	470	-
Stage 2	-	-	-	-	370	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	85.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	864	-	-	-	415
HCM Lane V/C Ratio	-	-	-	-	1.035
HCM Control Delay (s)	0	-	-	-	85.5
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	13.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	14	972	1121	2	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1881	1881	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1881	1881	0	1644	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		295	435		302	
Travel Time (s)		5.7	8.5		8.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Adj. Flow (vph)	16	1080	1246	2	0	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	1080	1248	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	14	972	1121	2	0	15
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	16	1080	1246	2	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1248	0	-	0	2358	1247
Stage 1	-	-	-	-	1247	-
Stage 2	-	-	-	-	1111	-
Critical Hdwy	4.3	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	*169	-	-	-	*0	*163
Stage 1	-	-	-	-	*169	-
Stage 2	-	-	-	-	*348	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*169	-	-	-	*0	*163
Mov Cap-2 Maneuver	-	-	-	-	*100	-
Stage 1	-	-	-	-	*169	-
Stage 2	-	-	-	-	*315	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	29.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	* 169	-	-	-	163
HCM Lane V/C Ratio	0.092	-	-	-	0.102
HCM Control Delay (s)	28.4	-	-	-	29.6
HCM Lane LOS	D	-	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	0.3

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	953	27	7	1134	1	10	0	10	0	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996						0.932			0.865	
Flt Protected	0.950			0.950				0.976				
Satd. Flow (prot)	1805	1856	0	1805	1863	0	0	1728	0	0	1644	0
Flt Permitted	0.950			0.950				0.976				
Satd. Flow (perm)	1805	1856	0	1805	1863	0	0	1728	0	0	1644	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		435			416			302			308	
Travel Time (s)		8.5			8.1			8.2			8.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	10	1014	29	7	1206	1	11	0	11	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1043	0	7	1207	0	0	22	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	9	953	27	7	1134	1	10	0	10	0	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	10	1014	29	7	1206	1	11	0	11	0	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1207	0	0	1043	0	0	2272	2269	1028	2275	2284	1207
Stage 1	-	-	-	-	-	-	1047	1047	-	1222	1222	-
Stage 2	-	-	-	-	-	-	1225	1222	-	1053	1062	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	3	-	-	3	-	-	3	4	3.1	3	4	3.1
Pot Cap-1 Maneuver	*134	-	-	517	-	-	*0	*0	298	*0	*0	*130
Stage 1	-	-	-	-	-	-	*305	*308	-	*134	*101	-
Stage 2	-	-	-	-	-	-	*134	*101	-	*303	*303	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*134	-	-	517	-	-	*0	*0	298	*0	*0	*130
Mov Cap-2 Maneuver	-	-	-	-	-	-	*0	*0	-	*0	*0	-
Stage 1	-	-	-	-	-	-	*282	*285	-	*124	*99	-
Stage 2	-	-	-	-	-	-	*126	*99	-	*270	*280	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	18	34.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	298	* 134	-	-	517	-	-	130
HCM Lane V/C Ratio	0.071	0.071	-	-	0.014	-	-	0.049
HCM Control Delay (s)	18	33.9	-	-	12.1	-	-	34.1
HCM Lane LOS	C	D	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	717	4	2	1009	8	3	1	6	4	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.999			0.919			0.880	
Flt Protected	0.950			0.950				0.985			0.994	
Satd. Flow (prot)	1671	1841	0	1805	1824	0	0	1561	0	0	1619	0
Flt Permitted	0.950			0.950				0.985			0.994	
Satd. Flow (perm)	1671	1841	0	1805	1824	0	0	1561	0	0	1619	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		416			345			307			313	
Travel Time (s)		8.1			6.7			8.4			8.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	3%	25%	0%	4%	13%	0%	0%	17%	0%	0%	3%
Adj. Flow (vph)	26	747	4	2	1051	8	3	1	6	4	0	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	751	0	2	1059	0	0	10	0	0	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 66.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	717	4	2	1009	8	3	1	6	4	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	8	3	25	0	4	13	0	0	17	0	0	3
Mvmt Flow	26	747	4	2	1051	8	3	1	6	4	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1059	0	0	751	0	0	1877	1865	749	1864	1862	1055
Stage 1	-	-	-	-	-	-	801	801	-	1059	1059	-
Stage 2	-	-	-	-	-	-	1076	1064	-	805	803	-
Critical Hdwy	4.4	-	-	4.3	-	-	7.1	6.5	6.37	7.1	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	3.1	-	-	3	-	-	3	4	3.3	3	4	3.1
Pot Cap-1 Maneuver	*262	-	-	658	-	-	*~ 2	*3	401	*~ 2	*3	*262
Stage 1	-	-	-	-	-	-	*423	*400	-	*271	*203	-
Stage 2	-	-	-	-	-	-	*271	*203	-	*421	*399	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*262	-	-	658	-	-	*~ 1	*2	401	*~ 1	*2	*262
Mov Cap-2 Maneuver	-	-	-	-	-	-	*~ 1	*2	-	*~ 1	*2	-
Stage 1	-	-	-	-	-	-	*381	*360	-	*244	*202	-
Stage 2	-	-	-	-	-	-	*236	*202	-	*372	*359	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0	$ 3239.2	$ 2505.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	3	* 262	-	-	658	-	-	8
HCM Lane V/C Ratio	3.472	0.099	-	-	0.003	-	-	4.557
HCM Control Delay (s)	$ 3239.2	20.3	-	-	10.5	-		$ 2505.8
HCM Lane LOS	F	C	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.5	0.3	-	-	0	-	-	5.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	907	9	1	1157	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.892	
Flt Protected					0.990	
Satd. Flow (prot)	1879	0	0	1881	1398	0
Flt Permitted					0.990	
Satd. Flow (perm)	1879	0	0	1881	1398	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	345			344	306	
Travel Time (s)	6.7			6.7	8.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	0%	1%	0%	25%
Adj. Flow (vph)	945	9	1	1205	1	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	954	0	0	1206	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc.
4: Sherman Street & Nutt Road
West Nutt Road Traffic Study
2016 Existing Weekday PM Peak Hour

Intersection

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	907	9	1	1157	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	0	0	1	0	25
Mvmt Flow	945	9	1	1205	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	954	0	2156	949
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	1207	-
Critical Hdwy	-	-	4.3	-	6.4	6.45
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	3	-	3	3.3
Pot Cap-1 Maneuver	-	-	557	-	*0	298
Stage 1	-	-	-	-	*418	-
Stage 2	-	-	-	-	*134	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	557	-	*0	298
Mov Cap-2 Maneuver	-	-	-	-	*93	-
Stage 1	-	-	-	-	*418	-
Stage 2	-	-	-	-	*134	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	207	-	-	557	-
HCM Lane V/C Ratio	0.025	-	-	0.002	-
HCM Control Delay (s)	22.8	-	-	11.5	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	2	24	0	0	0	14	660	18	18	642	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.938						0.997			0.996	
Flt Protected		0.975						0.999			0.999	
Satd. Flow (prot)	0	1677	0	0	1881	0	0	1892	0	0	1891	0
Flt Permitted		0.975						0.999			0.999	
Satd. Flow (perm)	0	1677	0	0	1881	0	0	1892	0	0	1891	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		301			300			731			305	
Travel Time (s)		8.2			8.2			14.2			5.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	7%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	29	2	26	0	0	0	15	702	19	19	683	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	0	0	0	0	0	736	0	0	725	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	27	2	24	0	0	0	14	660	18	18	642	22
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	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	7	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	29	2	26	0	0	0	15	702	19	19	683	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1474	1484	695	1488	1486	712	706	0	0	721	0	0
Stage 1	733	733	-	741	741	-	-	-	-	-	-	-
Stage 2	741	751	-	747	745	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.51	6.2	7.1	6.51	6.2	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.17	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4.009	3.1	3	4.009	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	109	125	466	111	125	456	683	-	-	675	-	-
Stage 1	446	428	-	458	424	-	-	-	-	-	-	-
Stage 2	441	420	-	455	422	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	102	115	466	97	115	456	683	-	-	675	-	-
Mov Cap-2 Maneuver	102	115	-	97	115	-	-	-	-	-	-	-
Stage 1	429	408	-	441	408	-	-	-	-	-	-	-
Stage 2	425	404	-	408	402	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	39.6	0	0.2	0.3
HCM LOS	E	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	683	-	-	159	-	675	-	-
HCM Lane V/C Ratio	0.022	-	-	0.355	-	0.028	-	-
HCM Control Delay (s)	10.4	0	-	39.6	0	10.5	0	-
HCM Lane LOS	B	A	-	E	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.5	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	4	19	14	4	5	31	421	24	6	310	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.912			0.971			0.993			0.993	
Flt Protected		0.990			0.970			0.997			0.999	
Satd. Flow (prot)	0	1713	0	0	1786	0	0	1881	0	0	1885	0
Flt Permitted		0.990			0.970			0.997			0.999	
Satd. Flow (perm)	0	1713	0	0	1786	0	0	1881	0	0	1885	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		308			307			404			523	
Travel Time (s)		8.4			8.4			7.9			10.2	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	6	4	19	14	4	5	31	425	24	6	313	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	23	0	0	480	0	0	336	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc.
8: Bridge Street & Pennsylvania Avenue/Ringold Street
West Nutt Road Traffic Study
2016 Existing Weekday PM Peak Hour

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	4	19	14	4	5	31	421	24	6	310	17
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	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	4	19	14	4	5	31	425	24	6	313	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	839	846	322	845	842	437	330	0	0	449	0	0
Stage 1	334	334	-	500	500	-	-	-	-	-	-	-
Stage 2	505	512	-	345	342	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.51	6.2	7.1	6.51	6.2	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.009	3.1	3	4.009	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	319	300	764	316	302	657	925	-	-	841	-	-
Stage 1	781	645	-	629	545	-	-	-	-	-	-	-
Stage 2	625	538	-	770	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	300	284	764	292	286	657	925	-	-	841	-	-
Mov Cap-2 Maneuver	300	284	-	292	286	-	-	-	-	-	-	-
Stage 1	746	639	-	601	520	-	-	-	-	-	-	-
Stage 2	588	514	-	739	634	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	16.7	0.6	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	925	-	-	492	331	841	-	-
HCM Lane V/C Ratio	0.034	-	-	0.06	0.07	0.007	-	-
HCM Control Delay (s)	9	0	-	12.8	16.7	9.3	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	10	5	52	28	25	18	428	31	17	320	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.968			0.991			0.996	
Flt Protected		0.994			0.976			0.998			0.998	
Satd. Flow (prot)	0	1794	0	0	1745	0	0	1879	0	0	1889	0
Flt Permitted		0.994			0.976			0.998			0.998	
Satd. Flow (perm)	0	1794	0	0	1745	0	0	1879	0	0	1889	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		299			304			301			404	
Travel Time (s)		8.2			8.3			5.9			7.9	
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
Heavy Vehicles (%)	6%	1%	0%	0%	1%	11%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	11	5	57	30	27	20	465	34	18	348	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	114	0	0	519	0	0	376	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	10	5	52	28	25	18	428	31	17	320	9
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, %	6	1	0	0	1	11	0	0	0	0	0	0
Mvmt Flow	2	11	5	57	30	27	20	465	34	18	348	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	940	928	353	919	916	482	358	0	0	499	0	0
Stage 1	390	390	-	521	521	-	-	-	-	-	-	-
Stage 2	550	538	-	398	395	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.51	6.2	7.1	6.51	6.31	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.16	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4.009	3.1	3	4.009	3.2	3	-	-	3	-	-
Pot Cap-1 Maneuver	261	269	733	280	273	594	905	-	-	808	-	-
Stage 1	701	609	-	612	533	-	-	-	-	-	-	-
Stage 2	569	524	-	718	606	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	217	253	733	257	257	594	905	-	-	808	-	-
Mov Cap-2 Maneuver	217	253	-	257	257	-	-	-	-	-	-	-
Stage 1	679	592	-	593	516	-	-	-	-	-	-	-
Stage 2	495	508	-	680	589	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	24.5	0.3	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	905	-	-	306	297	808	-	-
HCM Lane V/C Ratio	0.022	-	-	0.06	0.384	0.023	-	-
HCM Control Delay (s)	9.1	0	-	17.5	24.5	9.6	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	1.7	0.1	-	-

