BENSALEM TOWNSHIP

Building and Planning Department
2400 Byberry Road • Bensalem PA 19020
215-633-3644 • FAX 215-633-3653

SUBDIVISION AND LAND DEVELOPMENT APPLICATION
SITE AND PLAN CHARACTERISTICS

ALL APPLICANTS FOR MINOR or MAJOR LAND DEVELOPMENT and MAJOR SUB-DIVISIONS MUST SUBMIT A TRAFFIC STUDY AT TIME OF SUBMISSION

CHECK ONE: DATE OF SUBMISSION: 6/13/16

- ☐ Sketch Plan
- ☐ Lot Line Change
- ☐ Minor Subdivision
- ☐ Minor Land Development
- ☐ Preliminary Subdivision
- ☒ Preliminary Land Development
- ☐ Final Subdivision
- ☒ Final Land Development
- ☐ Conditional Use
- ☐ Other

Tax Parcel #	2-1-37, 37-1, 37-4, 37-5, 37-6, 37-7, 38
Location	US 1 and Rockhill Drive
Zoning Classification	H-C1
Proposed # of Lots or Leaseholds	N/A
Area of Commercial Bldg of Addition (sf)	27,553
Name of Development	The Marketplace at Neshaminy
Proposed Use	Shopping Center
Site Area (ac)	40.1 Acres
Development Area (ac)	212,500 SF (4.9 acres)

SUBMISSION IS TO INCLUDE A DISC WITH APPLICATION AND PLAN(S) IN PDF FILE FORMAT or email same to jmryan@bensalempa.gov

1. Name, address & phone No. of Applicant:
   Maurice Zekaria, c/o Paramount Realty Services, Inc.
   1195 Route 70 Suite 2000
   Lakewood, NJ 08701
   Daytime Contact Number

2. Name, address & phone No. of Attorney:
   (if other than applicant)
   Thomas Hecker, Esq., Begley, Carlin & Mandio, LLP
   680 Middletown Boulevard
   Langhorne, PA 19047
   Signature *Daytime Contact Number*

3. Name, address & phone No. of Owner:
   Maurice Zekaria, c/o Paramount realty Services, Inc.
   1195 Route 70 Suite 2000
   Lakewood, NJ 08701
   Signature *Daytime Contact Number*

4. Name, address & phone No. of Person Designing Plan:
   Brian Conlon, c/o Langan
   30 S 17th Street, Suite 1300
   Philadelphia, PA 19103
   Daytime Contact Number

5. Has parcel ever been subject to subdivision or land development approval? Yes

If Yes: Date of Approval

Plan Title

Recording Date

Plan Book

Page

6. Has parcel ever received relief from the Zoning Hearing Board?

If yes, list date of decision and attach copy of the decision.

7. Deed restrictions that apply or are being contemplated. If no restrictions, state none. If yes, attach copy.

N/A

8. List proposed improvements and utilities to be installed:

Construction of a 16,862 retail / restaurant building and a 10,691 retail building along with associated infrastructure and improvements to support the new construction.

9. List title of each plan, report and any other documents submitted:

10. List presence of floodplain, wetlands, steep slopes or any other environmental features on site:

Wetlands and streams are located outside of development area.

11. List all variances and special exceptions that will be required from the Zoning Hearing Board for this application:

12. List all zoning changes, conditional uses and waivers that will be required for this application:

***NOTE**: Plan requirements can be found in The Code of the Township of Bensalem, Chapter 201*

MUNICIPAL USE ONLY

Date Received:

Application Fee:

Escrow:

13 June 2016

Loretta Alston
Building and Planning Department
2400 Byberry Road
Bensalem, Pennsylvania 19020

Re: Land Development Review
The Marketplace at Neshaminy
Bensalem Township, Bucks County, PA
Langan Project No. 220048102

Dear Loretta:

As a follow up to our phone call on 6/13/16, please find the enclosed additional application package for a Preliminary and Final Land Development Review for the Marketplace at Neshaminy shopping center. The supplemental application package contains the following items for your review and consideration:

- 37 copies of the signed Subdivision and Land Development Review Application;
- 37 copies of the signed Bucks County Planning Commission application and submission letter;
- 22 additional sets of paper prints of the Preliminary and Final Land Development Plan, dated 08 June 2016; and,
- One CD of the electronic submission.

Our office will also pick up the additional stormwater and traffic reports that are not needed. We respectfully request that your office begin the review of the enclosed application package. If you or any of your professionals should have any questions or require additional information, please do not hesitate to contact me directly at (215) 446-2929.

Sincerely,
Langan Engineering and Environmental Services, Inc.

Brian M. Conlon, P.E., LEED AP, SCDP
Senior Associate / Vice President

cc: Maurice Zekaria, Paramount
David Levy, Paramount
Thomas Hecker, Begley, Carlin, & Mandio

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TRANSPORTATION IMPACT ASSESSMENT

Marketplace at Neshaminy
Bensalem Township
Bucks County, Pennsylvania

Prepared For:

Paramount Realty
1195 Route 70
Suite 2000
Lakewood, NJ 08701

Prepared By:

Langan Engineering & Environmental Services, Inc.
30 S. 17th Street, Suite 1300
Philadelphia, Pennsylvania 19103

Daniel D. Disario, P.E.
Professional Engineer License No.

AnnMarie Vigilante, P.E.
Professional Engineer License No.

LANGAN

8 June 2016

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EXECUTIVE SUMMARY

Langan Engineering and Environmental Services, Inc. (Langan) has prepared this study to assess the traffic impacts associated with the construction of 27,553 square feet of additional shopping center space, proposed as an expansion to the existing Marketplace at Neshaminy shopping center. The site is located at Block 37 Lot 1 and Block 38 Lot 1, with frontage along Rockhill Drive (SR 2044) and Neshaminy Road, in Bensalem Township, Bucks County, Pennsylvania.

The existing Marketplace at Neshaminy shopping center consists of 329,040 square feet distributed between eight buildings. Based on the Master Site Plan CS-100 dated 8 June 2016, the proposed shopping center will include the addition of 27,553 square feet of retail space, for an overall development of 356,593 square feet after the expansion. Construction is anticipated to begin once approvals have been obtained and be completed by 2017.

Access is currently provided via three driveways. The main access driveway intersects Rockhill Drive (SR 2044) directly across from the Neshaminy Mall driveway to form a full-movement signalized intersection. The secondary access driveway intersects Neshaminy Boulevard directly across from Palton Road to form a full-movement unsignalized intersection. An additional access driveway (New Road) intersects Neshimany Boulevard to form a full-movement unsignalized intersection and is primarily used as a truck access.

Langan calculated the number of additional trips the proposed development would generate based on a survey of the existing Marketplace at Neshaminy shopping center. We estimate that the proposed expansion will generate approximately 37 new trips (22 enter, 15 exit) during the weekday morning peak hour, 89 new trips (46 enter, 43 exit) during the weekday evening peak hour, and 97 new trips (48 enter, 49 exit) during the Saturday midday peak hour.

The directional distributions of site generated traffic were based on an examination of demographic data and existing travel patterns in the study area. We conducted capacity analyses at the following intersections:

- Rockhill Drive (SR 2044) and Marketplace Driveway 1/Neshaminy Mall Access
- Rockhill Drive (SR 2044) and Neshaminy Boulevard
- Neshaminy Boulevard and Marketplace Driveway 2/Palton Road

The overall delays at the study intersections, when comparing the 2017 build conditions to the 2017 no-build conditions, fall within an accepted 10 second variance as allowed by PennDOT.

Based on our analysis, we determined the adjacent road network has sufficient capacity to accommodate the additional site generated trips.

INTRODUCTION

Langan Engineering and Environmental Services, Inc. (Langan) has prepared this study to assess the traffic impacts associated with the construction of 27,553 square feet of additional shopping center space, proposed as an expansion to the existing Marketplace at Neshaminy shopping center located on Block 37 Lot 1 and Block 38 Lot 1, with frontage along Rockhill Drive (SR 2044) and Neshaminy Road, in Bensalem Township, Bucks County, Pennsylvania.

Project Description

The existing Marketplace at Neshaminy shopping center has a total of 329,040 square feet distributed between eight buildings. Based on the Master Site Plan CS-100 dated 8 June 2016, the proposed shopping center will include the addition of two retail buildings totaling 27,553 square feet. The overall shopping center will contain 356,593 square feet of shopping center space at the completion of the project. The site is located on an approximate 42.0 acre site bordered on the east by Rockhill Drive (SR 2044), on the north by Lincoln Highway (SR 0001), and on the south by Neshaminy Boulevard. The site location is illustrated in Figure 1.

Access to the Marketplace at Neshaminy is provided via three full-access driveways. The main access driveway intersects Rockhill Drive (SR 2044) directly across from the Neshaminy Mall access driveway to form a full-movement signalized intersection approximately 550 feet north of the intersection with Rockhill Drive and Neshaminy Boulevard. The secondary access driveway intersects Neshaminy Boulevard directly across from Palton Road to form a full-movement unsignalized intersection approximately 560 feet west of the intersection with Rockhill Drive and Neshaminy Boulevard. An additional access driveway (New Road) intersects Neshimany Boulevard to form a full-movement unsignalized intersection and is primarily used as a truck access. An overall site plan is contained in Appendix A.

Study Area

To assess the impact of the proposed distribution facility on the surrounding roadway network, we conducted capacity analyses at the following intersections:

- Rockhill Drive (SR 2044) and Marketplace Driveway 1/Neshaminy Mall Access
- Rockhill Drive (SR 2044) and Neshaminy Boulevard
- Neshaminy Boulevard and Marketplace Driveway 2/Palton Road

An inventory of the physical road conditions is presented in the section "Description of Existing Conditions."

Scope of Study

Langan undertook the following steps to prepare this study in accordance with standard accepted methodologies:

1. Conducted a field examination of the site and surrounding road network to inventory physical and regulatory conditions including the number of lanes, lane assignments, channelization, traffic-control devices, lateral clearances and other factors that limit traffic capacity. Intersection aerials are located in Appendix B.
2. Reviewed the site plan with respect to the proposed site access.
3. Conducted a series of manual turning movement traffic counts at the intersections identified in the previous section. We conducted counts on a typical weekday from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM and on a typical Saturday from 11:00 AM to 2:00 PM. We then identified the existing weekday morning and evening, and Saturday midday peak hour traffic volumes based on the manual traffic count data.
4. Established future no-build traffic volumes utilizing a growth rate of 1.43%, which is currently recommended by PennDOT's Bureau of Planning and Research. The growth rate table used for this Transportation Impact Study is located in Appendix D.
5. Prepared trip generation estimates for the proposed development based on a survey of the existing Marketplace at Neshaminy, and ITE trip generation estimates.
6. Developed trip distribution for the development based on census data, existing travel patterns, and demographic data.
7. Assigned site-generated trips to the site access roads and surrounding road network based on the likely travel routes motorists will use to travel to and from the site.
8. Established future 2017 Build traffic volumes by adding site-generated trips to the 2017 No-Build traffic volumes.
9. Performed intersection capacity analyses for the weekday morning, evening, and Saturday midday peak hours using Synchro Version 9 software.
10. Prepared this summary report describing our findings.

DESCRIPTION OF EXISTING CONDITIONS

This section describes the roads and traffic volumes near the site. Appendix H contains copies of the existing traffic signal plans and timings provided by PennDOT. As previously discussed, the site is bordered on the east by Rockhill Drive (SR 2044), on the north by Lincoln Highway (SR 0001), and on the south by Neshaminy Boulevard. The following is a description of the roads and intersections within the study area located in Bensalem Township, Bucks County, Pennsylvania.

Roads

Rockhill Drive (SR 2044)

Rockhill Drive (SR 2044) has a functional classification of urban minor urban collector and a smart transportation roadway typology of suburban corridor-regional arterial. The road runs in a general north-south direction and provides two lanes for each travel direction near the site, with turn lanes provided at major intersections. There is no posted speed limit in the immediate site vicinity.

Neshaminy Boulevard

Neshaminy Boulevard has a functional class of urban minor collector and a smart transportation roadway typology of suburban corridor-regional arterial. The roadway runs in a general east-west direction and provides one lane for each travel direction within the study area, with turn lanes provided at major intersections. The posted speed limit is 35 mph.

Palton Road

Palton Road has a functional class of a local road and a smart transportation roadway typology of suburban neighborhood-regional arterial. The roadway runs in a general north-south direction and provides one lane for each travel direction within the study area. There is no posted speed limit in the immediate site vicinity.

Intersections

Rockhill Drive (SR 2044) and Marketplace Driveway 1/Neshaminy Mall Access

The intersection of Rockhill Drive (SR 2044) and Marketplace Driveway 1/Neshaminy Mall Access is a four-legged signalized intersection with a varying cycle length depending on the timing program. The eastbound approach along Marketplace Driveway 1 consists of one exclusive left-turn lane, a shared left-turn and through lane, and an exclusive right-turn lane. The westbound approach along Neshaminy Mall Access consists of a shared left-turn and through lane and an exclusive right-turn lane. The northbound approach along Rockhill Drive (SR 2044)

consists of one exclusive left-turn lane, one exclusive through lane, and one shared through and right-turn lane. The southbound approach along Rockhill Drive (SR 2044) consists of one exclusive left-turn lane, two excusive through lanes, and one exclusive channelized right-turn lane.

Rockhill Drive (SR 2044) and Neshaminy Boulevard

The intersection of Rockhill Drive (SR 2044) and Neshaminy Boulevard is a four-legged signalized intersection with a varying cycle length depending on the timing program. The eastbound approach along Neshaminy Boulevard consists of one exclusive left-turn lane and a shared through and right-turn lane. The westbound approach along Neshaminy Boulevard consists of one exclusive left-turn, one exclusive through lane, and one exclusive channelized right-turn lane. The northbound approach along Rockhill Drive (SR 2044) consists of one exclusive left-turn lane and one shared through lane and right-turn lane. The southbound approach along Rockhill Drive (SR 2044) consists of one exclusive left-turn lane and one shared through lane and right-turn lane.

Neshaminy Boulevard and Palton Road/Marketplace Driveway 2

The intersection of Neshaminy Boulevard and Palton Road/Marketplace Driveway 2 is an unsignalized four-legged intersection with stop sign control along the Palton Road/Marketplace Driveway 2 approaches. The eastbound and westbound Neshaminy Boulevard approaches consist of a shared left-turn, through, and right-turn lane. The northbound and southbound Palton Road/Marketplace Driveway 2 approaches consist of a shared left-turn, through, and right-turn lane.

Existing Traffic Volumes

To examine traffic conditions near the site, manual turning movement traffic counts were conducted during the morning and evening peak hour on a typical weekday and during the Saturday midday peak hour at the study intersections. Specifically, manual turning movement counts were conducted at the intersection of Rockhill Drive (SR 2044) and Neshaminy Boulevard on Tuesday, January 12, 2016 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM and on Saturday, January 9, 2016 from 11:00 AM to 2:00 PM. Additionally, manual turning movement counts were conducted at the Marketplace driveways on Thursday, January 21, 2016 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM and on Saturday, January 30, 2016 from 11:00 AM to 2:00 PM

The manual traffic counts identify distinct times during the weekday morning and evening, and Saturday midday periods when traffic experienced its highest levels. According to the manual

traffic count data collected, the weekday morning peak hour occurs from 8:00 AM to 9:00 AM, the weekday evening peak hour occurs from 4:30 PM to 5:30 PM, and the Saturday midday peak hour occurs from 12:00 PM to 1:00 PM.

Figure 2 illustrates the existing weekday morning, evening, and Saturday midday peak hour traffic volumes. The manual traffic counts used for this Transportation Impact Assessment are located in Appendix C and are summarized in 15-minute and peak hour intervals.

ESTIMATE OF FUTURE CONDITIONS

This section of the report covers background traffic growth, site-generated trips, trip distribution, and future traffic volumes. We anticipate the project will be completed by 2017. Accordingly, we projected traffic volumes to include existing traffic and new traffic created by background growth to derive the 2017 No-Build traffic volumes. The site generated trips were added to the 2017 No-Build traffic volumes to derive the 2017 and Build traffic volumes.

No-Build Traffic Volumes

The proposed project is expected to be complete by the end of 2017. The weekday morning, evening, and Saturday midday peak hour volumes were expanded to the year 2017 at a growth rate of 1.43% per annum, based on the currently recommended rates by PennDOT's Bureau of Planning and Research. The growth rate table used for this Transportation Impact Study is located in Appendix D.

Pre-development no-build 2017 traffic volumes are illustrated in Figure 4 titled *2017 No-Build Traffic Volumes*.

Trip Generation Comparison

In preparing trip generation estimates for the site we compared what the existing shopping center site generates compared to data compiled for Land Use 820 (Shopping Center) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 9th Edition. Accordingly, we have prepared the following table to compare the trip generation associated with the existing shopping center and calculations using ITE data.

Table 1
Trip Generation Comparison

Use	Weekday Morning Peak Hour				Weekday Evening Peak Hour				Saturday Midday Peak Hour			
	Split	**In**	**Out**	**Total**	**Split**	**In**	**Out**	**Total**	**Split**	**In**	**Out**	**Total**
329,040sf Retail ITE Data	62/38	200	123	323	48/52	640	694	1334	52/48	989	912	1901
329,040sf Retail Existing Survey	61/39	278	177	455	54/46	592	500	1092	53/47	646	566	1212
Difference	**-**	**+78**	**+54**	**+132**	**-**	**-48**	**-194**	**-242**	**-**	**-343**	**-346**	**-689**

Based on a review of the peak hour traffic generation, it is concluded that that the existing site is generating more overall trips during the morning peak hour, but significantly less trips during the evening and Saturday midday peak hours compared to the estimates calculated using ITE data.

Trip Generation Estimation

We prepared trip generation estimates for the proposed development based on the existing volumes generated by the Marketplace at Neshaminy shopping center. The existing traffic counts were used to develop trip generation rates for the weekday morning, evening, and Saturday midday peak hours. Table 2 below shows the total increase in vehicle trips that will be generated during the weekday morning, weekday evening, and Saturday midday peak travel hours by the proposed expansion of the shopping center.

Table 2
Difference In Total Trips – Using Existing Survey Data

Use	Weekday Morning Peak Hour				Weekday Evening Peak Hour				Saturday Midday Peak Hour			
	Split	**In**	**Out**	**Total**	**Split**	**In**	**Out**	**Total**	**Split**	**In**	**Out**	**Total**
329,040sf Retail - Existing	61/39	278	177	455	54/46	592	500	1,092	53/47	646	566	1,212
356,593sf Retail - Proposed	61/39	300	192	492	54/46	638	543	1,181	53/47	694	615	1,309
Difference	**61/39**	**+22**	**+15**	**+37**	**54/46**	**+46**	**+43**	**+89**	**53/47**	**+48**	**+49**	**+97**

Based on the existing survey, the development would generate approximately 37 new trips (22 enter, 15 exit) during the weekday morning peak hour, 89 new trips (46 enter, 43 exit) during the weekday evening peak hour, and 97 new trips (48 enter, 49 exit) during the Saturday midday peak hour.

Table 3 below shows the total increase in vehicle trips that would be generated during the weekday morning, weekday evening, and Saturday midday peak travel hours by the proposed expansion of the shopping center using ITE trip generation data.

Table 3
Difference In Total Trips – Using ITE Data

Use	Weekday Morning Peak Hour				Weekday Evening Peak Hour				Saturday Midday Peak Hour			
	Split	**In**	**Out**	**Total**	**Split**	**In**	**Out**	**Total**	**Split**	**In**	**Out**	**Total**
329,040sf Retail - Existing	62/38	200	123	323	48/52	640	694	1,334	52/48	989	912	1,901
356,593sf Retail - Proposed	62/38	210	129	339	48/52	674	731	1,405	52/48	1039	959	1,998
Difference	**62/38**	**+10**	**+6**	**+16**	**48/52**	**+34**	**+37**	**+71**	**52/48**	**+50**	**+47**	**+97**

Based on ITE calculations, the development would generate approximately 16 new trips (10 enter, 6 exit) during the weekday morning peak hour, 71 new trips (34 enter, 37 exit) during the

weekday evening peak hour, and 97 new trips (50 enter, 47 exit) during the Saturday midday peak hour.

The rates based on the existing survey trip data yields a higher difference in trip generation than the trip generation rates provided by the ITE Manual for shopping centers. The existing survey trip generation estimates show an additional 21 trips during the weekday morning peak hour and an additional 26 trips during the weekday evening peak hour, when compared to ITE trip generation estimates. Therefore, to be conservative, we have calculated the trip generation based on the higher difference using tenant specific data as shown in Table 2 to analyze the study intersections.

Trip Distribution

We determined the directional distribution for the development based on an examination of demographic data and existing travel patterns in the study area. The directional distribution of site traffic is shown in Table 4 below.

Table 4
Trip Distribution Percentages

Direction – To/From	Arrival and Departure Distribution
North via Rockhill Drive (SR 2044)	60%
South via Rockhill Drive (SR 2044)	15%
East via Neshaminy Boulevard	25%
TOTAL	**100%**

The site-generated trips were assigned to the roadway network based on the trip distributions shown in Table 4 above. Figure 6 shows the arrival and departure distributions. The total site-generated trips assigned to the roadway network are shown in Figure 7.

Build Traffic Volumes

The 2017 traffic volumes were derived by adding the total site-generated trips to the 2017 no-build traffic volumes. The 2017 build traffic volumes are illustrated in Figure 8, titled *2017 Build Traffic Volumes*.

ANALYSIS OF TRAFFIC OPERATIONS

This section describes the capacity analyses that were conducted to assess traffic operations for the Existing, No-Build and Build conditions. Capacity analysis provides an indication of the adequacy of road facilities to serve traffic demand.

Level of Service Criteria

Level of Service (LOS) is the term used to denote the different operating conditions that occur on a given road segment under various traffic volume demands. LOS is a qualitative measure that considers a number of factors including road geometry, speed and travel delay. LOS provides an index to the operational qualities of a road segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service (LOS) capacity analyses were conducted for the intersections within the study area using the Synchro software. This software is based on methodologies contained within the Highway Capacity Manual 2010 (HCM 2010), published by the Transportation Research Board (TRB).

For signalized intersections, LOS is based upon the average delay experienced by stopped vehicles and the operation is graded between A (least delay) and F (most delay). The following table describes the LOS gradation criteria for signalized intersections:

Level of Service Criteria for Signalized Intersections

Level of Service (LOS)	Expected Traffic Delay	Average Total Delay (seconds/vehicle)
A	Very low or no delays, very good progression, most vehicles do not stop at all.	$\leq$ 10
B	Short delay, good progression and/or short cycle lengths, more vehicles stop than with LOS A.	> 10 And $\leq$ 20
C	Average delay, fair progression and/or longer cycle lengths, a significant number of vehicles stop at the intersection.	> 20 And $\leq$ 35
D	Longer delays, unfavorable progression, long cycle lengths or high v/c ratios, most vehicles stop at intersection.	> 35 And $\leq$ 55
E	Longer delays (Maximum Capacity), considered to be the limit of acceptable delay, poor progression, long cycle lengths and high v/c ratios	> 55 And $\leq$ 80
F	Worst delays (Over saturated), poor progression, long cycle lengths and high v/c ratios.	> 80

The traffic operation for unsignalized intersections is classified based upon the LOS and delay experienced by critical movements which correspond to any minor street movements or left-turns from a major street. The following table describes the LOS gradation criteria for unsignalized intersections:

Level of Service Criteria for Unsignalized Intersections

Level of Service (LOS)	Expected Traffic Delay	Average Total Delay (seconds/vehicle)
A	Very low or no delays	$\leq$ 10
B	Short delays	> 10 And $\leq$ 15
C	Average delays	> 15 And $\leq$ 25
D	Long delays	> 25 And $\leq$ 35
E	Long delays (Maximum Capacity)	> 35 And $\leq$ 50
F	Worst delays (Over saturated)	> 50

Analysis Assumptions

Below is a list of the assumptions used in our technical analysis:

- PennDOT default values were used as described in Publication 46.
- Used trip generation based on the higher difference using tenant specific data compared to ITE data.

Capacity Analysis

We conducted capacity analyses for the intersections in the study area and found that the proposed development will not significantly impact operations in the study area during peak hours. The following are discussions pertaining to each of the intersections analyzed for the project. Note that all capacity analyses worksheets are contained in Appendix F. The corresponding levels of service and delays for each condition are summarized in Table A, and also contained in Figures 3, 5, and 9.

Rockhill Drive (SR 2044) and Marketplace Driveway1/Neshaminy Mall Access

The signalized intersection of Rockhill Drive (SR 2044) and Marketplace Driveway 1/Neshaminy Mall Access currently operates at an overall LOS A during the weekday morning peak hour, LOS B during the weekday evening peak hour, and LOS C during the Saturday midday peak hour, under the existing condition. Under the 2017 No-Build condition, the intersection is expected to continue to operate at an overall LOS A during the weekday morning peak hour, LOS B during the weekday evening peak hour, and LOS C during the Saturday midday peak hour. Under the 2017 Build condition, the intersection is anticipated to continue to operate at an overall LOS A during the weekday morning peak hour, LOS B during the evening peak hour,

and LOS C during the Saturday midday peak hour. The increase in delay from the 2017 No-Build to 2017 Build condition during all peak hours is minimal and falls within an accepted 10 second variance as allowed by PennDOT.

Rockhill Drive (SR 2044) and Neshaminy Boulevard

The signalized intersection of Rockhill Drive (SR 2044) and Neshaminy currently operates at an overall LOS B during the weekday morning peak hour and LOS C during both the weekday evening and Saturday midday peak hours, under the existing conditions. Under the 2017 No-Build condition, the intersection is expected to continue to operate at an overall LOS B during the weekday morning peak hour and LOS C during both the weekday evening and Saturday midday peak hours. Under the 2017 Build condition, the intersection is anticipated to continue to operate at an overall LOS B during the weekday morning peak hour and LOS C during both the evening and Saturday midday peak hours. The increase in delay from the 2017 No-Build to 2017 Build condition during all peak hours is minimal and falls within an accepted 10 second variance as allowed by PennDOT.

Neshaminy Boulevard and Marketplace Driveway 2/Palton Road

The unsignalized intersection of Neshaminy Boulevard and Marketplace Driveway 2/Palton Road currently operates at an overall LOS A during the weekday morning, evening, and Saturday midday peak hours under the existing condition. Under the 2017 No-Build condition, the intersection is expected to continue to operate at an overall LOS A during the weekday morning, evening, and Saturday midday peak hours. Under the 2017 Build condition, the intersection is anticipated to continue to operate at an overall LOS A during the weekday morning, evening, and Saturday midday peak hours. The increase in delay from the 2017 No-Build to 2017 Build condition during both peak hours is minimal and falls within an accepted 10 second variance as allowed by PennDOT.

Queue Analysis

We conducted a queue analysis for the intersections in the study area and found that the proposed development will not significantly impact storage lane queues during the peak hours. The majority of queues can either be accommodated within the existing storage lanes or for existing queuing spillback the proposed development traffic does not significantly impact those movements.

CONCLUSIONS

Langan has concluded that the proposed expansion of the Marketplace at Neshaminy shopping center will not have a significant impact on area traffic operations during peak hours. Based on our analysis, we determined the adjacent road network has sufficient capacity to accommodate the additional site generated trips. Moreover the existing site driveways are expected to operate acceptably during peak traffic hours.

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TABLES

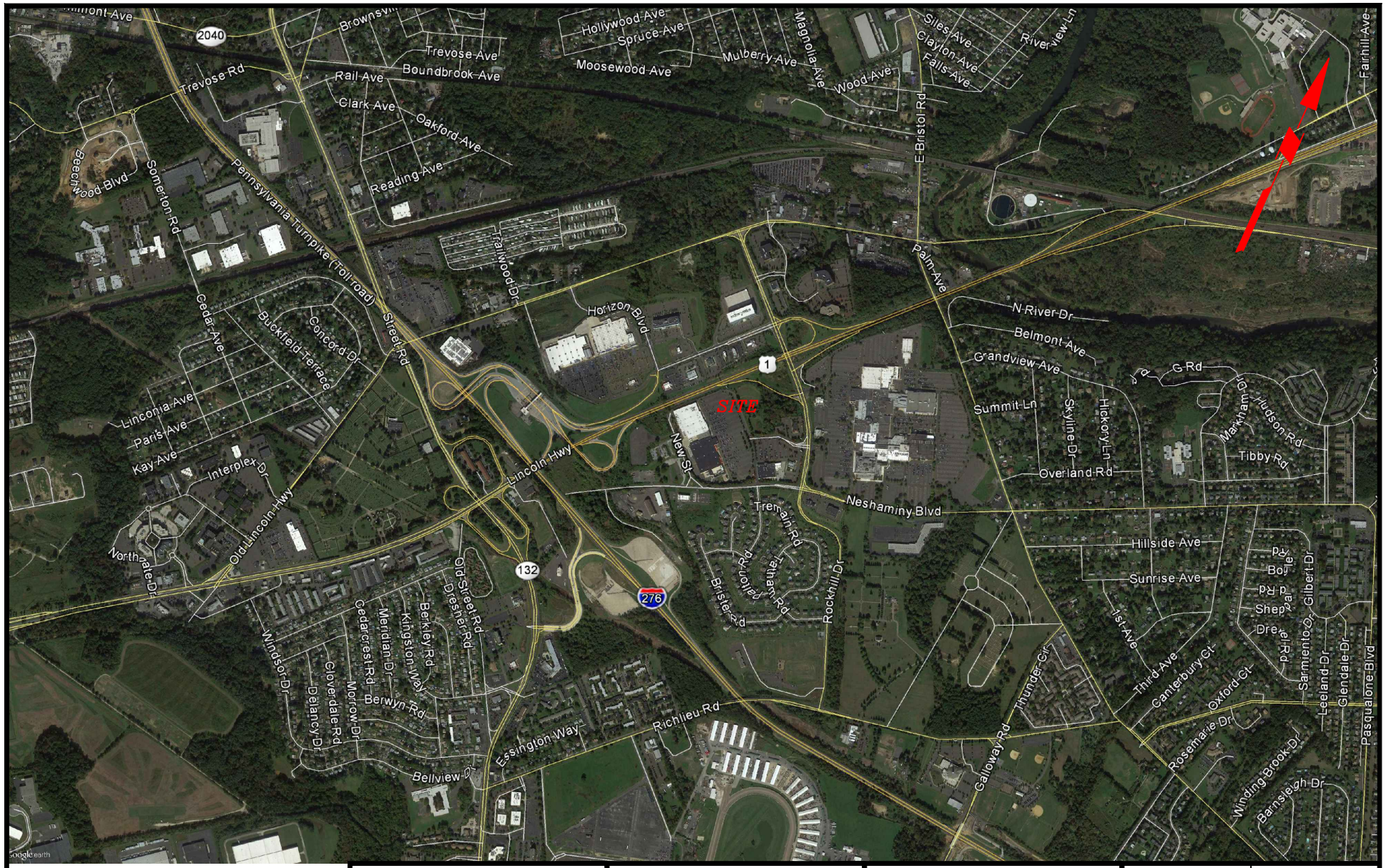
TABLE A
MARKETPLACE AT NESHAMINY SITE – BENSALEM TOWNSHIP, PENNSYLVANIA
STUDY INTERSECTIONS
LEVELS OF SERVICE WITH DELAYS