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix G

2022 Future Capacity/Level-of-Service Analysis Worksheets

Without Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	444	723	70	57	415	10	72	182	54	12	197	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	10	11	12	12	10	10
Grade (%)		1%			0%			-2%			1%	
Storage Length (ft)	350		0	720		0	100		0	205		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.996			0.966				
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1527	1828	0	1506	1701	0	1521	1616	0	0	1606	0
Flt Permitted	0.950			0.950			0.343				0.869	
Satd. Flow (perm)	1527	1828	0	1506	1701	0	549	1616	0	0	1400	0
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		106			901			523			731	
Travel Time (s)		2.1			17.6			14.3			19.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	5%	6%	5%	20%	6%	6%	2%	0%	4%	6%
Adj. Flow (vph)	467	761	74	60	437	11	76	192	57	13	207	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	467	835	0	60	448	0	76	249	0	0	220	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.18	0.99	1.08	1.17	1.07	1.07	1.16	1.11	1.06	1.08	1.18	1.18
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	3	
Detector Template				Left	Thru		Left	Thru		Left		
Leading Detector (ft)	35	35		35	35		35	35		20	60	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5		0	0	
Detector 1 Position(ft)	-5	-5		-5	-5		-5	-5		0	0	
Detector 1 Size(ft)	40	40		40	40		40	40		20	5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)											15	
Detector 2 Size(ft)											5	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Detector 3 Position(ft)											35	

McMahon Associates, Inc.
5: Bridge Street & Nutt Road
West Nutt Road Traffic Study
2022 Future Weekday AM Peak Hour

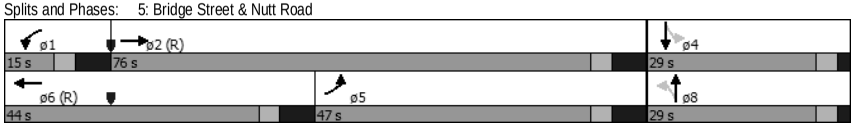
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)											25	
Detector 3 Type											Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)											0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	23.0		15.0	23.0		12.0	12.0		20.0	20.0	
Total Split (s)	47.0	76.0		15.0	44.0		29.0	29.0		29.0	29.0	
Total Split (%)	39.2%	63.3%		12.5%	36.7%		24.2%	24.2%		24.2%	24.2%	
Maximum Green (s)	39.0	68.0		7.0	36.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	5.0	5.0		5.0	5.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0			-1.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	4.0			4.0	
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		10.0			10.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
v/c Ratio	0.92	0.74		0.58	0.81		0.73	0.81			0.83	
Control Delay	63.2	23.3		76.1	50.4		83.0	67.1			71.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	63.2	23.3		76.1	50.4		83.0	67.1			71.7	
Queue Length 50th (ft)	346	480		46	325		55	182			161	
Queue Length 95th (ft)	#550	670		#108	#504		#134	#296			#279	
Internal Link Dist (ft)		26			821			443			651	
Turn Bay Length (ft)	350			720			100					
Base Capacity (vph)	509	1125		104	555		114	336			291	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.92	0.74		0.58	0.81		0.67	0.74			0.76	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lanes, Volumes, Timings
2022 Future Weekday AM Peak Hour
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\2022 Analysis\Weekday AM - No Impvts.syn
Synchro 8

Splits and Phases: 5: Bridge Street & Nutt Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	444	723	70	57	415	10	72	182	54	12	197	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1722	1805	1791	1698	1708	1800	1715	1730	1818	1791	1726	0
Adj Flow Rate, veh/h	467	761	74	60	437	11	76	192	57	13	207	0
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	6	5	5	6	6	6	4	4	0
Cap, veh/h	554	951	92	95	512	13	167	262	78	37	272	0
Arrive On Green	0.34	0.59	0.58	0.06	0.31	0.30	0.20	0.20	0.20	0.20	0.20	0.00
Sat Flow, veh/h	1640	1620	158	1617	1659	42	1077	1282	381	28	1334	0
Grp Volume(v), veh/h	467	0	835	60	0	448	76	0	249	220	0	0
Grp Sat Flow(s),veh/h/ln	1640	0	1777	1617	0	1701	1077	0	1663	1362	0	0
Q Serve(g_s), s	31.6	0.0	43.9	4.4	0.0	29.7	1.7	0.0	16.8	2.8	0.0	0.0
Cycle Q Clear(g_c), s	31.6	0.0	43.9	4.4	0.0	29.7	20.8	0.0	16.8	19.6	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.02	1.00		0.23	0.06		0.00
Lane Grp Cap(c), veh/h	554	0	1044	95	0	524	167	0	339	298	0	0
V/C Ratio(X)	0.84	0.00	0.80	0.63	0.00	0.85	0.46	0.00	0.73	0.74	0.00	0.00
Avail Cap(c_a), veh/h	554	0	1044	108	0	524	172	0	346	306	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	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.8	0.0	19.3	55.2	0.0	39.0	47.5	0.0	44.8	44.3	0.0	0.0
Incr Delay (d2), s/veh	11.4	0.0	6.4	9.3	0.0	16.1	1.9	0.0	7.7	8.8	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	16.0	0.0	23.2	2.2	0.0	16.3	2.5	0.0	8.5	7.9	0.0	0.0
LnGrp Delay(d),s/veh	48.2	0.0	25.8	64.6	0.0	55.1	49.5	0.0	52.5	53.2	0.0	0.0
LnGrp LOS	D		C	E		E	D		D	D		
Approach Vol, veh/h		1302			508			325			220	
Approach Delay, s/veh		33.8			56.2			51.8			53.2	
Approach LOS		C			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.1	77.5		28.5	47.5	44.0		28.5
Change Period (Y+Rc), s	8.0	8.0		5.0	8.0	8.0		5.0
Max Green Setting (Gmax), s	7.0	68.0		24.0	39.0	36.0		24.0
Max Q Clear Time (g_c+I1), s	6.9	45.9		21.6	34.1	31.7		23.3
Green Ext Time (p_c), s	0.0	5.7		0.6	2.5	0.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

Notes

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	1237	487	0	0	342
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		1%	0%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	1756	1765	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	1756	1765	0	0	1526
Link Speed (mph)		35	35		30	
Link Distance (ft)		344	106		404	
Travel Time (s)		6.7	2.1		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1345	529	0	0	372
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1345	529	0	0	372
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		10	10		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes				
Headway Factor	1.08	1.08	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	1237	487	0	0	342
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1345	529	0	0	372

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	529	0	-	0	1874	529
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	1345	-
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	1032	-	-	-	45	652
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	243	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1032	-	-	-	45	652
Mov Cap-2 Maneuver	-	-	-	-	45	-
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	243	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1032	-	-	-	652
HCM Lane V/C Ratio	-	-	-	-	0.57
HCM Control Delay (s)	0	-	-	-	17.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	3.6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	91	1064	746	9	10	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.871	
Flt Protected	0.950				0.998	
Satd. Flow (prot)	1467	1827	1749	0	1157	0
Flt Permitted	0.950				0.998	
Satd. Flow (perm)	1467	1827	1749	0	1157	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		295	435		302	
Travel Time (s)		5.7	8.5		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	23%	4%	8%	40%	100%	40%
Adj. Flow (vph)	99	1157	811	10	11	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	1157	821	0	244	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	91	1064	746	9	10	214
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	23	4	8	40	100	40
Mvmt Flow	99	1157	811	10	11	233

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	821	0	-	0	2170	816
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	1354	-
Critical Hdwy	4.5	-	-	-	7.4	6.6
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	3.2	-	-	-	3.9	3.5
Pot Cap-1 Maneuver	*479	-	-	-	*~ 3	*437
Stage 1	-	-	-	-	*393	-
Stage 2	-	-	-	-	*159	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*479	-	-	-	*~ 2	*437
Mov Cap-2 Maneuver	-	-	-	-	*88	-
Stage 1	-	-	-	-	*393	-
Stage 2	-	-	-	-	*126	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	31.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	* 479	-	-	-	371
HCM Lane V/C Ratio	0.206	-	-	-	0.656
HCM Control Delay (s)	14.5	-	-	-	31.4
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.8	-	-	-	4.5