			2016 EXISTING CONDITION			2017 NO-BUILD CONDITION			2017 BUILD CONDITION		
LOCATION	**MOVEMENT**		**AM**	**PM**	**SAT**	**AM**	**PM**	**SAT**	**AM**	**PM**	**SAT**
Signalized Intersections											
Rockhill Drive (SR 2044) & Marketplace Access 1/Neshaminy Mall Access	EB	L	D(47.7)	E(56.5)	D(46.2)	D(47.7)	E(56.8)	D(46.3)	D(47.9)	E(58.0)	D(47.1)
		T	D(47.6)	E(56.3)	D(45.8)	D(47.6)	E(56.6)	D(46.1)	D(47.8)	E(56.6)	D(47.0)
		R	A (0.4)	A(1.2)	A (0.7)	A (0.4)	A(1.3)	A (0.7)	A (0.4)	A(1.3)	A (0.8)
	WB	L,T	D(44.0)	D(53.2)	D(43.7)	D(44.0)	D(53.5)	D(43.8)	D(44.0)	D(53.5)	D(43.8)
		R	A(0.0)	A(3.2)	A(4.9)	A(0.0)	A(3.4)	A(5.0)	A(0.0)	A(3.4)	A(5.0)
	NB	L	A(2.6)	A(4.8)	A(9.3)	A(2.6)	A(4.8)	A(9.4)	A(2.6)	A(4.9)	A(9.6)
		T,R	A(5.1)	A(9.5)	C(20.6)	A(5.1)	A(9.3)	C(20.9)	A(5.3)	A(9.2)	C(21.3)
	SB	L	A(4.4)	B(10.1)	B(15.3)	A(4.4)	B(10.1)	B(15.6)	A(4.4)	B(10.3)	B(16.0)
		T	A(6.6)	B(19.3)	B(19.3)	A(6.7)	B(19.5)	B(19.5)	A(6.8)	B(19.9)	B(19.9)
		R	A(0.1)	A(0.3)	A(0.3)	A(0.2)	A(0.3)	A(0.3)	A(0.2)	A(0.3)	A(0.3)
	Overall		**A(8.1)**	**B(17.9)**	**C(20.2)**	**A(8.2)**	**B(17.9)**	**C(20.4)**	**A(8.4)**	**B(18.4)**	**C(20.8)**
Rockhill Drive (SR 2044) & Neshaminy Boulevard	EB	L	D(38.3)	D(41.4)	C(27.4)	D(38.0)	D(41.3)	C(27.4)	D(37.9)	D(40.8)	C(27.2)
		T,R	C(22.8)	D(46.8)	C(27.9)	C(22.7)	D(46.5)	C(28.0)	C(23.0)	D(47.7)	C(29.0)
	WB	L	D(38.6)	E(70.2)	D(44.7)	D(38.3)	E(71.2)	D(45.0)	D(38.2)	E(72.4)	D(46.8)
		T	D(38.5)	D(46.4)	C(32.0)	D(38.4)	D(46.4)	C(31.9)	D(38.7)	D(46.3)	C(32.2)
		R	B(13.1)	B(12.5)	A(9.9)	B(13.1)	B(12.4)	A(10.0)	B(13.0)	B(12.1)	A(9.9)
	NB	L	B(11.3)	C(23.7)	C(22.2)	B(11.5)	C(24.4)	C(22.6)	B(11.5)	C(25.0)	C(23.1)
		T,R	B(11.5)	C(28.2)	C(23.3)	B(11.7)	C(29.5)	C(23.9)	B(11.7)	C(30.5)	C(24.4)
	SB	L	A(9.8)	C(34.8)	C(25.8)	B(10.1)	C(36.3)	C(26.4)	B(10.2)	C(37.6)	C(26.8)
		T,R	A(4.0)	A(7.7)	B(14.0)	A(4.1)	A(7.9)	B(14.3)	A(4.1)	A(8.2)	B(14.9)
	Overall		**B(13.7)**	**C(26.3)**	**C(20.9)**	**B(13.8)**	**C(27.0)**	**C(21.2)**	**B(13.9)**	**C(27.9)**	**C(21.7)**
Unsignalized Intersections											
Neshaminy Boulevard & Marketplace Access 2/Palton Road	EB	L	A(0.0)	A(0.0)	A(8.5)	A(0.0)	A(0.0)	A(8.5)	A(0.0)	A(0.0)	A(8.5)
	WB	L	A(8.1)	A(8.1)	A(8.1)	A(8.1)	A(8.1)	A(8.1)	A(8.1)	A(8.1)	A(8.1)
	NB	L,T,R	A(9.4)	A(9.1)	A(9.3)	A(9.4)	A(9.1)	A(9.3)	A(9.5)	A(9.3)	A(9.3)
	SB	L,T,R	A(9.7)	B(10.6)	B(10.4)	A(9.7)	B(10.6)	B(10.4)	A(9.8)	B(10.9)	B(10.4)

TABLE B
MARKETPLACE AT NESHAMINY SITE – BENSALEM TOWNSHIP, PENNSYLVANIA
STUDY INTERSECTIONS
95TH PERCENTILE QUEUE CALCULATIONS (SYNCHRO/HCM 2010)

			2016 EXISTING CONDITION			2017 NO-BUILD CONDITION			2017 BUILD CONDITION		
LOCATION	**MOVEMENT**		**AM**	**PM**	**SAT**	**AM**	**PM**	**SAT**	**AM**	**PM**	**SAT**
Signalized Intersections											
Rockhill Drive (SR 2044) & Marketplace Access 1/Neshaminy Mall Access	EB	L	78′	174′	163′	80′	177′	165′	84′	190′	177′
		T	78′	177′	165′	80′	180′	166′	84′	195′	181′
		R	0′	0′	0′	0′	0′	0′	0′	1′	0′
	WB	L,T	16′	88′	83′	16′	89′	83′	16′	89′	83′
		R	0′	13′	28′	0′	13′	29′	0′	13′	29′
	NB	L	6′	11′	19′	6′	11′	19′	6′	12′	21′
		T,R	208′	150′	243′	213′	154′	248′	215′	155′	248′
	SB	L	5′	43′	95′	5′	44′	97′	5′	44′	97′
		T	100′	334′	191′	102′	341′	194′	103′	343′	194′
		R	0′	0′	0′	0′	0′	0′	0′	0′	0′
Rockhill Drive (SR 2044) & Neshaminy Boulevard	EB	L	41′	31′	23′	41′	31′	23′	41′	31′	23′
		T,R	44′	147′	109′	44′	149′	110′	47′	160′	119′
	WB	L	43′	92′	93′	43′	93′	94′	43′	95′	95′
		T	62′	98′	85′	63′	99′	85′	67′	106′	90′
		R	88′	85′	82′	88′	86′	84′	88′	86′	84′
	NB	L	26′	68′	79′	26′	68′	80′	28′	72′	84′
		T,R	211′	489′	349′	218′	499′	357′	218′	505′	360′
	SB	L	157′	434′	304′	162′	445′	309′	164′	450′	312′
		T,R	55′	235′	196′	57′	241′	199′	57′	244′	200′
Unsignalized Intersections											
Neshaminy Boulevard & Marketplace Access 2/Palton Road	EB	L	0′	0′	0′	0′	0	0	0′	0′	0
	WB	L	0′	2′	2′	0′	2′	2′	0′	2′	2′
	NB	L,T,R	4′	2′	2′	6′	2′	2′	6′	2′	2′
	SB	L,T,R	6′	16′	16′	6′	18′	16′	‘6	20′	16′

FIGURES



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Project

MARKETPLACE AT NESHAMINY

BLOCK No. 37, LOT No. 1
BLOCK No. 38, LOT No. 1
BENSALEM TOWNSHIP
BUCKS COUNTYY PENNSYLVANIA

Drawing Title

SITE LOCATION MAP

Project No. 220048102	Drawing No. FIGURE 1
Date 02/04/2016	
Scale N.T.S.	
Drawn By EJV / Checked By	
Submission Date FEBRUARY 2016	Sheet 1 of 9

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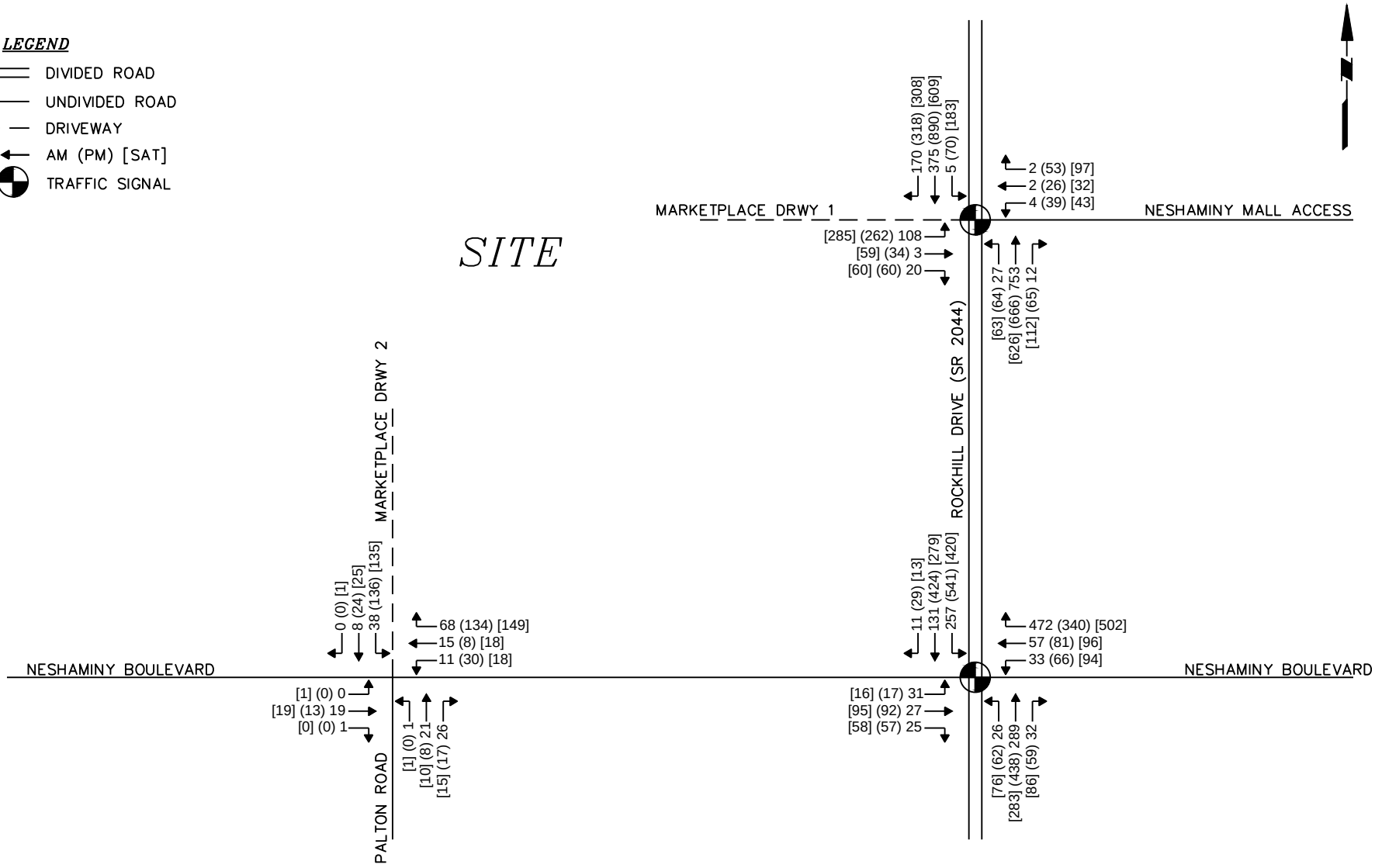

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MARKETPLACE AT NESHAMINY
BLOCK No. 37, LOT No. 1
BLOCK No. 38, LOT No. 1
BENSALEM TOWNSHIP
BUCKS COUNTYY PENNSYLVANIA

Drawing Title
2016 EXISTING TRAFFIC VOLUMES

Project No. 220048102	Drawing No. FIGURE 2
Date 02/04/2016	
Scale N.T.S.	
Drawn By EJV / Checked By	
Submission Date FEBRUARY 2016	Sheet 2 of 9

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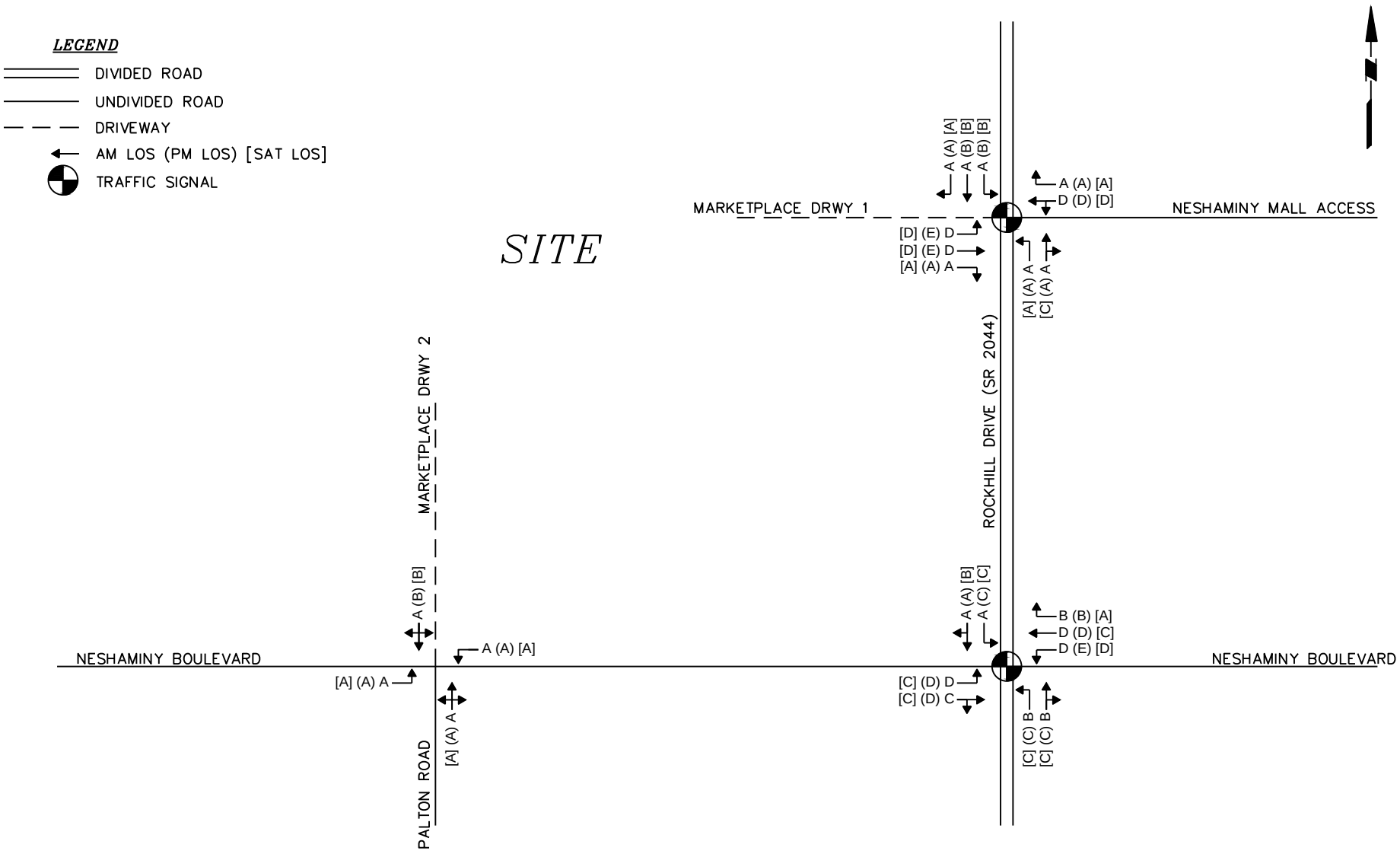

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			Drawing No. **FIGURE 3** Sheet 3 of 9

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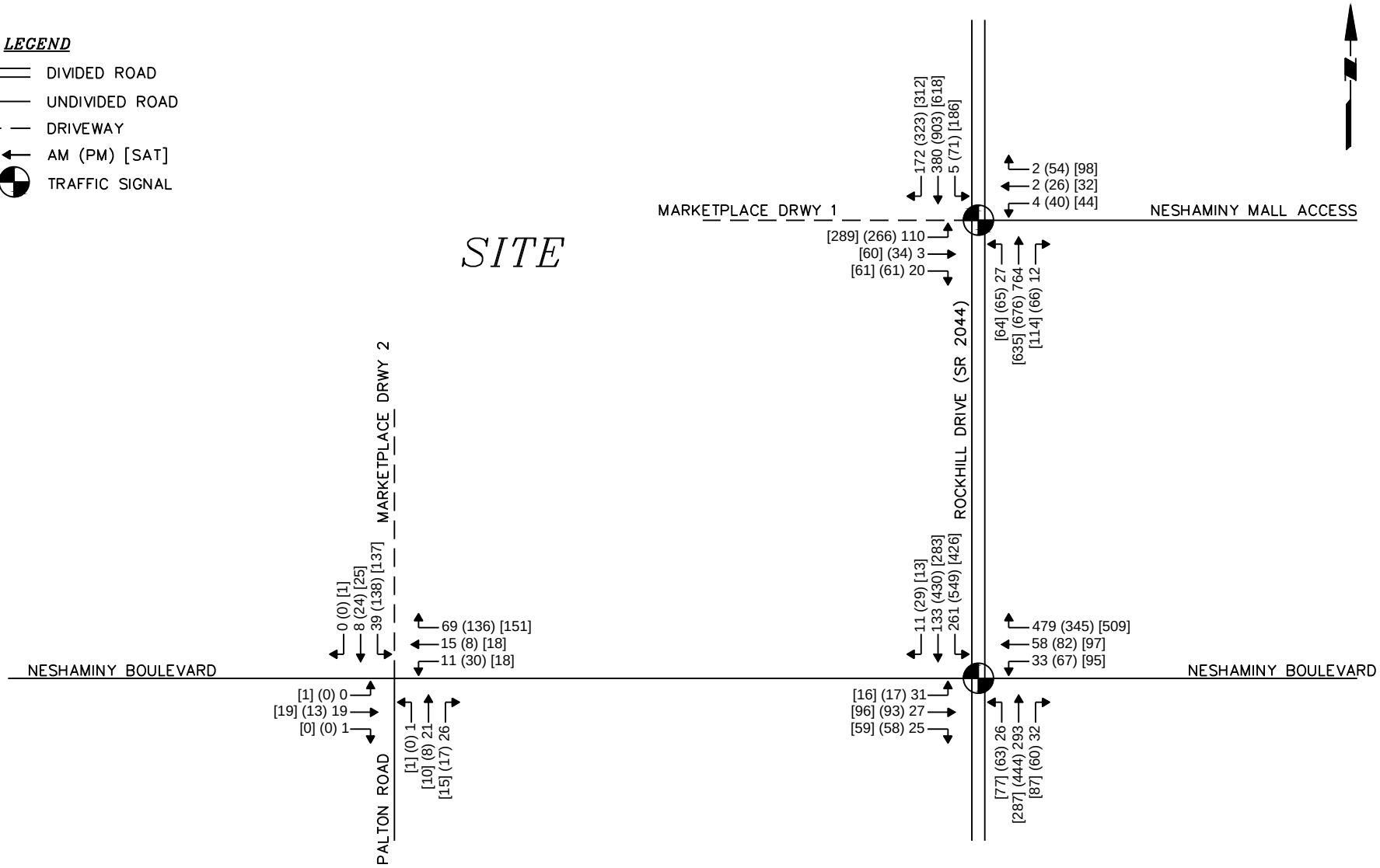

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MARKETPLACE AT NESHAMINY
BLOCK No. 37, LOT No. 1
BLOCK No. 38, LOT No. 1
BENSALEM TOWNSHIP
BUCKS COUNTYY PENNSYLVANIA

Drawing Title
2017 NO-BUILD TRAFFIC VOLUMES

Project No.	220048102
Date	02/04/2016
Scale	N.T.S.
Drawn By	EJV
Checked By	
Submission Date	FEBRUARY 2016
Drawing No.	FIGURE 4
Sheet	4 of 9

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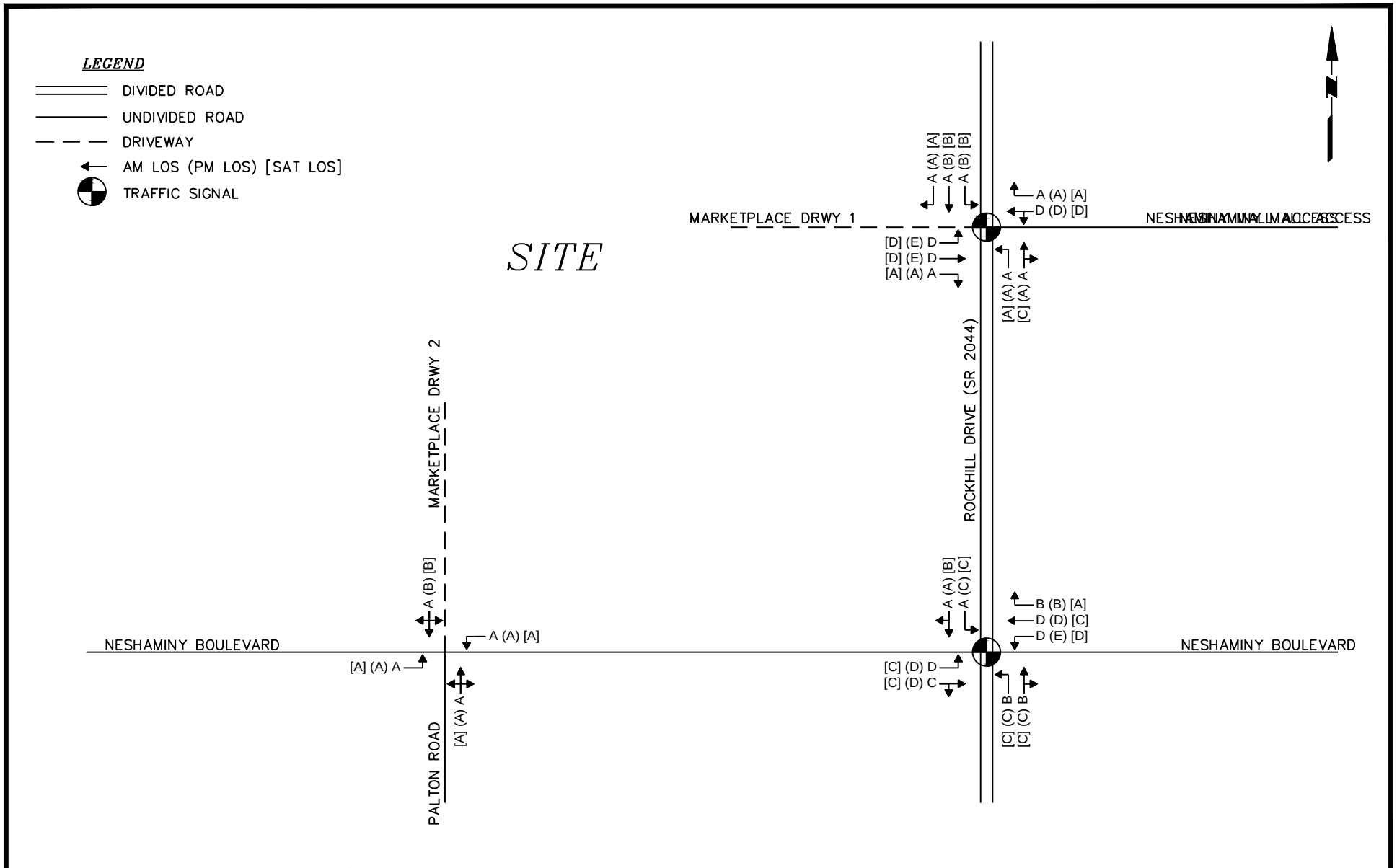

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MARKETPLACE AT NESHAMINY

BLOCK No. 37, LOT No. 1
BLOCK No. 38, LOT No. 1
BENSALEM TOWNSHIP
BUCKS COUNTYY PENNSYLVANIA

Drawing Title

2017 NO-BUILD LEVELS OF SERVICE

Project No. 220048102	Drawing No. FIGURE 5
Date 02/04/2016	
Scale N.T.S.	
Drawn By EJV / Checked By	
Submission Date FEBRUARY 2016	Sheet 5 of 9

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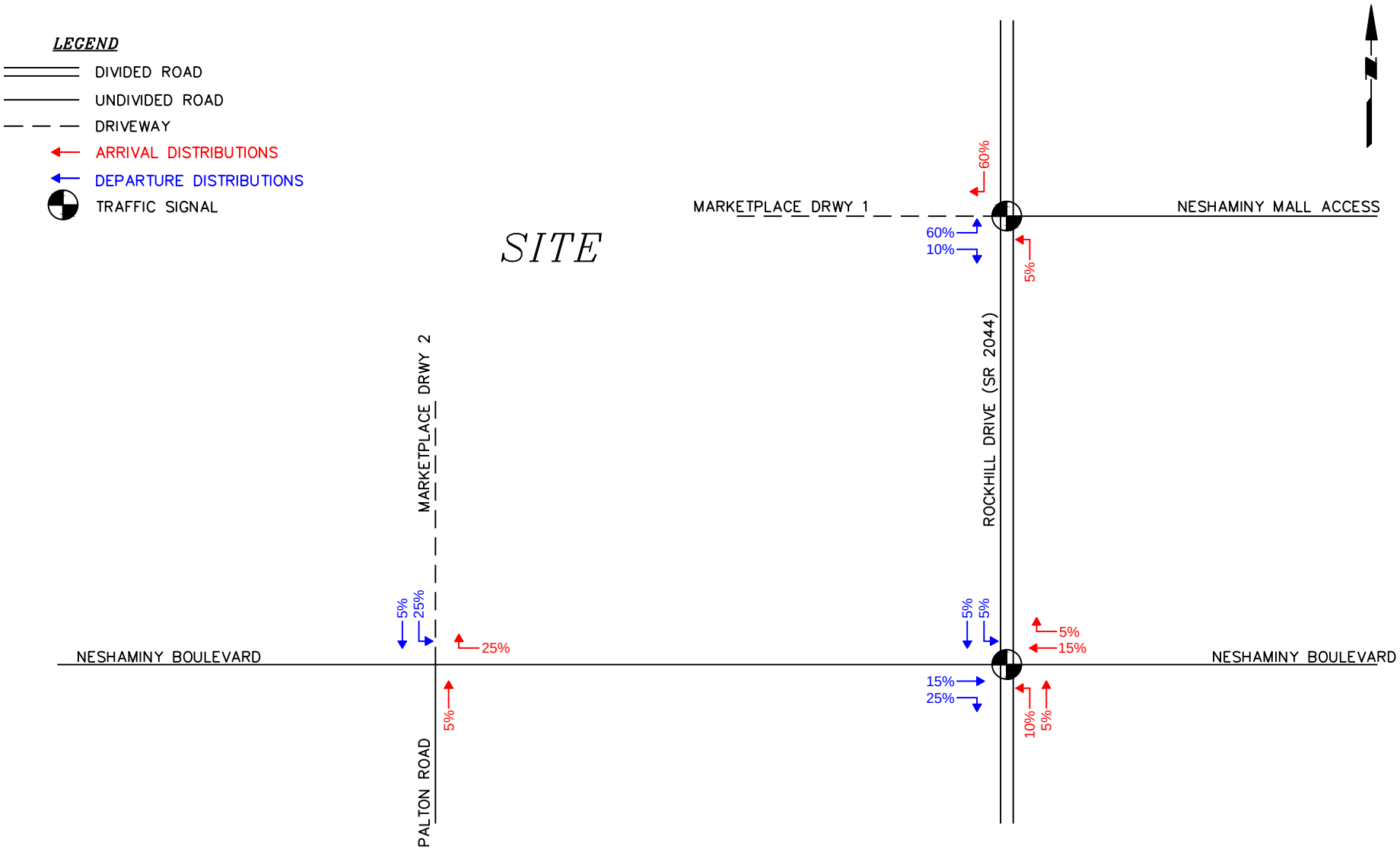

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MARKETPLACE AT NESHAMINY

BLOCK No. 37, LOT No. 1
BLOCK No. 38, LOT No. 1
BENSALEM TOWNSHIP
BUCKS COUNTYY PENNSYLVANIA

Drawing Title

TRIP DISTRIBUTION PERCENTAGES

Project No. 220048102	Drawing No. FIGURE 6
Date 02/04/2016	
Scale N.T.S.	
Drawn By EJV / Checked By	
Submission Date FEBRUARY 2016	Sheet 6 of 9

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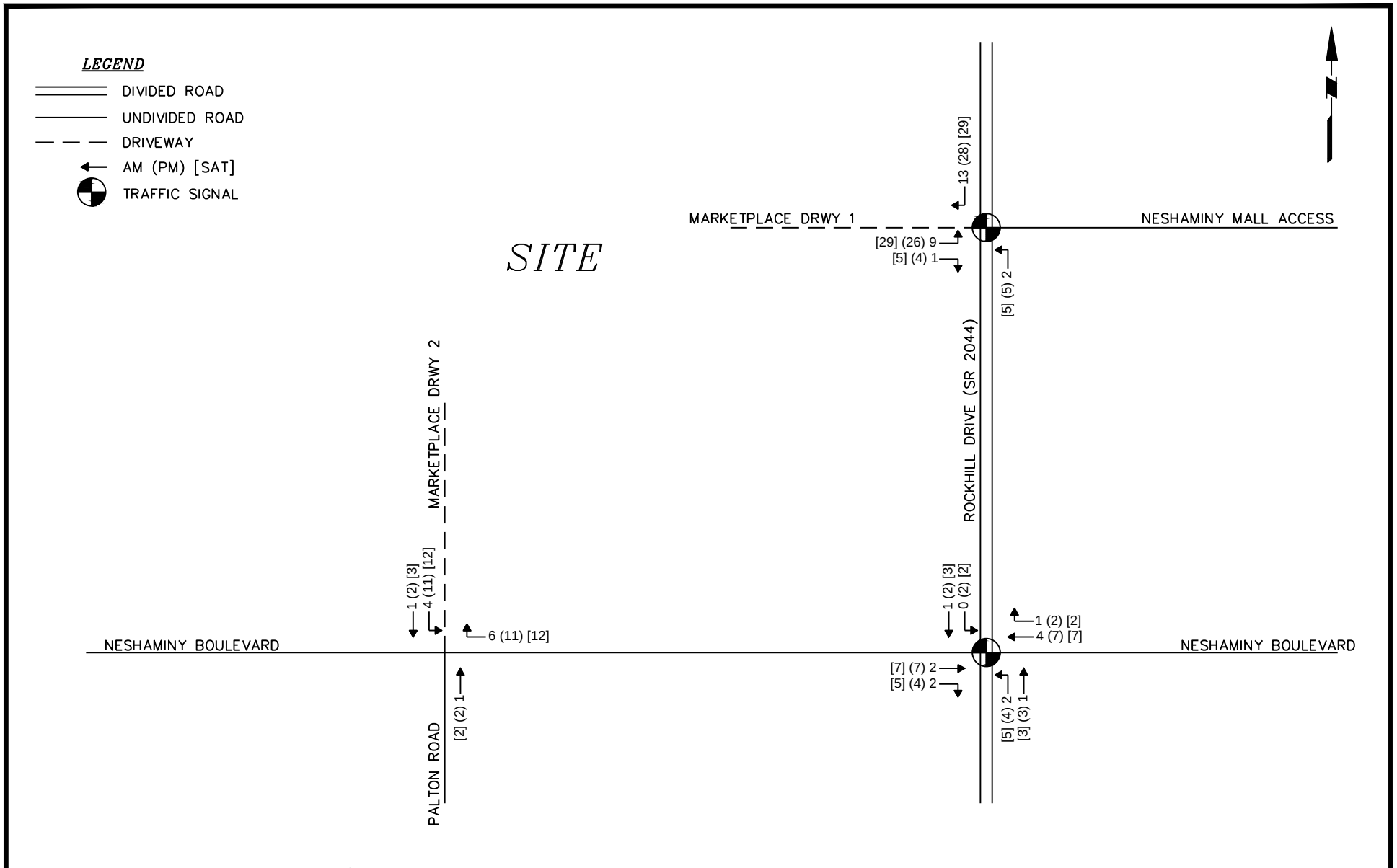

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MARKETPLACE AT NESHAMINY

BLOCK No. 37, LOT No. 1
BLOCK No. 38, LOT No. 1
BENSALEM TOWNSHIP
BUCKS COUNTYY PENNSYLVANIA

Drawing Title

SITE GENERATED TRIPS

Project No. 220048102	Drawing No. FIGURE 7
Date 02/04/2016	
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Drawn By EJV / Checked By	
Submission Date FEBRUARY 2016	Sheet 7 of 9

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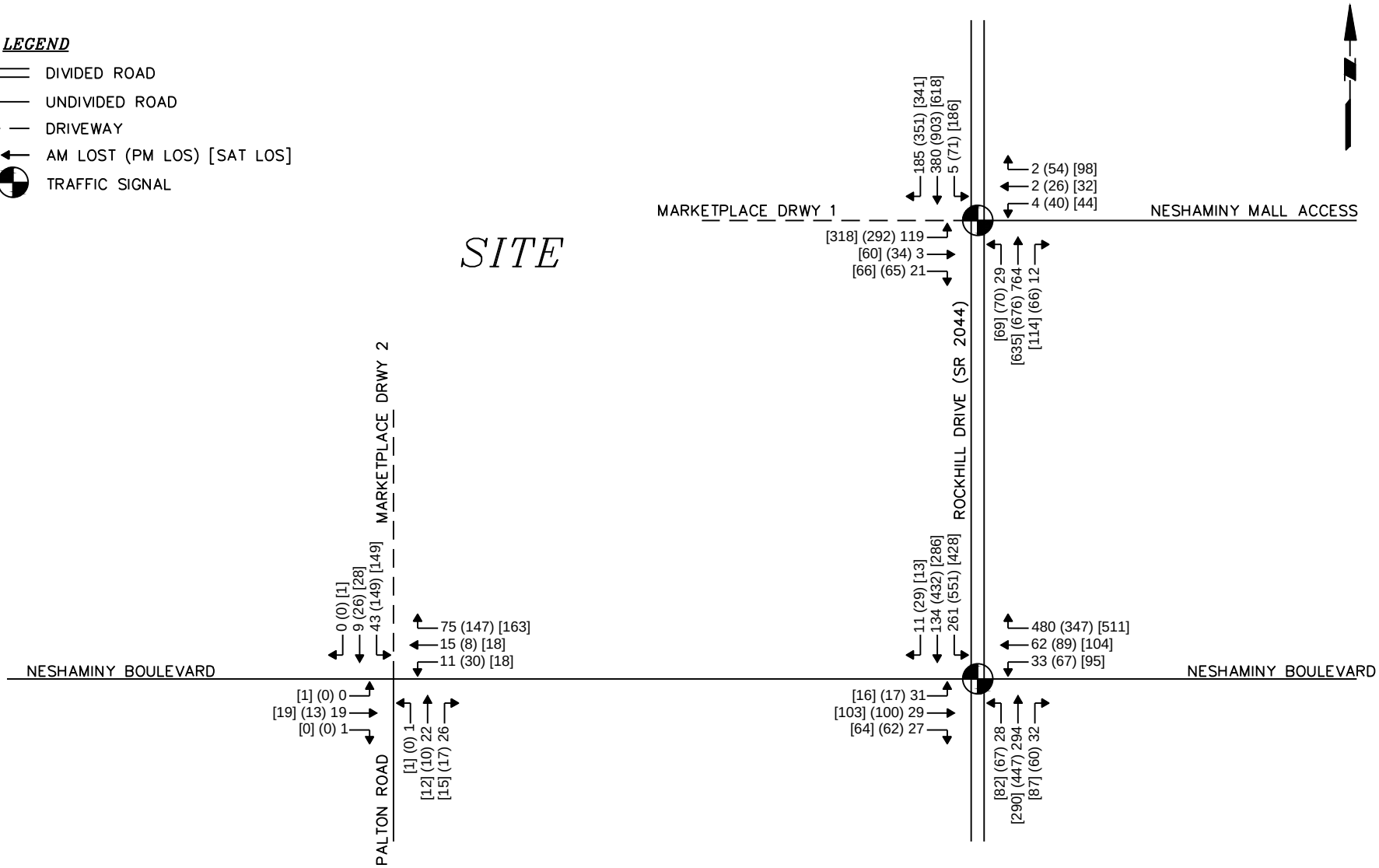