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	1250	29	18	862	1	6	4	6	4	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997						0.949				
Flt Protected	0.950			0.950				0.982			0.972	
Satd. Flow (prot)	1805	1819	0	1612	1810	0	0	1665	0	0	1847	0
Flt Permitted	0.950			0.950				0.982			0.972	
Satd. Flow (perm)	1805	1819	0	1612	1810	0	0	1665	0	0	1847	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		435			416			302			308	
Travel Time (s)		8.5			8.1			8.2			8.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	11%	12%	5%	0%	17%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	1302	30	19	898	1	6	4	6	4	3	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1332	0	19	899	0	0	16	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	1250	29	18	862	1	6	4	6	4	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	4	11	12	5	0	17	0	0	0	0	0
Mvmt Flow	3	1302	30	19	898	1	6	4	6	4	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	899	0	0	1332	0	0	2261	2259	1317	2265	2275	898
Stage 1	-	-	-	-	-	-	1323	1323	-	936	936	-
Stage 2	-	-	-	-	-	-	938	936	-	1329	1339	-
Critical Hdwy	4.3	-	-	4.4	-	-	7.27	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.27	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.27	5.5	-	6.1	5.5	-
Follow-up Hdwy	3	-	-	3.1	-	-	3.2	4	3.1	3	4	3.1
Pot Cap-1 Maneuver	*397	-	-	383	-	-	*~ 1	*~ 1	201	*~ 1	*~ 1	*384
Stage 1	-	-	-	-	-	-	*191	*228	-	*397	*298	-
Stage 2	-	-	-	-	-	-	*372	*298	-	*209	*224	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*397	-	-	383	-	-	-	*~ 1	201	-	*~ 1	*384
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	*~ 1	-	-	*~ 1	-
Stage 1	-	-	-	-	-	-	*190	*226	-	*394	*283	-
Stage 2	-	-	-	-	-	-	*350	*283	-	*197	*222	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	* 397	-	-	383	-	-	-
HCM Lane V/C Ratio	-	0.008	-	-	0.049	-	-	-
HCM Control Delay (s)	-	14.1	-	-	14.9	-	-	-
HCM Lane LOS	-	B	-	-	B	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	0.2	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	1077	3	2	761	6	4	2	5	5	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999			0.939			0.907	
Flt Protected	0.950			0.950				0.982			0.992	
Satd. Flow (prot)	1805	1827	0	1805	1789	0	0	1752	0	0	1297	0
Flt Permitted	0.950			0.950				0.982			0.992	
Satd. Flow (perm)	1805	1827	0	1805	1789	0	0	1752	0	0	1297	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		416			345			307			313	
Travel Time (s)		8.1			6.7			8.4			8.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	0%	0%	6%	20%	0%	0%	0%	0%	67%	31%
Adj. Flow (vph)	16	1110	3	2	785	6	4	2	5	5	5	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1113	0	2	791	0	0	11	0	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 18.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	1077	3	2	761	6	4	2	5	5	5	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	4	0	0	6	20	0	0	0	0	67	31
Mvmt Flow	16	1110	3	2	785	6	4	2	5	5	5	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	791	0	0	1113	0	0	1950	1940	1112	1940	1938	788
Stage 1	-	-	-	-	-	-	1145	1145	-	792	792	-
Stage 2	-	-	-	-	-	-	805	795	-	1148	1146	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.1	6.5	6.2	7.1	7.17	6.51
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	6.17	-
Follow-up Hdwy	3	-	-	3	-	-	3	4	3.1	3	4.603	3.4
Pot Cap-1 Maneuver	*511	-	-	487	-	-	*8	*12	266	*8	*7	*450
Stage 1	-	-	-	-	-	-	*268	*277	-	*510	*333	-
Stage 2	-	-	-	-	-	-	*510	*383	-	*266	*209	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*511	-	-	487	-	-	*~ 3	*12	266	*7	*7	*450
Mov Cap-2 Maneuver	-	-	-	-	-	-	*~ 3	*12	-	*7	*7	-
Stage 1	-	-	-	-	-	-	*260	*268	-	*494	*331	-
Stage 2	-	-	-	-	-	-	*476	*381	-	*251	*202	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	$ 1286.8	$ 656
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	7	* 511	-	-	487	-	-	21
HCM Lane V/C Ratio	1.62	0.032	-	-	0.004	-	-	1.522
HCM Control Delay (s)	$ 1286.8	12.3	-	-	12.4	-	-	$ 656
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.4	0.1	-	-	0	-	-	4.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1205	3	2	812	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected						
Satd. Flow (prot)	1827	0	0	1810	1644	0
Flt Permitted						
Satd. Flow (perm)	1827	0	0	1810	1644	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	345			344	306	
Travel Time (s)	6.7			6.7	8.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	0%	0%	5%	0%	0%
Adj. Flow (vph)	1296	3	2	873	0	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1299	0	0	875	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1205	3	2	812	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	4	0	0	5	0	0
Mvmt Flow	1296	3	2	873	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1299	0	2174	1297
Stage 1	-	-	-	-	1297	-
Stage 2	-	-	-	-	877	-
Critical Hdwy	-	-	4.3	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	416	-	*4	207
Stage 1	-	-	-	-	*281	-
Stage 2	-	-	-	-	*454	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	416	-	*4	207
Mov Cap-2 Maneuver	-	-	-	-	*160	-
Stage 1	-	-	-	-	*281	-
Stage 2	-	-	-	-	*450	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	207	-	-	416	-
HCM Lane V/C Ratio	0.005	-	-	0.005	-
HCM Control Delay (s)	22.5	-	-	13.7	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	14	7	0	0	0	9	641	21	18	717	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.978						0.996			0.997	
Flt Protected		0.975						0.999			0.999	
Satd. Flow (prot)	0	1672	0	0	1810	0	0	1891	0	0	1887	0
Flt Permitted		0.975						0.999			0.999	
Satd. Flow (perm)	0	1672	0	0	1810	0	0	1891	0	0	1887	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		301			300			731			305	
Travel Time (s)		8.2			8.2			14.2			5.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	13%	5%	0%	0%	5%	0%	0%	0%	0%	13%	0%	0%
Adj. Flow (vph)	26	16	8	0	0	0	10	745	24	21	834	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	50	0	0	0	0	0	779	0	0	876	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	22	14	7	0	0	0	9	641	21	18	717	18
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	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	13	5	0	0	5	0	0	0	0	13	0	0
Mvmt Flow	26	16	8	0	0	0	10	745	24	21	834	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1664	1677	844	1676	1675	758	855	0	0	770	0	0
Stage 1	886	886	-	778	778	-	-	-	-	-	-	-
Stage 2	778	791	-	898	897	-	-	-	-	-	-	-
Critical Hdwy	7.23	6.55	6.2	7.1	6.55	6.2	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.23	5.55	-	6.1	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.23	5.55	-	6.1	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4.045	3.1	3	4.045	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	77	94	382	82	94	429	604	-	-	620	-	-
Stage 1	358	359	-	436	402	-	-	-	-	-	-	-
Stage 2	415	397	-	372	354	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	72	85	382	64	85	429	604	-	-	620	-	-
Mov Cap-2 Maneuver	72	85	-	64	85	-	-	-	-	-	-	-
Stage 1	348	336	-	423	390	-	-	-	-	-	-	-
Stage 2	403	385	-	324	331	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	89.8	0	0.1	0.3
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	604	-	-	88	-	620	-	-
HCM Lane V/C Ratio	0.017	-	-	0.568	-	0.034	-	-
HCM Control Delay (s)	11.1	0	-	89.8	0	11	0	-
HCM Lane LOS	B	A	-	F	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	50	54	13	40	11	10	231	6	3	379	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.940			0.977			0.997			0.998	
Flt Protected		0.993			0.990			0.998				
Satd. Flow (prot)	0	1758	0	0	1838	0	0	1799	0	0	1783	0
Flt Permitted		0.993			0.990			0.998				
Satd. Flow (perm)	0	1758	0	0	1838	0	0	1799	0	0	1783	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		308			307			404			523	
Travel Time (s)		8.4			8.4			7.9			10.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	10%	5%	0%	33%	6%	20%
Adj. Flow (vph)	18	55	59	14	44	12	11	254	7	3	416	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	0	0	70	0	0	272	0	0	424	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	50	54	13	40	11	10	231	6	3	379	5
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	0	0	0	10	5	0	33	6	20
Mvmt Flow	18	55	59	14	44	12	11	254	7	3	416	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	733	708	419	762	708	257	422	0	0	260	0	0
Stage 1	426	426	-	279	279	-	-	-	-	-	-	-
Stage 2	307	282	-	483	429	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.22	7.1	6.5	6.2	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4	3.1	3.3	4	3.3	3	-	-	3	-	-
Pot Cap-1 Maneuver	369	362	671	337	362	787	860	-	-	978	-	-
Stage 1	674	589	-	771	683	-	-	-	-	-	-	-
Stage 2	786	681	-	596	587	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	324	355	671	267	355	787	860	-	-	978	-	-
Mov Cap-2 Maneuver	324	355	-	267	355	-	-	-	-	-	-	-
Stage 1	664	587	-	759	673	-	-	-	-	-	-	-
Stage 2	713	671	-	490	585	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.5	17.2	0.4	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	860	-	-	443	365	978	-	-
HCM Lane V/C Ratio	0.013	-	-	0.298	0.193	0.003	-	-
HCM Control Delay (s)	9.2	0	-	16.5	17.2	8.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.2	0.7	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	108	11	25	62	30	3	182	49	41	418	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.966			0.972			0.999	
Flt Protected		0.997			0.989			0.999			0.996	
Satd. Flow (prot)	0	1844	0	0	1815	0	0	1776	0	0	1869	0
Flt Permitted		0.997			0.989			0.999			0.996	
Satd. Flow (perm)	0	1844	0	0	1815	0	0	1776	0	0	1869	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		299			304			301			404	
Travel Time (s)		8.2			8.3			5.9			7.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	19%	0%	0%	0%	0%	5%	0%	3%	1%	0%
Adj. Flow (vph)	8	113	11	26	65	31	3	190	51	43	435	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	131	0	0	122	0	0	244	0	0	482	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	108	11	25	62	30	3	182	49	41	418	4
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	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	19	0	0	0	0	5	0	3	1	0
Mvmt Flow	8	112	11	26	65	31	3	190	51	43	435	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	792	770	438	806	746	215	440	0	0	241	0	0
Stage 1	523	523	-	221	221	-	-	-	-	-	-	-
Stage 2	269	247	-	585	525	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.39	7.1	6.5	6.2	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	344	333	641	336	344	878	847	-	-	993	-	-
Stage 1	610	534	-	903	724	-	-	-	-	-	-	-
Stage 2	849	706	-	563	533	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	268	313	641	228	323	878	847	-	-	993	-	-
Mov Cap-2 Maneuver	268	313	-	228	323	-	-	-	-	-	-	-
Stage 1	608	504	-	899	721	-	-	-	-	-	-	-
Stage 2	742	703	-	405	503	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.6	20.8	0.1	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	847	-	-	324	348	993	-	-
HCM Lane V/C Ratio	0.004	-	-	0.408	0.35	0.043	-	-
HCM Control Delay (s)	9.3	0	-	23.6	20.8	8.8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.9	1.5	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	446	552	67	71	688	13	141	260	45	9	204	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	10	11	12	12	10	10
Grade (%)		1%			0%			-2%			1%	
Storage Length (ft)	350		0	720		0	100		0	205		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.997			0.978				
Flt Protected	0.950			0.950			0.950				0.998	
Satd. Flow (prot)	1512	1825	0	1535	1727	0	1596	1640	0	0	1550	0
Flt Permitted	0.950			0.950			0.388				0.833	
Satd. Flow (perm)	1512	1825	0	1535	1727	0	652	1640	0	0	1293	0
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		106			901			523			731	
Travel Time (s)		2.1			17.6			14.3			19.9	
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
Heavy Vehicles (%)	5%	3%	3%	4%	4%	0%	1%	3%	15%	0%	8%	7%
Adj. Flow (vph)	485	600	73	77	748	14	153	283	49	10	222	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	673	0	77	762	0	153	332	0	0	232	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.18	0.99	1.08	1.17	1.07	1.07	1.16	1.11	1.06	1.08	1.18	1.18
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	3	
Detector Template										Left		
Leading Detector (ft)	35	35		35	35		35	35		20	60	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5		0	0	
Detector 1 Position(ft)	-5	-5		-5	-5		-5	-5		0	0	
Detector 1 Size(ft)	40	40		40	40		40	40		20	5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)											15	
Detector 2 Size(ft)											5	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Detector 3 Position(ft)											35	

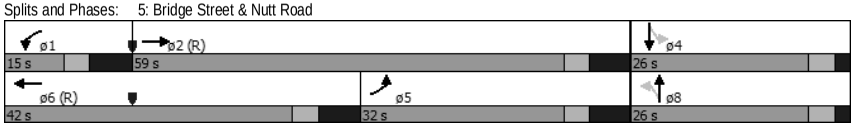
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)											25	
Detector 3 Type											Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)											0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	15.0	23.0		15.0	23.0		12.0	12.0		12.0	12.0	
Total Split (s)	32.0	59.0		15.0	42.0		26.0	26.0		26.0	26.0	
Total Split (%)	32.0%	59.0%		15.0%	42.0%		26.0%	26.0%		26.0%	26.0%	
Maximum Green (s)	24.0	51.0		7.0	34.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	5.0	5.0		5.0	5.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0			-1.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	4.0			4.0	
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		10.0			10.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
v/c Ratio	1.28	0.67		0.64	1.26		1.07	0.92			0.82	
Control Delay	179.5	21.4		69.0	161.1		135.1	71.0			60.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	179.5	21.4		69.0	161.1		135.1	71.0			60.9	
Queue Length 50th (ft)	~395	312		48	~613		~108	208			141	
Queue Length 95th (ft)	#591	450		#116	#839		#235	#374			#269	
Internal Link Dist (ft)		26			821			443			651	
Turn Bay Length (ft)	350			720			100					
Base Capacity (vph)	378	1004		122	604		143	360			284	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	1.28	0.67		0.63	1.26		1.07	0.92			0.82	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Bridge Street & Nutt Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	446	552	67	71	688	13	141	260	45	9	204	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1706	1808	1791	1731	1732	1800	1800	1735	1818	1791	1664	0
Adj Flow Rate, veh/h	485	600	73	77	748	14	153	283	49	10	222	0
Adj No. of Lanes	1	1	0	1	1	0	1	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, %	5	3	3	4	4	4	1	3	3	8	8	0
Cap, veh/h	406	835	102	119	593	11	163	317	55	39	246	0
Arrive On Green	0.25	0.53	0.52	0.07	0.35	0.34	0.22	0.22	0.21	0.21	0.22	0.00
Sat Flow, veh/h	1624	1582	192	1648	1695	32	1115	1442	250	6	1117	0
Grp Volume(v), veh/h	485	0	673	77	0	762	153	0	332	232	0	0
Grp Sat Flow(s),veh/h/ln	1624	0	1774	1648	0	1726	1115	0	1691	1123	0	0
Q Serve(g_s), s	25.0	0.0	28.9	4.5	0.0	35.0	1.8	0.0	19.1	1.7	0.0	0.0
Cycle Q Clear(g_c), s	25.0	0.0	28.9	4.5	0.0	35.0	22.0	0.0	19.1	20.7	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.02	1.00		0.15	0.04		0.00
Lane Grp Cap(c), veh/h	406	0	937	119	0	604	163	0	372	273	0	0
V/C Ratio(X)	1.19	0.00	0.72	0.65	0.00	1.26	0.94	0.00	0.89	0.85	0.00	0.00
Avail Cap(c_a), veh/h	406	0	937	132	0	604	163	0	372	273	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	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.5	0.0	18.0	45.2	0.0	32.5	44.3	0.0	37.9	35.9	0.0	0.0
Incr Delay (d2), s/veh	109.2	0.0	4.7	9.1	0.0	130.5	51.8	0.0	22.7	21.4	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(95%),veh/ln	42.3	0.0	21.7	4.3	0.0	69.3	10.8	0.0	16.7	12.7	0.0	0.0
LnGrp Delay(d),s/veh	146.7	0.0	22.7	54.3	0.0	163.0	96.1	0.0	60.6	57.3	0.0	0.0
LnGrp LOS	F		C	D		F	F		E	E		
Approach Vol, veh/h		1158			839			485			232	
Approach Delay, s/veh		74.7			153.0			71.8			57.3	
Approach LOS		E			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.2	59.8		26.0	32.0	42.0		26.0
Change Period (Y+Rc), s	8.0	8.0		5.0	8.0	8.0		5.0
Max Green Setting (Gmax), s	7.0	51.0		21.0	24.0	34.0		21.0
Max Q Clear Time (g_c+I1), s	7.0	30.9		22.7	27.5	37.0		24.5
Green Ext Time (p_c), s	0.0	4.7		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	96.9
HCM 2010 LOS	F