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MARKETPLACE AT NESHAMINY

BLOCK No. 37, LOT No. 1
BLOCK No. 38, LOT No. 1
BENSALEM TOWNSHIP
BUCKS COUNTYY PENNSYLVANIA

Drawing Title

2017 BUILD TRAFFIC VOLUMES

Project No. 220048102	Drawing No. FIGURE 8
Date 02/04/2016	
Scale N.T.S.	
Drawn By EJV / Checked By	
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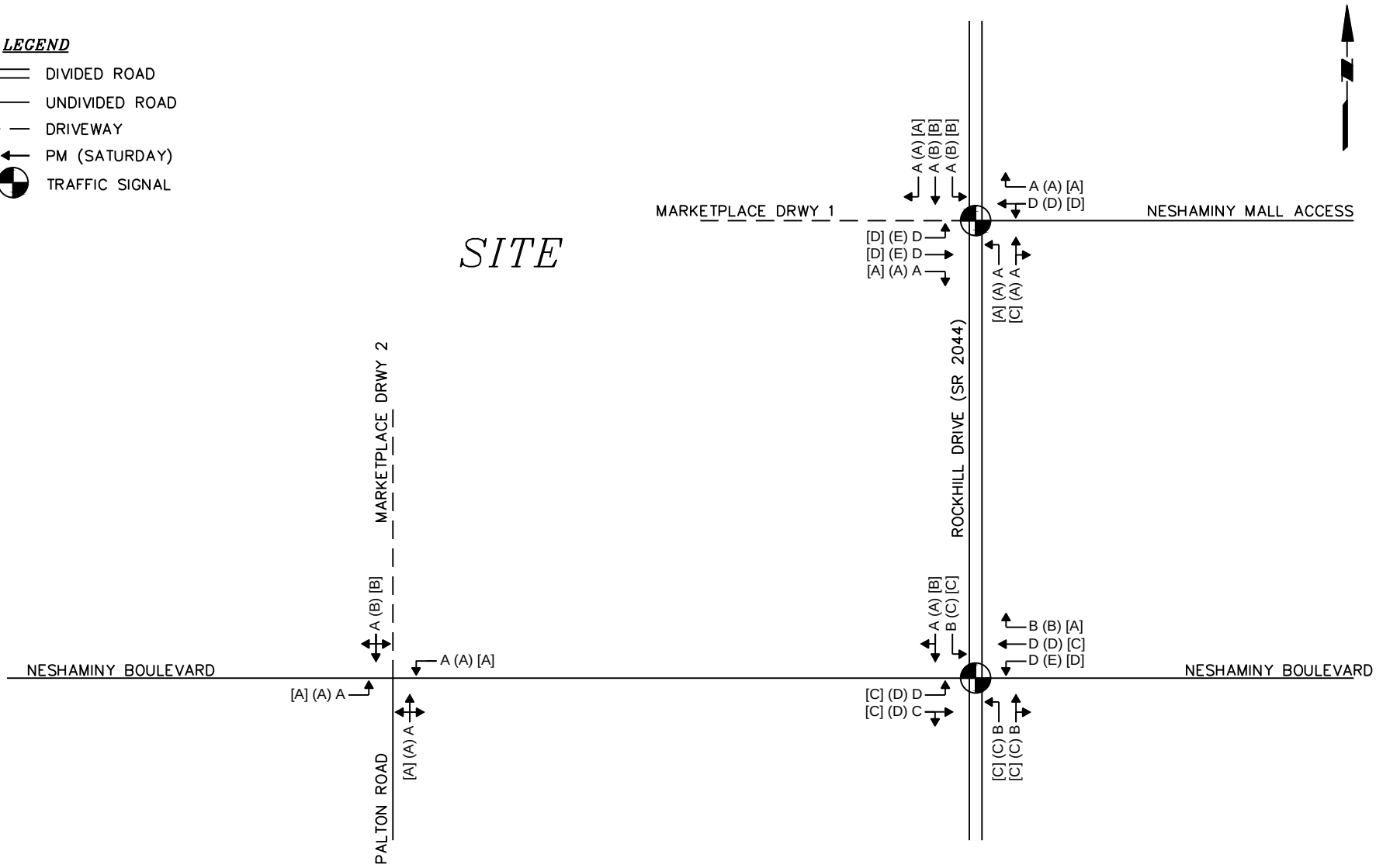

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			Drawing No. **FIGURE 9** Sheet 9 of 9

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APPENDIX A

SITE PLAN

LOCATION MAP

SITE CONSTRUCTION NOTES:

1. SITE ADDRESS:
   US 1 AND ROCKHILL DRIVE
   BENSALEM, PA 19020
2. APPLICANT/OWNER:
   PARAMOUNT REALTY SERVICES, INC.
   1195 ROUTE 70
   BENSALEM TOWNSHIP, PA 19020
3. THE OVERALL MARKETPLACE AT NESHAMINY PROPERTY CONSISTS OF APPROXIMATELY 40.7 ACRES LOCATED IN BENSALEM TOWNSHIP, BUCKS COUNTY.
4. ALL DRAWINGS IN THIS PLAN SET ARE MADE PART OF THIS RECORD PLAN AND ALL INFORMATION SHOWN HEREON SHALL BE CONSIDERED APPLICABLE FOR THE COMPLETION OF THIS PROJECT. INDIVIDUAL PLANS SHALL NOT BE USED SINCE THEY CONSTITUTE ONLY A PART OF THE COMPLETE SET OF PLANS FOR THIS PROJECT.
5. THIS APPLICATION PROPOSES THE CONSTRUCTION OF A 16,862 SQUARE FOOT RETAIL/RESTAURANT BUILDING AND A 10,691 SF RETAIL BUILDING ALONG WITH THE SUPPORTING INFRASTRUCTURE INCLUDING PARKING, DRIVE AISLES, LIGHTING, LANDSCAPING AND UTILITIES, INCLUDING BUT NOT LIMITED TO WATER, SANITARY SEWER, TELEPHONE, ELECTRIC, GAS AND STORM DRAINAGE FACILITIES.
6. THIS SITE PLAN IS BASED UPON EXISTING PHYSICAL CONDITIONS AT THE SUBJECT SITE DURING A FIELD SURVEY BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES IN APRIL 2014, AUGUST 2015 AND THE FOLLOWING REFERENCE PLAN:
   A. SHEET VT-101, PARTIAL TOPOGRAPHIC SURVEY, DATED 10/31/14, PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS INCLUDING, BUT NOT LIMITED TO, SIDEWALK/STREET CLOSING AND DEMOLITION.
8. ALL TOWNSHIP, COUNTY AND STATE OCCUPANCY PERMITS SHALL BE OBTAINED FOR CONSTRUCTION AND IMPROVEMENTS WITHIN TOWNSHIP, COUNTY AND STATE ROADS.
9. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL APPLICABLE PROVISIONS, STANDARDS AND SPECIFICATIONS, CONSTRUCTION REQUIREMENTS AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND DETAILS OF BENSALEM TOWNSHIP, BUCKS COUNTY, PADEP, PENNDOT, AND OSHA WHERE APPLICABLE.
10. ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO STRUCTURES, UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS, POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCLUDED IN BASE BID.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING THE DAMAGE DONE TO ANY EXISTING ITEM DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO STRUCTURES, UTILITIES, STORM DRAINAGE, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND NOTIFY THE CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION START.
13. THE CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE AND FEDERAL REGULATIONS IN DISPOSING OF DEMOLISHED MATERIALS REMOVED FROM THE SITE.
14. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF CANOPIES, EXIT DOORS, RAMPS, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS, CONCRETE PADS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
15. ALL DISTURBED AREAS ARE TO RECEIVE SIX INCHES OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
16. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (LATEST EDITION) FROM THE U.S. DEPARTMENT OF TRANSPORTATION.
17. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. BASED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), COMMUNITY PANEL NO. 42017C0439J, EFFECTIVE DATE MARCH 16, 2015, FOR BUCKS COUNTY, PENNSYLVANIA, THE SUBJECT PROPERTY LIES IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

GENERAL SITE NOTES:

1. THE CONTRACTOR SHALL FURNISH, INSTALL, TEST AND COMPLETE ALL WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH, THESE PLANS DO NOT COMPLETELY REPRESENT, NOR ARE THEY INTENDED TO REPRESENT, ALL SPECIFIC INSTRUCTIONS REQUIRED FOR SITEWORK CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS DEPICTED ON THESE PLANS IN ACCORDANCE WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS IN EFFECT AT THE TIME OF CONSTRUCTION.
2. THE CONTRACTOR SHALL ACCEPT THE SITE AS IS. THE CONTRACTOR SHALL ASSESS CONDITIONS, AND THE KIND, QUALITY AND QUANTITY OF WORK REQUIRED. THE OWNER AND ENGINEER MAKE NO GUARANTEE IN REGARD TO THE ACCURACY OF ANY INFORMATION THAT WAS OBTAINED DURING INVESTIGATIONS. THE CONTRACTOR SHALL MAKE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS, CORRELATE CONDITIONS WITH THE DRAWINGS; AND, RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL PERFORM ADDITIONAL TOPOGRAPHIC SURVEYS HE/SHE DEEMS NECESSARY, PROVIDED THEY ARE COORDINATED WITH THE OWNER. ANY CONDITIONS DETERMINED BY THE CONTRACTOR THAT DIFFER FROM THE INFORMATION SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL PAYMENT OR CHANGES TO THE CONTRACT DURATION, OR ANY OTHER CLAIMS AGAINST THE OWNER OR OWNER'S ENGINEER.
3. THE CONTRACTOR SHALL, WHEN HE/SHE DEEMS NECESSARY, PROVIDE A WRITTEN REQUEST FOR INFORMATION (RFI) TO THE OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE AND ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITEWORK ITEM. THE (RFI) SHALL BE IN A FORM ACCEPTABLE TO OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER AND SHALL ALLOW FOR A MINIMUM OF THREE WORK DAYS FOR A WRITTEN REPLY. RFIS SHALL BE NUMBERED CONSECUTIVELY BY DATE SUBMITTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITEWORK ITEMS CONSTRUCTED DIFFERENTLY THAN INTENDED OR AS DEPICTED ON THE PLANS.
4. INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUFFICIENTLY REVIEW ALL PLANS, PROFILES AND ANY OTHER INFORMATION IN THE CONTRACT DOCUMENTS FOR CONSISTENCY PRIOR TO BID. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND BY THE CONTRACTOR OR HIS ASSIGNS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER IN WRITING, IN THE FORMAT OF AN RFI PRIOR TO BID.
5. THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED THROUGHOUT THE PLAN SET AS WELL AS REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE TO ALL THESE DOCUMENTS.
6. CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ALL CONSTRUCTION STAKEOUT FOR THIS PROJECT MUST BE COMPLETED FROM THE SITE SPECIFIC SURVEY CONTROL (HORIZONTAL AND VERTICAL) UPON WHICH THE DESIGN IS BASED. THE CONTRACTOR SHOULD NOT RELY ON OR RE-ESTABLISH SURVEY CONTROL BY GPS OR OTHER METHODS FOR USE IN CONSTRUCTION STAKEOUT OR ANY OTHER PURPOSE FOR THIS PROJECT. ANY DISCREPANCIES BETWEEN THE EXISTING HORIZONTAL OR VERTICAL DATA SHOWN ON THESE DRAWINGS AND THAT ENCOUNTERED IN THE FIELD MUST BE REPORTED TO THE DESIGN TEAM PRIOR TO CONSTRUCTION FOR RESOLUTION.

REFER TO ARCHITECTURAL PLAN SETS FOR ALL BUILDING INFORMATION, INCLUDING ELEVATIONS, FLOOR PLANS, UTILITY CONNECTIONS AND SIGNAGE INFORMATION.

REFER TO DETAIL SHEET CS-501 FOR SITE IMPROVEMENT DETAILS

REFER TO DRAWING CS-101 FOR DETAILED SITE PLAN INFORMATION

REFER TO PAVEMENT AND VEHICLE CIRCULATION PLAN, DRAWING CS-301, FOR LIMITS OF STANDARD AND HEAVY DUTY PAVING AND TRUCK ROUTES.

ALL SIGNS SHALL CONFORM TO THE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

BENSALEM TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA
H-C1-HIGHWAY COMMERCIAL DISTRICT
ZONING SUMMARY

APPLICABLE REGULATIONS	PERMITTED/REQUIRED	EXISTING	PROPOSED
ZONING DISTRICT DESIGNATION: HIGHWAY COMMERCIAL DISTRICT (H-C1)			
SCHEDULE OF USE REGULATIONS			
PERMITTED USE:	MAJOR SHOPPING CENTER	MAJOR SHOPPING CENTER	MAJOR SHOPPING CENTER (A)
AREA AND HEIGHT REGULATIONS			
MINIMUM LOT AREA:	15,000 SQUARE FEET	1,771,150 SQUARE FEET (40.66 ACRES)	1,771,150 SQUARE FEET (40.66 ACRES) (B)
MINIMUM LOT WIDTH:	75 FEET	>75 FEET	>75 FEET
MAXIMUM BUILDING COVERAGE:	35%	18.65% (330,360 SQUARE FEET)	20.13% (356,444 SQUARE FEET)
MAXIMUM IMPERVIOUS COVERAGE:	75% (1,328,362 SQUARE FEET)	60.16% (1,065,451 SQUARE FEET)	63.78% (1,129,569 SQUARE FEET)
MINIMUM FRONT YARD:	50 FEET	50 FEET	50 FEET
MINIMUM SIDE YARD:	10 FEET	N/A	N/A
MINIMUM REAR YARD:	25 FEET	N/A	N/A
MAXIMUM BUILDING HEIGHT:	55 FEET	35 FEET	35 FEET
PARKING REQUIREMENTS			
MAJOR SHOPPING CENTER:	5 SPACES PER 1,000 SQUARE OF GLA FOR A MAJOR SHOPPING CENTER REQUIRED EXISTING: 1,652 SPACES (329,040 SQUARE FEET) REQUIRED PROPOSED: 1,783 SPACES (356,593 SQUARE FEET)	1,919 SPACES (5.83 SPACES/ 1,000 SF)	1,925 SPACES (5.40 SPACES/ 1,000 SF)
MINIMUM NUMBER OF HANDICAP SPACES:	REQUIRED EXISTING: 29 SPACES REQUIRED PROPOSED: 28 SPACES	48	54
MINIMUM PARKING SPACE SIZE (90°)	9 FEET x 18 FEET	9 FEET x 18 FEET	9 FEET x 18 FEET
MINIMUM ONE-WAY DRIVE AISLE WIDTH (90°)	18 FEET	N/A	18 FEET
MINIMUM TWO-WAY DRIVE AISLE WIDTH (90°)	24 FEET	24 FEET	24 FEET
MINIMUM RESIDENTIAL BUFFER STRIP	20 FEET	20 FEET	20 FEET
MINIMUM YARD ADJACENT TO RESIDENTIAL USE	75' FROM REAR BUFFER STRIP	30 FEET (AT LA FITNESS)	30 FEET (AT LA FITNESS) (C)
MINIMUM WETLANDS BUFFER	50 FEET	> 50 FEET	> 50 FEET

NOTES:

(A) PER SECTION 232-408(15)(B), IN A MAJOR SHOPPING CENTER, THE INDIVIDUAL LOTS OR PARCELS WHICH ARE CREATED FOR THE PURPOSE OF ESTABLISHING SEPARATE OWNERSHIP SHALL NOT BE REQUIRED TO COMPLY WITH SECTION 232-409 LOT AREA, LOT WIDTH, BUILDING AREA AND YARD REQUIREMENTS PROVIDED THAT THE FOLLOWING CONDITIONS ARE MET:

1. THE OVERALL TRACT, LOT OR PARCEL BEING DEVELOPED AS A MAJOR SHOPPING CENTER COMPLIES WITH THE LOT AREA, LOT WIDTH, BUILDING AREA, AND YARD REQUIREMENTS OF SECTION 232-409
2. A CROSS EASEMENT AGREEMENT IS RECORDED WITH THE FINAL PLAN PROVIDING FOR RECIPROCAL RIGHTS FOR THE INDICIAL LOTS OR PARCELS RELATING TO INGRESS AND EGRESS, UTILITIES, STORMWATER MANAGEMENT, MAINTENANCE OF COMMON AREAS AND, UNLESS THE PARKING REQUIREMENTS FOR THE INDIVIDUAL LOT OR PARCEL ARE MET ON THAT LOT OR PARCEL, AND PARKING ON THAT LOT OR PARCEL IS NOT REQUIRED BY ANY OTHER LOT OR PARCEL TO MEET THE REQUIREMENTS OF THIS SECTION, THE COMMON USE OF PARKING AREAS.
3. EACH INDIVIDUAL LOT OR PARCEL CONTAINS A MINIMUM OF .75 ACRES OR ONE OR MORE BUILDINGS CONTAINING IN THE AGGREGATE A MINIMUM OF 25,000 SQUARE FEET.

(B) THE SHOPPING CENTER CONSISTS OF 7 TOTAL TAX PARCELS. THE TOTAL AREA TO THE ULTIMATE RIGHT-OF-WAY LINE IS 40.66 ACRES AND THIS IS THE AREA USED FOR ALL OF THE APPLICABLE CALCULATIONS IN THIS ZONING TABLE. THE TOTAL AREA TO THE TITLE LINE IS 42.09 ACRES.

(C) PER SECTION 232-593, COMMERCIAL DISTRICTS ABUTTING AN RURAL OR RESIDENT DISTRICT BOUNDARY LINE SHALL PROVIDE A YARD WHICH SHALL NOT BE LESS THAN 75 FEET IN WIDTH, MEASURED FROM THE REAR OF THE 20-FOOT BUFFERYARD. 30 FEET IS PROVIDED ADJACENT TO THE LA FITNESS. THIS IS AN EXISTING NON-CONFORMITY THAT WILL NOT BE AFFECTED BY THIS PROPOSED APPLICATION.

LEGEND

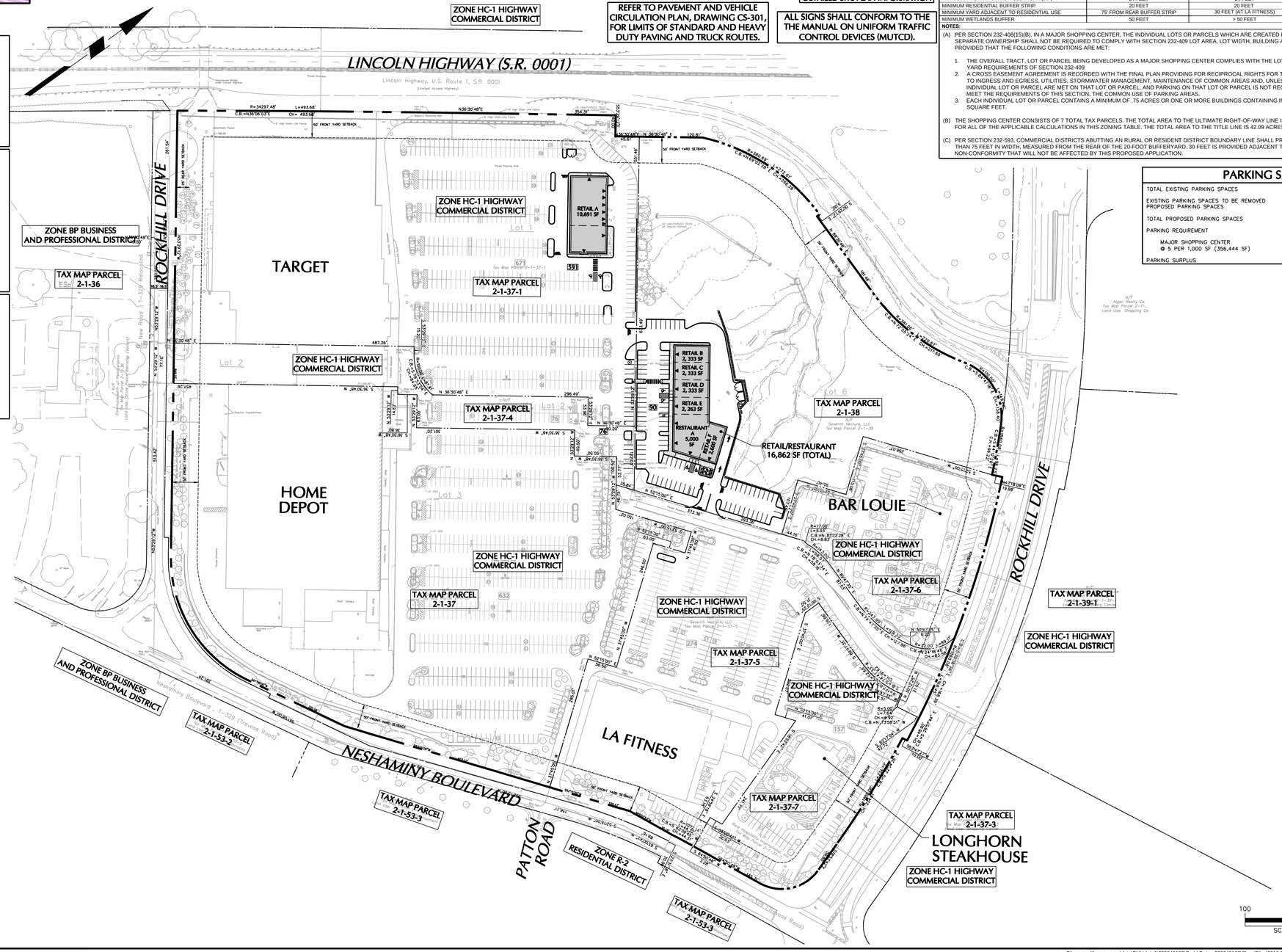
- PROPERTY LINE
- BUILDING SETBACK LINE
- BUFFERYARD LINE
- PARKING SETBACK LINE
- ZONING BOUNDARY LINE
- STREAM FLOODWAY
- BUILDING LINE
- CURB
- 33 PROPOSED PARKING SUBTOTAL
- 33 EXISTING PARKING SUBTOTAL
- 10 PARKING COUNT
- 10 EXISTING PARKING COUNT
- TRAFFIC SIGN
- CONCRETE
- 2 TRAFFIC SIGN DESIGNATION
- DOORWAY

BUILDING SUMMARY

EXISTING BUILDING GFA:	SIZE
TARGET	123,000 SF
HOME DEPOT	134,516 SF
LA FITNESS	38,000 SF
LONGHORN STEAKHOUSE	10,000 SF
BAR LOUIE	5,000 SF
FAMOUS FOOTWEAR	8,554 SF
FLIRT BEAUTY	4,453 SF
JIMMY JOHNS	1,284 SF
MIRACLE EAR	1,141 SF
SPORTS CLIP	1,546 SF
HAIR CUTTERY	1,546 SF
TOTAL EXISTING BUILDING SF.	329,040 SF
PROPOSED BUILDING GFA:	
PROPOSED MULTI-UNIT RETAIL/REST.	16,862 SF
PROPOSED RETAIL	10,691 SF
TOTAL PROPOSED BUILDING SF	27,553 SF
TOTAL EXISTING GFA	329,040 SF
TOTAL PROPOSED GFA	356,593 SF
TOTAL INCREASE IN GFA	27,553 SF

PARKING SUMMARY

TOTAL EXISTING PARKING SPACES	= 1919 SPACES (5.83 SPACES/1,000 SF)
EXISTING PARKING SPACES TO BE REMOVED	= 84 SPACES
PROPOSED PARKING SPACES	= 90 SPACES
TOTAL PROPOSED PARKING SPACES	= 1925 SPACES (5.40 SPACES/1,000 SF)
PARKING REQUIREMENT	
MAJOR SHOPPING CENTER @ 5 PER 1,000 SF (356,444 SF)	= 1783 SPACES
PARKING SURPLUS	= 142 SPACES



APPROVAL BY GOVERNING BODY

APPROVED BY THE BENSALEM TOWNSHIP COUNCIL OF BENSALEM TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA, ON THE _____ DAY OF _____,20____.

BUCKS COUNTY PLANNING COMMISSION

THIS PLAN REVIEWED BY THE BUCKS COUNTY PLANNING COMMISSION THIS _____ DAY OF _____20 ___.

CHAIRMAN

SECRETARY

CERTIFICATE OF COUNTY RECORDER OF DEEDS

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS IN BUCKS COUNTY, PENNSYLVANIA, IN PLAN BOOK _____, PAGE _____, ON THE ____ DAY OF _____20 ___.

SIGNATURE DATE

TOWNSHIP ENGINEER

THIS PLAN REVIEWED BY THE BENSALEM TOWNSHIP ENGINEER, THIS ____ DAY OF _____20 ___.

SIGNATURE DATE

TOWNSHIP PLANNING COMMISSION

THIS PLAN REVIEWED BY THE BENSALEM TOWNSHIP PLANNING COMMISSION, THIS ____ DAY OF _____ 20 ___

SIGNATURE DATE

OWNER'S CERTIFICATION

COMMONWEALTH OF PENNSYLVANIA: SS:
COUNTY OF BUCKS

_____, UNDERSIGNED, HAS LAID OUT UPON MY LAND SITUATE IN BENSALEM TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA, CERTAIN LOTS AND STREETS ACCORDING TO THE ACCOMPANYING PLAN WHICH IS INTENDED TO BE RECORDED.

DATE

ON THIS, ___ DAY OF _____, 20___, BEFORE ME, A NOTARY PUBLIC, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED _____, KNOWN TO BE (OR SATISFACTORILY PROVEN) TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE ACCOMPANYING CERTIFICATE AND ACKNOWLEDGED THAT HE/SHE EXECUTED THE SAME FOR THE PURPOSES THEREIN CONTAINED.

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND OFFICIAL SEAL.

NOTARY PUBLIC

CORPORATE CERTIFICATION

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF BUCKS

ON THE _____ DAY OF _____20___ BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, RESIDING IN _____ PERSONALLY APPEARED _____, WHO ACKNOWLEDGED HIMSELF/HERSELF TO BE THE _____ OF _____, A CORPORATION, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HE/SHE EXECUTED THE FOREGOING PLAN BY SIGNING THE NAME OF SAID CORPORATION BY HIMSELF/HERSELF AS THAT SAID CORPORATION IS THE OWNER OF THE LAND SHOWN HEREON. ALL NECESSARY APPROVALS OF THIS PLAN HAVE BEEN OBTAINED AND IS ENDORSED THEREON AND SAID CORPORATION DESIRES THAT THIS PLAN BE DULY RECORDED.

NOTARY PUBLIC MY COMMISSION EXPIRES

I, _____, ACKNOWLEDGE MYSELF TO BE THE _____ OF _____, A CORPORATION, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HEREBY CERTIFY THAT THE CORPORATION IS THE SOLE REGISTERED OWNER OF THE LAND HEREIN SUBDIVIDED AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE OF THE SAME AND THAT I DO HEREBY ADOPT THIS PLAN AND DESIRE THE SAME TO BE RECORDED. I DO FURTHER SAVE THE TOWNSHIP HARMLESS AND INDEMNIFY THE TOWNSHIP OF BENSALEM AGAINST ANY LIABILITY OR LOSS RESULTING FROM THE SUBDIVISION OR DEVELOPMENT OF THIS PLAT FOR WHATEVER REASON PRESENT OR FUTURE.

CORPORATE OFFICIAL OFFICE

Date	Description	No.
REVISIONS		

BRIAN M. CONLON DATE
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

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Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
THE MARKETPLACE AT NESHAMINY
BENSALEM TOWNSHIP
BUCKS COUNTY PENNSYLVANIA

Drawing Title
MASTER SITE PLAN

Project No. 220048102
Date 8 JUNE 2016
Scale 1"=100'
Drawn By TFH
Checked By BMC
Drawing No. CS-100
SHEET 5 OF 22

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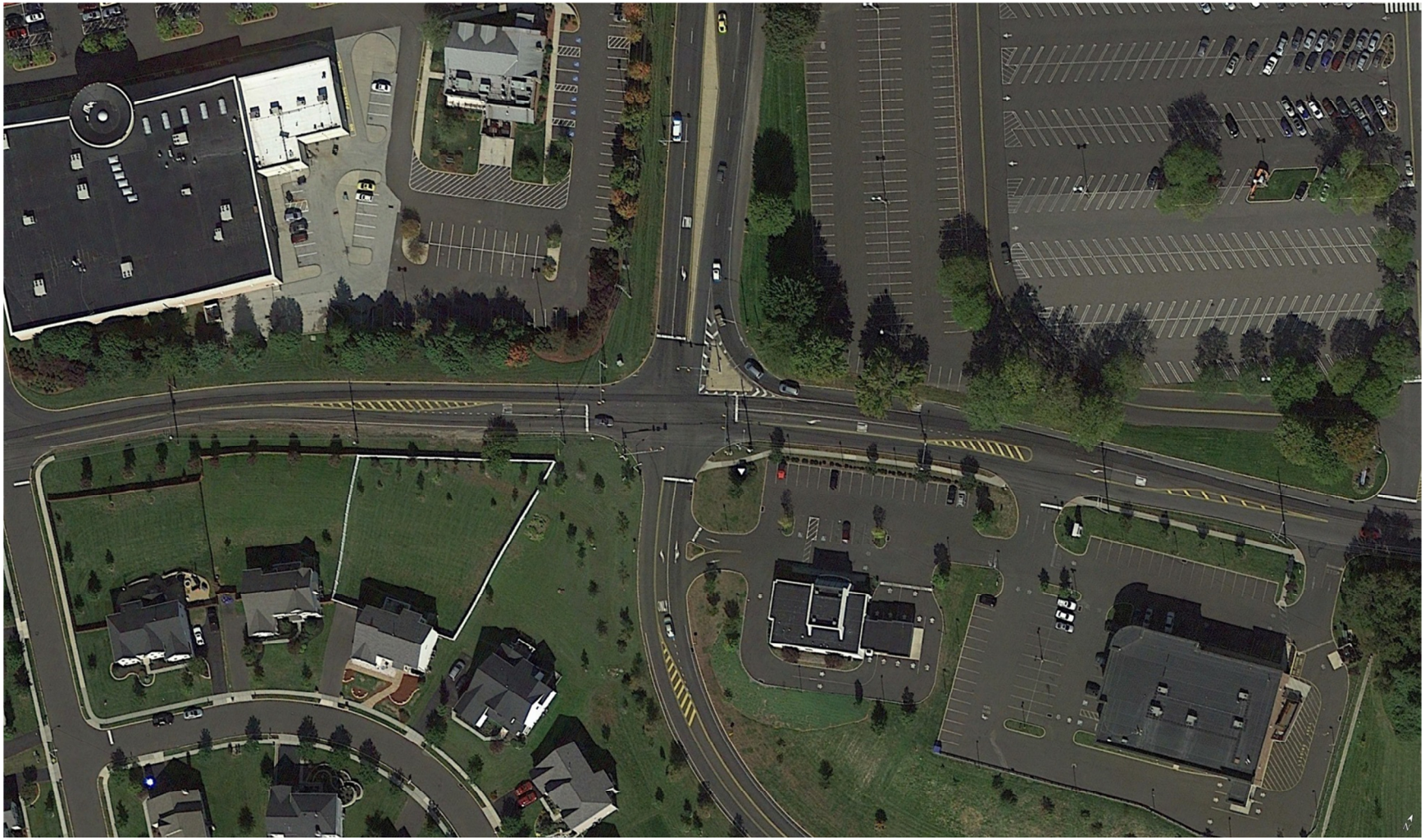
Filename: \\langan.com\data\PHL\data1\220048102\Cadd Data - 220048102\SheetFiles\2016.01.xx - Submission 1\220048102-CS-100.dwg Date: 6/6/2016 Time: 16:38 User: jobrien Style Table: Langan.stb Layout: CS-100

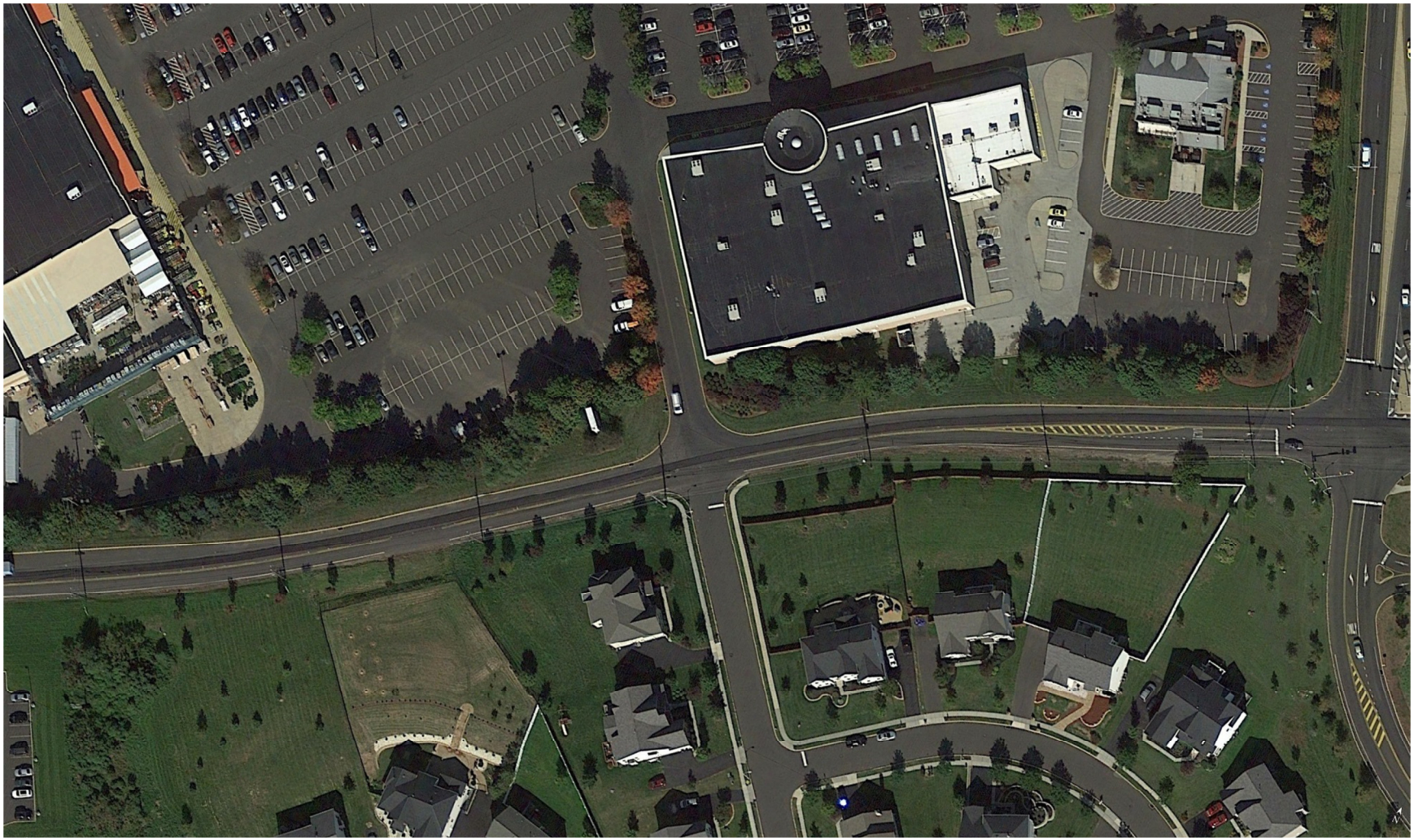
APPENDIX B

INTERSECTION AERIALS

ROCKHILL DRIVE (SR 2044) AND MARKETPLACE DRIVEWAY 1/NESHAMINY MALL ACCESS



ROCKHILL DRIVE (SR 2044) AND NESHAMINY BOULEVARD



NESHAMINY BOULEVARD AND MARKETPLACE DRIVEWAY 2/PALTON ROAD

APPENDIX C

MANUAL TRAFFIC COUNT DATA

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Rockhill Dr (SR 2044) & Neshaminy Mall/Marketplace
Manual Turning Movement Count
Weekday AM and PM Peak Hours
Thursday, 21 January 2016

File Name : Weekday ROCKHILL_DR_AT_DRIVE_WAYS_287409_01-21-2016
Site Code :
Start Date : 1/21/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

	Rockhill Drive (SR 2044) Southbound				Neshaminy Mall Access Westbound				Rockhill Drive (SR 2044) Northbound				Marketplace Access 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
07:00 AM	0	66	19	85	0	0	0	0	5	236	1	242	24	0	4	28	355
07:15 AM	2	73	22	97	0	0	3	3	1	224	0	225	20	0	3	23	348
07:30 AM	1	71	22	94	0	0	0	0	0	247	3	250	22	0	5	27	371
07:45 AM	4	92	23	119	1	2	2	5	7	232	2	241	21	0	2	23	388
Total	7	302	86	395	1	2	5	8	13	939	6	958	87	0	14	101	1462
08:00 AM	3	71	34	108	1	0	1	2	7	195	4	206	25	1	1	27	343
08:15 AM	0	91	39	130	0	0	1	1	5	191	0	196	28	0	8	36	363
08:30 AM	0	110	39	149	1	0	0	1	6	180	2	188	26	0	5	31	369
08:45 AM	2	103	58	163	2	2	0	4	9	187	6	202	29	2	6	37	406
Total	5	375	170	550	4	2	2	8	27	753	12	792	108	3	20	131	1481
*** BREAK ***																	
04:00 PM	24	170	71	265	7	9	16	32	17	157	12	186	63	10	14	87	570
04:15 PM	14	167	75	256	8	5	16	29	20	172	9	201	54	6	17	77	563
04:30 PM	17	224	81	322	14	7	11	32	15	178	13	206	77	10	20	107	667
04:45 PM	22	235	70	327	9	5	15	29	16	167	18	201	57	7	15	79	636
Total	77	796	297	1170	38	26	58	122	68	674	52	794	251	33	66	350	2436
05:00 PM	12	225	78	315	10	5	14	29	14	158	15	187	65	10	16	91	622
05:15 PM	19	206	89	314	6	9	13	28	19	163	19	201	63	7	14	84	627
05:30 PM	25	205	96	326	16	4	14	34	16	185	12	213	60	7	12	79	652
05:45 PM	20	196	88	304	5	7	14	26	13	147	19	179	68	8	16	92	601
Total	76	832	351	1259	37	25	55	117	62	653	65	780	256	32	58	346	2502
Grand Total	165	2305	904	3374	80	55	120	255	170	3019	135	3324	702	68	158	928	7881
Apprch %	4.9	68.3	26.8		31.4	21.6	47.1		5.1	90.8	4.1		75.6	7.3	17		
Total %	2.1	29.2	11.5	42.8	1	0.7	1.5	3.2	2.2	38.3	1.7	42.2	8.9	0.9	2	11.8	
Lights	164	2222	889	3275	79	54	119	252	169	2920	134	3223	681	67	156	904	7654
% Lights	99.4	96.4	98.3	97.1	98.8	98.2	99.2	98.8	99.4	96.7	99.3	97	97	98.5	98.7	97.4	97.1
Buses	1	47	0	48	0	0	0	0	0	43	0	43	1	0	0	1	92
% Buses	0.6	2	0	1.4	0	0	0	0	0	1.4	0	1.3	0.1	0	0	0.1	1.2
Trucks	0	36	15	51	1	1	1	3	1	56	1	58	20	1	2	23	135
% Trucks	0	1.6	1.7	1.5	1.2	1.8	0.8	1.2	0.6	1.9	0.7	1.7	2.8	1.5	1.3	2.5	1.7

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Rockhill Dr (SR 2044) & Neshaminy Mall/Marketplace
Manual Turning Movement Count
Weekday AM and PM Peak Hours
Thursday, 21 January 2016

File Name : Weekday ROCKHILL_DR_AT_DRIVE_WAYS_287409_01-21-2016
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	Rockhill Drive (SR 2044) Southbound				Neshaminy Mall Access Westbound				Rockhill Drive (SR 2044) Northbound				Marketplace Access 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 08:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	3	71	34	108	1	0	1	2	7	195	4	206	25	1	1	27	343
08:15 AM	0	91	39	130	0	0	1	1	5	191	0	196	28	0	8	36	363
08:30 AM	0	110	39	149	1	0	0	1	6	180	2	188	26	0	5	31	369
08:45 AM	2	103	58	163	2	2	0	4	9	187	6	202	29	2	6	37	406
Total Volume	5	375	170	550	4	2	2	8	27	753	12	792	108	3	20	131	1481
% App. Total	0.9	68.2	30.9		50	25	25		3.4	95.1	1.5		82.4	2.3	15.3		
PHF	.417	.852	.733	.844	.500	.250	.500	.500	.750	.965	.500	.961	.931	.375	.625	.885	.912
Lights	5	347	161	513	4	2	2	8	27	720	12	759	102	3	19	124	1404
% Lights	100	92.5	94.7	93.3	100	100	100	100	100	95.6	100	95.8	94.4	100	95.0	94.7	94.8
Buses	0	15	0	15	0	0	0	0	0	10	0	10	1	0	0	1	26
% Buses	0	4.0	0	2.7	0	0	0	0	0	1.3	0	1.3	0.9	0	0	0.8	1.8
Trucks	0	13	9	22	0	0	0	0	0	23	0	23	5	0	1	6	51
% Trucks	0	3.5	5.3	4.0	0	0	0	0	0	3.1	0	2.9	4.6	0	5.0	4.6	3.4
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	17	224	81	322	14	7	11	32	15	178	13	206	77	10	20	107	667
04:45 PM	22	235	70	327	9	5	15	29	16	167	18	201	57	7	15	79	636
05:00 PM	12	225	78	315	10	5	14	29	14	158	15	187	65	10	16	91	622
05:15 PM	19	206	89	314	6	9	13	28	19	163	19	201	63	7	14	84	627
Total Volume	70	890	318	1278	39	26	53	118	64	666	65	795	262	34	65	361	2552
% App. Total	5.5	69.6	24.9		33.1	22	44.9		8.1	83.8	8.2		72.6	9.4	18		
PHF	.795	.947	.893	.977	.696	.722	.883	.922	.842	.935	.855	.965	.851	.850	.813	.843	.957
Lights	70	873	317	1260	38	26	53	117	64	649	65	778	258	34	65	357	2512
% Lights	100	98.1	99.7	98.6	97.4	100	100	99.2	100	97.4	100	97.9	98.5	100	100	98.9	98.4
Buses	0	13	0	13	0	0	0	0	0	9	0	9	0	0	0	0	22
% Buses	0	1.5	0	1.0	0	0	0	0	0	1.4	0	1.1	0	0	0	0	0.9
Trucks	0	4	1	5	1	0	0	1	0	8	0	8	4	0	0	4	18
% Trucks	0	0.4	0.3	0.4	2.6	0	0	0.8	0	1.2	0	1.0	1.5	0	0	1.1	0.7

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Rockhill Dr (SR 2044) & Neshaminy Mall/Marketplace
Manual Turning Movement Count
Saturday Midday Peak Hour
Saturday, 30 January 2016

File Name : ROCK_HILL_RD_AT_DRIVE_WAYS__288825_01-30-2016_SAT
Site Code :
Start Date : 1/30/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

	Rockhill Drive (SR 2044) Southbound				Neshaminy Mall Access Westbound				Rockhill Drive (SR 2044) Northbound				Marketplace Access 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
11:00 AM	24	101	75	200	4	6	11	21	20	126	14	160	64	11	23	98	479
11:15 AM	28	147	77	252	7	10	17	34	11	152	19	182	72	14	9	95	563
11:30 AM	38	139	74	251	10	9	21	40	22	166	16	204	75	14	22	111	606
11:45 AM	48	133	80	261	9	6	17	32	14	147	23	184	72	13	12	97	574
Total	138	520	306	964	30	31	66	127	67	591	72	730	283	52	66	401	2222
12:00 PM	44	148	96	288	8	10	19	37	21	150	34	205	67	14	17	98	628
12:15 PM	41	144	56	241	12	8	21	41	15	167	33	215	77	19	14	110	607
12:30 PM	43	165	75	283	14	5	33	52	12	159	19	190	73	14	12	99	624
12:45 PM	55	152	81	288	9	9	24	42	15	150	26	191	68	12	17	97	618
Total	183	609	308	1100	43	32	97	172	63	626	112	801	285	59	60	404	2477
01:00 PM	37	164	77	278	10	12	28	50	20	160	22	202	81	6	21	108	638
01:15 PM	32	147	100	279	15	12	41	68	12	163	20	195	63	17	20	100	642
01:30 PM	40	159	87	286	15	15	39	69	23	149	17	189	75	12	24	111	655
01:45 PM	49	165	78	292	10	11	23	44	24	144	22	190	67	15	17	99	625
Total	158	635	342	1135	50	50	131	231	79	616	81	776	286	50	82	418	2560
Grand Total	479	1764	956	3199	123	113	294	530	209	1833	265	2307	854	161	208	1223	7259
Apprch %	15	55.1	29.9		23.2	21.3	55.5		9.1	79.5	11.5		69.8	13.2	17		
Total %	6.6	24.3	13.2	44.1	1.7	1.6	4.1	7.3	2.9	25.3	3.7	31.8	11.8	2.2	2.9	16.8	
Lights	478	1724	951	3153	122	112	294	528	206	1791	265	2262	849	160	205	1214	7157
% Lights	99.8	97.7	99.5	98.6	99.2	99.1	100	99.6	98.6	97.7	100	98	99.4	99.4	98.6	99.3	98.6
Buses	1	31	0	32	0	0	0	0	0	33	0	33	0	0	0	0	65
% Buses	0.2	1.8	0	1	0	0	0	0	0	1.8	0	1.4	0	0	0	0	0.9
Trucks	0	9	5	14	1	1	0	2	3	9	0	12	5	1	3	9	37
% Trucks	0	0.5	0.5	0.4	0.8	0.9	0	0.4	1.4	0.5	0	0.5	0.6	0.6	1.4	0.7	0.5

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Rockhill Dr (SR 2044) & Neshaminy Mall/Marketplace
Manual Turning Movement Count
Saturday Midday Peak Hour
Saturday, 30 January 2016

File Name : ROCK_HILL_RD_AT_DRIVE_WAYS__288825_01-30-2016_SAT
Site Code :
Start Date : 1/30/2016
Page No : 2

	Rockhill Drive (SR 2044) Southbound				Neshaminy Mall Access Westbound				Rockhill Drive (SR 2044) Northbound				Marketplace Access 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 PM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	44	148	96	288	8	10	19	37	21	150	34	205	67	14	17	98	628
12:15 PM	41	144	56	241	12	8	21	41	15	167	33	215	77	19	14	110	607
12:30 PM	43	165	75	283	14	5	33	52	12	159	19	190	73	14	12	99	624
12:45 PM	55	152	81	288	9	9	24	42	15	150	26	191	68	12	17	97	618
Total Volume	183	609	308	1100	43	32	97	172	63	626	112	801	285	59	60	404	2477
% App. Total	16.6	55.4	28		25	18.6	56.4		7.9	78.2	14		70.5	14.6	14.9		
PHF	.832	.923	.802	.955	.768	.800	.735	.827	.750	.937	.824	.931	.925	.776	.882	.918	.986
Lights	183	598	308	1089	43	32	97	172	61	613	112	786	283	59	59	401	2448
% Lights	100	98.2	100	99.0	100	100	100	100	96.8	97.9	100	98.1	99.3	100	98.3	99.3	98.8
Buses	0	9	0	9	0	0	0	0	0	12	0	12	0	0	0	0	21
% Buses	0	1.5	0	0.8	0	0	0	0	0	1.9	0	1.5	0	0	0	0	0.8
Trucks	0	2	0	2	0	0	0	0	2	1	0	3	2	0	1	3	8
% Trucks	0	0.3	0	0.2	0	0	0	0	3.2	0.2	0	0.4	0.7	0	1.7	0.7	0.3

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Rockhill Drive (SR 2044) & Neshaminy Boulevard
Manual Turning Movement Count
Weekday AM and PM Peak Hours
Tuesday, 12 January 2016

File Name : ROCKHILL_DR_AT_NESHAMINY_BLVD_285644_01-12-2016
Site Code :
Start Date : 1/12/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

	Rockhill Drive (SR 2044) Southbound				Neshaminy Boulevard Westbound				Rockhill Drive (SR 2044) Northbound				Neshaminy Boulevard 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
07:00 AM	37	27	4	68	3	5	127	135	6	85	0	91	4	1	2	7	301
07:15 AM	34	36	1	71	3	8	124	135	1	91	3	95	10	5	4	19	320
07:30 AM	33	33	4	70	6	5	135	146	10	85	7	102	5	9	0	14	332
07:45 AM	44	27	5	76	5	10	134	149	12	89	4	105	6	6	6	18	348
Total	148	123	14	285	17	28	520	565	29	350	14	393	25	21	12	58	1301
08:00 AM	58	29	4	91	9	11	102	122	7	83	6	96	11	5	5	21	330
08:15 AM	58	29	3	90	6	21	99	126	5	70	7	82	9	7	2	18	316
08:30 AM	64	35	1	100	7	10	117	134	7	48	8	63	5	5	10	20	317
08:45 AM	69	34	3	106	11	15	115	141	7	64	11	82	4	7	5	16	345
Total	249	127	11	387	33	57	433	523	26	265	32	323	29	24	22	75	1308
*** BREAK ***																	
04:00 PM	107	87	3	197	19	17	93	129	15	76	11	102	5	19	9	33	461
04:15 PM	120	70	7	197	17	23	98	138	14	81	17	112	5	13	9	27	474
04:30 PM	123	83	5	211	20	18	65	103	12	102	16	130	3	19	13	35	479
04:45 PM	136	84	6	226	14	19	80	113	4	84	15	103	3	14	11	28	470
Total	486	324	21	831	70	77	336	483	45	343	59	447	16	65	42	123	1884
05:00 PM	82	100	6	188	13	13	72	98	16	90	14	120	5	22	8	35	441
05:15 PM	117	92	7	216	19	12	74	105	16	99	14	129	3	14	11	28	478
05:30 PM	102	73	4	179	16	16	76	108	13	78	11	102	6	20	10	36	425
05:45 PM	96	92	6	194	12	17	62	91	12	80	13	105	5	16	17	38	428
Total	397	357	23	777	60	58	284	402	57	347	52	456	19	72	46	137	1772
Grand Total	1280	931	69	2280	180	220	1573	1973	157	1305	157	1619	89	182	122	393	6265
Apprch %	56.1	40.8	3		9.1	11.2	79.7		9.7	80.6	9.7		22.6	46.3	31		
Total %	20.4	14.9	1.1	36.4	2.9	3.5	25.1	31.5	2.5	20.8	2.5	25.8	1.4	2.9	1.9	6.3	
Lights	1213	917	65	2195	178	214	1511	1903	152	1284	156	1592	81	176	117	374	6064
% Lights	94.8	98.5	94.2	96.3	98.9	97.3	96.1	96.5	96.8	98.4	99.4	98.3	91	96.7	95.9	95.2	96.8
Buses	40	4	2	46	0	2	43	45	1	7	1	9	2	1	2	5	105
% Buses	3.1	0.4	2.9	2	0	0.9	2.7	2.3	0.6	0.5	0.6	0.6	2.2	0.5	1.6	1.3	1.7
Trucks	27	10	2	39	2	4	19	25	4	14	0	18	6	5	3	14	96
% Trucks	2.1	1.1	2.9	1.7	1.1	1.8	1.2	1.3	2.5	1.1	0	1.1	6.7	2.7	2.5	3.6	1.5

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Rockhill Drive (SR 2044) & Neshaminy Boulevard
Manual Turning Movement Count
Weekday AM and PM Peak Hours
Tuesday, 12 January 2016

File Name : ROCKHILL_DR_AT_NESHAMINY_BLVD_285644_01-12-2016
Site Code :
Start Date : 1/12/2016
Page No : 2

	Rockhill Drive (SR 2044) Southbound				Neshaminy Boulevard Westbound				Rockhill Drive (SR 2044) Northbound				Neshaminy Boulevard 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 08:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	58	29	4	91	9	11	102	122	7	83	6	96	11	5	5	21	330
08:15 AM	58	29	3	90	6	21	99	126	5	70	7	82	9	7	2	18	316
08:30 AM	64	35	1	100	7	10	117	134	7	48	8	63	5	5	10	20	317
08:45 AM	69	34	3	106	11	15	115	141	7	64	11	82	4	7	5	16	345
Total Volume	249	127	11	387	33	57	433	523	26	265	32	323	29	24	22	75	1308
% App. Total	64.3	32.8	2.8		6.3	10.9	82.8		8	82	9.9		38.7	32	29.3		
PHF	.902	.907	.688	.913	.750	.679	.925	.927	.929	.798	.727	.841	.659	.857	.550	.893	.948
Lights	228	120	10	358	32	57	416	505	25	262	31	318	27	20	21	68	1249
% Lights	91.6	94.5	90.9	92.5	97.0	100	96.1	96.6	96.2	98.9	96.9	98.5	93.1	83.3	95.5	90.7	95.5
Buses	12	2	1	15	0	0	9	9	0	3	1	4	0	1	0	1	29
% Buses	4.8	1.6	9.1	3.9	0	0	2.1	1.7	0	1.1	3.1	1.2	0	4.2	0	1.3	2.2
Trucks	9	5	0	14	1	0	8	9	1	0	0	1	2	3	1	6	30
% Trucks	3.6	3.9	0	3.6	3.0	0	1.8	1.7	3.8	0	0	0.3	6.9	12.5	4.5	8.0	2.3
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	123	83	5	211	20	18	65	103	12	102	16	130	3	19	13	35	479
04:45 PM	136	84	6	226	14	19	80	113	4	84	15	103	3	14	11	28	470
05:00 PM	82	100	6	188	13	13	72	98	16	90	14	120	5	22	8	35	441
05:15 PM	117	92	7	216	19	12	74	105	16	99	14	129	3	14	11	28	478
Total Volume	458	359	24	841	66	62	291	419	48	375	59	482	14	69	43	126	1868
% App. Total	54.5	42.7	2.9		15.8	14.8	69.5		10	77.8	12.2		11.1	54.8	34.1		
PHF	.842	.898	.857	.930	.825	.816	.909	.927	.750	.919	.922	.927	.700	.784	.827	.900	.975
Lights	443	358	24	825	66	60	280	406	47	371	59	477	13	67	42	122	1830
% Lights	96.7	99.7	100	98.1	100	96.8	96.2	96.9	97.9	98.9	100	99.0	92.9	97.1	97.7	96.8	98.0
Buses	12	1	0	13	0	0	9	9	0	1	0	1	0	0	1	1	24
% Buses	2.6	0.3	0	1.5	0	0	3.1	2.1	0	0.3	0	0.2	0	0	2.3	0.8	1.3
Trucks	3	0	0	3	0	2	2	4	1	3	0	4	1	2	0	3	14
% Trucks	0.7	0	0	0.4	0	3.2	0.7	1.0	2.1	0.8	0	0.8	7.1	2.9	0	2.4	0.7

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Rockhill Drive (SR 2044) & Neshaminy Boulevard
Manual Turning Movement Count
Saturday Midday Peak Hour
Saturday, 9 January 2016

File Name : ROCKHILL_DR_AT_NESHAMINY_BLVD_285398_01-09-2016
Site Code :
Start Date : 1/9/2016
Page No : 1

Groups Printed- Lights - Buses - Trucks

	Rockhill Drive (SR 2044) Southbound				Neshaminy Boulevard Westbound				Rockhill Drive (SR 2044) Northbound				Neshaminy Boulevard 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
11:00 AM	88	55	4	147	16	25	81	122	16	60	21	97	2	23	11	36	402
11:15 AM	83	36	4	123	16	14	114	144	19	70	16	105	3	19	18	40	412
11:30 AM	97	61	1	159	25	24	115	164	16	61	20	97	7	17	15	39	459
11:45 AM	116	52	10	178	23	23	89	135	19	54	19	92	7	28	17	52	457
Total	384	204	19	607	80	86	399	565	70	245	76	391	19	87	61	167	1730
12:00 PM	97	51	7	155	20	15	133	168	19	87	19	125	2	34	16	52	500
12:15 PM	107	72	3	182	23	33	132	188	16	64	24	104	8	21	13	42	516
12:30 PM	83	68	1	152	31	16	138	185	15	63	23	101	5	21	9	35	473
12:45 PM	105	69	1	175	20	25	99	144	20	68	20	108	1	14	20	35	462
Total	392	260	12	664	94	89	502	685	70	282	86	438	16	90	58	164	1951
01:00 PM	85	71	7	163	18	26	122	166	16	75	25	116	5	13	18	36	481
01:15 PM	115	77	3	195	29	28	128	185	17	66	15	98	7	18	13	38	516
01:30 PM	140	74	4	218	23	27	98	148	15	57	8	80	2	30	16	48	494
01:45 PM	122	55	2	179	17	25	120	162	16	71	23	110	6	8	9	23	474
Total	462	277	16	755	87	106	468	661	64	269	71	404	20	69	56	145	1965
Grand Total	1238	741	47	2026	261	281	1369	1911	204	796	233	1233	55	246	175	476	5646
Apprch %	61.1	36.6	2.3		13.7	14.7	71.6		16.5	64.6	18.9		11.6	51.7	36.8		
Total %	21.9	13.1	0.8	35.9	4.6	5	24.2	33.8	3.6	14.1	4.1	21.8	1	4.4	3.1	8.4	
Lights	1198	731	45	1974	260	281	1327	1868	201	790	232	1223	54	245	173	472	5537
% Lights	96.8	98.7	95.7	97.4	99.6	100	96.9	97.7	98.5	99.2	99.6	99.2	98.2	99.6	98.9	99.2	98.1
Buses	31	1	0	32	0	0	34	34	0	0	1	1	0	0	1	1	68
% Buses	2.5	0.1	0	1.6	0	0	2.5	1.8	0	0	0.4	0.1	0	0	0.6	0.2	1.2
Trucks	9	9	2	20	1	0	8	9	3	6	0	9	1	1	1	3	41
% Trucks	0.7	1.2	4.3	1	0.4	0	0.6	0.5	1.5	0.8	0	0.7	1.8	0.4	0.6	0.6	0.7

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Rockhill Drive (SR 2044) & Neshaminy Boulevard
Manual Turning Movement Count
Saturday Midday Peak Hour
Saturday, 9 January 2016

File Name : ROCKHILL_DR_AT_NESHAMINY_BLVD_285398_01-09-2016
Site Code :
Start Date : 1/9/2016
Page No : 2

	Rockhill Drive (SR 2044) Southbound				Neshaminy Boulevard Westbound				Rockhill Drive (SR 2044) Northbound				Neshaminy Boulevard 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 PM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	97	51	7	155	20	15	133	168	19	87	19	125	2	34	16	52	500
12:15 PM	107	72	3	182	23	33	132	188	16	64	24	104	8	21	13	42	516
12:30 PM	83	68	1	152	31	16	138	185	15	63	23	101	5	21	9	35	473
12:45 PM	105	69	1	175	20	25	99	144	20	68	20	108	1	14	20	35	462
Total Volume	392	260	12	664	94	89	502	685	70	282	86	438	16	90	58	164	1951
% App. Total	59	39.2	1.8		13.7	13	73.3		16	64.4	19.6		9.8	54.9	35.4		
PHF	.916	.903	.429	.912	.758	.674	.909	.911	.875	.810	.896	.876	.500	.662	.725	.788	.945
Lights	376	255	12	643	94	89	490	673	69	281	86	436	15	89	58	162	1914
% Lights	95.9	98.1	100	96.8	100	100	97.6	98.2	98.6	99.6	100	99.5	93.8	98.9	100	98.8	98.1
Buses	12	0	0	12	0	0	11	11	0	0	0	0	0	0	0	0	23
% Buses	3.1	0	0	1.8	0	0	2.2	1.6	0	0	0	0	0	0	0	0	1.2
Trucks	4	5	0	9	0	0	1	1	1	1	0	2	1	1	0	2	14
% Trucks	1.0	1.9	0	1.4	0	0	0.2	0.1	1.4	0.4	0	0.5	6.3	1.1	0	1.2	0.7

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Neshimany Boulevard & Palton Road/Marketplace Drwy 2
Manual Turning Movement Count
Weekday AM Peak Hour
Thursday, 21 January 2016

File Name : Weekday Bensalem_palton rd at neshaminy blvd-thursday AM
Site Code : 00000000
Start Date : 1/21/2016
Page No : 1

Groups Printed- Cars - Buses - Trucks

	Marketplace Driveway 2 Southbound				Neshaminy Boulevard Westbound				Palton Road Northbound				Neshaminy Boulevard 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
07:00 AM	4	0	1	5	2	7	10	19	0	6	5	11	0	2	0	2	37
07:15 AM	6	1	0	7	2	5	3	10	0	7	8	15	0	4	0	4	36
07:30 AM	6	0	0	6	1	8	13	22	0	5	4	9	0	9	0	9	46
07:45 AM	7	3	0	10	2	11	15	28	0	2	7	9	0	2	0	2	49
Total	23	4	1	28	7	31	41	79	0	20	24	44	0	17	0	17	168
08:00 AM	9	2	0	11	2	4	7	13	1	6	9	16	0	4	1	5	45
08:15 AM	10	2	0	12	2	1	9	12	0	5	5	10	0	4	0	4	38
08:30 AM	5	3	0	8	1	3	16	20	0	4	6	10	0	4	0	4	42
08:45 AM	14	1	0	15	4	5	26	35	0	6	6	12	0	7	0	7	69
Total	38	8	0	46	9	13	58	80	1	21	26	48	0	19	1	20	194

*** BREAK ***

Grand Total	61	12	1	74	16	44	99	159	1	41	50	92	0	36	1	37	362
Apprch %	82.4	16.2	1.4		10.1	27.7	62.3		1.1	44.6	54.3		0	97.3	2.7		
Total %	16.9	3.3	0.3	20.4	4.4	12.2	27.3	43.9	0.3	11.3	13.8	25.4	0	9.9	0.3	10.2	
Cars	60	11	1	72	15	40	99	154	1	41	47	89	0	26	1	27	342
% Cars	98.4	91.7	100	97.3	93.8	90.9	100	96.9	100	100	94	96.7	0	72.2	100	73	94.5
Buses	0	0	0	0	0	4	0	4	0	0	0	0	0	10	0	10	14
% Buses	0	0	0	0	0	9.1	0	2.5	0	0	0	0	0	27.8	0	27	3.9
Trucks	1	1	0	2	1	0	0	1	0	0	3	3	0	0	0	0	6
% Trucks	1.6	8.3	0	2.7	6.2	0	0	0.6	0	0	6	3.3	0	0	0	0	1.7

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Neshimany Boulevard & Palton Road/Marketplace Drwy 2
Manual Turning Movement Count
Weekday AM Peak Hour
Thursday, 21 January 2016

File Name : Weekday Bensalem_palton rd at neshaminy blvd-thursday AM
Site Code : 00000000
Start Date : 1/21/2016
Page No : 2

	Marketplace Driveway 2 Southbound				Neshaminy Boulevard Westbound				Palton Road Northbound				Neshaminy Boulevard 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 AM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	9	2	0	11	2	4	7	13	1	6	9	16	0	4	1	5	45
08:15 AM	10	2	0	12	2	1	9	12	0	5	5	10	0	4	0	4	38
08:30 AM	5	3	0	8	1	3	16	20	0	4	6	10	0	4	0	4	42
08:45 AM	14	1	0	15	4	5	26	35	0	6	6	12	0	7	0	7	69
Total Volume	38	8	0	46	9	13	58	80	1	21	26	48	0	19	1	20	194
% App. Total	82.6	17.4	0		11.2	16.2	72.5		2.1	43.8	54.2		0	95	5		
PHF	.679	.667	.000	.767	.563	.650	.558	.571	.250	.875	.722	.750	.000	.679	.250	.714	.703
Cars	38	8	0	46	9	12	58	79	1	21	25	47	0	15	1	16	188
% Cars	100	100	0	100	100	92.3	100	98.8	100	100	96.2	97.9	0	78.9	100	80.0	96.9
Buses	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
% Buses	0	0	0	0	0	7.7	0	1.3	0	0	0	0	0	21.1	0	20.0	2.6
Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	3.8	2.1	0	0	0	0	0.5

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Neshimany Boulevard & Palton Road/Marketplace Drwy 2
Manual Turning Movement Count
Weekday PM Peak Hour
Thursday, 21 January 2016

File Name : Weekday Bensalem_palton rd at neshaminy blvd-thursday PM
Site Code : 00000000
Start Date : 1/21/2016
Page No : 1