Notes

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	1065	829	0	0	490
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		1%	0%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	1756	1765	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	1756	1765	0	0	1526
Link Speed (mph)		35	35		30	
Link Distance (ft)		344	106		404	
Travel Time (s)		6.7	2.1		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1158	901	0	0	533
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1158	901	0	0	533
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		10	10		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes				
Headway Factor	1.08	1.08	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	48.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	1065	829	0	0	490
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1158	901	0	0	533

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	901	0	-	0	2059	901
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	1158	-
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	630	-	-	-	13	~ 373
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	299	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	630	-	-	-	13	~ 373
Mov Cap-2 Maneuver	-	-	-	-	13	-
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	299	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	235.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	630	-	-	-	373
HCM Lane V/C Ratio	-	-	-	-	1.428
HCM Control Delay (s)	0	-	-	-	235.3
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	27.3

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	213	1155	1340	12	7	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.870	
Flt Protected	0.950				0.998	
Satd. Flow (prot)	1805	1881	1879	0	1650	0
Flt Permitted	0.950				0.998	
Satd. Flow (perm)	1805	1881	1879	0	1650	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		295	435		302	
Travel Time (s)		5.7	8.5		8.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Adj. Flow (vph)	237	1283	1489	13	8	193
Shared Lane Traffic (%)						
Lane Group Flow (vph)	237	1283	1502	0	201	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	213	1155	1340	12	7	174
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	237	1283	1489	13	8	193

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1502	0	-	0	3253	1496
Stage 1	-	-	-	-	1496	-
Stage 2	-	-	-	-	1757	-
Critical Hdwy	4.3	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	164	-
Platoon blocked, %	2	-	-	-	2	2
Mov Cap-1 Maneuver	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	164	-

Approach	EB	WB	SB
HCM Control Delay, s		0	
HCM LOS			-

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1142	28	7	1363	1	10	0	10	0	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996						0.932			0.865	
Flt Protected	0.950			0.950				0.976				
Satd. Flow (prot)	1805	1856	0	1805	1863	0	0	1728	0	0	1644	0
Flt Permitted	0.950			0.950				0.976				
Satd. Flow (perm)	1805	1856	0	1805	1863	0	0	1728	0	0	1644	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		435			416			302			308	
Travel Time (s)		8.5			8.1			8.2			8.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	10	1215	30	7	1450	1	11	0	11	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1245	0	7	1451	0	0	22	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	9	1142	28	7	1363	1	10	0	10	0	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	10	1215	30	7	1450	1	11	0	11	0	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1451	0	0	1245	0	0	2718	2715	1230	2719	2729	1451
Stage 1	-	-	-	-	-	-	1249	1249	-	1465	1465	-
Stage 2	-	-	-	-	-	-	1469	1466	-	1254	1264	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	3	-	-	3	-	-	3	4	3.1	3	4	3.1
Pot Cap-1 Maneuver	-	-	-	436	-	-	-	-	226	-	-	-
Stage 1	-	-	-	-	-	-	233	247	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	231	243	-
Platoon blocked, %	2	-	-		-	-	2	2		2	2	2
Mov Cap-1 Maneuver	-	-	-	436	-	-	-	-	226	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	233	247	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	220	243	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.1		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-	436	-	-	-
HCM Lane V/C Ratio	-	-	-	-	0.017	-	-	-
HCM Control Delay (s)	-	-	-	-	13.4	-	-	-
HCM Lane LOS	-	-	-	-	B	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	0.1	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	920	4	2	1237	15	3	2	6	6	2	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.998			0.926			0.887	
Flt Protected	0.950			0.950				0.987			0.994	
Satd. Flow (prot)	1671	1841	0	1805	1821	0	0	1589	0	0	1634	0
Flt Permitted	0.950			0.950				0.987			0.994	
Satd. Flow (perm)	1671	1841	0	1805	1821	0	0	1589	0	0	1634	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		416			345			307			313	
Travel Time (s)		8.1			6.7			8.4			8.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	3%	25%	0%	4%	13%	0%	0%	17%	0%	0%	3%
Adj. Flow (vph)	36	958	4	2	1289	16	3	2	6	6	2	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	962	0	2	1305	0	0	11	0	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	35	920	4	2	1237	15	3	2	6	6	2	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	8	3	25	0	4	13	0	0	17	0	0	3
Mvmt Flow	36	958	4	2	1289	16	3	2	6	6	2	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1304	0	0	963	0	0	2355	2341	960	2339	2336	1296
Stage 1	-	-	-	-	-	-	1033	1033	-	1301	1301	-
Stage 2	-	-	-	-	-	-	1322	1308	-	1038	1035	-
Critical Hdwy	4.4	-	-	4.3	-	-	7.1	6.5	6.37	7.1	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	3.1	-	-	3	-	-	3	4	3.3	3	4	3.1
Pot Cap-1 Maneuver	*64	-	-	552	-	-	*0	*0	300	*0	*0	*64
Stage 1	-	-	-	-	-	-	*311	*312	-	*66	*50	-
Stage 2	-	-	-	-	-	-	*66	*50	-	*309	*312	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*64	-	-	552	-	-	*0	*0	300	*0	*0	*64
Mov Cap-2 Maneuver	-	-	-	-	-	-	*0	*0	-	*0	*0	-
Stage 1	-	-	-	-	-	-	*136	*137	-	*29	*50	-
Stage 2	-	-	-	-	-	-	*23	*50	-	*130	*137	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.3	0	17.5	157.2
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	300	* 64	-	-	552	-	-	64
HCM Lane V/C Ratio	0.038	0.57	-	-	0.004	-	-	0.765
HCM Control Delay (s)	17.5	118.7	-	-	11.5	-	-	157.2
HCM Lane LOS	C	F	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.1	2.4	-	-	0	-	-	3.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1088	9	1	1389	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.892	
Flt Protected					0.990	
Satd. Flow (prot)	1879	0	0	1881	1398	0
Flt Permitted					0.990	
Satd. Flow (perm)	1879	0	0	1881	1398	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	345			344	306	
Travel Time (s)	6.7			6.7	8.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	0%	1%	0%	25%
Adj. Flow (vph)	1133	9	1	1447	1	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1142	0	0	1448	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1088	9	1	1389	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	0	0	1	0	25
Mvmt Flow	1133	9	1	1447	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1143	0	2587	1138
Stage 1	-	-	-	-	1138	-
Stage 2	-	-	-	-	1449	-
Critical Hdwy	-	-	4.3	-	6.4	6.45
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	3	-	3	3.3
Pot Cap-1 Maneuver	-	-	475	-	-	229
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-		-	2	
Mov Cap-1 Maneuver	-	-	475	-	-	229
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	
HCM LOS			-

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	475	-
HCM Lane V/C Ratio	-	-	-	0.002	-
HCM Control Delay (s)	-	-	-	12.6	0
HCM Lane LOS	-	-	-	B	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	15	25	0	0	0	17	799	19	19	805	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.953						0.997			0.995	
Flt Protected		0.978						0.999			0.999	
Satd. Flow (prot)	0	1714	0	0	1881	0	0	1892	0	0	1889	0
Flt Permitted		0.978						0.999			0.999	
Satd. Flow (perm)	0	1714	0	0	1881	0	0	1892	0	0	1889	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		301			300			731			305	
Travel Time (s)		8.2			8.2			14.2			5.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	7%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	34	16	27	0	0	0	18	850	20	20	856	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	0	0	0	0	888	0	0	913	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	32	15	25	0	0	0	17	799	19	19	805	35
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	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	7	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	34	16	27	0	0	0	18	850	20	20	856	37

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1811	1821	875	1833	1830	860	894	0	0	870	0	0
Stage 1	915	915	-	896	896	-	-	-	-	-	-	-
Stage 2	896	906	-	937	934	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.51	6.2	7.1	6.51	6.2	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.17	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4.009	3.1	3	4.009	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	62	78	366	63	77	374	585	-	-	597	-	-
Stage 1	350	353	-	373	360	-	-	-	-	-	-	-
Stage 2	359	356	-	353	346	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	56	68	366	44	68	374	585	-	-	597	-	-
Mov Cap-2 Maneuver	56	68	-	44	68	-	-	-	-	-	-	-
Stage 1	329	329	-	351	338	-	-	-	-	-	-	-
Stage 2	337	335	-	291	323	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	162.1	0	0.2	0.2
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	585	-	-	84	-	597	-	-
HCM Lane V/C Ratio	0.031	-	-	0.912	-	0.034	-	-
HCM Control Delay (s)	11.3	0	-	162.1	0	11.2	0	-
HCM Lane LOS	B	A	-	F	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	4.9	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	60	20	15	61	5	32	434	25	6	319	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.992			0.993			0.993	
Flt Protected		0.997			0.991			0.997			0.999	
Satd. Flow (prot)	0	1823	0	0	1854	0	0	1881	0	0	1885	0
Flt Permitted		0.997			0.991			0.997			0.999	
Satd. Flow (perm)	0	1823	0	0	1854	0	0	1881	0	0	1885	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		308			307			404			523	
Travel Time (s)		8.4			8.4			7.9			10.2	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	6	61	20	15	62	5	32	438	25	6	322	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	82	0	0	495	0	0	346	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	60	20	15	61	5	32	434	25	6	319	18
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	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	6	61	20	15	62	5	32	438	25	6	322	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	892	871	331	900	869	451	340	0	0	464	0	0
Stage 1	343	343	-	516	516	-	-	-	-	-	-	-
Stage 2	549	528	-	384	353	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.51	6.2	7.1	6.51	6.2	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.009	3.1	3	4.009	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	293	290	755	289	291	644	918	-	-	831	-	-
Stage 1	772	639	-	616	536	-	-	-	-	-	-	-
Stage 2	590	529	-	732	633	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	231	274	755	224	275	644	918	-	-	831	-	-
Mov Cap-2 Maneuver	231	274	-	224	275	-	-	-	-	-	-	-
Stage 1	736	633	-	587	511	-	-	-	-	-	-	-
Stage 2	491	504	-	638	627	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.6	23.7	0.6	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	918	-	-	317	273	831	-	-
HCM Lane V/C Ratio	0.035	-	-	0.274	0.3	0.007	-	-
HCM Control Delay (s)	9.1	0	-	20.6	23.7	9.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	1.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	59	5	54	78	26	19	441	32	18	330	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.978			0.991			0.997	
Flt Protected		0.999			0.983			0.998			0.997	
Satd. Flow (prot)	0	1859	0	0	1786	0	0	1879	0	0	1889	0
Flt Permitted		0.999			0.983			0.998			0.997	
Satd. Flow (perm)	0	1859	0	0	1786	0	0	1879	0	0	1889	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		299			304			301			404	
Travel Time (s)		8.2			8.3			5.9			7.9	
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
Heavy Vehicles (%)	6%	1%	0%	0%	1%	11%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	64	5	59	85	28	21	479	35	20	359	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	71	0	0	172	0	0	535	0	0	389	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	8.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	59	5	54	78	26	19	441	32	18	330	9
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, %	6	1	0	0	1	11	0	0	0	0	0	0
Mvmt Flow	2	64	5	59	85	28	21	479	35	20	359	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	998	958	364	976	946	497	368	0	0	514	0	0
Stage 1	403	403	-	538	538	-	-	-	-	-	-	-
Stage 2	595	555	-	438	408	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.51	6.2	7.1	6.51	6.31	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.16	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.51	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4.009	3.1	3	4.009	3.2	3	-	-	3	-	-
Pot Cap-1 Maneuver	238	258	723	256	263	582	898	-	-	798	-	-
Stage 1	690	601	-	598	524	-	-	-	-	-	-	-
Stage 2	536	515	-	682	598	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	158	242	723	193	246	582	898	-	-	798	-	-
Mov Cap-2 Maneuver	158	242	-	193	246	-	-	-	-	-	-	-
Stage 1	667	582	-	578	507	-	-	-	-	-	-	-
Stage 2	411	498	-	583	579	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25	47.7	0.4	0.5
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	898	-	-	251	246	798	-	-
HCM Lane V/C Ratio	0.023	-	-	0.286	0.698	0.025	-	-
HCM Control Delay (s)	9.1	0	-	25	47.7	9.6	0	-
HCM Lane LOS	A	A	-	D	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	4.6	0.1	-	-

With Improvements

Nutt Road (S.R. 0023) and Bridge Street

Option 1

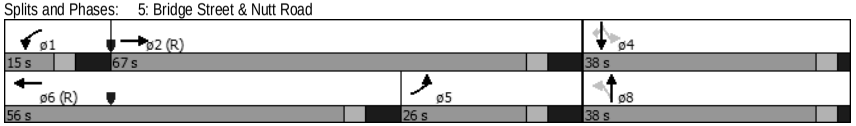
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	444	723	70	57	415	10	72	182	54	12	197	342
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	10	11	12	12	10	10
Grade (%)		1%			0%			-2%			1%	
Storage Length (ft)	350		0	720		0	100		0	205		0
Storage Lanes	2		0	1		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.996			0.966				0.850
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	2962	1828	0	1506	1701	0	1521	1616	0	0	1606	1340
Flt Permitted	0.950			0.950			0.389				0.937	
Satd. Flow (perm)	2962	1828	0	1506	1701	0	623	1616	0	0	1509	1340
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												360
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		106			901			523			731	
Travel Time (s)		2.1			17.6			14.3			19.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	5%	6%	5%	20%	6%	6%	2%	0%	4%	6%
Adj. Flow (vph)	467	761	74	60	437	11	76	192	57	13	207	360
Shared Lane Traffic (%)												
Lane Group Flow (vph)	467	835	0	60	448	0	76	249	0	0	220	360
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.18	0.99	1.08	1.17	1.07	1.07	1.16	1.11	1.06	1.08	1.18	1.18
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	3	1
Detector Template				Left	Thru		Left	Thru		Left		Right
Leading Detector (ft)	35	35		35	35		35	35		20	60	20
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5		0	0	0
Detector 1 Position(ft)	-5	-5		-5	-5		-5	-5		0	0	0
Detector 1 Size(ft)	40	40		40	40		40	40		20	5	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)											15	
Detector 2 Size(ft)											5	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Detector 3 Position(ft)											35	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)											25	
Detector 3 Type											Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)											0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	15.0	23.0		15.0	23.0		12.0	12.0		20.0	20.0	20.0
Total Split (s)	26.0	67.0		15.0	56.0		38.0	38.0		38.0	38.0	38.0
Total Split (%)	21.7%	55.8%		12.5%	46.7%		31.7%	31.7%		31.7%	31.7%	31.7%
Maximum Green (s)	18.0	59.0		7.0	48.0		33.0	33.0		33.0	33.0	33.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	5.0	5.0		5.0	5.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0			-1.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	4.0			4.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		10.0			10.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		11.0			11.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
v/c Ratio	1.00	0.78		0.47	0.54		0.59	0.75			0.71	0.65
Control Delay	91.8	29.0		64.0	26.1		60.7	58.0			56.0	9.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	91.8	29.0		64.0	26.1		60.7	58.0			56.0	9.8
Queue Length 50th (ft)	188	517		45	236		54	182			159	0
Queue Length 95th (ft)	#300	#853		#93	384		102	254			229	81
Internal Link Dist (ft)		26			821			443			651	
Turn Bay Length (ft)	350			720			100					
Base Capacity (vph)	468	1064		129	825		176	457			427	554
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	1.00	0.78		0.47	0.54		0.43	0.54			0.52	0.65

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Bridge Street & Nutt Road



McMahon Associates, Inc.
5: Bridge Street & Nutt Road
West Nutt Road Traffic Study
2022 Future Weekday AM Peak Hour with No Red

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	444	723	70	57	415	10	72	182	54	12	197	342
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1722	1805	1791	1698	1708	1800	1715	1730	1818	1791	1726	1690
Adj Flow Rate, veh/h	467	761	74	60	437	11	76	192	57	13	207	360
Adj No. of Lanes	2	1	0	1	1	0	1	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	6	5	5	6	6	6	4	4	6
Cap, veh/h	527	835	81	95	677	17	195	354	105	44	456	384
Arrive On Green	0.17	0.52	0.51	0.06	0.41	0.40	0.28	0.28	0.27	0.27	0.28	0.27
Sat Flow, veh/h	3182	1620	158	1617	1659	42	774	1282	381	44	1654	1436
Grp Volume(v), veh/h	467	0	835	60	0	448	76	0	249	220	0	360
Grp Sat Flow(s),veh/h/ln	1591	0	1777	1617	0	1701	774	0	1663	1697	0	1436
Q Serve(g_s), s	17.2	0.0	51.6	4.4	0.0	25.4	10.8	0.0	15.3	0.0	0.0	29.4
Cycle Q Clear(g_c), s	17.2	0.0	51.6	4.4	0.0	25.4	23.0	0.0	15.3	12.8	0.0	29.4
Prop In Lane	1.00		0.09	1.00		0.02	1.00		0.23	0.06		1.00
Lane Grp Cap(c), veh/h	527	0	916	95	0	695	195	0	459	486	0	384
V/C Ratio(X)	0.89	0.00	0.91	0.63	0.00	0.65	0.39	0.00	0.54	0.45	0.00	0.94
Avail Cap(c_a), veh/h	527	0	916	108	0	695	200	0	471	498	0	395
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	49.0	0.0	26.6	55.2	0.0	28.5	45.4	0.0	37.1	36.1	0.0	42.9
Incr Delay (d2), s/veh	16.5	0.0	14.8	9.3	0.0	4.6	1.3	0.0	1.2	0.7	0.0	29.3
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	8.8	0.0	28.8	2.2	0.0	12.8	2.4	0.0	7.2	6.2	0.0	14.8
LnGrp Delay(d),s/veh	65.5	0.0	41.4	64.6	0.0	33.1	46.7	0.0	38.3	36.7	0.0	72.3
LnGrp LOS	E		D	E		C	D		D	D		E
Approach Vol, veh/h		1302			508			325			580	
Approach Delay, s/veh		50.1			36.8			40.3			58.8	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.1	68.8		37.1	26.9	56.0		37.1
Change Period (Y+Rc), s	8.0	8.0		5.0	8.0	8.0		5.0
Max Green Setting (Gmax), s	7.0	59.0		33.0	18.0	48.0		33.0
Max Q Clear Time (g_c+I1), s	6.9	53.6		31.4	19.7	27.4		25.5
Green Ext Time (p_c), s	0.0	2.8		0.7	0.0	1.5		2.5

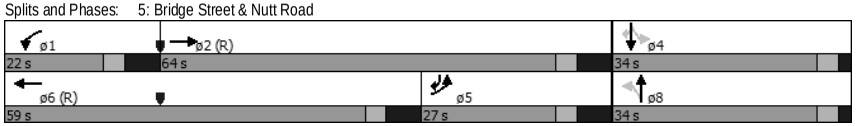
Intersection Summary	
HCM 2010 Ctrl Delay	48.3
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	446	552	67	71	688	13	141	260	45	9	204	490
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	10	11	12	12	10	10
Grade (%)		1%			0%			-2%			1%	
Storage Length (ft)	350		0	720		0	100		0	205		0
Storage Lanes	2		0	1		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.997			0.978				0.850
Flt Protected	0.950			0.950			0.950				0.998	
Satd. Flow (prot)	2934	1825	0	1535	1727	0	1596	1640	0	0	1550	1328
Flt Permitted	0.950			0.950			0.407				0.882	
Satd. Flow (perm)	2934	1825	0	1535	1727	0	684	1640	0	0	1370	1328
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												118
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		106			901			523			731	
Travel Time (s)		2.1			17.6			14.3			19.9	
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
Heavy Vehicles (%)	5%	3%	3%	4%	4%	0%	1%	3%	15%	0%	8%	7%
Adj. Flow (vph)	485	600	73	77	748	14	153	283	49	10	222	533
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	673	0	77	762	0	153	332	0	0	232	533
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		20			20			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.18	0.99	1.08	1.17	1.07	1.07	1.16	1.11	1.06	1.08	1.18	1.18
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	3	1
Detector Template										Left		Right
Leading Detector (ft)	35	35		35	35		35	35		20	60	20
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5		0	0	0
Detector 1 Position(ft)	-5	-5		-5	-5		-5	-5		0	0	0
Detector 1 Size(ft)	40	40		40	40		40	40		20	5	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)											15	
Detector 2 Size(ft)											5	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Detector 3 Position(ft)											35	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)											25	
Detector 3 Type											Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)											0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		7.0	7.0		7.0	7.0	3.0
Minimum Split (s)	15.0	23.0		15.0	23.0		12.0	12.0		12.0	12.0	15.0
Total Split (s)	27.0	64.0		22.0	59.0		34.0	34.0		34.0	34.0	27.0
Total Split (%)	22.5%	53.3%		18.3%	49.2%		28.3%	28.3%		28.3%	28.3%	22.5%
Maximum Green (s)	19.0	56.0		14.0	51.0		29.0	29.0		29.0	29.0	19.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	5.0	5.0		5.0	5.0		2.0	2.0		2.0	2.0	5.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0			-1.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	4.0			4.0	8.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		10.0			10.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: Bridge Street & Nutt Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	446	552	67	71	688	13	141	260	45	9	204	490
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1706	1808	1791	1731	1732	1800	1800	1735	1818	1791	1664	1674
Adj Flow Rate, veh/h	485	600	73	77	748	14	153	283	49	10	222	316
Adj No. of Lanes	2	1	0	1	1	0	1	1	0	0	1	1
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, %	5	3	3	4	4	4	1	3	3	8	8	7
Cap, veh/h	525	838	102	116	734	14	114	360	62	35	343	569
Arrive On Green	0.17	0.53	0.52	0.07	0.43	0.43	0.25	0.25	0.24	0.24	0.25	0.24
Sat Flow, veh/h	3152	1582	192	1648	1695	32	834	1442	250	17	1371	1423
Grp Volume(v), veh/h	485	0	673	77	0	762	153	0	332	232	0	316
Grp Sat Flow(s),veh/h/ln	1576	0	1774	1648	0	1726	834	0	1691	1388	0	1423
Q Serve(g_s), s	18.2	0.0	34.5	5.5	0.0	52.0	7.7	0.0	22.0	0.8	0.0	1.6
Cycle Q Clear(g_c), s	18.2	0.0	34.5	5.5	0.0	52.0	30.0	0.0	22.0	22.8	0.0	1.6
Prop In Lane	1.00		0.11	1.00		0.02	1.00		0.15	0.04		1.00
Lane Grp Cap(c), veh/h	525	0	940	116	0	748	114	0	423	367	0	569
V/C Ratio(X)	0.92	0.00	0.72	0.67	0.00	1.02	1.35	0.00	0.79	0.63	0.00	0.56
Avail Cap(c_a), veh/h	525	0	940	206	0	748	114	0	423	367	0	569
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	49.2	0.0	21.4	54.4	0.0	34.0	58.2	0.0	42.1	39.4	0.0	27.8
Incr Delay (d2), s/veh	22.1	0.0	4.7	6.4	0.0	37.7	203.4	0.0	9.4	3.5	0.0	1.2
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(95%),veh/ln	14.6	0.0	25.0	4.9	0.0	58.6	18.3	0.0	16.9	11.5	0.0	1.4
LnGrp Delay(d),s/veh	71.4	0.0	26.1	60.8	0.0	71.7	261.6	0.0	51.5	42.9	0.0	29.0
LnGrp LOS	E		C	E		F	F		D	D		C
Approach Vol, veh/h		1158			839			485			548	
Approach Delay, s/veh		45.0			70.7			117.8			34.9	
Approach LOS		D			E			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.4	70.6		34.0	27.0	59.0		34.0
Change Period (Y+Rc), s	8.0	8.0		5.0	8.0	8.0		5.0
Max Green Setting (Gmax), s	14.0	56.0		29.0	19.0	51.0		29.0
Max Q Clear Time (g_c+I1), s	8.0	36.5		24.8	20.7	54.0		32.5
Green Ext Time (p_c), s	0.1	4.8		1.9	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.9
HCM 2010 LOS	E