Groups Printed- Cars - Buses - Trucks

	Marketplace Driveway 2 Southbound				Neshaminy Boulevard Westbound				Palton Road Northbound				Neshaminy Boulevard 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
*** BREAK ***																	
04:00 PM	22	4	0	26	2	4	19	25	1	3	3	7	0	8	0	8	66
04:15 PM	27	6	0	33	8	8	24	40	0	3	2	5	0	5	1	6	84
04:30 PM	34	7	0	41	7	2	26	35	0	2	3	5	0	3	0	3	84
04:45 PM	42	7	0	49	8	2	31	41	0	3	8	11	0	5	0	5	106
Total	125	24	0	149	25	16	100	141	1	11	16	28	0	21	1	22	340
05:00 PM	22	3	0	25	6	3	38	47	0	2	3	5	0	5	0	5	82
05:15 PM	38	7	0	45	9	1	39	49	0	1	3	4	0	0	0	0	98
05:30 PM	27	10	0	37	5	2	38	45	0	2	6	8	0	1	0	1	91
05:45 PM	39	8	0	47	6	1	30	37	0	4	4	8	0	3	0	3	95
Total	126	28	0	154	26	7	145	178	0	9	16	25	0	9	0	9	366
Grand Total	251	52	0	303	51	23	245	319	1	20	32	53	0	30	1	31	706
Apprch %	82.8	17.2	0		16	7.2	76.8		1.9	37.7	60.4		0	96.8	3.2		
Total %	35.6	7.4	0	42.9	7.2	3.3	34.7	45.2	0.1	2.8	4.5	7.5	0	4.2	0.1	4.4	
Cars	251	52	0	303	49	23	245	317	1	20	31	52	0	30	1	31	703
% Cars	100	100	0	100	96.1	100	100	99.4	100	100	96.9	98.1	0	100	100	100	99.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	2	0	0	2	0	0	1	1	0	0	0	0	3
% Trucks	0	0	0	0	3.9	0	0	0.6	0	0	3.1	1.9	0	0	0	0	0.4

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Neshimany Boulevard & Palton Road/Marketplace Drwy 2
Manual Turning Movement Count
Weekday PM Peak Hour
Thursday, 21 January 2016

File Name : Weekday Bensalem_palton rd at neshaminy blvd-thursday PM
Site Code : 00000000
Start Date : 1/21/2016
Page No : 2

	Marketplace Driveway 2 Southbound				Neshaminy Boulevard Westbound				Palton Road Northbound				Neshaminy Boulevard 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	34	7	0	41	7	2	26	35	0	2	3	5	0	3	0	3	84
04:45 PM	42	7	0	49	8	2	31	41	0	3	8	11	0	5	0	5	106
05:00 PM	22	3	0	25	6	3	38	47	0	2	3	5	0	5	0	5	82
05:15 PM	38	7	0	45	9	1	39	49	0	1	3	4	0	0	0	0	98
Total Volume	136	24	0	160	30	8	134	172	0	8	17	25	0	13	0	13	370
% App. Total	85	15	0		17.4	4.7	77.9		0	32	68		0	100	0		
PHF	.810	.857	.000	.816	.833	.667	.859	.878	.000	.667	.531	.568	.000	.650	.000	.650	.873
Cars	136	24	0	160	30	8	134	172	0	8	16	24	0	13	0	13	369
% Cars	100	100	0	100	100	100	100	100	0	100	94.1	96.0	0	100	0	100	99.7
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	5.9	4.0	0	0	0	0	0.3

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Neshaminy Boulevard & Palton Road/Site Driveway
Manual Turning Movement Count
Saturday Midday Peak Hour
Saturday, 30 January 2016

File Name : 1188-PALTON RD AT NESHAMINY BLVD-SAT
Site Code : 00000000
Start Date : 1/30/2016
Page No : 1

Groups Printed- Cars - Buses - Trucks

	Marketplace Driveway 2 Southbound				Neshaminy Boulevard Westbound				Palton Road Northbound				Neshaminy Boulevard 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
11:00 AM	28	5	0	33	5	2	36	43	0	3	6	9	0	3	0	3	88
11:15 AM	28	3	0	31	1	2	27	30	1	4	1	6	0	4	2	6	73
11:30 AM	41	8	0	49	5	3	40	48	0	7	1	8	0	3	0	3	108
11:45 AM	24	10	0	34	5	4	45	54	0	5	4	9	1	4	0	5	102
Total	121	26	0	147	16	11	148	175	1	19	12	32	1	14	2	17	371
12:00 PM	37	5	0	42	6	5	33	44	0	6	4	10	0	3	0	3	99
12:15 PM	40	7	1	48	4	3	41	48	0	2	3	5	0	6	0	6	107
12:30 PM	26	7	0	33	3	3	36	42	1	1	3	5	1	5	0	6	86
12:45 PM	32	6	0	38	5	7	39	51	0	1	5	6	0	5	0	5	100
Total	135	25	1	161	18	18	149	185	1	10	15	26	1	19	0	20	392
01:00 PM	37	9	1	47	2	6	42	50	0	5	5	10	0	7	0	7	114
01:15 PM	33	6	0	39	1	1	37	39	0	5	9	14	0	5	0	5	97
01:30 PM	30	5	0	35	2	5	32	39	0	3	6	9	0	3	0	3	86
01:45 PM	22	5	0	27	5	3	50	58	0	1	6	7	0	4	0	4	96
Total	122	25	1	148	10	15	161	186	0	14	26	40	0	19	0	19	393
Grand Total	378	76	2	456	44	44	458	546	2	43	53	98	2	52	2	56	1156
Apprch %	82.9	16.7	0.4		8.1	8.1	83.9		2	43.9	54.1		3.6	92.9	3.6		
Total %	32.7	6.6	0.2	39.4	3.8	3.8	39.6	47.2	0.2	3.7	4.6	8.5	0.2	4.5	0.2	4.8	
Cars	378	76	2	456	44	44	458	546	2	43	52	97	2	51	2	55	1154
% Cars	100	100	100	100	100	100	100	100	100	100	98.1	99	100	98.1	100	98.2	99.8
Buses	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	2
% Buses	0	0	0	0	0	0	0	0	0	0	1.9	1	0	1.9	0	1.8	0.2
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Databank

716 S Sixth Ave
Mount Vernon, NY 10550

Neshaminy Boulevard & Palton Road/Site Driveway
Manual Turning Movement Count
Saturday Midday Peak Hour
Saturday, 30 January 2016

File Name : 1188-PALTON RD AT NESHAMINY BLVD-SAT
Site Code : 00000000
Start Date : 1/30/2016
Page No : 2

	Marketplace Driveway 2 Southbound				Neshaminy Boulevard Westbound				Palton Road Northbound				Neshaminy Boulevard 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 PM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	37	5	0	42	6	5	33	44	0	6	4	10	0	3	0	3	99
12:15 PM	40	7	1	48	4	3	41	48	0	2	3	5	0	6	0	6	107
12:30 PM	26	7	0	33	3	3	36	42	1	1	3	5	1	5	0	6	86
12:45 PM	32	6	0	38	5	7	39	51	0	1	5	6	0	5	0	5	100
Total Volume	135	25	1	161	18	18	149	185	1	10	15	26	1	19	0	20	392
% App. Total	83.9	15.5	0.6		9.7	9.7	80.5		3.8	38.5	57.7		5	95	0		
PHF	.844	.893	.250	.839	.750	.643	.909	.907	.250	.417	.750	.650	.250	.792	.000	.833	.916
Cars	135	25	1	161	18	18	149	185	1	10	15	26	1	19	0	20	392
% Cars	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100	100
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX D

PennDOT ANNUAL BACKGROUND GROWTH RATE TABLE

Growth Factors for September 2012 to July 2013				
County	Urban Interstate	Rural Interstate	Urban Non-Interstate	Rural Non-Interstate
ADAMS	*	*	1.87	0.94
ALLEGHENY	1.29	*	0.18	0.53
ARMSTRONG	1.37	*	0.21	0.54
BEAVER	1.27	2.25	0.20	0.52
BEDFORD	*	2.33	*	0.59
BERKS	1.48	2.36	0.71	0.65
BLAIR	0.81	1.82	0.00	0.36
BRADFORD	1.32	*	0.33	0.50
BUCKS	2.04	2.55	1.43	0.81
BUTLER	1.95	2.79	1.08	0.83
CAMBRIA	0.44	*	0.00	0.24
CAMERON	*	*	*	0.32
CARBON	1.93	2.76	1.26	0.84
CENTRE	1.99	2.60	1.32	0.83
CHESTER	2.54	2.99	1.91	1.03
CLARION	1.35	2.22	0.45	0.55
CLEARFIELD	*	2.48	0.18	0.57
CLINTON	1.40	2.06	0.65	0.54
COLUMBIA	1.78	2.18	1.25	0.68
CRAWFORD	1.06	2.13	0.03	0.47
CUMBERLAND	1.72	2.04	1.37	0.68
DAUPHIN	1.46	2.24	0.75	0.62
DELAWARE	1.38	*	0.51	*
ELK	*	*	0.10	0.42
ERIE	0.97	1.78	0.15	0.41
FAYETTE	1.14	*	0.12	0.49
FOREST	*	*	*	0.70
FRANKLIN	2.49	2.72	2.00	0.98
FULTON	*	2.52	*	0.79
GREENE	1.05	2.06	0.04	0.45
HUNTINGDON	*	2.14	0.33	0.51
INDIANA	1.63	*	0.59	0.64
JEFFERSON	*	2.55	0.23	0.61
JUNIATA	*	*	*	0.70
LACKAWANNA	1.30	2.30	0.19	0.52
LANCASTER	2.02	2.47	1.42	0.81
LAWRENCE	1.24	2.21	0.17	0.50
LEBANON	*	2.35	1.09	0.70
LEHIGH	1.93	2.86	1.13	0.85
LUZERNE	1.30	2.32	0.18	0.53
LYCOMING	1.06	1.65	0.29	0.39
MCKEAN	1.10	*	0.11	0.45
MERCER	1.06	1.86	0.20	0.42
MIFFLIN	1.29	*	0.20	0.54
MONROE	2.33	2.80	1.90	0.99
MONTGOMERY	1.51	2.34	0.73	0.64
MONTOUR	*	2.96	1.46	0.92
NORTHAMPTON	2.19	*	1.57	0.94
NORTHUMBERLAND	1.22	1.88	0.24	0.42
PERRY	*	*	1.91	0.81
PHILADELPHIA	1.12	*	0.00	*
PIKE	*	3.08	*	1.16
POTTER	*	*	*	0.44
SCHUYLKILL	*	1.98	0.15	0.44
SNYDER	1.58	*	0.99	0.60
SOMERSET	1.05	2.00	0.12	0.45
SULLIVAN	*	*	*	0.51
SUSQUEHANNA	1.53	2.44	0.64	0.64
TIOGA	*	*	*	0.46
UNION	*	2.31	1.50	0.75
VENANGO	1.10	1.84	0.20	0.42
WARREN	*	*	0.09	0.53
WASHINGTON	1.50	2.73	0.30	0.66
WAYNE	*	2.43	1.20	0.76
WESTMORELAND	1.37	2.39	0.33	0.57
WYOMING	*	*	0.51	0.46
YORK	1.96	2.40	1.52	0.80

* = Functional Class Doesn't Exist in County

Questions? Please contact Andrew O'Neill at the Bureau of Planning and Research, 717-346-3250 or andoneill@pa.gov

NOTE: The projected growth factors are derived using historical VMT (Vehicle Miles Traveled) data (1994 to 2011), as well as Woods and Poole demographic and economic data. The factors should not be used to project traffic beyond a 20-year period. Please be aware that these factors are estimates, and unforeseen events (opening of shopping centers, fast food franchises, gas stations, etc) could cause growth to change over time.

pennsylvania
DEPARTMENT OF TRANSPORTATION

APPENDIX E

TRIP GENERATION WORKSHEETS

TRIP GENERATION
MARKET AT NESHAMINY EXISTING SURVEY
JANUARY 21, 2016
JANUARY 30, 2016

	Rockhill and Neshaminy/Marketplace		Neshaminy and Palton	
Time	In	Out	In	Out
7:00 AM	24	28	16	5
7:15 AM	23	23	10	7
7:30 AM	22	25	18	6
7:45 AM	32	23	17	10
8:00 AM	41	27	13	11
8:15 AM	44	36	14	12
8:30 AM	45	31	20	8
8:45 AM	69	37	32	15
4:00 PM	97	87	22	26
4:15 PM	100	77	27	33
4:30 PM	103	107	28	41
4:45 PM	91	79	33	49
5:00 PM	97	91	40	25
5:15 PM	117	84	40	45
5:30 PM	116	79	40	37
5:45 PM	108	92	34	47
11:00 AM	101	98	39	33
11:15 AM	98	95	31	31
11:30 AM	105	111	47	49
11:45 AM	100	97	51	34
12:00 PM	127	98	39	42
12:15 PM	79	110	43	48
12:30 PM	92	99	38	33
12:45 PM	105	97	40	38
1:00 PM	109	108	47	47
1:15 PM	124	100	42	39
1:30 PM	125	111	35	35
1:45 PM	113	99	51	27

15 MIN TOTAL		
IN	OUT	TOTAL
40	33	73
33	30	63
40	31	71
49	33	82
54	38	92
58	48	106
65	39	104
101	52	153
119	113	232
127	110	237
131	148	279
124	128	252
137	116	253
157	129	286
156	116	272
142	139	281
140	131	271
129	126	255
152	160	312
151	131	282
166	140	306
122	158	280
130	132	262
145	135	280
156	155	311
166	139	305
160	146	306
164	126	290

HOURLY						Peak Hour Trips		
IN	OUT	TOTAL	MAX	PEAK HOUR		IN	OUT	TOTAL
162	127	289	455	8:00 AM - 9:00 AM		278	177	455
176	132	308						
201	150	351						
226	158	384						
278	177	455						
						IN	OUT	TOTAL
501	499	1000	1092	5:00 PM - 6:00 PM		592	500	1092
519	502	1021						
549	521	1070						
574	489	1063						
592	500	1092						
						IN	OUT	TOTAL
572	548	1120	1212	1:00 PM - 2:00 PM		646	566	1212
598	557	1155						
591	589	1180						
569	561	1130						
563	565	1128						
553	580	1133						
597	561	1158						
627	575	1202						
646	566	1212						

Peak Hour	Split	Equation/Rate
Weekday AM Peak Hour	61/39	AR = 1.38
Weekday PM Peak Hour	54/46	AR = 3.31
Saturday Midday Peak Hour	53/47	AR = 3.67

Shopping Center
(820)

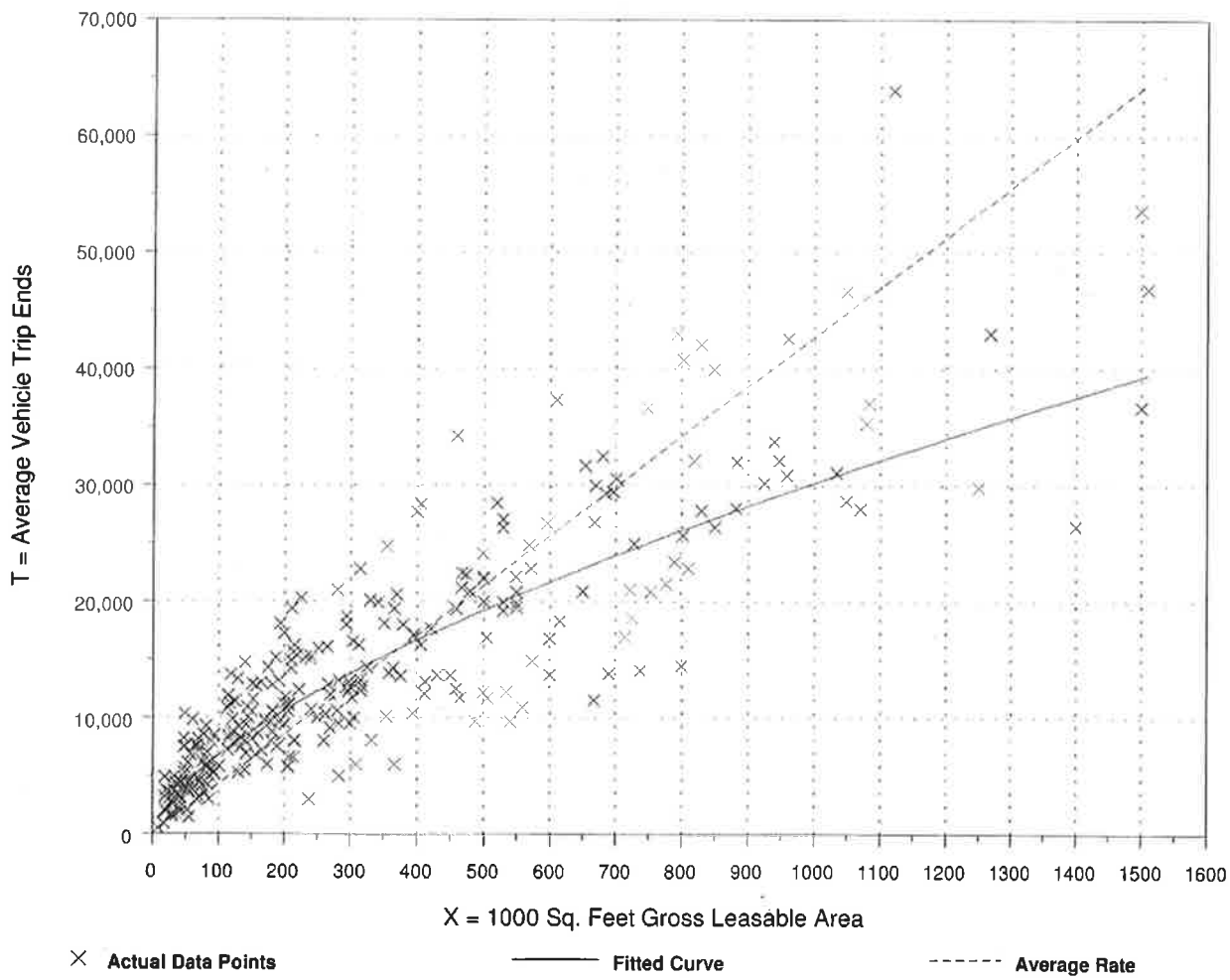
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Weekday

Number of Studies: 302
Average 1000 Sq. Feet GLA: 331
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
42.70	12.50 - 270.89	21.25

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.65 Ln(X) + 5.83 $R^2 = 0.79$

Shopping Center
(820)

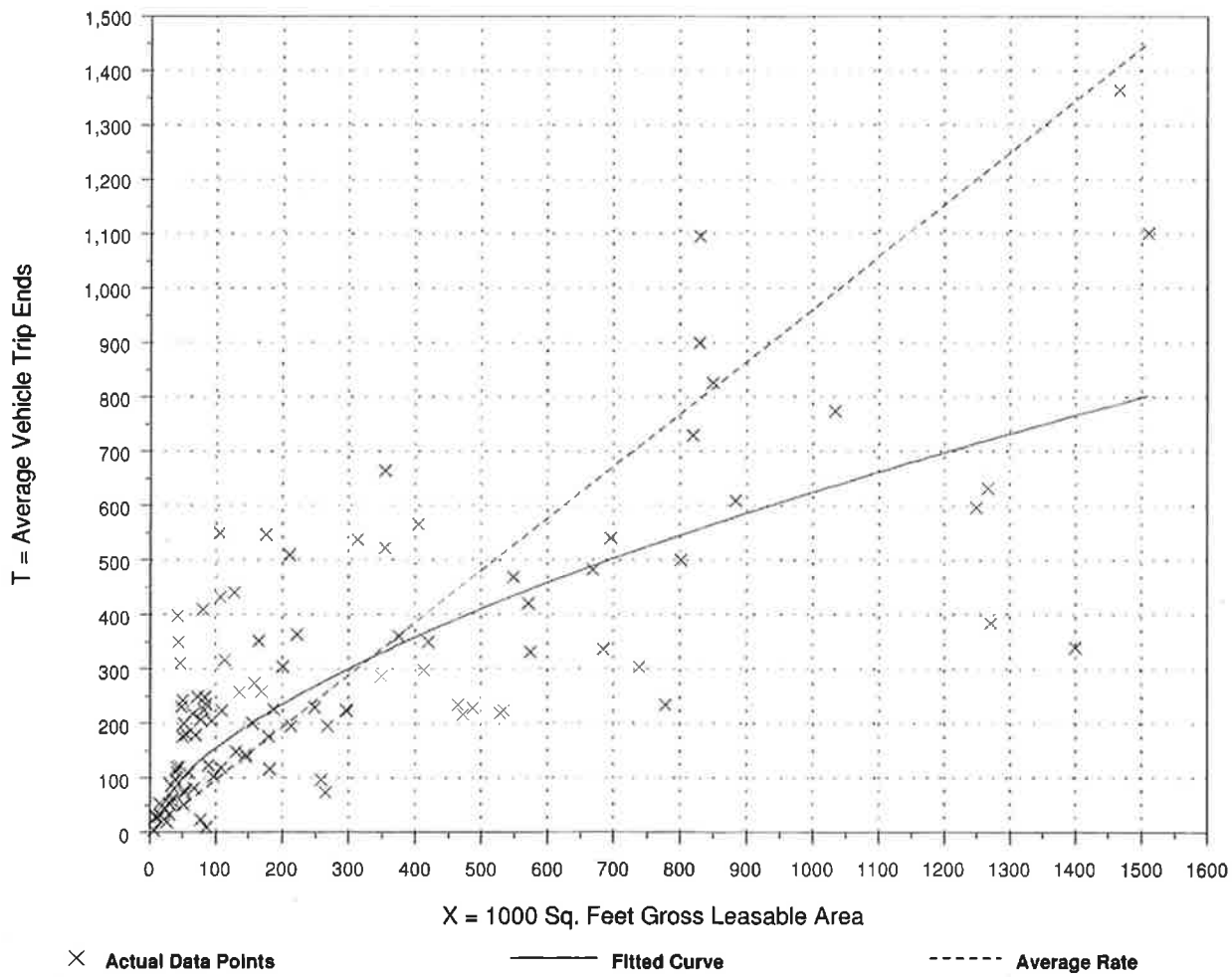
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 104
Average 1000 Sq. Feet GLA: 310
Directional Distribution: 62% entering, 38% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
0.96	0.10 - 9.05	1.31

Data Plot and Equation



× Actual Data Points ——— Fitted Curve ------ Average Rate

Fitted Curve Equation: Ln(T) = 0.61 Ln(X) + 2.24 **R^2 = 0.56**

Shopping Center
(820)

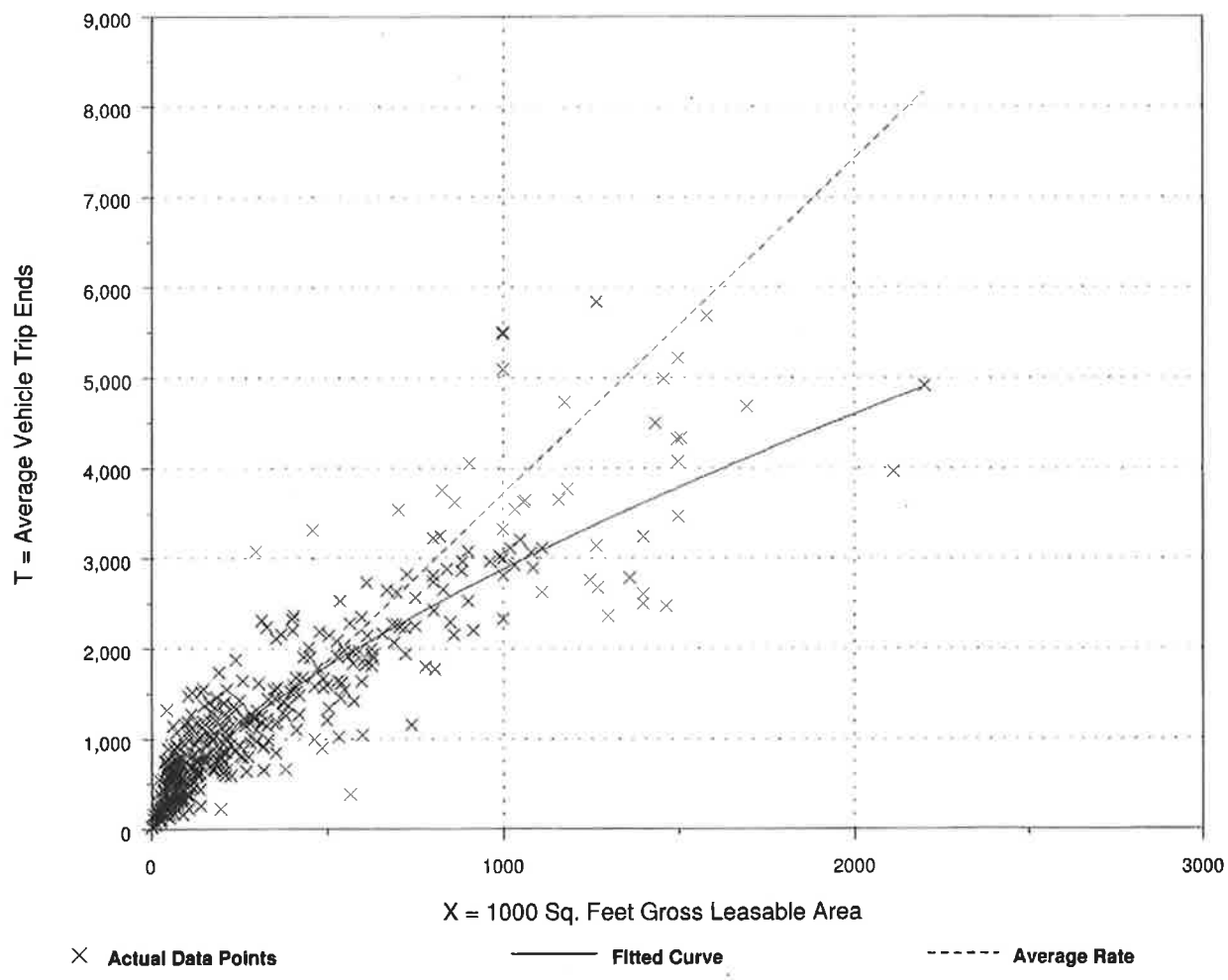
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 426
Average 1000 Sq. Feet GLA: 376
Directional Distribution: 48% entering, 52% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
3.71	0.68 - 29.27	2.74

Data Plot and Equation



× **Actual Data Points** ——— **Fitted Curve** - - - - - - **Average Rate**

Fitted Curve Equation: Ln(T) = 0.67 Ln(X) + 3.31 **R^2 = 0.81**

Shopping Center
(820)

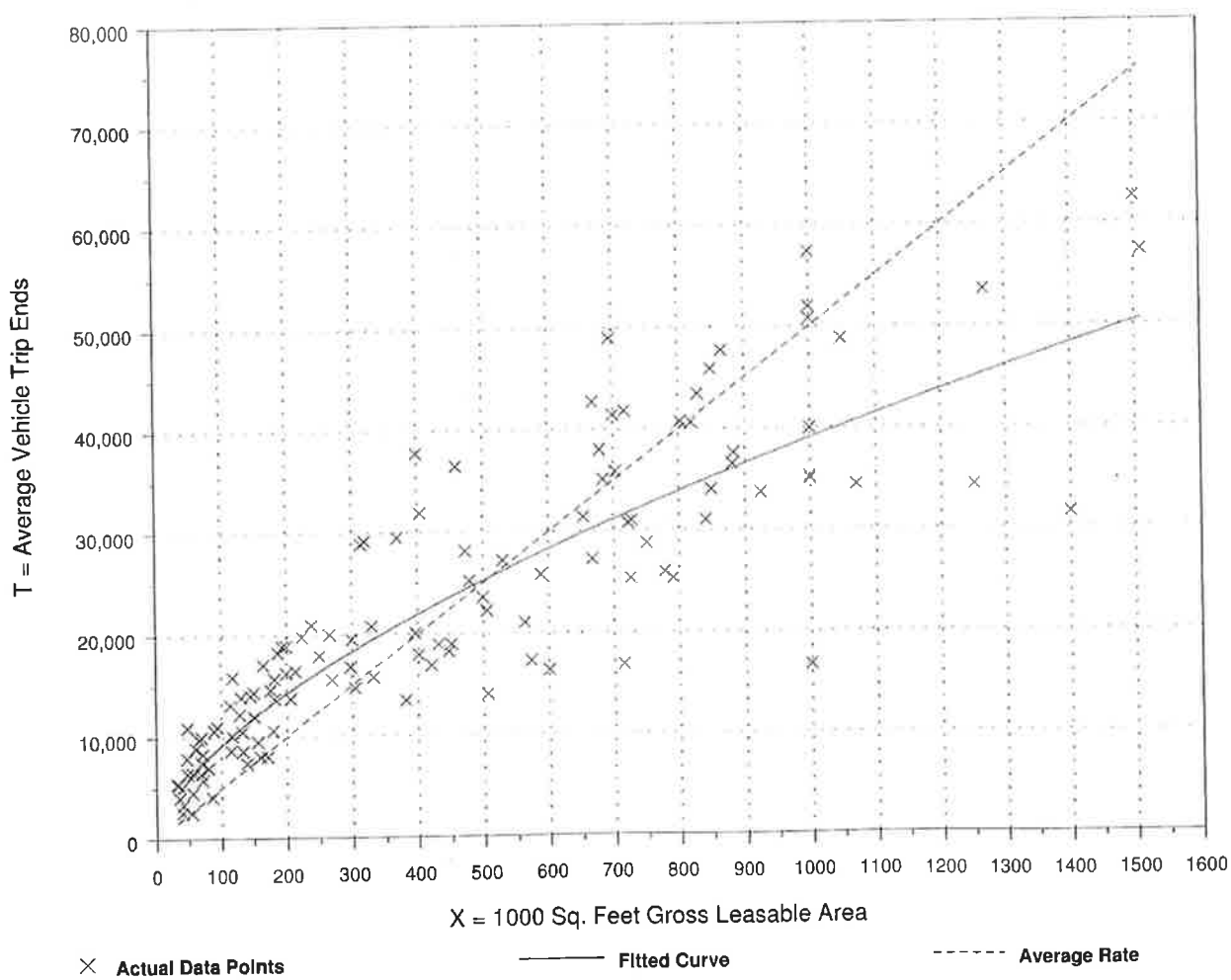
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Saturday

Number of Studies: 123
Average 1000 Sq. Feet GLA: 450
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
49.97	16.70 - 227.50	22.62

Data Plot and Equation



× Actual Data Points ——— Fitted Curve - - - - - - Average Rate

Fitted Curve Equation: Ln(T) = 0.63 Ln(X) + 6.23 $R^2 = 0.82$

Shopping Center
(820)

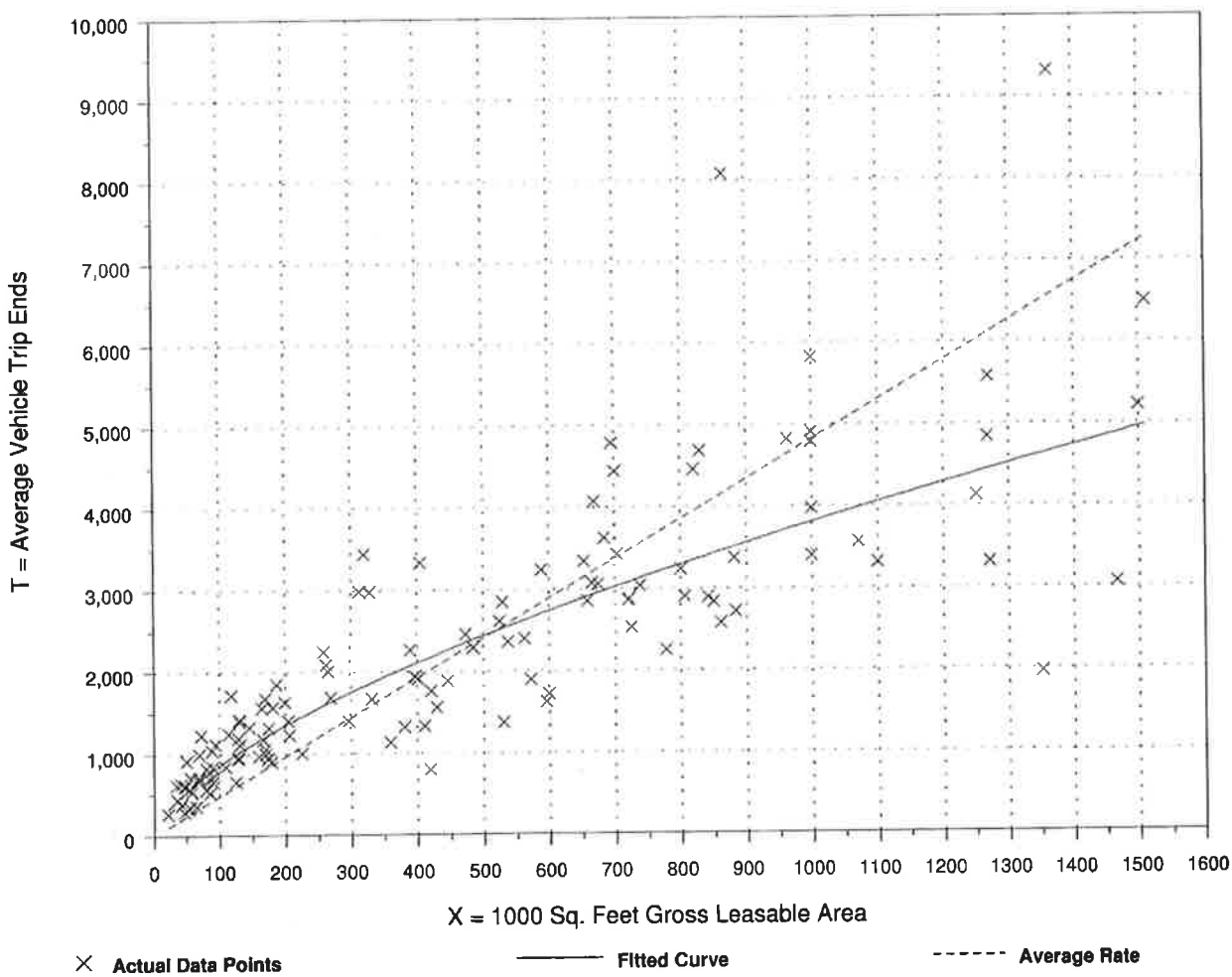
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Saturday,
Peak Hour of Generator