Notes

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

With Improvements

Nutt Road (S.R. 0023) and Bridge Street

Option 2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	444	723	70	57	415	10	72	182	54	12	197	342
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	10	11	12	12	10	10
Grade (%)		1%			0%			-2%			1%	
Storage Length (ft)	350		0	720		0	100		0	205		0
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.996			0.966				0.850
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1527	1828	0	1506	3233	0	1521	1616	0	0	1606	1340
Flt Permitted	0.950			0.950			0.394				0.949	
Satd. Flow (perm)	1527	1828	0	1506	3233	0	631	1616	0	0	1529	1340
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												360
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		106			901			523			731	
Travel Time (s)		2.1			17.6			14.3			19.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	5%	6%	5%	20%	6%	6%	2%	0%	4%	6%
Adj. Flow (vph)	467	761	74	60	437	11	76	192	57	13	207	360
Shared Lane Traffic (%)												
Lane Group Flow (vph)	467	835	0	60	448	0	76	249	0	0	220	360
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.18	0.99	1.08	1.17	1.07	1.07	1.16	1.11	1.06	1.08	1.18	1.18
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	3	1
Detector Template				Left	Thru		Left	Thru		Left		Right
Leading Detector (ft)	35	35		35	35		35	35		20	60	20
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5		0	0	0
Detector 1 Position(ft)	-5	-5		-5	-5		-5	-5		0	0	0
Detector 1 Size(ft)	40	40		40	40		40	40		20	5	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)											15	
Detector 2 Size(ft)											5	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Detector 3 Position(ft)											35	

McMahon Associates, Inc.
5: Bridge Street & Nutt Road
West Nutt Road Traffic Study
2022 Future Weekday AM Peak Hour with No Red

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)											25	
Detector 3 Type											Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)											0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	15.0	23.0		15.0	23.0		12.0	12.0		20.0	20.0	20.0
Total Split (s)	36.0	55.0		16.0	35.0		49.0	49.0		49.0	49.0	49.0
Total Split (%)	30.0%	45.8%		13.3%	29.2%		40.8%	40.8%		40.8%	40.8%	40.8%
Maximum Green (s)	28.0	47.0		8.0	27.0		44.0	44.0		44.0	44.0	44.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	5.0	5.0		5.0	5.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0			-1.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	4.0			4.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		10.0			10.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		11.0			11.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
v/c Ratio	1.27	0.80		0.42	0.35		0.58	0.73			0.69	0.65
Control Delay	177.8	31.3		59.3	27.4		58.4	56.5			54.0	9.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	177.8	31.3		59.3	27.4		58.4	56.5			54.0	9.5
Queue Length 50th (ft)	~455	518		45	125		53	181			158	0
Queue Length 95th (ft)	#663	#939		87	190		100	251			225	80
Internal Link Dist (ft)		26			821			443			651	
Turn Bay Length (ft)	350			720			100					
Base Capacity (vph)	369	1041		145	1286		236	606			573	558
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	1.27	0.80		0.41	0.35		0.32	0.41			0.38	0.65

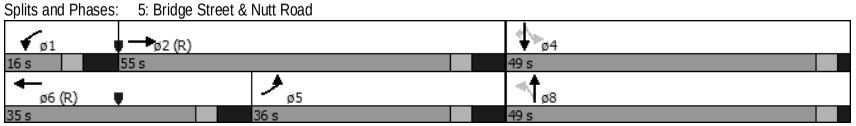
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection
Natural Cycle: 80
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.

5: Bridge Street & Nutt Road
2022 Future Weekday AM Peak Hour with No Red
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\2022 Analysis\Weekday AM - 2 WB thru.syn
Synchro 8

Queue shown is maximum after two cycles.

Splits and Phases: 5: Bridge Street & Nutt Road



McMahon Associates, Inc.
5: Bridge Street & Nutt Road
West Nutt Road Traffic Study
2022 Future Weekday AM Peak Hour with No Red

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	444	723	70	57	415	10	72	182	54	12	197	342
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1722	1805	1791	1698	1708	1800	1715	1730	1818	1791	1726	1690
Adj Flow Rate, veh/h	467	761	74	60	437	11	76	192	57	13	207	360
Adj No. of Lanes	1	1	0	1	2	0	1	1	0	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	6	5	5	6	6	6	4	4	6
Cap, veh/h	532	808	79	95	755	19	209	375	111	44	484	408
Arrive On Green	0.32	0.50	0.49	0.06	0.23	0.22	0.29	0.29	0.28	0.28	0.29	0.28
Sat Flow, veh/h	1640	1620	158	1617	3235	81	774	1282	381	43	1654	1436
Grp Volume(v), veh/h	467	0	835	60	219	229	76	0	249	220	0	360
Grp Sat Flow(s),veh/h/ln	1640	0	1777	1617	1623	1694	774	0	1663	1698	0	1436
Q Serve(g_s), s	32.3	0.0	53.3	4.4	14.3	14.4	10.5	0.0	15.0	0.0	0.0	28.7
Cycle Q Clear(g_c), s	32.3	0.0	53.3	4.4	14.3	14.4	22.5	0.0	15.0	12.5	0.0	28.7
Prop In Lane	1.00		0.09	1.00		0.05	1.00		0.23	0.06		1.00
Lane Grp Cap(c), veh/h	532	0	886	95	379	395	209	0	487	514	0	408
V/C Ratio(X)	0.88	0.00	0.94	0.63	0.58	0.58	0.36	0.00	0.51	0.43	0.00	0.88
Avail Cap(c_a), veh/h	532	0	886	121	379	395	273	0	624	651	0	527
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.3	0.0	28.5	55.2	40.8	40.8	43.3	0.0	35.4	34.5	0.0	41.0
Incr Delay (d2), s/veh	15.5	0.0	19.1	6.7	6.3	6.1	1.1	0.0	0.8	0.6	0.0	13.3
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	16.9	0.0	30.7	2.1	7.1	7.4	2.3	0.0	7.0	6.1	0.0	12.9
LnGrp Delay(d),s/veh	53.8	0.0	47.6	61.9	47.1	46.9	44.4	0.0	36.3	35.0	0.0	54.3
LnGrp LOS	D		D	E	D	D	D		D	D		D
Approach Vol, veh/h		1302			508			325			580	
Approach Delay, s/veh		49.8			48.7			38.2			47.0	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.1	66.8		39.1	45.9	35.0		39.1
Change Period (Y+Rc), s	8.0	8.0		5.0	8.0	8.0		5.0
Max Green Setting (Gmax), s	8.0	47.0		44.0	28.0	27.0		44.0
Max Q Clear Time (g_c+I1), s	6.9	55.3		30.7	34.8	16.8		25.0
Green Ext Time (p_c), s	0.0	0.0		3.4	0.0	1.1		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	47.6
HCM 2010 LOS	D

5: Bridge Street & Nutt Road
2022 Future Weekday AM Peak Hour with No Red
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\2022 Analysis\Weekday AM - 2 WB thru.syn
Synchro 8

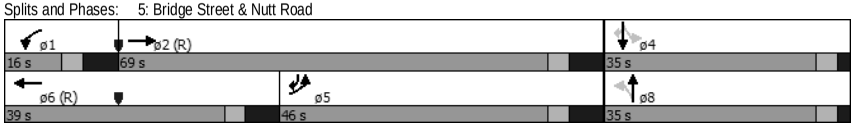
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	446	552	67	71	688	13	141	260	45	9	204	490
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	10	11	12	12	10	10
Grade (%)		1%			0%			-2%			1%	
Storage Length (ft)	350		0	720		0	100		0	205		0
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.997			0.978				0.850
Flt Protected	0.950			0.950			0.950				0.998	
Satd. Flow (prot)	1512	1825	0	1535	3281	0	1596	1640	0	0	1550	1328
Flt Permitted	0.950			0.950			0.411				0.891	
Satd. Flow (perm)	1512	1825	0	1535	3281	0	690	1640	0	0	1383	1328
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												118
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		106			901			523			731	
Travel Time (s)		2.1			17.6			14.3			19.9	
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
Heavy Vehicles (%)	5%	3%	3%	4%	4%	0%	1%	3%	15%	0%	8%	7%
Adj. Flow (vph)	485	600	73	77	748	14	153	283	49	10	222	533
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	673	0	77	762	0	153	332	0	0	232	533
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.18	0.99	1.08	1.17	1.07	1.07	1.16	1.11	1.06	1.08	1.18	1.18
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	3	1
Detector Template										Left		Right
Leading Detector (ft)	35	35		35	35		35	35		20	60	20
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5		0	0	0
Detector 1 Position(ft)	-5	-5		-5	-5		-5	-5		0	0	0
Detector 1 Size(ft)	40	40		40	40		40	40		20	5	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)											15	
Detector 2 Size(ft)											5	
Detector 2 Type											Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)											0.0	
Detector 3 Position(ft)											35	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)											25	
Detector 3 Type											Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)											0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		7.0	7.0		7.0	7.0	3.0
Minimum Split (s)	15.0	23.0		15.0	23.0		12.0	12.0		12.0	12.0	15.0
Total Split (s)	46.0	69.0		16.0	39.0		35.0	35.0		35.0	35.0	46.0
Total Split (%)	38.3%	57.5%		13.3%	32.5%		29.2%	29.2%		29.2%	29.2%	38.3%
Maximum Green (s)	38.0	61.0		8.0	31.0		30.0	30.0		30.0	30.0	38.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	5.0	5.0		5.0	5.0		2.0	2.0		2.0	2.0	5.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0			-1.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	4.0			4.0	8.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		10.0			10.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
v/c Ratio	0.99	0.66		0.65	0.81		0.93	0.85			0.70	0.64
Control Delay	78.6	24.3		79.5	48.6		98.7	63.5			53.6	16.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	78.6	24.3		79.5	48.6		98.7	63.5			53.6	16.0
Queue Length 50th (ft)	372	385		59	297		113	240			161	189
Queue Length 95th (ft)	#595	534		#133	#401		#240	#378			252	304
Internal Link Dist (ft)		26			821			443			651	
Turn Bay Length (ft)	350			720			100					
Base Capacity (vph)	491	1020		120	937		178	423			357	831
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.99	0.66		0.64	0.81		0.86	0.78			0.65	0.64

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Bridge Street & Nutt Road



McMahon Associates, Inc.
5: Bridge Street & Nutt Road
West Nutt Road Traffic Study
2022 Future Weekday PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	446	552	67	71	688	13	141	260	45	9	204	490
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1706	1808	1791	1731	1732	1800	1800	1735	1818	1791	1664	1674
Adj Flow Rate, veh/h	485	600	73	77	748	14	153	283	49	10	222	424
Adj No. of Lanes	1	1	0	1	2	0	1	1	0	0	1	1
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, %	5	3	3	4	4	4	1	3	3	8	8	7
Cap, veh/h	528	826	100	115	881	16	117	372	64	36	368	806
Arrive On Green	0.32	0.52	0.51	0.07	0.27	0.26	0.26	0.26	0.25	0.25	0.26	0.25
Sat Flow, veh/h	1624	1582	192	1648	3305	62	755	1442	250	19	1426	1423
Grp Volume(v), veh/h	485	0	673	77	372	390	153	0	332	232	0	424
Grp Sat Flow(s),veh/h/ln	1624	0	1774	1648	1645	1721	755	0	1691	1445	0	1423
Q Serve(g_s), s	34.5	0.0	35.1	5.5	25.7	25.8	9.1	0.0	21.8	0.6	0.0	0.0
Cycle Q Clear(g_c), s	34.5	0.0	35.1	5.5	25.7	25.8	31.0	0.0	21.8	22.4	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.04	1.00		0.15	0.04		1.00
Lane Grp Cap(c), veh/h	528	0	926	115	439	459	117	0	437	393	0	806
V/C Ratio(X)	0.92	0.00	0.73	0.67	0.85	0.85	1.30	0.00	0.76	0.59	0.00	0.53
Avail Cap(c_a), veh/h	528	0	926	124	439	459	117	0	437	393	0	806
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	0.0	22.1	54.5	41.7	41.7	57.8	0.0	41.1	38.5	0.0	16.0
Incr Delay (d2), s/veh	21.2	0.0	5.0	12.1	18.2	17.5	185.5	0.0	7.6	2.3	0.0	0.6
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(95%),veh/ln	25.7	0.0	25.3	5.2	20.0	20.7	17.9	0.0	16.5	11.3	0.0	13.6
LnGrp Delay(d),s/veh	60.2	0.0	27.1	66.5	59.9	59.2	243.2	0.0	48.7	40.8	0.0	16.7
LnGrp LOS	E		C	E	E	E	F		D	D		B
Approach Vol, veh/h		1158			839			485			656	
Approach Delay, s/veh		41.0			60.2			110.1			25.2	
Approach LOS		D			E			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.4	69.6		35.0	46.0	39.0		35.0
Change Period (Y+Rc), s	8.0	8.0		5.0	8.0	8.0		5.0
Max Green Setting (Gmax), s	8.0	61.0		30.0	38.0	31.0		30.0
Max Q Clear Time (g_c+I1), s	8.0	37.1		24.4	37.0	28.2		33.5
Green Ext Time (p_c), s	0.0	4.8		2.6	0.5	0.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.5
HCM 2010 LOS	D

Notes

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

With Improvements

Nutt Road (S.R. 0023) and Bridge Street

Option 3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	446	552	67	71	688	13	141	260	45	9	204	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.997			0.986			0.906	
Flt Protected	0.950	0.997			0.995			0.984			0.999	
Satd. Flow (prot)	1649	1716	0	0	3399	0	0	1746	0	0	1632	0
Flt Permitted	0.950	0.997			0.995			0.984			0.999	
Satd. Flow (perm)	1649	1716	0	0	3399	0	0	1746	0	0	1632	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		234			186			165			186	
Travel Time (s)		5.3			4.2			3.8			4.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	5%	6%	5%	20%	6%	6%	2%	0%	4%	6%
Adj. Flow (vph)	469	581	71	75	724	14	148	274	47	9	215	516
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	422	699	0	0	813	0	0	469	0	0	740	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary	
Area Type:	Other
Control Type: Roundabout	

Intersection	
Intersection Delay, s/veh	27.0
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	2	2	1	1
Conflicting Circle Lanes	1	2	2	2
Adj Approach Flow, veh/h	1121	813	469	740
Demand Flow Rate, veh/h	1161	857	495	780
Vehicles Circulating, veh/h	313	935	1095	997
Vehicles Exiting, veh/h	917	655	379	795
Follow-Up Headway, s	2.535	2.667	2.535	2.535
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.8	24.6	43.3	44.0
Approach LOS	B	C	E	E

Lane	Left	Right	Left	Right	Left	Left	Bypass
Designated Moves	L	LTR	LT	TR	LTR	LT	R
Assumed Moves	L	TR	LT	TR	LTR	LT	R
RT Channelized							Yield
Lane Util	0.420	0.580	0.470	0.530	1.000	1.000	
Critical Headway, s	4.544	4.544	4.645	4.328	4.328	4.328	
Entry Flow, veh/h	488	673	403	454	495	233	547
Cap Entry Lane, veh/h	1068	1068	571	620	560	608	568
Entry HV Adj Factor	0.961	0.968	0.948	0.949	0.947	0.963	0.943
Flow Entry, veh/h	469	652	382	431	469	224	516
Cap Entry, veh/h	1026	1034	541	588	530	586	536
V/C Ratio	0.457	0.630	0.706	0.732	0.884	0.383	0.964
Control Delay, s/veh	8.7	12.4	24.6	24.7	43.3	11.8	58.0
LOS	A	B	C	C	E	B	F
95th %tile Queue, veh	2	5	6	6	10	2	13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	446	552	67	71	688	13	141	260	45	9	204	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.997			0.986			0.906	
Flt Protected	0.950	0.997			0.995			0.984			0.999	
Satd. Flow (prot)	1633	1719	0	0	3446	0	0	1780	0	0	1604	0
Flt Permitted	0.950	0.997			0.995			0.984			0.999	
Satd. Flow (perm)	1633	1719	0	0	3446	0	0	1780	0	0	1604	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		234			186			165			186	
Travel Time (s)		5.3			4.2			3.8			4.2	
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
Heavy Vehicles (%)	5%	3%	3%	4%	4%	0%	1%	3%	15%	0%	8%	7%
Adj. Flow (vph)	485	600	73	77	748	14	153	283	49	10	222	533
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	436	722	0	0	839	0	0	485	0	0	765	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary	
Area Type:	Other
Control Type: Roundabout	

Intersection	
Intersection Delay, s/veh	31.6
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	2	2	1	1
Conflicting Circle Lanes	1	2	2	2
Adj Approach Flow, veh/h	1158	839	485	765
Demand Flow Rate, veh/h	1202	872	502	820
Vehicles Circulating, veh/h	330	955	1137	1013
Vehicles Exiting, veh/h	933	684	395	814
Follow-Up Headway, s	2.535	2.667	2.535	2.535
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.7	26.5	51.7	54.9
Approach LOS	B	D	F	F

Lane	Left	Right	Left	Right	Left	Left	Bypass
Designated Moves	L	LTR	LT	TR	LTR	LT	R
Assumed Moves	L	TR	LT	TR	LTR	LT	R
RT Channelized							Yield
Lane Util	0.423	0.577	0.470	0.530	1.000	1.000	
Critical Headway, s	4.544	4.544	4.645	4.328	4.328	4.328	
Entry Flow, veh/h	509	693	410	462	502	250	570
Cap Entry Lane, veh/h	1052	1052	561	610	540	600	559
Entry HV Adj Factor	0.953	0.971	0.962	0.963	0.965	0.929	0.935
Flow Entry, veh/h	485	673	394	445	485	232	533
Cap Entry, veh/h	1002	1021	539	587	521	558	522
V/C Ratio	0.484	0.659	0.731	0.757	0.929	0.417	1.021
Control Delay, s/veh	9.3	13.4	26.4	26.5	51.7	13.1	73.1
LOS	A	B	D	D	F	B	F
95th %tile Queue, veh	3	5	6	7	11	2	15

With Improvements

Nutt Road (S.R. 0023) and Mason Street

Signalization

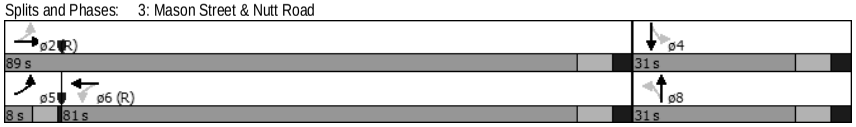
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	1077	3	2	761	6	10	6	11	19	8	235
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999			0.903			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1710	1731	0	1710	3220	0	1710	1625	0	1710	1165	0
Flt Permitted	0.325			0.195			0.354			0.746		
Satd. Flow (perm)	585	1731	0	351	3220	0	637	1625	0	1343	1165	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1			11			242	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		416			345			307			313	
Travel Time (s)		8.1			6.7			8.4			8.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	0%	0%	6%	20%	0%	0%	0%	0%	67%	31%
Adj. Flow (vph)	96	1110	3	2	785	6	10	6	11	20	8	242
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	1113	0	2	791	0	10	17	0	20	250	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	8.0	89.0		81.0	81.0		31.0	31.0		31.0	31.0	
Total Split (%)	6.7%	74.2%		67.5%	67.5%		25.8%	25.8%		25.8%	25.8%	
Maximum Green (s)	4.0	81.0		73.0	73.0		23.0	23.0		23.0	23.0	
Yellow Time (s)	3.5	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	0.5	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
v/c Ratio	0.17	0.82		0.01	0.35		0.17	0.10		0.16	0.76	
Control Delay	3.4	15.5		8.0	8.3		52.3	28.3		49.3	22.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.4	15.5		8.0	8.3		52.3	28.3		49.3	22.1	
Queue Length 50th (ft)	9	351		0	102		7	4		15	6	
Queue Length 95th (ft)	33	#1071		4	194		23	25		36	88	
Internal Link Dist (ft)		336			265			227			233	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	550	1365		246	2261		127	333		268	426	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.82		0.01	0.35		0.08	0.05		0.07	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Mason Street & Nutt Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	93	1077	3	2	761	6	10	6	11	19	8	235
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1800	1731	1800	1800	1696	1800	1800	1800	1800	1800	1362	1800
Adj Flow Rate, veh/h	96	1110	3	2	785	6	10	6	11	20	8	190
Adj No. of Lanes	1	1	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	4	4	0	6	6	0	0	0	0	67	67
Cap, veh/h	539	1182	3	119	2028	15	103	113	207	320	9	222
Arrive On Green	0.04	0.69	0.68	1.00	1.00	1.00	0.20	0.20	0.19	0.20	0.20	0.19
Sat Flow, veh/h	1714	1725	5	487	3279	25	1140	570	1045	1343	47	1118
Grp Volume(v), veh/h	96	0	1113	2	386	405	10	0	17	20	0	198
Grp Sat Flow(s),veh/h/ln	1714	0	1730	487	1612	1692	1140	0	1616	1343	0	1165
Q Serve(g_s), s	2.3	0.0	68.2	0.4	0.0	0.0	1.0	0.0	1.0	1.5	0.0	19.7
Cycle Q Clear(g_c), s	2.3	0.0	68.2	60.1	0.0	0.0	20.3	0.0	1.0	2.0	0.0	19.7
Prop In Lane	1.00		0.00	1.00		0.01	1.00		0.65	1.00		0.96
Lane Grp Cap(c), veh/h	539	0	1185	119	997	1046	103	0	320	320	0	231
V/C Ratio(X)	0.18	0.00	0.94	0.02	0.39	0.39	0.10	0.00	0.05	0.06	0.00	0.86
Avail Cap(c_a), veh/h	539	0	1185	119	997	1046	105	0	323	323	0	233
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.5	0.0	16.7	24.1	0.0	0.0	56.0	0.0	39.2	39.6	0.0	46.9
Incr Delay (d2), s/veh	0.2	0.0	15.1	0.3	1.1	1.1	0.4	0.0	0.1	0.1	0.0	25.6
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	1.1	0.0	37.1	0.1	0.3	0.3	0.3	0.0	0.5	0.6	0.0	8.0
LnGrp Delay(d),s/veh	6.7	0.0	31.8	24.4	1.1	1.1	56.4	0.0	39.3	39.7	0.0	72.6
LnGrp LOS	A		C	C	A	A	E		D	D		E
Approach Vol, veh/h		1209			793			27			218	
Approach Delay, s/veh		29.8			1.2			45.7			69.5	
Approach LOS		C			A			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		89.2		30.8	8.0	81.2		30.8
Change Period (Y+Rc), s		8.0		8.0	4.0	8.0		8.0
Max Green Setting (Gmax), s		81.0		23.0	4.0	73.0		23.0
Max Q Clear Time (g_c+I1), s		70.2		21.7	4.8	62.6		22.8
Green Ext Time (p_c), s		8.6		0.2	0.0	8.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	223	910	0	0	1247	7	16	2	16	13	2	219
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999			0.866			0.851	
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1583	1748	0	1800	3284	0	1710	1353	0	1710	1488	0
Flt Permitted	0.149						0.404			0.745		
Satd. Flow (perm)	248	1748	0	1800	3284	0	727	1353	0	1341	1488	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1			17			228	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		416			345			307			313	
Travel Time (s)		8.1			6.7			8.4			8.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	3%	25%	0%	4%	13%	0%	0%	17%	0%	0%	3%
Adj. Flow (vph)	232	948	0	0	1299	7	17	2	17	14	2	228
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	948	0	0	1306	0	17	19	0	14	230	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		