Number of Studies: 128
Average 1000 Sq. Feet GLA: 458
Directional Distribution: 52% entering, 48% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
4.82	1.46 - 18.32	3.10

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.65 Ln(X) + 3.78

R^2 = 0.83

APPENDIX F

CAPACITY ANALYSIS

2016 EXISTING CONDITIONS

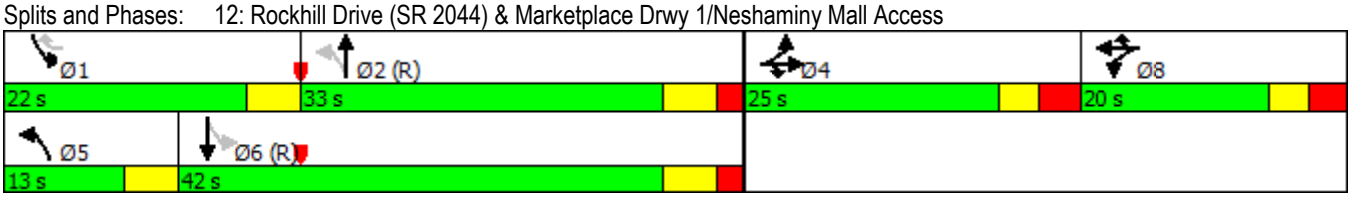
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	3	20	4	2	2	27	753	12	5	375	170
Future Volume (vph)	108	3	20	4	2	2	27	753	12	5	375	170
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.998				0.850
Flt Protected	0.950	0.955			0.968		0.950			0.950		
Satd. Flow (prot)	1593	1601	1600	0	1765	1500	1621	3346	0	1621	3353	1600
Flt Permitted	0.950	0.955			0.968		0.491			0.322		
Satd. Flow (perm)	1593	1601	1600	0	1765	1500	838	3346	0	549	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			185			98		2				251
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			7.9	
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
Adj. Flow (vph)	119	3	22	4	2	2	30	827	13	5	412	187
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	61	61	22	0	6	2	30	840	0	5	412	187
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0	25.0	20.0	20.0	20.0	13.0	33.0		22.0	42.0	
Total Split (s)	25.0	25.0	25.0	20.0	20.0	20.0	13.0	33.0		22.0	42.0	
Total Split (%)	25.0%	25.0%	25.0%	20.0%	20.0%	20.0%	13.0%	33.0%		22.0%	42.0%	
Maximum Green (s)	19.0	19.0	19.0	14.0	14.0	14.0	9.0	27.0		18.0	36.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	10.2	10.2	10.2		7.0	8.9	81.2	78.6		79.4	74.4	100.0
Actuated g/C Ratio	0.10	0.10	0.10		0.07	0.09	0.81	0.79		0.79	0.74	1.00
v/c Ratio	0.38	0.37	0.07		0.05	0.01	0.04	0.32		0.01	0.17	0.12
Control Delay	47.7	47.6	0.4		44.0	0.0	2.6	5.1		4.4	6.6	0.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	47.7	47.6	0.4		44.0	0.0	2.6	5.1		4.4	6.6	0.1
LOS	D	D	A		D	A	A	A		A	A	A
Approach Delay		40.4			33.0			5.0			4.6	
Approach LOS		D			C			A			A	
90th %ile Green (s)	12.9	12.9	12.9	6.8	6.8	6.8	7.1	52.4		5.9	51.2	
90th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
70th %ile Green (s)	10.7	10.7	10.7	0.0	0.0	0.0	6.0	77.3		0.0	67.3	
70th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Gap	Coord		Skip	Coord	
50th %ile Green (s)	9.2	9.2	9.2	0.0	0.0	0.0	5.8	78.8		0.0	69.0	
50th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Gap	Coord		Skip	Coord	
30th %ile Green (s)	7.6	7.6	7.6	0.0	0.0	0.0	0.0	80.4		0.0	80.4	
30th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
10th %ile Green (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.0		0.0	94.0	
10th %ile Term Code	Skip	Skip	Skip	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
Stops (vph)	51	51	0		8	0	5	258		1	118	0
Fuel Used(gal)	1	1	0		0	0	0	8		0	4	1
CO Emissions (g/hr)	66	66	5		6	0	14	571		3	294	48
NOx Emissions (g/hr)	13	13	1		1	0	3	111		1	57	9
VOC Emissions (g/hr)	15	15	1		1	0	3	132		1	68	11
Dilemma Vehicles (#)	0	0	0		0	0	0	20		0	16	0
Queue Length 50th (ft)	38	38	0		4	0	3	87		1	41	0
Queue Length 95th (ft)	78	78	0		16	0	m6	208		5	100	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	318	320	468		264	316	761	2629		651	2494	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.19	0.19	0.05		0.02	0.01	0.04	0.32		0.01	0.17	0.12

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 32 (32%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 8.1	Intersection LOS: A
Intersection Capacity Utilization 43.2%	ICU Level of Service A
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	27	25	33	57	472	26	289	32	257	131	11
Future Volume (vph)	31	27	25	33	57	472	26	289	32	257	131	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.928				0.850		0.985			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1747	0	1565	1765	1500	1621	1854	0	1676	1860	0
Flt Permitted	0.718			0.722			0.662			0.501		
Satd. Flow (perm)	1183	1747	0	1189	1765	1500	1129	1854	0	884	1860	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				497		6			9	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
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
Adj. Flow (vph)	33	28	26	35	60	497	27	304	34	271	138	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	54	0	35	60	497	27	338	0	271	150	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			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

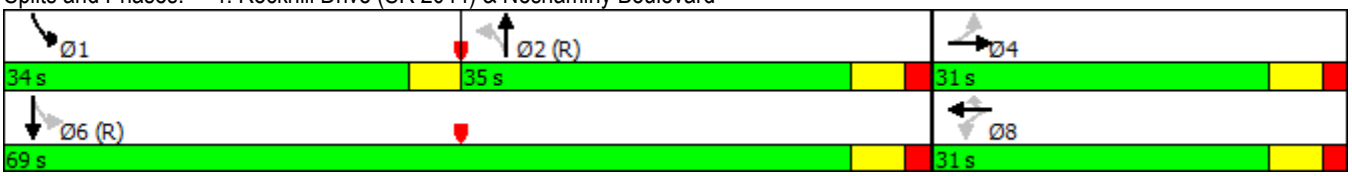
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	31.0	31.0		31.0	31.0	31.0	35.0	35.0		34.0	69.0	
Total Split (s)	31.0	31.0		31.0	31.0	31.0	35.0	35.0		34.0	69.0	
Total Split (%)	31.0%	31.0%		31.0%	31.0%	31.0%	35.0%	35.0%		34.0%	69.0%	
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	29.0	29.0		30.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	13.2	13.2		13.2	13.2	13.2	62.6	62.6		78.8	76.8	
Actuated g/C Ratio	0.13	0.13		0.13	0.13	0.13	0.63	0.63		0.79	0.77	
v/c Ratio	0.21	0.21		0.22	0.26	0.79	0.04	0.29		0.35	0.10	
Control Delay	38.3	22.8		38.6	38.5	13.1	11.3	11.5		9.8	4.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	38.3	22.8		38.6	38.5	13.1	11.3	11.5		9.8	4.0	
LOS	D	C		D	D	B	B	B		A	A	
Approach Delay		28.7			17.2			11.4			7.7	
Approach LOS		C			B			B			A	
90th %ile Green (s)	24.5	24.5		24.5	24.5	24.5	43.6	43.6		15.9	63.5	
90th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
70th %ile Green (s)	14.1	14.1		14.1	14.1	14.1	58.9	58.9		11.0	73.9	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
50th %ile Green (s)	9.7	9.7		9.7	9.7	9.7	65.2	65.2		9.1	78.3	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	7.4	7.4		7.4	7.4	7.4	68.7	68.7		7.9	80.6	
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
10th %ile Green (s)	5.5	5.5		5.5	5.5	5.5	71.7	71.7		6.8	82.5	
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
Stops (vph)	28	26		28	48	53	13	149		129	33	
Fuel Used(gal)	1	1		1	1	5	0	3		4	1	
CO Emissions (g/hr)	41	45		51	89	382	16	199		264	84	
NOx Emissions (g/hr)	8	9		10	17	74	3	39		51	16	
VOC Emissions (g/hr)	9	10		12	21	89	4	46		61	20	
Dilemma Vehicles (#)	0	2		0	3	0	0	0		0	7	
Queue Length 50th (ft)	20	16		21	36	0	5	78		29	16	
Queue Length 95th (ft)	41	44		43	62	88	26	211		157	55	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	307	473		309	458	757	706	1163		941	1429	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.11	0.11		0.11	0.13	0.66	0.04	0.29		0.29	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 13.7 Intersection LOS: B
Intersection Capacity Utilization 65.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	19	1	11	15	68	1	21	26	38	8	0
Future Vol, veh/h	0	19	1	11	15	68	1	21	26	38	8	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	1	16	21	97	1	30	37	54	11	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	119	0	0	29	0	0	135	178	28	162	130	70
Stage 1	-	-	-	-	-	-	28	28	-	101	101	-
Stage 2	-	-	-	-	-	-	107	150	-	61	29	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1093	-	-	1173	-	-	971	716	1120	931	761	1060
Stage 1	-	-	-	-	-	-	1158	872	-	1054	811	-
Stage 2	-	-	-	-	-	-	1046	773	-	1110	871	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1093	-	-	1173	-	-	949	705	1120	861	750	1060
Mov Cap-2 Maneuver	-	-	-	-	-	-	949	705	-	861	750	-
Stage 1	-	-	-	-	-	-	1158	872	-	1054	799	-
Stage 2	-	-	-	-	-	-	1016	761	-	1036	871	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	9.4	9.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	888	1093	-	-	1173	-	-	839
HCM Lane V/C Ratio	0.077	-	-	-	0.013	-	-	0.078
HCM Control Delay (s)	9.4	0	-	-	8.1	0	-	9.7
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

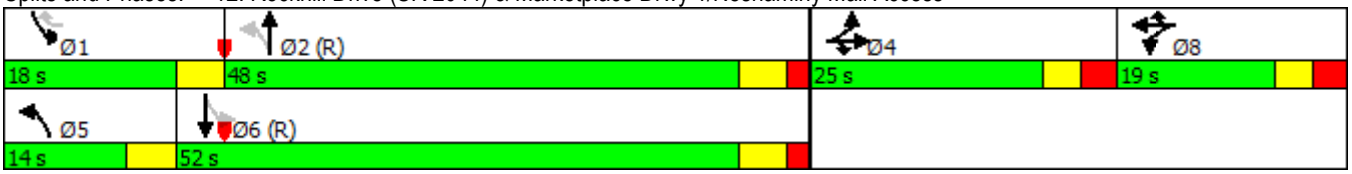
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	262	34	60	39	26	53	64	666	65	70	890	318
Future Volume (vph)	262	34	60	39	26	53	64	666	65	70	890	318
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950	0.963			0.971		0.950			0.950		
Satd. Flow (prot)	1593	1614	1600	0	1771	1500	1621	3309	0	1621	3353	1600
Flt Permitted	0.950	0.963			0.971		0.236			0.302		
Satd. Flow (perm)	1593	1614	1600	0	1771	1500	403	3309	0	515	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			89		11				262
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			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
Adj. Flow (vph)	273	35	63	41	27	55	67	694	68	73	927	331
Shared Lane Traffic (%)	44%											
Lane Group Flow (vph)	153	155	63	0	68	55	67	762	0	73	927	331
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0	25.0	19.0	19.0	19.0	14.0	48.0		18.0	52.0	
Total Split (s)	25.0	25.0	25.0	19.0	19.0	19.0	14.0	48.0		18.0	52.0	
Total Split (%)	22.7%	22.7%	22.7%	17.3%	17.3%	17.3%	12.7%	43.6%		16.4%	47.3%	
Maximum Green (s)	19.0	19.0	19.0	13.0	13.0	13.0	10.0	42.0		14.0	46.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	16.4	16.4	16.4		10.5	20.2	69.9	60.9		70.3	61.0	110.0
Actuated g/C Ratio	0.15	0.15	0.15		0.10	0.18	0.64	0.55		0.64	0.55	1.00
v/c Ratio	0.65	0.65	0.18		0.40	0.16	0.19	0.42		0.18	0.50	0.21
Control Delay	56.5	56.3	1.1		53.0	3.2	4.8	9.5		10.1	19.3	0.3
Queue Delay	0.0	0.0	0.0		0.2	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	56.5	56.3	1.2		53.2	3.2	4.8	9.5		10.1	19.3	0.3
LOS	E	E	A		D	A	A	A		B	B	A
Approach Delay		47.0			30.9			9.1			14.0	
Approach LOS		D			C			A			B	
90th %ile Green (s)	19.0	19.0	19.0	13.0	13.0	13.0	9.4	46.2		9.8	46.6	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Gap	Coord		Gap	Coord	
70th %ile Green (s)	19.0	19.0	19.0	11.1	11.1	11.1	8.2	49.5		8.4	49.7	
70th %ile Term Code	Max	Max	Max	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
50th %ile Green (s)	15.8	15.8	15.8	9.6	9.6	9.6	7.2	55.2		7.4	55.4	
50th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
30th %ile Green (s)	13.3	13.3	13.3	8.1	8.1	8.1	6.4	60.1		6.5	60.2	
30th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
10th %ile Green (s)	9.7	9.7	9.7	0.0	0.0	0.0	0.0	88.3		0.0	88.3	
10th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
Stops (vph)	135	137	0		58	3	11	383		27	556	0
Fuel Used(gal)	3	3	0		1	0	0	11		1	17	1
CO Emissions (g/hr)	191	193	16		72	9	34	769		65	1217	91
NOx Emissions (g/hr)	37	38	3		14	2	7	150		13	237	18
VOC Emissions (g/hr)	44	45	4		17	2	8	178		15	282	21
Dilemma Vehicles (#)	0	0	0		0	0	0	18		0	40	0
Queue Length 50th (ft)	108	109	0		46	0	7	197		18	222	0
Queue Length 95th (ft)	174	177	0		88	13	m11	150		43	334	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	289	293	396		225	353	384	1835		490	1860	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	17		19	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.53	0.53	0.17		0.33	0.16	0.17	0.42		0.15	0.50	0.21

Intersection Summary	
Area Type: Other	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 18 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 17.9	Intersection LOS: B
Intersection Capacity Utilization 57.1%	ICU Level of Service B
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	92	57	66	81	340	62	438	59	541	424	29
Future Volume (vph)	17	92	57	66	81	340	62	438	59	541	424	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.943				0.850		0.982			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1775	0	1565	1765	1500	1621	1848	0	1676	1864	0
Flt Permitted	0.703			0.487			0.497			0.293		
Satd. Flow (perm)	1158	1775	0	802	1765	1500	848	1848	0	517	1864	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				347		7			9	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	17	94	58	67	83	347	63	447	60	552	433	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	152	0	67	83	347	63	507	0	552	463	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			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

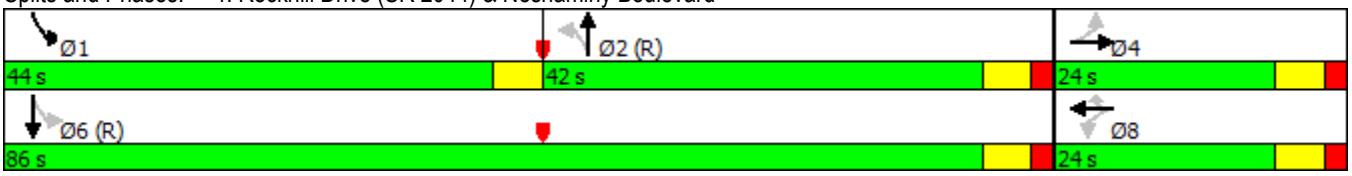
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	42.0	42.0		44.0	86.0	
Total Split (s)	24.0	24.0		24.0	24.0	24.0	42.0	42.0		44.0	86.0	
Total Split (%)	21.8%	21.8%		21.8%	21.8%	21.8%	38.2%	38.2%		40.0%	78.2%	
Maximum Green (s)	18.0	18.0		18.0	18.0	18.0	36.0	36.0		40.0	80.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	14.5	14.5		14.5	14.5	14.5	51.4	51.4		87.5	85.5	
Actuated g/C Ratio	0.13	0.13		0.13	0.13	0.13	0.47	0.47		0.80	0.78	
v/c Ratio	0.11	0.60		0.63	0.36	0.70	0.16	0.58		0.75	0.32	
Control Delay	41.4	46.8		70.2	46.4	12.5	23.7	28.2		34.0	7.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.7	0.3	
Total Delay	41.4	46.8		70.2	46.4	12.5	23.7	28.2		34.8	7.7	
LOS	D	D		E	D	B	C	C		C	A	
Approach Delay		46.2			25.9			27.7			22.4	
Approach LOS		D			C			C			C	
90th %ile Green (s)	18.0	18.0		18.0	18.0	18.0	36.0	36.0		40.0	80.0	
90th %ile Term Code	Max	Max		Max	Max	Max	Coord	Coord		Max	Coord	
70th %ile Green (s)	17.4	17.4		17.4	17.4	17.4	39.3	39.3		37.3	80.6	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
50th %ile Green (s)	13.5	13.5		13.5	13.5	13.5	49.2	49.2		31.3	84.5	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	11.0	11.0		11.0	11.0	11.0	57.8	57.8		25.2	87.0	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord		Gap	Coord	
10th %ile Green (s)	7.8	7.8		7.8	7.8	7.8	69.7	69.7		16.5	90.2	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord		Gap	Coord	
Stops (vph)	17	116		62	71	40	40	361		424	149	
Fuel Used(gal)	0	3		2	2	4	1	7		13	5	
CO Emissions (g/hr)	24	204		136	137	273	52	461		940	349	
NOx Emissions (g/hr)	5	40		26	27	53	10	90		183	68	
VOC Emissions (g/hr)	6	47		31	32	63	12	107		218	81	
Dilemma Vehicles (#)	0	6		0	4	0	0	0		0	39	
Queue Length 50th (ft)	11	86		45	54	0	25	257		296	73	
Queue Length 95th (ft)	31	147		92	98	85	68	#489		434	235	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	200	326		138	304	546	396	867		843	1450	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		91	479	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.09	0.47		0.49	0.27	0.64	0.16	0.58		0.73	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 26.3 Intersection LOS: C
Intersection Capacity Utilization 88.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	13	0	30	8	134	0	8	17	136	24	0
Future Vol, veh/h	0	13	0	30	8	134	0	8	17	136	24	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	0	34	9	154	0	9	20	156	28	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	163	0	0	15	0	0	184	247	15	184	170	86
Stage 1	-	-	-	-	-	-	15	15	-	155	155	-
Stage 2	-	-	-	-	-	-	169	232	-	29	15	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1056	-	-	1186	-	-	900	655	1139	900	723	1038
Stage 1	-	-	-	-	-	-	1177	883	-	983	769	-
Stage 2	-	-	-	-	-	-	965	713	-	1156	883	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1056	-	-	1186	-	-	852	634	1139	853	700	1038
Mov Cap-2 Maneuver	-	-	-	-	-	-	852	634	-	853	700	-
Stage 1	-	-	-	-	-	-	1177	883	-	983	744	-
Stage 2	-	-	-	-	-	-	899	690	-	1124	883	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.4	9.1	10.6
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	908	1056	-	-	1186	-	-	826
HCM Lane V/C Ratio	0.032	-	-	-	0.029	-	-	0.223
HCM Control Delay (s)	9.1	0	-	-	8.1	0	-	10.6
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	59	60	43	32	97	63	626	112	183	609	308
Future Volume (vph)	285	59	60	43	32	97	63	626	112	183	609	308
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.977				0.850
Flt Protected	0.950	0.968			0.972		0.950			0.950		
Satd. Flow (prot)	1593	1623	1600	0	1772	1500	1621	3276	0	1621	3353	1600
Flt Permitted	0.950	0.968			0.972		0.406			0.229		
Satd. Flow (perm)	1593	1623	1600	0	1772	1500	693	3276	0	391	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			109		23				311
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			7.9	
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
Adj. Flow (vph)	288	60	61	43	32	98	64	632	113	185	615	311
Shared Lane Traffic (%)	40%											
Lane Group Flow (vph)	173	175	61	0	75	98	64	745	0	185	615	311
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	16.0	16.0	16.0	13.0	32.0		19.0	38.0	
Total Split (s)	23.0	23.0	23.0	16.0	16.0	16.0	13.0	32.0		19.0	38.0	
Total Split (%)	25.6%	25.6%	25.6%	17.8%	17.8%	17.8%	14.4%	35.6%		21.1%	42.2%	
Maximum Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.0		13.0	32.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	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		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	15.1	15.1	15.1		9.5	23.5	44.0	36.4		52.0	42.5	90.0
Actuated g/C Ratio	0.17	0.17	0.17		0.11	0.26	0.49	0.40		0.58	0.47	1.00
v/c Ratio	0.65	0.64	0.15		0.40	0.21	0.15	0.56		0.49	0.39	0.19
Control Delay	46.2	45.8	0.7		43.7	4.9	9.3	20.6		15.3	19.3	0.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	46.2	45.8	0.7		43.7	4.9	9.3	20.6		15.3	19.3	0.3
LOS	D	D	A		D	A	A	C		B	B	A
Approach Delay		39.2			21.7			19.8			13.3	
Approach LOS		D			C			B			B	
90th %ile Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.0		13.0	32.0	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord		Max	Coord	
70th %ile Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.3		12.7	32.0	
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord		Gap	Coord	
50th %ile Green (s)	14.9	14.9	14.9	9.1	9.1	9.1	7.1	31.3		10.7	34.9	
50th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
30th %ile Green (s)	12.5	12.5	12.5	7.7	7.7	7.7	6.3	36.8		9.0	39.5	
30th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
10th %ile Green (s)	9.1	9.1	9.1	0.0	0.0	0.0	0.0	56.5		6.4	68.9	
10th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Gap	Coord	
Stops (vph)	156	156	0		67	12	32	570		89	402	0
Fuel Used(gal)	3	3	0		1	0	1	16		3	12	1
CO Emissions (g/hr)	197	198	16		73	21	65	1131		207	861	88
NOx Emissions (g/hr)	38	38	3		14	4	13	220		40	168	17
VOC Emissions (g/hr)	46	46	4		17	5	15	262		48	200	20
Dilemma Vehicles (#)	0	0	0		0	0	0	34		0	34	0
Queue Length 50th (ft)	96	97	0		40	0	12	190		51	132	0
Queue Length 95th (ft)	163	165	0		83	28	m19	243		95	191	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	318	324	465		216	462	424	1337		420	1581	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.54	0.54	0.13		0.35	0.21	0.15	0.56		0.44	0.39	0.19

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 18 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 61.9%	ICU Level of Service B
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	95	58	94	96	502	76	283	86	420	279	13
Future Volume (vph)	16	95	58	94	96	502	76	283	86	420	279	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.943				0.850		0.965			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1775	0	1565	1765	1500	1621	1816	0	1676	1869	0
Flt Permitted	0.692			0.569			0.573			0.392		
Satd. Flow (perm)	1140	1775	0	937	1765	1500	977	1816	0	692	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34				528		16			5	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
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
Adj. Flow (vph)	17	100	61	99	101	528	80	298	91	442	294	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	161	0	99	101	528	80	389	0	442	308	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			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

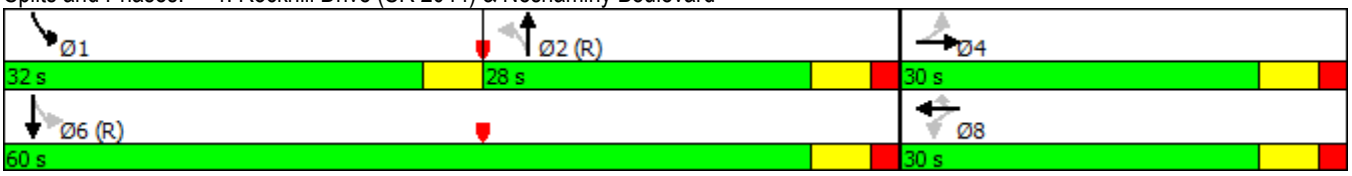
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	28.0	28.0		32.0	60.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	28.0	28.0		32.0	60.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	31.1%	31.1%		35.6%	66.7%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	22.0	22.0		28.0	54.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	16.7	16.7		16.7	16.7	16.7	40.9	40.9		65.3	63.3	
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.19	0.45	0.45		0.73	0.70	
v/c Ratio	0.08	0.45		0.57	0.31	0.75	0.18	0.47		0.62	0.23	
Control Delay	27.4	27.9		44.7	32.0	9.9	22.2	23.3		25.8	14.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	27.4	27.9		44.7	32.0	9.9	22.2	23.3		25.8	14.0	
LOS	C	C		D	C	A	C	C		C	B	
Approach Delay		27.9			17.7			23.1			21.0	
Approach LOS		C			B			C			C	
90th %ile Green (s)	24.0	24.0		24.0	24.0	24.0	22.0	22.0		28.0	54.0	
90th %ile Term Code	Hold	Hold		Max	Max	Max	Coord	Coord		Max	Coord	
70th %ile Green (s)	19.4	19.4		19.4	19.4	19.4	30.7	30.7		23.9	58.6	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
50th %ile Green (s)	15.8	15.8		15.8	15.8	15.8	39.9	39.9		18.3	62.2	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	12.1	12.1		12.1	12.1	12.1	48.6	48.6		13.3	65.9	
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
10th %ile Green (s)	7.0	7.0		7.0	7.0	7.0	58.5	58.5		8.5	71.0	
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
Stops (vph)	14	101		83	78	56	51	243		324	153	
Fuel Used(gal)	0	2		2	2	5	1	4		10	5	
CO Emissions (g/hr)	18	159		156	139	384	63	310		674	326	
NOx Emissions (g/hr)	4	31		30	27	75	12	60		131	64	
VOC Emissions (g/hr)	4	37		36	32	89	15	72		156	76	
Dilemma Vehicles (#)	0	8		0	5	0	0	0		0	52	
Queue Length 50th (ft)	8	64		52	50	0	26	141		199	93	
Queue Length 95th (ft)	23	109		93	85	82	79	#349		304	196	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	316	517		260	490	798	444	835		819	1316	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	0.31		0.38	0.21	0.66	0.18	0.47		0.54	0.23	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 76.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	19	0	18	18	149	1	10	15	135	25	1
Future Vol, veh/h	1	19	0	18	18	149	1	10	15	135	25	1
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	21	0	20	20	162	1	11	16	147	27	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	21	0	0	177	244	21	176	163	101
Stage 1	-	-	-	-	-	-	23	23	-	140	140	-
Stage 2	-	-	-	-	-	-	154	221	-	36	23	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1041	-	-	1181	-	-	909	658	1130	911	729	1018
Stage 1	-	-	-	-	-	-	1165	876	-	1002	781	-
Stage 2	-	-	-	-	-	-	984	720	-	1146	876	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1041	-	-	1181	-	-	868	645	1130	873	714	1018
Mov Cap-2 Maneuver	-	-	-	-	-	-	868	645	-	873	714	-
Stage 1	-	-	-	-	-	-	1164	875	-	1001	766	-
Stage 2	-	-	-	-	-	-	930	706	-	1114	875	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.8	9.3	10.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	869	1041	-	-	1181	-	-	845
HCM Lane V/C Ratio	0.033	0.001	-	-	0.017	-	-	0.207
HCM Control Delay (s)	9.3	8.5	0	-	8.1	0	-	10.4
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.8

2017 NO-BUILD CONDITIONS

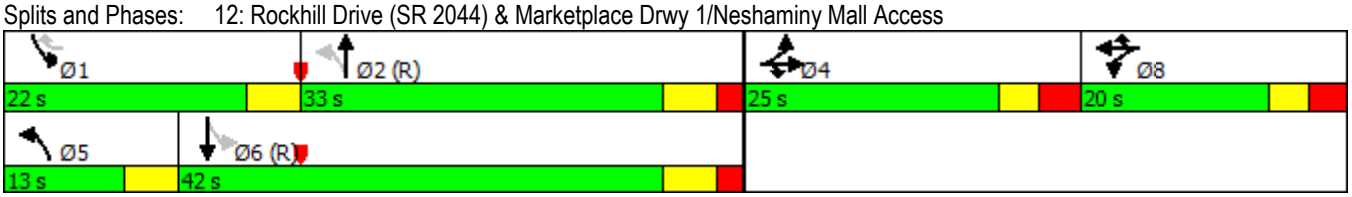
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	3	20	4	2	2	27	764	12	5	380	172
Future Volume (vph)	110	3	20	4	2	2	27	764	12	5	380	172
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.998				0.850
Flt Protected	0.950	0.955			0.968		0.950			0.950		
Satd. Flow (prot)	1593	1601	1600	0	1765	1500	1621	3346	0	1621	3353	1600
Flt Permitted	0.950	0.955			0.968		0.488			0.317		
Satd. Flow (perm)	1593	1601	1600	0	1765	1500	832	3346	0	541	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			185			98		1				251
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			7.9	
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
Adj. Flow (vph)	121	3	22	4	2	2	30	840	13	5	418	189
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	62	62	22	0	6	2	30	853	0	5	418	189
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0	25.0	20.0	20.0	20.0	13.0	33.0		22.0	42.0	
Total Split (s)	25.0	25.0	25.0	20.0	20.0	20.0	13.0	33.0		22.0	42.0	
Total Split (%)	25.0%	25.0%	25.0%	20.0%	20.0%	20.0%	13.0%	33.0%		22.0%	42.0%	
Maximum Green (s)	19.0	19.0	19.0	14.0	14.0	14.0	9.0	27.0		18.0	36.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	10.2	10.2	10.2		7.0	8.9	81.1	78.5		79.3	74.3	100.0
Actuated g/C Ratio	0.10	0.10	0.10		0.07	0.09	0.81	0.78		0.79	0.74	1.00
v/c Ratio	0.38	0.38	0.07		0.05	0.01	0.04	0.32		0.01	0.17	0.12
Control Delay	47.7	47.6	0.4		44.0	0.0	2.6	5.1		4.4	6.7	0.2
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	47.7	47.6	0.4		44.0	0.0	2.6	5.1		4.4	6.7	0.2
LOS	D	D	A		D	A	A	A		A	A	A
Approach Delay		40.5			33.0			5.0			4.6	
Approach LOS		D			C			A			A	
90th %ile Green (s)	13.0	13.0	13.0	6.8	6.8	6.8	7.1	52.3		5.9	51.1	
90th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
70th %ile Green (s)	10.8	10.8	10.8	0.0	0.0	0.0	6.0	77.2		0.0	67.2	
70th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Gap	Coord		Skip	Coord	
50th %ile Green (s)	9.2	9.2	9.2	0.0	0.0	0.0	5.8	78.8		0.0	69.0	
50th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Gap	Coord		Skip	Coord	
30th %ile Green (s)	7.7	7.7	7.7	0.0	0.0	0.0	0.0	80.3		0.0	80.3	
30th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
10th %ile Green (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.0		0.0	94.0	
10th %ile Term Code	Skip	Skip	Skip	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
Stops (vph)	51	51	0		8	0	5	263		1	122	0
Fuel Used(gal)	1	1	0		0	0	0	8		0	4	1
CO Emissions (g/hr)	66	66	5		6	0	14	581		3	302	49
NOx Emissions (g/hr)	13	13	1		1	0	3	113		1	59	9
VOC Emissions (g/hr)	15	15	1		1	0	3	135		1	70	11
Dilemma Vehicles (#)	0	0	0		0	0	0	20		0	17	0
Queue Length 50th (ft)	40	40	0		4	0	3	89		1	42	0
Queue Length 95th (ft)	80	80	0		16	0	m6	213		5	102	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	318	320	468		264	316	756	2627		645	2491	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.19	0.19	0.05		0.02	0.01	0.04	0.32		0.01	0.17	0.12

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 32 (32%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 8.2	Intersection LOS: A
Intersection Capacity Utilization 43.5%	ICU Level of Service A
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access



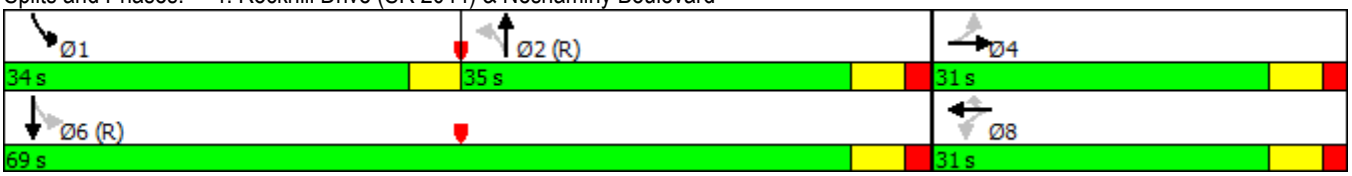
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	27	25	33	58	479	26	293	32	261	133	11
Future Volume (vph)	31	27	25	33	58	479	26	293	32	261	133	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.928				0.850		0.985			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1747	0	1565	1765	1500	1621	1854	0	1676	1860	0
Flt Permitted	0.717			0.722			0.660			0.497		
Satd. Flow (perm)	1181	1747	0	1189	1765	1500	1126	1854	0	877	1860	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				504		6			9	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
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
Adj. Flow (vph)	33	28	26	35	61	504	27	308	34	275	140	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	54	0	35	61	504	27	342	0	275	152	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			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	31.0	31.0		31.0	31.0	31.0	35.0	35.0		34.0	69.0	
Total Split (s)	31.0	31.0		31.0	31.0	31.0	35.0	35.0		34.0	69.0	
Total Split (%)	31.0%	31.0%		31.0%	31.0%	31.0%	35.0%	35.0%		34.0%	69.0%	
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	29.0	29.0		30.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	13.4	13.4		13.4	13.4	13.4	62.4	62.4		78.6	76.6	
Actuated g/C Ratio	0.13	0.13		0.13	0.13	0.13	0.62	0.62		0.79	0.77	
v/c Ratio	0.21	0.21		0.22	0.26	0.79	0.04	0.30		0.35	0.11	
Control Delay	38.0	22.7		38.3	38.4	13.1	11.5	11.7		10.1	4.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	38.0	22.7		38.3	38.4	13.1	11.5	11.7		10.1	4.1	
LOS	D	C		D	D	B	B	B		B	A	
Approach Delay		28.5			17.2			11.7			7.9	
Approach LOS		C			B			B			A	
90th %ile Green (s)	24.8	24.8		24.8	24.8	24.8	43.0	43.0		16.2	63.2	
90th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
70th %ile Green (s)	14.3	14.3		14.3	14.3	14.3	58.6	58.6		11.1	73.7	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
50th %ile Green (s)	9.8	9.8		9.8	9.8	9.8	65.1	65.1		9.1	78.2	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	7.4	7.4		7.4	7.4	7.4	68.6	68.6		8.0	80.6	
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
10th %ile Green (s)	5.5	5.5		5.5	5.5	5.5	71.7	71.7		6.8	82.5	
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
Stops (vph)	28	26		28	49	54	13	153		134	34	
Fuel Used(gal)	1	1		1	1	6	0	3		4	1	
CO Emissions (g/hr)	41	45		51	90	388	16	203		273	86	
NOx Emissions (g/hr)	8	9		10	18	76	3	39		53	17	
VOC Emissions (g/hr)	9	10		12	21	90	4	47		63	20	
Dilemma Vehicles (#)	0	2		0	3	0	0	0		0	7	
Queue Length 50th (ft)	20	16		21	37	0	5	80		30	16	
Queue Length 95th (ft)	41	44		43	63	88	26	218		162	57	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	307	473		309	458	762	702	1159		937	1427	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.11	0.11		0.11	0.13	0.66	0.04	0.30		0.29	0.11	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 66.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	19	1	11	15	69	1	21	26	39	8	0
Future Vol, veh/h	0	19	1	11	15	69	1	21	26	39	8	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	1	16	21	99	1	30	37	56	11	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	120	0	0	29	0	0	136	179	28	163	131	71
Stage 1	-	-	-	-	-	-	28	28	-	102	102	-
Stage 2	-	-	-	-	-	-	108	151	-	61	29	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1093	-	-	1173	-	-	970	715	1120	930	760	1059
Stage 1	-	-	-	-	-	-	1158	872	-	1052	811	-
Stage 2	-	-	-	-	-	-	1044	772	-	1110	871	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1093	-	-	1173	-	-	948	704	1120	860	749	1059
Mov Cap-2 Maneuver	-	-	-	-	-	-	948	704	-	860	749	-
Stage 1	-	-	-	-	-	-	1158	872	-	1052	799	-
Stage 2	-	-	-	-	-	-	1014	760	-	1036	871	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	9.4	9.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	887	1093	-	-	1173	-	-	839
HCM Lane V/C Ratio	0.077	-	-	-	0.013	-	-	0.08
HCM Control Delay (s)	9.4	0	-	-	8.1	0	-	9.7
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.3

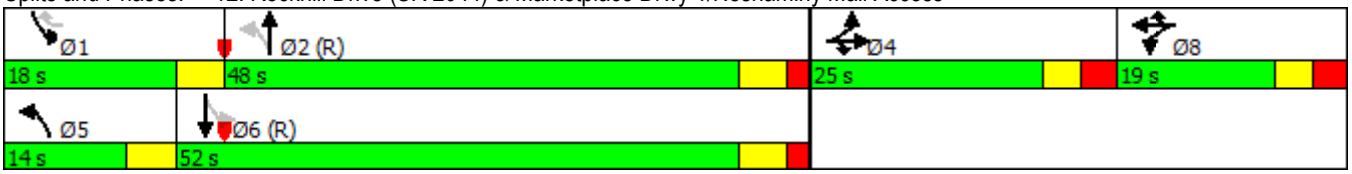
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	34	61	40	26	54	65	676	66	71	903	323
Future Volume (vph)	266	34	61	40	26	54	65	676	66	71	903	323
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950	0.963			0.970		0.950			0.950		
Satd. Flow (prot)	1593	1614	1600	0	1769	1500	1621	3309	0	1621	3353	1600
Flt Permitted	0.950	0.963			0.970		0.230			0.298		
Satd. Flow (perm)	1593	1614	1600	0	1769	1500	392	3309	0	508	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			89		11				262
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			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
Adj. Flow (vph)	277	35	64	42	27	56	68	704	69	74	941	336
Shared Lane Traffic (%)	44%											
Lane Group Flow (vph)	155	157	64	0	69	56	68	773	0	74	941	336
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0	25.0	19.0	19.0	19.0	14.0	48.0		18.0	52.0	
Total Split (s)	25.0	25.0	25.0	19.0	19.0	19.0	14.0	48.0		18.0	52.0	
Total Split (%)	22.7%	22.7%	22.7%	17.3%	17.3%	17.3%	12.7%	43.6%		16.4%	47.3%	
Maximum Green (s)	19.0	19.0	19.0	13.0	13.0	13.0	10.0	42.0		14.0	46.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	16.4	16.4	16.4		10.5	20.2	69.8	60.8		70.2	61.0	110.0
Actuated g/C Ratio	0.15	0.15	0.15		0.10	0.18	0.63	0.55		0.64	0.55	1.00
v/c Ratio	0.65	0.65	0.18		0.41	0.16	0.20	0.42		0.18	0.51	0.21
Control Delay	56.8	56.6	1.2		53.2	3.4	4.8	9.3		10.1	19.5	0.3
Queue Delay	0.0	0.0	0.1		0.3	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	56.8	56.6	1.3		53.5	3.4	4.8	9.3		10.1	19.5	0.3
LOS	E	E	A		D	A	A	A		B	B	A
Approach Delay		47.3			31.1			8.9			14.2	
Approach LOS		D			C			A			B	
90th %ile Green (s)	19.0	19.0	19.0	13.0	13.0	13.0	9.5	46.2		9.8	46.5	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Gap	Coord		Gap	Coord	
70th %ile Green (s)	19.0	19.0	19.0	11.1	11.1	11.1	8.2	49.5		8.4	49.7	
70th %ile Term Code	Max	Max	Max	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
50th %ile Green (s)	15.9	15.9	15.9	9.6	9.6	9.6	7.2	55.1		7.4	55.3	
50th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
30th %ile Green (s)	13.4	13.4	13.4	8.1	8.1	8.1	6.4	59.9		6.6	60.1	
30th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
10th %ile Green (s)	9.8	9.8	9.8	0.0	0.0	0.0	0.0	88.2		0.0	88.2	
10th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
Stops (vph)	137	140	0		60	3	11	382		27	569	0
Fuel Used(gal)	3	3	0		1	0	0	11		1	18	1
CO Emissions (g/hr)	194	197	16		74	10	34	769		65	1243	92
NOx Emissions (g/hr)	38	38	3		14	2	7	150		13	242	18
VOC Emissions (g/hr)	45	46	4		17	2	8	178		15	288	21
Dilemma Vehicles (#)	0	0	0		0	0	0	18		0	41	0
Queue Length 50th (ft)	109	110	0		47	0	7	181		19	228	0
Queue Length 95th (ft)	177	180	0		89	13	m11	154		44	341	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	289	293	396		225	353	377	1833		486	1858	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	51		19	0	0	0		0	4	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.54	0.54	0.19		0.33	0.16	0.18	0.42		0.15	0.51	0.21

Intersection Summary	
Area Type: Other	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 18 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 17.9	Intersection LOS: B
Intersection Capacity Utilization 57.6%	ICU Level of Service B
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	93	58	67	82	345	63	444	60	549	430	29
Future Volume (vph)	17	93	58	67	82	345	63	444	60	549	430	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.943				0.850		0.982			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1775	0	1565	1765	1500	1621	1848	0	1676	1864	0
Flt Permitted	0.702			0.482			0.494			0.279		
Satd. Flow (perm)	1156	1775	0	794	1765	1500	843	1848	0	492	1864	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25				352		7			8	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	17	95	59	68	84	352	64	453	61	560	439	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	154	0	68	84	352	64	514	0	560	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)		10			10			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

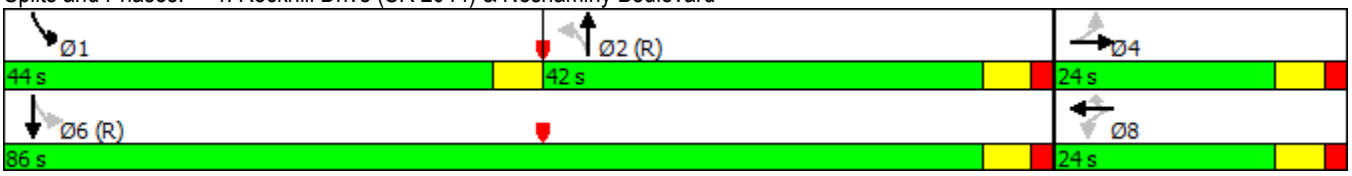
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	42.0	42.0		44.0	86.0	
Total Split (s)	24.0	24.0		24.0	24.0	24.0	42.0	42.0		44.0	86.0	
Total Split (%)	21.8%	21.8%		21.8%	21.8%	21.8%	38.2%	38.2%		40.0%	78.2%	
Maximum Green (s)	18.0	18.0		18.0	18.0	18.0	36.0	36.0		40.0	80.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	14.6	14.6		14.6	14.6	14.6	50.2	50.2		87.4	85.4	
Actuated g/C Ratio	0.13	0.13		0.13	0.13	0.13	0.46	0.46		0.79	0.78	
v/c Ratio	0.11	0.60		0.65	0.36	0.70	0.17	0.61		0.76	0.32	
Control Delay	41.3	46.5		71.2	46.4	12.4	24.4	29.5		35.5	7.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.8	0.3	
Total Delay	41.3	46.5		71.2	46.4	12.4	24.4	29.5		36.3	7.9	
LOS	D	D		E	D	B	C	C		D	A	
Approach Delay		46.0			26.0			28.9			23.4	
Approach LOS		D			C			C			C	
90th %ile Green (s)	18.0	18.0		18.0	18.0	18.0	36.0	36.0		40.0	80.0	
90th %ile Term Code	Max	Max		Max	Max	Max	Coord	Coord		Max	Coord	
70th %ile Green (s)	17.6	17.6		17.6	17.6	17.6	37.9	37.9		38.5	80.4	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
50th %ile Green (s)	13.7	13.7		13.7	13.7	13.7	47.6	47.6		32.7	84.3	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	11.1	11.1		11.1	11.1	11.1	56.2	56.2		26.7	86.9	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord		Gap	Coord	
10th %ile Green (s)	7.8	7.8		7.8	7.8	7.8	68.3	68.3		17.9	90.2	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord		Gap	Coord	
Stops (vph)	17	118		62	71	40	40	373		444	155	
Fuel Used(gal)	0	3		2	2	4	1	7		14	5	
CO Emissions (g/hr)	24	206		138	138	277	53	479		983	360	
NOx Emissions (g/hr)	5	40		27	27	54	10	93		191	70	
VOC Emissions (g/hr)	6	48		32	32	64	12	111		228	83	
Dilemma Vehicles (#)	0	6		0	4	0	0	0		0	39	
Queue Length 50th (ft)	11	86		46	55	0	27	270		307	76	
Queue Length 95th (ft)	31	149		93	99	86	68	#499		445	241	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	199	327		137	304	550	384	847		832	1448	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		85	479	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.09	0.47		0.50	0.28	0.64	0.17	0.61		0.75	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 27.0 Intersection LOS: C
Intersection Capacity Utilization 89.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	13	0	30	8	136	0	8	17	137	25	0
Future Vol, veh/h	0	13	0	30	8	136	0	8	17	137	25	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	0	34	9	156	0	9	20	157	29	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	166	0	0	15	0	0	186	249	15	185	171	87
Stage 1	-	-	-	-	-	-	15	15	-	156	156	-
Stage 2	-	-	-	-	-	-	171	234	-	29	15	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1054	-	-	1186	-	-	897	654	1139	898	722	1037
Stage 1	-	-	-	-	-	-	1177	883	-	982	769	-
Stage 2	-	-	-	-	-	-	963	711	-	1156	883	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1054	-	-	1186	-	-	848	633	1139	852	699	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	848	633	-	852	699	-
Stage 1	-	-	-	-	-	-	1177	883	-	982	744	-
Stage 2	-	-	-	-	-	-	896	688	-	1124	883	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.4	9.1	10.6
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	907	1054	-	-	1186	-	-	824
HCM Lane V/C Ratio	0.032	-	-	-	0.029	-	-	0.226
HCM Control Delay (s)	9.1	0	-	-	8.1	0	-	10.6
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	289	60	61	44	32	98	64	635	114	186	618	312
Future Volume (vph)	289	60	61	44	32	98	64	635	114	186	618	312
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.977				0.850
Flt Protected	0.950	0.968			0.972		0.950			0.950		
Satd. Flow (prot)	1593	1623	1600	0	1772	1500	1621	3276	0	1621	3353	1600
Flt Permitted	0.950	0.968			0.972		0.401			0.222		
Satd. Flow (perm)	1593	1623	1600	0	1772	1500	684	3276	0	379	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			109		23				315
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			7.9	
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
Adj. Flow (vph)	292	61	62	44	32	99	65	641	115	188	624	315
Shared Lane Traffic (%)	40%											
Lane Group Flow (vph)	175	178	62	0	76	99	65	756	0	188	624	315
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	16.0	16.0	16.0	13.0	32.0		19.0	38.0	
Total Split (s)	23.0	23.0	23.0	16.0	16.0	16.0	13.0	32.0		19.0	38.0	
Total Split (%)	25.6%	25.6%	25.6%	17.8%	17.8%	17.8%	14.4%	35.6%		21.1%	42.2%	
Maximum Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.0		13.0	32.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	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		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	15.2	15.2	15.2		9.5	23.7	43.8	36.1		51.9	42.3	90.0
Actuated g/C Ratio	0.17	0.17	0.17		0.11	0.26	0.49	0.40		0.58	0.47	1.00
v/c Ratio	0.65	0.65	0.15		0.41	0.21	0.16	0.57		0.50	0.40	0.20
Control Delay	46.3	46.1	0.7		43.8	5.0	9.4	20.9		15.6	19.5	0.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	46.3	46.1	0.7		43.8	5.0	9.4	20.9		15.6	19.5	0.3
LOS	D	D	A		D	A	A	C		B	B	A
Approach Delay		39.4			21.8			20.0			13.5	
Approach LOS		D			C			B			B	
90th %ile Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.0		13.0	32.0	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord		Max	Coord	
70th %ile Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.1		12.9	32.0	
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord		Gap	Coord	
50th %ile Green (s)	15.0	15.0	15.0	9.2	9.2	9.2	7.2	30.9		10.9	34.6	
50th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
30th %ile Green (s)	12.7	12.7	12.7	7.8	7.8	7.8	6.4	36.4		9.1	39.1	
30th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
10th %ile Green (s)	9.2	9.2	9.2	0.0	0.0	0.0	0.0	56.3		6.5	68.8	
10th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Gap	Coord	
Stops (vph)	157	159	0		68	13	32	584		90	410	0
Fuel Used(gal)	3	3	0		1	0	1	17		3	13	1
CO Emissions (g/hr)	199	202	16		74	22	65	1157		211	878	89
NOx Emissions (g/hr)	39	39	3		14	4	13	225		41	171	17
VOC Emissions (g/hr)	46	47	4		17	5	15	268		49	204	21
Dilemma Vehicles (#)	0	0	0		0	0	0	35		0	34	0
Queue Length 50th (ft)	97	100	0		41	0	12	195		52	135	0
Queue Length 95th (ft)	165	166	0		83	29	m19	248		97	194	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	318	324	465		216	464	419	1329		414	1575	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.55	0.55	0.13		0.35	0.21	0.16	0.57		0.45	0.40	0.20

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 18 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 62.5%	ICU Level of Service B
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	96	59	95	97	509	77	287	87	426	283	13
Future Volume (vph)	16	96	59	95	97	509	77	287	87	426	283	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.943				0.850		0.965			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1775	0	1565	1765	1500	1621	1816	0	1676	1869	0
Flt Permitted	0.691			0.565			0.571			0.384		
Satd. Flow (perm)	1138	1775	0	931	1765	1500	974	1816	0	678	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34				536		16			5	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
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
Adj. Flow (vph)	17	101	62	100	102	536	81	302	92	448	298	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	163	0	100	102	536	81	394	0	448	312	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			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

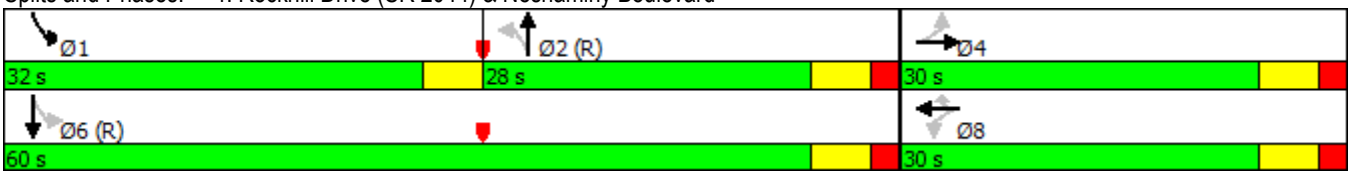
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	28.0	28.0		32.0	60.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	28.0	28.0		32.0	60.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	31.1%	31.1%		35.6%	66.7%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	22.0	22.0		28.0	54.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	16.8	16.8		16.8	16.8	16.8	40.3	40.3		65.2	63.2	
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.19	0.45	0.45		0.72	0.70	
v/c Ratio	0.08	0.46		0.58	0.31	0.75	0.19	0.48		0.63	0.24	
Control Delay	27.4	28.0		45.0	31.9	10.0	22.6	23.9		26.4	14.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	27.4	28.0		45.0	31.9	10.0	22.6	23.9		26.4	14.3	
LOS	C	C		D	C	A	C	C		C	B	
Approach Delay		28.0			17.8			23.7			21.4	
Approach LOS		C			B			C			C	
90th %ile Green (s)	24.0	24.0		24.0	24.0	24.0	22.0	22.0		28.0	54.0	
90th %ile Term Code	Hold	Hold		Max	Max	Max	Coord	Coord		Max	Coord	
70th %ile Green (s)	19.6	19.6		19.6	19.6	19.6	29.7	29.7		24.7	58.4	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
50th %ile Green (s)	15.9	15.9		15.9	15.9	15.9	38.9	38.9		19.2	62.1	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	12.2	12.2		12.2	12.2	12.2	47.7	47.7		14.1	65.8	
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
10th %ile Green (s)	7.1	7.1		7.1	7.1	7.1	58.3	58.3		8.6	70.9	
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
Stops (vph)	14	102		83	79	58	53	247		334	157	
Fuel Used(gal)	0	2		2	2	6	1	5		10	5	
CO Emissions (g/hr)	18	161		158	140	390	65	318		694	334	
NOx Emissions (g/hr)	4	31		31	27	76	13	62		135	65	
VOC Emissions (g/hr)	4	37		37	33	90	15	74		161	77	
Dilemma Vehicles (#)	0	8		0	5	0	0	0		0	52	
Queue Length 50th (ft)	8	65		52	50	0	27	147		205	100	
Queue Length 95th (ft)	23	110		94	85	84	80	#357		309	199	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	316	517		258	490	803	436	822		812	1314	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	0.32		0.39	0.21	0.67	0.19	0.48		0.55	0.24	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 77.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	19	0	18	18	151	1	10	15	137	25	1
Future Vol, veh/h	1	19	0	18	18	151	1	10	15	137	25	1
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	21	0	20	20	164	1	11	16	149	27	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	184	0	0	21	0	0	178	246	21	177	164	102
Stage 1	-	-	-	-	-	-	23	23	-	141	141	-
Stage 2	-	-	-	-	-	-	155	223	-	36	23	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1039	-	-	1181	-	-	908	656	1130	909	729	1017
Stage 1	-	-	-	-	-	-	1165	876	-	1001	780	-
Stage 2	-	-	-	-	-	-	983	719	-	1146	876	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1039	-	-	1181	-	-	867	643	1130	871	714	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	867	643	-	871	714	-
Stage 1	-	-	-	-	-	-	1164	875	-	1000	765	-
Stage 2	-	-	-	-	-	-	929	705	-	1114	875	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.8	9.3	10.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	867	1039	-	-	1181	-	-	843
HCM Lane V/C Ratio	0.033	0.001	-	-	0.017	-	-	0.21
HCM Control Delay (s)	9.3	8.5	0	-	8.1	0	-	10.4
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.8

2017 BUILD CONDITIONS

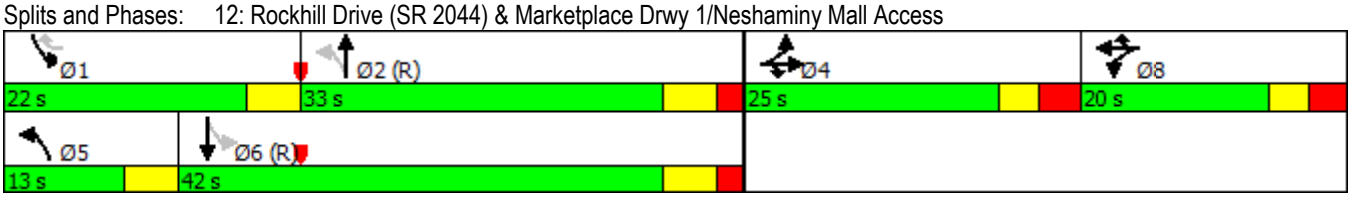
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	3	21	4	2	2	29	764	12	5	380	185
Future Volume (vph)	119	3	21	4	2	2	29	764	12	5	380	185
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.998				0.850
Flt Protected	0.950	0.954			0.968		0.950			0.950		
Satd. Flow (prot)	1593	1599	1600	0	1765	1500	1621	3346	0	1621	3353	1600
Flt Permitted	0.950	0.954			0.968		0.488			0.316		
Satd. Flow (perm)	1593	1599	1600	0	1765	1500	832	3346	0	539	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			185			98		1				251
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			7.9	
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
Adj. Flow (vph)	131	3	23	4	2	2	32	840	13	5	418	203
Shared Lane Traffic (%)	49%											
Lane Group Flow (vph)	67	67	23	0	6	2	32	853	0	5	418	203
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0	25.0	20.0	20.0	20.0	13.0	33.0		22.0	42.0	
Total Split (s)	25.0	25.0	25.0	20.0	20.0	20.0	13.0	33.0		22.0	42.0	
Total Split (%)	25.0%	25.0%	25.0%	20.0%	20.0%	20.0%	13.0%	33.0%		22.0%	42.0%	
Maximum Green (s)	19.0	19.0	19.0	14.0	14.0	14.0	9.0	27.0		18.0	36.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	10.6	10.6	10.6		7.0	8.9	80.9	78.2		79.0	74.0	100.0
Actuated g/C Ratio	0.11	0.11	0.11		0.07	0.09	0.81	0.78		0.79	0.74	1.00
v/c Ratio	0.40	0.40	0.07		0.05	0.01	0.04	0.33		0.01	0.17	0.13
Control Delay	47.9	47.8	0.4		44.0	0.0	2.6	5.3		4.4	6.8	0.2
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	47.9	47.8	0.4		44.0	0.0	2.6	5.3		4.4	6.8	0.2
LOS	D	D	A		D	A	A	A		A	A	A
Approach Delay		40.9			33.0			5.2			4.6	
Approach LOS		D			C			A			A	
90th %ile Green (s)	13.4	13.4	13.4	6.8	6.8	6.8	7.2	51.9		5.9	50.6	
90th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
70th %ile Green (s)	11.1	11.1	11.1	0.0	0.0	0.0	6.1	76.9		0.0	66.8	
70th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Gap	Coord		Skip	Coord	
50th %ile Green (s)	9.6	9.6	9.6	0.0	0.0	0.0	5.8	78.4		0.0	68.6	
50th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Gap	Coord		Skip	Coord	
30th %ile Green (s)	8.0	8.0	8.0	0.0	0.0	0.0	0.0	80.0		0.0	80.0	
30th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
10th %ile Green (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.0		0.0	94.0	
10th %ile Term Code	Skip	Skip	Skip	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
Stops (vph)	55	55	0		8	0	5	267		2	123	0
Fuel Used(gal)	1	1	0		0	0	0	8		0	4	1
CO Emissions (g/hr)	72	71	5		6	0	14	588		4	304	53
NOx Emissions (g/hr)	14	14	1		1	0	3	114		1	59	10
VOC Emissions (g/hr)	17	17	1		1	0	3	136		1	70	12
Dilemma Vehicles (#)	0	0	0		0	0	0	20		0	17	0
Queue Length 50th (ft)	43	43	0		4	0	4	91		1	42	0
Queue Length 95th (ft)	84	84	0		16	0	m6	215		5	103	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	318	319	468		264	316	754	2618		643	2481	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.21	0.21	0.05		0.02	0.01	0.04	0.33		0.01	0.17	0.13

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 32 (32%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.40	
Intersection Signal Delay: 8.4	Intersection LOS: A
Intersection Capacity Utilization 44.0%	ICU Level of Service A
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access



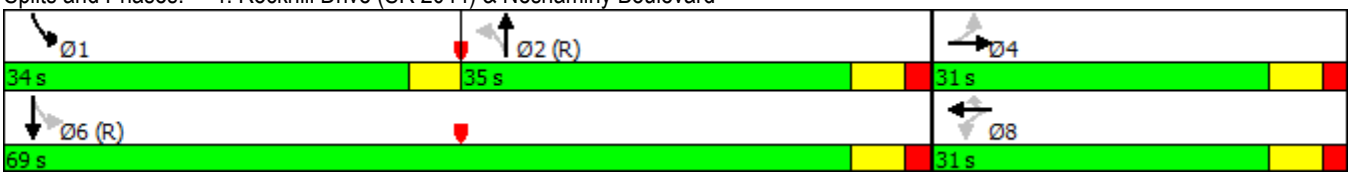
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	29	27	33	62	480	28	294	32	261	134	11
Future Volume (vph)	31	29	27	33	62	480	28	294	32	261	134	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.929				0.850		0.985			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1749	0	1565	1765	1500	1621	1854	0	1676	1860	0
Flt Permitted	0.715			0.719			0.660			0.496		
Satd. Flow (perm)	1178	1749	0	1184	1765	1500	1126	1854	0	875	1860	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28				505		6			9	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
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
Adj. Flow (vph)	33	31	28	35	65	505	29	309	34	275	141	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	59	0	35	65	505	29	343	0	275	153	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			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	31.0	31.0		31.0	31.0	31.0	35.0	35.0		34.0	69.0	
Total Split (s)	31.0	31.0		31.0	31.0	31.0	35.0	35.0		34.0	69.0	
Total Split (%)	31.0%	31.0%		31.0%	31.0%	31.0%	35.0%	35.0%		34.0%	69.0%	
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	29.0	29.0		30.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	13.5	13.5		13.5	13.5	13.5	62.2	62.2		78.5	76.5	
Actuated g/C Ratio	0.14	0.14		0.14	0.14	0.14	0.62	0.62		0.78	0.76	
v/c Ratio	0.21	0.23		0.22	0.27	0.79	0.04	0.30		0.35	0.11	
Control Delay	37.9	23.0		38.2	38.7	13.0	11.5	11.7		10.2	4.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.9	23.0		38.2	38.7	13.0	11.5	11.7		10.2	4.1	
LOS	D	C		D	D	B	B	B		B	A	
Approach Delay		28.4			17.3			11.7			8.0	
Approach LOS		C			B			B			A	
90th %ile Green (s)	24.8	24.8		24.8	24.8	24.8	43.0	43.0		16.2	63.2	
90th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
70th %ile Green (s)	14.3	14.3		14.3	14.3	14.3	58.6	58.6		11.1	73.7	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
50th %ile Green (s)	10.0	10.0		10.0	10.0	10.0	64.8	64.8		9.2	78.0	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	7.7	7.7		7.7	7.7	7.7	68.3	68.3		8.0	80.3	
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
10th %ile Green (s)	5.6	5.6		5.6	5.6	5.6	71.5	71.5		6.9	82.4	
10th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
Stops (vph)	28	28		28	53	54	14	154		136	35	
Fuel Used(gal)	1	1		1	1	6	0	3		4	1	
CO Emissions (g/hr)	41	49		51	97	388	18	204		276	88	
NOx Emissions (g/hr)	8	10		10	19	76	3	40		54	17	
VOC Emissions (g/hr)	9	11		12	22	90	4	47		64	20	
Dilemma Vehicles (#)	0	3		0	3	0	0	0		0	7	
Queue Length 50th (ft)	20	18		21	39	0	6	81		30	16	
Queue Length 95th (ft)	41	47		43	67	88	28	218		164	57	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	306	475		307	458	763	700	1156		935	1425	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.11	0.12		0.11	0.14	0.66	0.04	0.30		0.29	0.11	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 13.9	Intersection LOS: B
Intersection Capacity Utilization 66.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	19	1	11	15	75	1	22	26	43	9	0
Future Vol, veh/h	0	19	1	11	15	75	1	22	26	43	9	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	1	16	21	107	1	31	37	61	13	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	129	0	0	29	0	0	141	188	28	168	135	75
Stage 1	-	-	-	-	-	-	28	28	-	106	106	-
Stage 2	-	-	-	-	-	-	113	160	-	62	29	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1085	-	-	1173	-	-	962	707	1120	922	756	1053
Stage 1	-	-	-	-	-	-	1158	872	-	1047	807	-
Stage 2	-	-	-	-	-	-	1038	766	-	1108	871	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1085	-	-	1173	-	-	938	696	1120	851	745	1053
Mov Cap-2 Maneuver	-	-	-	-	-	-	938	696	-	851	745	-
Stage 1	-	-	-	-	-	-	1158	872	-	1047	795	-
Stage 2	-	-	-	-	-	-	1006	755	-	1033	871	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	9.5	9.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	877	1085	-	-	1173	-	-	831
HCM Lane V/C Ratio	0.08	-	-	-	0.013	-	-	0.089
HCM Control Delay (s)	9.5	0	-	-	8.1	0	-	9.8
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.3