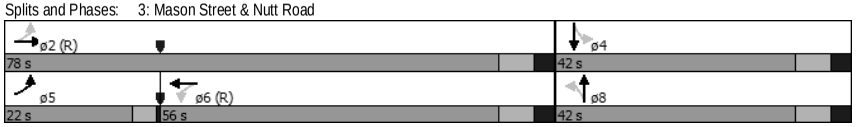
McMahon Associates, Inc.
3: Mason Street & Nutt Road
West Nutt Road Traffic Study
2022 Future Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	22.0	78.0		56.0	56.0		42.0	42.0		42.0	42.0	
Total Split (%)	18.3%	65.0%		46.7%	46.7%		35.0%	35.0%		35.0%	35.0%	
Maximum Green (s)	18.0	70.0		48.0	48.0		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	0.5	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
v/c Ratio	0.59	0.68			0.63		0.28	0.15		0.13	0.69	
Control Delay	12.7	9.0			17.0		61.4	24.6		51.0	18.0	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	12.7	9.0			17.0		61.4	24.6		51.0	18.0	
Queue Length 50th (ft)	24	239			290		13	1		10	1	
Queue Length 95th (ft)	110	513			516		36	24		30	76	
Internal Link Dist (ft)		336			265			227			233	
Turn Bay Length (ft)	100											
Base Capacity (vph)	436	1399			2081		212	406		391	595	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.53	0.68			0.63		0.08	0.05		0.04	0.39	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 3: Mason Street & Nutt Road



Lanes, Volumes, Timings
2022 Future Weekday PM Peak Hour
I:\eng\816494 - Phx NuttRd Traffic Study\Traffic\Analysis\2022 Analysis\Weekday PM - Mason Signal.syn
Synchro 8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	223	910	0	0	1247	7	16	2	16	13	2	219
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1667	1748	1800	1800	1730	1800	1800	1562	1800	1800	1748	1800
Adj Flow Rate, veh/h	232	948	0	0	1299	7	17	2	17	14	2	228
Adj No. of Lanes	1	1	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	8	3	3	0	4	4	0	0	0	0	0	0
Cap, veh/h	312	1198	0	60	1921	10	121	28	239	316	3	292
Arrive On Green	0.09	0.69	0.00	0.00	0.57	0.56	0.20	0.20	0.19	0.20	0.20	0.19
Sat Flow, veh/h	1587	1748	0	569	3352	18	1107	142	1207	1341	13	1475
Grp Volume(v), veh/h	232	948	0	0	637	669	17	0	19	14	0	230
Grp Sat Flow(s),veh/h/ln	1587	1748	0	569	1643	1727	1107	0	1349	1341	0	1488
Q Serve(g_s), s	6.6	44.8	0.0	0.0	32.4	32.4	1.8	0.0	1.4	1.0	0.0	17.6
Cycle Q Clear(g_c), s	6.6	44.8	0.0	0.0	32.4	32.4	18.9	0.0	1.4	1.9	0.0	17.6
Prop In Lane	1.00		0.00	1.00		0.01	1.00		0.89	1.00		0.99
Lane Grp Cap(c), veh/h	312	1198	0	60	942	989	121	0	267	316	0	295
V/C Ratio(X)	0.74	0.79	0.00	0.00	0.68	0.68	0.14	0.00	0.07	0.04	0.00	0.78
Avail Cap(c_a), veh/h	425	1198	0	60	942	989	225	0	394	441	0	434
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	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.4	13.0	0.0	0.0	17.9	17.9	54.4	0.0	39.5	39.7	0.0	46.1
Incr Delay (d2), s/veh	4.6	5.4	0.0	0.0	3.9	3.7	0.5	0.0	0.1	0.1	0.0	5.4
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(95%),veh/ln	8.6	31.0	0.0	0.0	22.2	23.1	1.0	0.0	0.9	0.7	0.0	12.2
LnGrp Delay(d),s/veh	24.0	18.4	0.0	0.0	21.8	21.6	54.9	0.0	39.6	39.8	0.0	51.5
LnGrp LOS	C	B			C	C	D		D	D		D
Approach Vol, veh/h		1180			1306			36			244	
Approach Delay, s/veh		19.5			21.7			46.8			50.9	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		89.2		30.8	13.5	75.8		30.8
Change Period (Y+Rc), s		8.0		8.0	4.0	8.0		8.0
Max Green Setting (Gmax), s		70.0		34.0	18.0	48.0		34.0
Max Q Clear Time (g_c+I1), s		47.3		19.6	9.1	34.9		21.4
Green Ext Time (p_c), s		16.8		1.5	0.4	10.7		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	23.6
HCM 2010 LOS	C

With Improvements

Nutt Road (S.R. 0023) and Paradise Street

Signalization

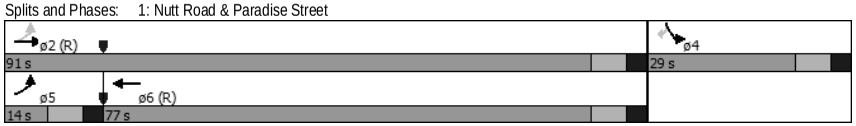
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	91	1064	746	9	10	214
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1390	1731	3149	0	855	1093
Flt Permitted	0.293				0.950	
Satd. Flow (perm)	429	1731	3149	0	855	1093
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			2			233
Link Speed (mph)		35	35		25	
Link Distance (ft)		295	435		302	
Travel Time (s)		5.7	8.5		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	23%	4%	8%	40%	100%	40%
Adj. Flow (vph)	99	1157	811	10	11	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	1157	821	0	11	233
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	12.0	24.0	24.0		24.0	24.0
Total Split (s)	14.0	91.0	77.0		29.0	29.0
Total Split (%)	11.7%	75.8%	64.2%		24.2%	24.2%
Maximum Green (s)	6.0	83.0	69.0		21.0	21.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	3.0	3.0	3.0		3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	7.0	7.0	7.0		7.0	7.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
v/c Ratio	0.25	0.84	0.39		0.14	0.75
Control Delay	5.1	16.9	10.4		50.3	21.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	5.1	16.9	10.4		50.3	21.5
Queue Length 50th (ft)	12	389	125		8	0
Queue Length 95th (ft)	39	#1135	225		25	80
Internal Link Dist (ft)		215	355		222	
Turn Bay Length (ft)	100					
Base Capacity (vph)	403	1371	2104		156	390
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.25	0.84	0.39		0.07	0.60

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Nutt Road & Paradise Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	91	1064	746	9	10	214
Number	5	2	6	16	7	14
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	1463	1731	1661	1800	900	1286
Adj Flow Rate, veh/h	99	1157	811	10	11	168
Adj No. of Lanes	1	1	2	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	23	4	8	8	100	40
Cap, veh/h	443	1220	1895	23	153	195
Arrive On Green	0.05	0.71	1.00	1.00	0.18	0.18
Sat Flow, veh/h	1394	1731	3275	39	857	1093
Grp Volume(v), veh/h	99	1157	401	420	11	168
Grp Sat Flow(s),veh/h/ln	1394	1731	1578	1654	857	1093
Q Serve(g_s), s	3.1	71.4	0.0	0.0	1.3	17.9
Cycle Q Clear(g_c), s	3.1	71.4	0.0	0.0	1.3	17.9
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	443	1220	937	982	153	195
V/C Ratio(X)	0.22	0.95	0.43	0.43	0.07	0.86
Avail Cap(c_a), veh/h	451	1220	937	982	157	200
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.2	15.7	0.0	0.0	41.0	47.9
Incr Delay (d2), s/veh	0.3	16.0	1.4	1.4	0.2	29.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	38.8	0.4	0.4	0.3	11.7
LnGrp Delay(d),s/veh	7.4	31.7	1.4	1.4	41.2	77.2
LnGrp LOS	A	C	A	A	D	E
Approach Vol, veh/h		1256	821		179	
Approach Delay, s/veh		29.8	1.4		75.0	
Approach LOS		C	A		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		91.6		28.4	13.4	78.3		
Change Period (Y+Rc), s		8.0		8.0	8.0	8.0		
Max Green Setting (Gmax), s		83.0		21.0	6.0	69.0		
Max Q Clear Time (g_c+I1), s		73.9		20.4	5.6	2.5		
Green Ext Time (p_c), s		7.6		0.0	0.0	29.6		

Intersection Summary	
HCM 2010 Ctrl Delay	23.1
HCM 2010 LOS	C

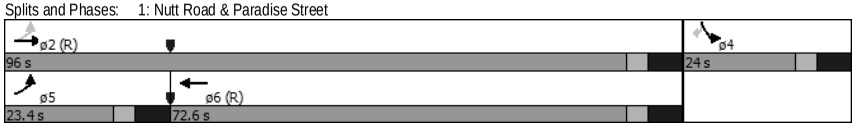
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	213	1155	1340	12	62	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.999			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1710	1782	3383	0	1710	1530
Flt Permitted	0.091				0.950	
Satd. Flow (perm)	164	1782	3383	0	1710	1530
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			1			193
Link Speed (mph)		35	35		25	
Link Distance (ft)		295	435		302	
Travel Time (s)		5.7	8.5		8.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Adj. Flow (vph)	237	1283	1489	13	69	193
Shared Lane Traffic (%)						
Lane Group Flow (vph)	237	1283	1502	0	69	193
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	12.5	24.0	24.0		24.0	24.0
Total Split (s)	23.4	96.0	72.6		24.0	24.0
Total Split (%)	19.5%	80.0%	60.5%		20.0%	20.0%
Maximum Green (s)	15.4	88.0	64.6		16.0	16.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	5.0	5.0	5.0		5.0	5.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	7.0	7.0	7.0		7.0	7.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
v/c Ratio	0.71	0.91	0.74		0.43	0.61
Control Delay	31.2	22.0	21.3		59.0	15.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.2	22.0	21.3		59.0	15.5
Queue Length 50th (ft)	82	612	428		51	0
Queue Length 95th (ft)	177	#1242	581		97	69
Internal Link Dist (ft)		215	355		222	
Turn Bay Length (ft)	100					
Base Capacity (vph)	358	1408	2032		242	382
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.66	0.91	0.74		0.29	0.51

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Nutt Road & Paradise Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	213	1155	1340	12	62	174
Number	5	2	6	16	7	14
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	1800	1782	1782	1800	1800	1800
Adj Flow Rate, veh/h	237	1283	1489	13	69	137
Adj No. of Lanes	1	1	2	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	1	1	1	0	0
Cap, veh/h	308	1365	2173	19	201	180
Arrive On Green	0.08	0.77	0.63	0.62	0.12	0.12
Sat Flow, veh/h	1714	1782	3529	30	1714	1530
Grp Volume(v), veh/h	237	1283	733	769	69	137
Grp Sat Flow(s),veh/h/ln	1714	1782	1693	1777	1714	1530
Q Serve(g_s), s	5.2	72.2	33.7	33.8	4.4	10.4
Cycle Q Clear(g_c), s	5.2	72.2	33.7	33.8	4.4	10.4
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	308	1365	1069	1122	201	180
V/C Ratio(X)	0.77	0.94	0.68	0.69	0.34	0.76
Avail Cap(c_a), veh/h	412	1365	1069	1122	243	217
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	20.2	11.7	14.3	14.4	48.7	51.3
Incr Delay (d2), s/veh	6.1	13.7	3.6	3.4	1.0	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.6	50.1	23.4	24.4	3.9	14.1
LnGrp Delay(d),s/veh	26.3	25.4	17.9	17.8	49.7	63.6
LnGrp LOS	C	C	B	B	D	E
Approach Vol, veh/h		1520	1502		206	
Approach Delay, s/veh		25.6	17.8		58.9	
Approach LOS		C	B		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		98.9		21.1	16.1	82.8		
Change Period (Y+Rc), s		8.0		8.0	8.0	8.0		
Max Green Setting (Gmax), s		88.0		16.0	15.4	64.6		
Max Q Clear Time (g_c+I1), s		74.7		12.9	7.7	36.2		
Green Ext Time (p_c), s		12.4		0.2	0.4	24.8		

Intersection Summary	
HCM 2010 Ctrl Delay	24.1
HCM 2010 LOS	C