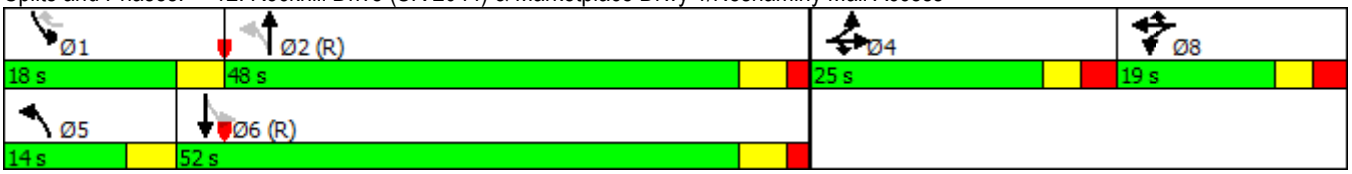
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	34	65	40	26	54	70	676	66	71	903	351
Future Volume (vph)	292	34	65	40	26	54	70	676	66	71	903	351
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950	0.962			0.970		0.950			0.950		
Satd. Flow (prot)	1593	1613	1600	0	1769	1500	1621	3309	0	1621	3353	1600
Flt Permitted	0.950	0.962			0.970		0.228			0.297		
Satd. Flow (perm)	1593	1613	1600	0	1769	1500	389	3309	0	507	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			89		11				286
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			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
Adj. Flow (vph)	304	35	68	42	27	56	73	704	69	74	941	366
Shared Lane Traffic (%)	45%											
Lane Group Flow (vph)	167	172	68	0	69	56	73	773	0	74	941	366
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0	25.0	19.0	19.0	19.0	14.0	48.0		18.0	52.0	
Total Split (s)	25.0	25.0	25.0	19.0	19.0	19.0	14.0	48.0		18.0	52.0	
Total Split (%)	22.7%	22.7%	22.7%	17.3%	17.3%	17.3%	12.7%	43.6%		16.4%	47.3%	
Maximum Green (s)	19.0	19.0	19.0	13.0	13.0	13.0	10.0	42.0		14.0	46.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	16.9	16.9	16.9		10.5	20.2	69.5	60.3		69.5	60.3	110.0
Actuated g/C Ratio	0.15	0.15	0.15		0.10	0.18	0.63	0.55		0.63	0.55	1.00
v/c Ratio	0.68	0.69	0.19		0.41	0.16	0.21	0.43		0.18	0.51	0.23
Control Delay	58.0	58.6	1.2		53.2	3.4	4.9	9.2		10.3	19.9	0.3
Queue Delay	0.0	0.0	0.1		0.3	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.0	58.6	1.3		53.5	3.4	4.9	9.2		10.3	19.9	0.3
LOS	E	E	A		D	A	A	A		B	B	A
Approach Delay		48.8			31.1			8.8			14.2	
Approach LOS		D			C			A			B	
90th %ile Green (s)	19.0	19.0	19.0	13.0	13.0	13.0	9.8	46.2		9.8	46.2	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Gap	Coord		Gap	Coord	
70th %ile Green (s)	19.0	19.0	19.0	11.1	11.1	11.1	8.4	49.5		8.4	49.5	
70th %ile Term Code	Max	Max	Max	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
50th %ile Green (s)	16.9	16.9	16.9	9.6	9.6	9.6	7.4	54.1		7.4	54.1	
50th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
30th %ile Green (s)	14.3	14.3	14.3	8.1	8.1	8.1	6.6	59.0		6.6	59.0	
30th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
10th %ile Green (s)	10.5	10.5	10.5	0.0	0.0	0.0	0.0	87.5		0.0	87.5	
10th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Skip	Coord	
Stops (vph)	148	153	0		60	3	12	378		28	577	0
Fuel Used(gal)	3	3	0		1	0	1	11		1	18	1
CO Emissions (g/hr)	212	220	17		74	10	37	763		67	1259	101
NOx Emissions (g/hr)	41	43	3		14	2	7	149		13	245	20
VOC Emissions (g/hr)	49	51	4		17	2	9	177		15	292	23
Dilemma Vehicles (#)	0	0	0		0	0	0	18		0	41	0
Queue Length 50th (ft)	117	121	0		47	0	9	170		19	234	0
Queue Length 95th (ft)	190	195	1		89	13	m12	155		44	343	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	289	293	396		225	353	374	1817		483	1836	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	52		19	0	0	0		0	8	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.58	0.59	0.20		0.33	0.16	0.20	0.43		0.15	0.51	0.23

Intersection Summary	
Area Type: Other	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 18 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 18.4	Intersection LOS: B
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	100	62	67	89	347	67	447	60	551	432	29
Future Volume (vph)	17	100	62	67	89	347	67	447	60	551	432	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.943				0.850		0.982			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1775	0	1565	1765	1500	1621	1848	0	1676	1864	0
Flt Permitted	0.696			0.457			0.493			0.269		
Satd. Flow (perm)	1146	1775	0	753	1765	1500	841	1848	0	475	1864	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				354		7			8	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	17	102	63	68	91	354	68	456	61	562	441	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	165	0	68	91	354	68	517	0	562	471	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			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

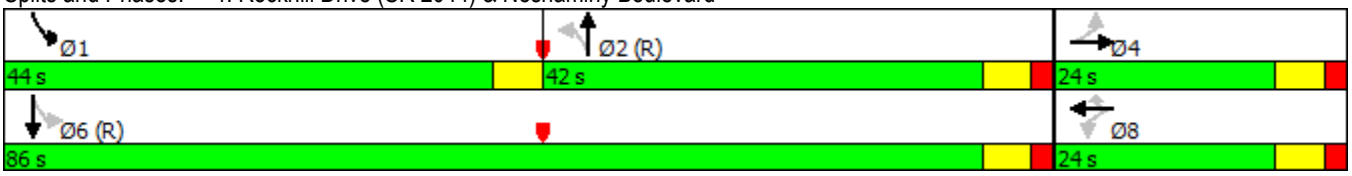
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	42.0	42.0		44.0	86.0	
Total Split (s)	24.0	24.0		24.0	24.0	24.0	42.0	42.0		44.0	86.0	
Total Split (%)	21.8%	21.8%		21.8%	21.8%	21.8%	38.2%	38.2%		40.0%	78.2%	
Maximum Green (s)	18.0	18.0		18.0	18.0	18.0	36.0	36.0		40.0	80.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	15.2	15.2		15.2	15.2	15.2	49.2	49.2		86.8	84.8	
Actuated g/C Ratio	0.14	0.14		0.14	0.14	0.14	0.45	0.45		0.79	0.77	
v/c Ratio	0.11	0.62		0.65	0.37	0.69	0.18	0.62		0.77	0.33	
Control Delay	40.8	47.7		72.4	46.3	12.1	25.0	30.5		36.7	7.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.9	0.4	
Total Delay	40.8	47.7		72.4	46.3	12.1	25.0	30.5		37.6	8.2	
LOS	D	D		E	D	B	C	C		D	A	
Approach Delay		47.1			26.2			29.9			24.2	
Approach LOS		D			C			C			C	
90th %ile Green (s)	18.0	18.0		18.0	18.0	18.0	36.0	36.0		40.0	80.0	
90th %ile Term Code	Max	Max		Max	Max	Max	Coord	Coord		Max	Coord	
70th %ile Green (s)	18.0	18.0		18.0	18.0	18.0	37.1	37.1		38.9	80.0	
70th %ile Term Code	Hold	Hold		Max	Max	Max	Coord	Coord		Gap	Coord	
50th %ile Green (s)	15.1	15.1		15.1	15.1	15.1	45.6	45.6		33.3	82.9	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	11.7	11.7		11.7	11.7	11.7	55.0	55.0		27.3	86.3	
30th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord		Gap	Coord	
10th %ile Green (s)	8.3	8.3		8.3	8.3	8.3	67.1	67.1		18.6	89.7	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord		Gap	Coord	
Stops (vph)	17	129		63	78	41	44	380		459	158	
Fuel Used(gal)	0	3		2	2	4	1	7		15	5	
CO Emissions (g/hr)	24	225		140	150	277	58	490		1014	366	
NOx Emissions (g/hr)	5	44		27	29	54	11	95		197	71	
VOC Emissions (g/hr)	6	52		32	35	64	13	114		235	85	
Dilemma Vehicles (#)	0	7		0	4	0	0	0		0	40	
Queue Length 50th (ft)	11	94		46	59	0	30	282		315	81	
Queue Length 95th (ft)	31	160		#95	106	86	72	#505		450	244	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	197	326		130	304	551	375	829		822	1438	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		83	475	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.09	0.51		0.52	0.30	0.64	0.18	0.62		0.76	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 27.9 Intersection LOS: C
Intersection Capacity Utilization 90.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	13	0	30	8	147	0	10	17	149	26	0
Future Vol, veh/h	0	13	0	30	8	147	0	10	17	149	26	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	0	34	9	169	0	11	20	171	30	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	178	0	0	15	0	0	193	262	15	193	178	94
Stage 1	-	-	-	-	-	-	15	15	-	163	163	-
Stage 2	-	-	-	-	-	-	178	247	-	30	15	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1044	-	-	1186	-	-	887	643	1139	887	716	1028
Stage 1	-	-	-	-	-	-	1177	883	-	973	763	-
Stage 2	-	-	-	-	-	-	954	702	-	1155	883	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1044	-	-	1186	-	-	837	622	1139	839	693	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-	837	622	-	839	693	-
Stage 1	-	-	-	-	-	-	1177	883	-	973	739	-
Stage 2	-	-	-	-	-	-	886	680	-	1120	883	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.3	9.3	10.9
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	871	1044	-	-	1186	-	-	814
HCM Lane V/C Ratio	0.036	-	-	-	0.029	-	-	0.247
HCM Control Delay (s)	9.3	0	-	-	8.1	0	-	10.9
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	60	66	44	32	98	69	635	114	186	618	341
Future Volume (vph)	318	60	66	44	32	98	69	635	114	186	618	341
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	13	13	12	11	12	12	11	12	14
Storage Length (ft)	0		70	0		0	135		0	0		270
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.977				0.850
Flt Protected	0.950	0.967			0.972		0.950			0.950		
Satd. Flow (prot)	1593	1621	1600	0	1772	1500	1621	3276	0	1621	3353	1600
Flt Permitted	0.950	0.967			0.972		0.398			0.219		
Satd. Flow (perm)	1593	1621	1600	0	1772	1500	679	3276	0	374	3353	1600
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			109		23				344
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		420			196			533			636	
Travel Time (s)		11.5			5.3			6.6			7.9	
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
Adj. Flow (vph)	321	61	67	44	32	99	70	641	115	188	624	344
Shared Lane Traffic (%)	41%											
Lane Group Flow (vph)	189	193	67	0	76	99	70	756	0	188	624	344
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			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.99	1.03	1.03	1.07	1.12	1.07	1.07	1.12	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	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	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	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	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	Split	NA	Prot	Split	NA	custom	pm+pt	NA		pm+pt	NA	Free
Protected Phases	4	4	4	8	8	8	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						1	2			6		Free
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	16.0	16.0	16.0	13.0	32.0		19.0	38.0	
Total Split (s)	23.0	23.0	23.0	16.0	16.0	16.0	13.0	32.0		19.0	38.0	
Total Split (%)	25.6%	25.6%	25.6%	17.8%	17.8%	17.8%	14.4%	35.6%		21.1%	42.2%	
Maximum Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.0		13.0	32.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	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		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0			0	
Act Effct Green (s)	15.8	15.8	15.8		9.5	23.7	43.2	35.5		51.3	41.6	90.0
Actuated g/C Ratio	0.18	0.18	0.18		0.11	0.26	0.48	0.39		0.57	0.46	1.00
v/c Ratio	0.68	0.68	0.16		0.41	0.21	0.17	0.58		0.51	0.40	0.21
Control Delay	47.1	47.0	0.8		43.8	5.0	9.6	21.3		16.0	19.9	0.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	47.1	47.0	0.8		43.8	5.0	9.6	21.3		16.0	19.9	0.3
LOS	D	D	A		D	A	A	C		B	B	A
Approach Delay		40.1			21.8			20.3			13.5	
Approach LOS		D			C			C			B	
90th %ile Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.0		13.0	32.0	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord		Max	Coord	
70th %ile Green (s)	17.0	17.0	17.0	10.0	10.0	10.0	7.0	26.1		12.9	32.0	
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Coord		Gap	Coord	
50th %ile Green (s)	16.7	16.7	16.7	9.2	9.2	9.2	7.4	29.0		11.1	32.7	
50th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
30th %ile Green (s)	13.4	13.4	13.4	7.8	7.8	7.8	6.5	35.7		9.1	38.3	
30th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Coord		Gap	Coord	
10th %ile Green (s)	9.8	9.8	9.8	0.0	0.0	0.0	0.0	55.7		6.5	68.2	
10th %ile Term Code	Gap	Gap	Gap	Skip	Skip	Skip	Skip	Coord		Gap	Coord	
Stops (vph)	170	174	0		68	13	34	591		91	414	0
Fuel Used(gal)	3	3	0		1	0	1	17		3	13	1
CO Emissions (g/hr)	218	222	17		74	22	70	1171		213	887	98
NOx Emissions (g/hr)	42	43	3		14	4	14	228		41	173	19
VOC Emissions (g/hr)	50	51	4		17	5	16	271		49	206	23
Dilemma Vehicles (#)	0	0	0		0	0	0	35		0	34	0
Queue Length 50th (ft)	104	106	0		41	0	14	202		55	141	0
Queue Length 95th (ft)	177	181	0		83	29	m21	248		97	194	0
Internal Link Dist (ft)		340			116			453			556	
Turn Bay Length (ft)			70				135					270
Base Capacity (vph)	318	324	465		216	465	413	1306		410	1551	1600

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0		0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0		0	0	0
Reduced v/c Ratio	0.59	0.60	0.14		0.35	0.21	0.17	0.58		0.46	0.40	0.21

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 18 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 63.4%	ICU Level of Service B
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Rockhill Drive (SR 2044) & Marketplace Drwy 1/Neshaminy Mall Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	103	64	95	104	511	82	290	87	428	286	13
Future Volume (vph)	16	103	64	95	104	511	82	290	87	428	286	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	12	10	12	12	11	14	12	12	14	12
Storage Length (ft)	70		0	150		135	115		0	0		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	75			60			60			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		0.943				0.850		0.965			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	1775	0	1565	1765	1500	1621	1816	0	1676	1869	0
Flt Permitted	0.687			0.538			0.569			0.377		
Satd. Flow (perm)	1132	1775	0	886	1765	1500	971	1816	0	665	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34				538		16			5	
Link Speed (mph)		35			35			25			55	
Link Distance (ft)		578			1118			557			533	
Travel Time (s)		11.3			21.8			15.2			6.6	
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
Adj. Flow (vph)	17	108	67	100	109	538	86	305	92	451	301	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	175	0	100	109	538	86	397	0	451	315	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			23			23	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	0.99	1.07	1.17	1.07	1.07	1.12	0.99	1.07	1.07	0.99	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
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)		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	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	

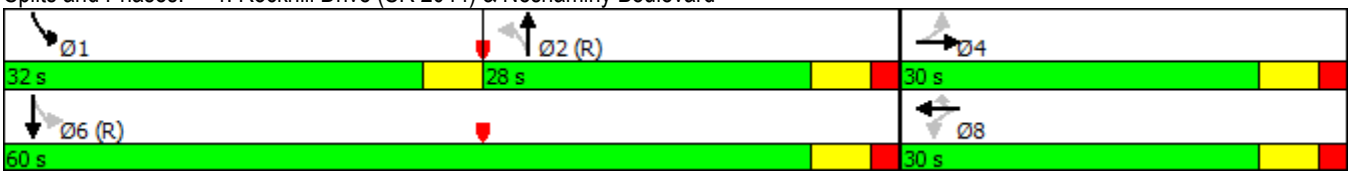
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	28.0	28.0		32.0	60.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	28.0	28.0		32.0	60.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%	33.3%	31.1%	31.1%		35.6%	66.7%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	22.0	22.0		28.0	54.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		3.0	5.0	
Lead/Lag							Lag	Lag		Lead		
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	3.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)	17.0	17.0		17.0	17.0	17.0	39.8	39.8		65.0	63.0	
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.19	0.44	0.44		0.72	0.70	
v/c Ratio	0.08	0.48		0.60	0.33	0.75	0.20	0.49		0.64	0.24	
Control Delay	27.2	29.0		46.8	32.2	9.9	23.1	24.4		26.8	14.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	27.2	29.0		46.8	32.2	9.9	23.1	24.4		26.8	14.9	
LOS	C	C		D	C	A	C	C		C	B	
Approach Delay		28.9			18.1			24.2			21.9	
Approach LOS		C			B			C			C	
90th %ile Green (s)	24.0	24.0		24.0	24.0	24.0	22.0	22.0		28.0	54.0	
90th %ile Term Code	Hold	Hold		Max	Max	Max	Coord	Coord		Max	Coord	
70th %ile Green (s)	20.0	20.0		20.0	20.0	20.0	28.8	28.8		25.2	58.0	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
50th %ile Green (s)	16.2	16.2		16.2	16.2	16.2	38.1	38.1		19.7	61.8	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
30th %ile Green (s)	12.4	12.4		12.4	12.4	12.4	47.2	47.2		14.4	65.6	
30th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Coord	Coord		Gap	Coord	
10th %ile Green (s)	7.2	7.2		7.2	7.2	7.2	57.9	57.9		8.9	70.8	
10th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Coord	Coord		Gap	Coord	
Stops (vph)	14	112		83	84	58	57	253		341	164	
Fuel Used(gal)	0	3		2	2	6	1	5		10	5	
CO Emissions (g/hr)	18	176		160	150	391	69	324		707	347	
NOx Emissions (g/hr)	4	34		31	29	76	14	63		138	67	
VOC Emissions (g/hr)	4	41		37	35	91	16	75		164	80	
Dilemma Vehicles (#)	0	8		0	6	0	0	0		0	54	
Queue Length 50th (ft)	8	71		52	54	0	29	151		215	119	
Queue Length 95th (ft)	23	119		95	90	84	84	#360		312	200	
Internal Link Dist (ft)		498			1038			477			453	
Turn Bay Length (ft)	70			150		135	115					
Base Capacity (vph)	314	517		246	490	805	429	812		806	1310	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.05	0.34		0.41	0.22	0.67	0.20	0.49		0.56	0.24	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 78.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Rockhill Drive (SR 2044) & Neshaminy Boulevard



Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	19	0	18	18	149	1	10	15	135	25	1
Future Vol, veh/h	1	19	0	18	18	149	1	10	15	135	25	1
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	21	0	20	20	162	1	11	16	147	27	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	21	0	0	177	244	21	176	163	101
Stage 1	-	-	-	-	-	-	23	23	-	140	140	-
Stage 2	-	-	-	-	-	-	154	221	-	36	23	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.1
Pot Cap-1 Maneuver	1041	-	-	1181	-	-	909	658	1130	911	729	1018
Stage 1	-	-	-	-	-	-	1165	876	-	1002	781	-
Stage 2	-	-	-	-	-	-	984	720	-	1146	876	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1041	-	-	1181	-	-	868	645	1130	873	714	1018
Mov Cap-2 Maneuver	-	-	-	-	-	-	868	645	-	873	714	-
Stage 1	-	-	-	-	-	-	1164	875	-	1001	766	-
Stage 2	-	-	-	-	-	-	930	706	-	1114	875	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.8	9.3	10.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	869	1041	-	-	1181	-	-	845
HCM Lane V/C Ratio	0.033	0.001	-	-	0.017	-	-	0.207
HCM Control Delay (s)	9.3	8.5	0	-	8.1	0	-	10.4
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.8

APPENDIX G

EXISTING TRAFFIC SIGNAL PERMIT PLANS

Ben salem

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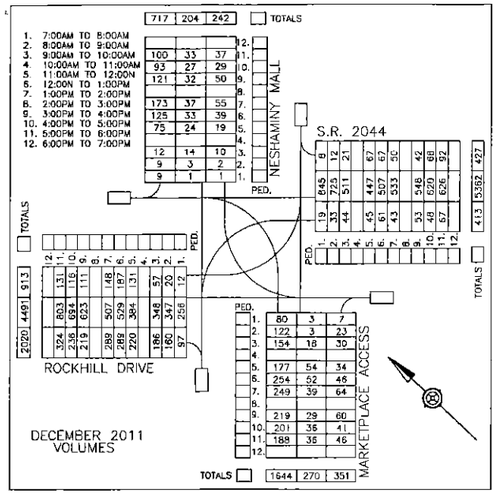


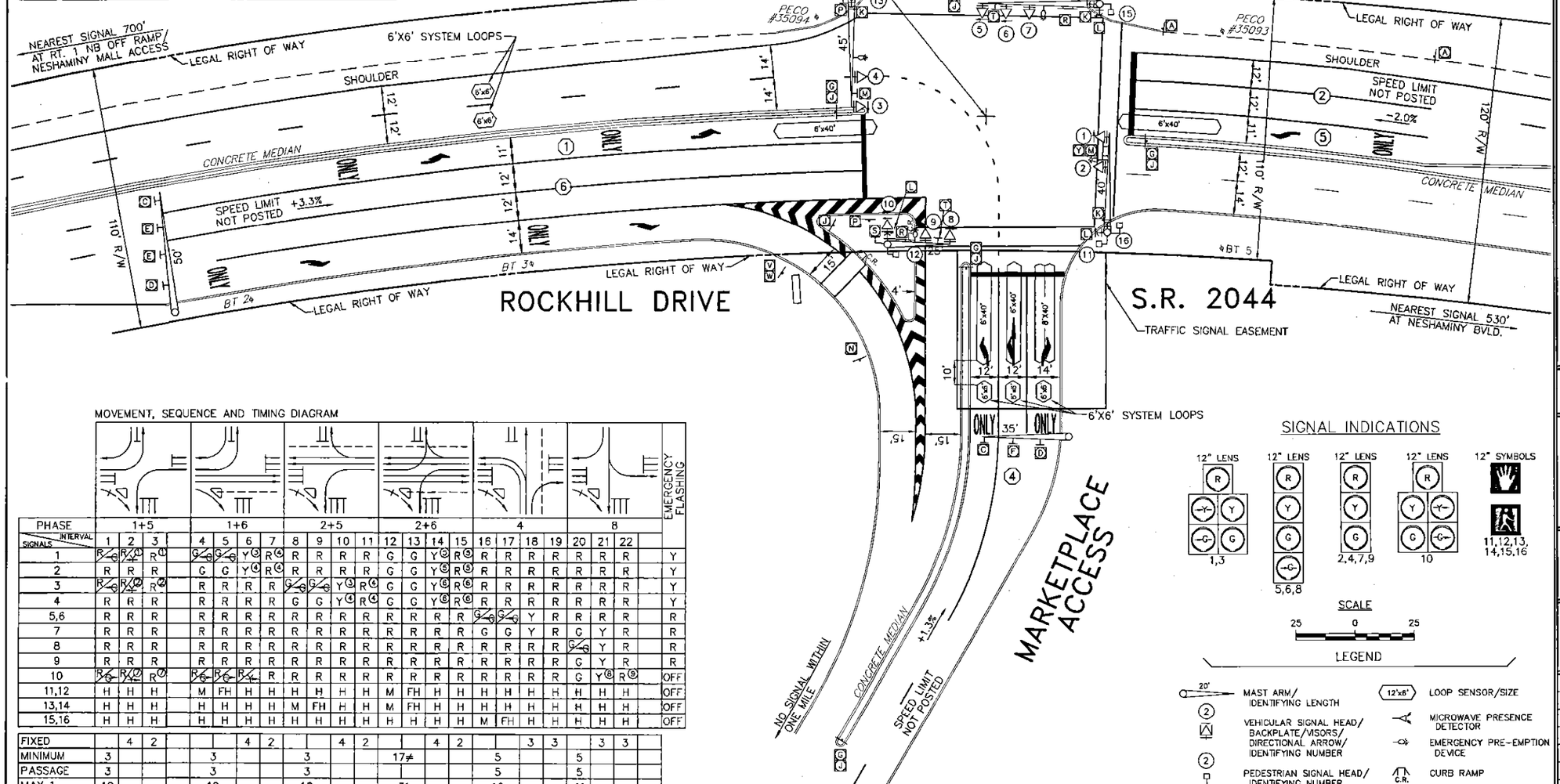
OPERATION NOTES:

1. R/→G IF FOLLOWED BY 1+6
2. R/→G IF FOLLOWED BY 2+5
3. G/→Y IF FOLLOWED BY 2+6
4. G IF FOLLOWED BY 2+6
5. G IF FOLLOWED BY 1+6
6. G IF FOLLOWED BY 2+5
7. R/G IF FOLLOWED BY 1+6
8. Y/G IF FOLLOWED BY 1+5 OR 1+6
9. R/G IF FOLLOWED BY 1+5 OR 1+6
10. TIMING WILL BE AS SHOWN IN PHASE 2+6. IT MAY TIME OUT IN THIS PHASE OR MAY BE COMPLETED IN PHASE 2+6.

• SIGNAL TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 4 OR PHASE 8.

≠ MINIMUM GREEN TIME. ACTUAL GREEN TIME TO BE DETERMINED BY CYCLE LENGTH AND CLOSED LOOP SYSTEM/BACKUP TBC.

SIGN TABULATION			
PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R3-8LTT	48X30	LANE USE CONTROL
B	R3-8LSRB	30X30	LANE USE CONTROL
C	R3-5L	30X36	LEFT TURN
D	R3-5R	30X36	RIGHT TURN
E	R3-5S	30X36	STRAIGHT THROUGH
F	R3-6LS	30X36	OPTIONAL LEFT TURN
G	R4-7	24X30	KEEP RIGHT
J	W16-1	18X18	HAZARD MARKER
K	R10-3B(R)	9X12	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON →
L	R10-3B(L)	9X12	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON ←
M	R10-12	30X36	LEFT TURN YIELD ON GREEN ●
N	R1-2	36X36	YIELD
P	R9-3	18X18	NO PEDESTRIAN CROSSING
R	D3-4	78X16	OVERHEAD STREET NAME SIGN (SEE DETAIL)
S	R10-10R	30X36	RIGHT TURN SIGNAL
T	R10-21	24X30	WAIT FOR GREEN
V	W11-2	36X36	PEDESTRIAN CROSSING
W	R1-5	24X18	YIELD TO PEDESTRIANS IN CROSSWALK
Y	R3-4	30X30	NO U-TURNS



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. 68.

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 # I-0022

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: BUCKS
MUNICIPALITY: BENSALEM TOWNSHIP
INTERSECTION: ROCKHILL DRIVE (S.R. 2044) AND THE MARKETPLACE/NESHAMINY MALL ACCESS

REVIEWED:

MUNICIPAL OFFICIAL — DATE 3/31/13

RECOMMENDED:

MARK L. KRAY — 5/18/98

WERNER J. EICHORN — 5/20/98
DISTRICT TRAFFIC ENGINEER — DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISED PRE-EMPTION LOCATION	NV	3/15/99	RP / MLK	3/24/99 / 3/17/99	DWM	3/25/99
2	REVISED COORDINATION	MGM / REW	12/4/03	MLK	12/4/03	LRB	12/5/03
3	REVISED PRE-EMPTION NOTES			WJE	12/5/03	LRB	12/5/03
4	NEW COUNTS/REV TIMINGS/ADDED SIGN "Y"	PAL		MLK	3/31/13	LRB	3/31/13
5							
6							
7							
8							

SHEET 2 OF 3 | PERMIT # 61-3036 | FILE # 3036

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	1+5			1+6				2+5				2+6				4				8			EMERGENCY FLASHING
INTERVAL / SIGNALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1	R/G	R/G	R(1)	G/G	G/G	Y(3)	R(4)	R	R	R	R	G	G	Y(5)	R(6)	R	R	R	R	R	R	R	Y
2	R	R	R	G	G	Y(4)	R(4)	R	R	R	R	G	G	Y(5)	R(5)	R	R	R	R	R	R	R	Y
3	R/G	R/G	R(2)	R	R	R	R	G/G	G/G	Y(3)	R(4)	G	G	Y(6)	R(6)	R	R	R	R	R	R	R	Y
4	R	R	R	R	R	R	R	G	G	Y(4)	R(4)	G	G	Y(6)	R(6)	R	R	R	R	R	R	R	Y
5,6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G/G	G/G	Y	R	R	R	R	R
7	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	G	Y	R	R
8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G/G	Y	R	R
9	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R
10	R/G	R/G	R(2)	R/G	R/G	R/G	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y(8)	R(8)	OFF
11,12	H	H	H	M	FH	H	H	H	H	H	H	M	FH	H	H	H	H	H	H	H	H	H	OFF
13,14	H	H	H	H	H	H	H	M	FH	H	H	M	FH	H	H	H	H	H	H	H	H	H	OFF
15,16	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	FH	H	H	H	H	H	OFF

FIXED		4	2			4	2			4	2			4	2			3	3		3	3	
MINIMUM	3				3				3				17≠				5				5		
PASSAGE	3				3				3								5				5		
MAX 1	12				12				12				31				16				11		
MAX 2																							
PEDESTRIAN*	–				(10)				(10)				7	18			7	18			–		
MEMORY	NL				NL				NL				MR				NL				NL		

* UPON PEDESTRIAN ACTUATION ONLY

SYSTEM NOTES:

REFER TO SYSTEM PERMIT PLAN (I0022) FOR PROGRAM SPLIT, OFFSET, AND WEEKLY PROGRAM/BACKUP TBC CHART.

SIGNAL INDICATIONS

SCALE

25 0 25

LEGEND

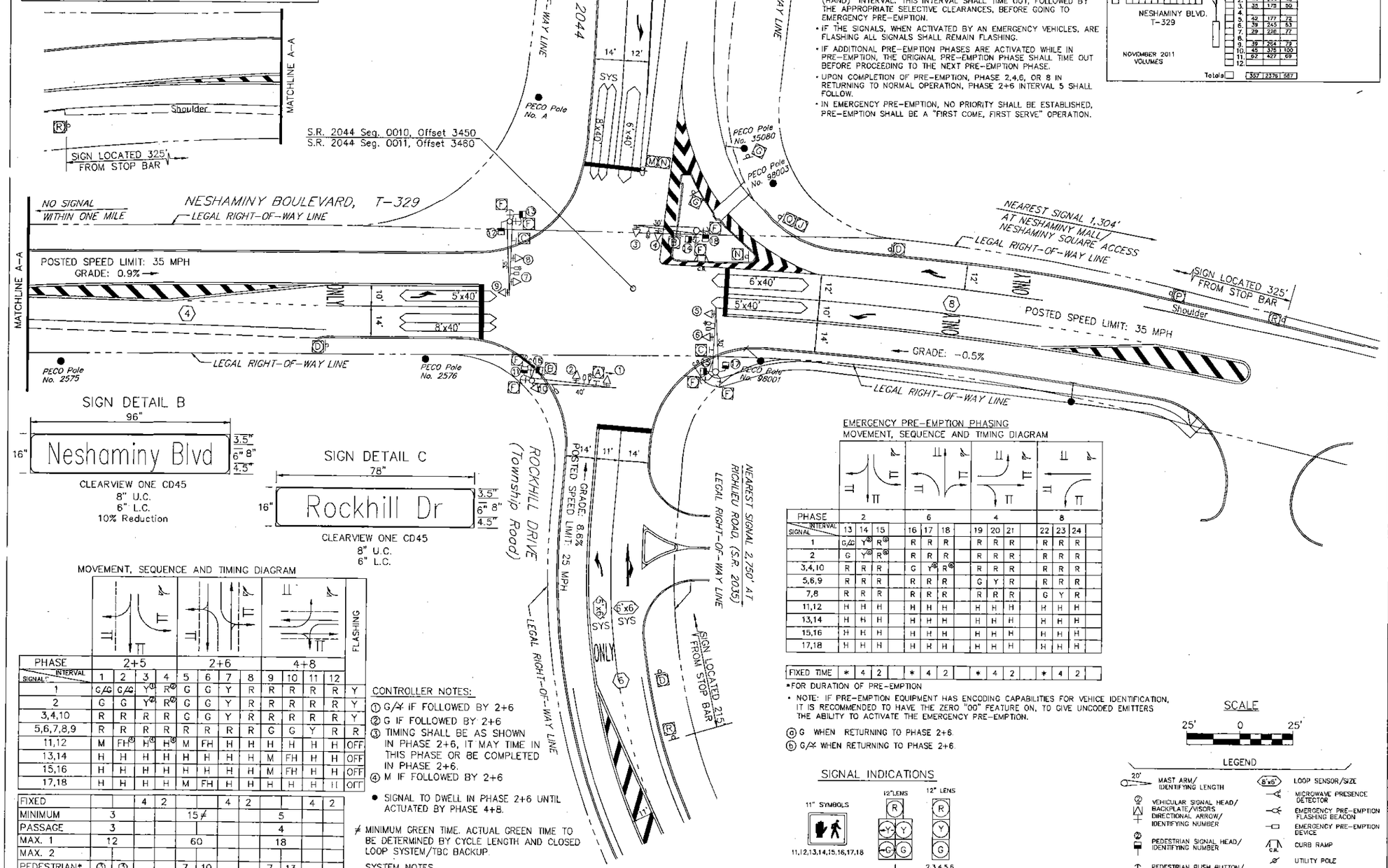
- 20' — MAST ARM/ IDENTIFYING LENGTH
- (2) — VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS/ DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- (2) — PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/ SIGN
- A — SIGN/IDENTIFYING LETTER
- 12'x8' — LOOP SENSOR/SIZE
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION DEVICE
- C.R. — CURB RAMP
- UTILITY POLE
- (2) — PHASE NUMBER

Bensalem

3037

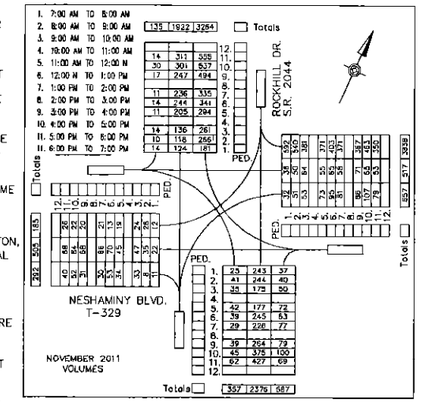
SIGN TABULATION

PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R10-12	30"x36"	LEFT TURN YIELD ON GREEN
B	D3-4	96"x16"	NESHAMINY BLVD. (SEE DETAIL)
C	D3-4	78"x16"	ROCKHILL DR (SEE DETAIL)
D	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
E	R9-3	18"x18"	NO PEDESTRIAN CROSSING
F	R10-3B,L	9"x12"	EDUCATIONAL PUSH BUTTON, LEFT
G	R1-2	36"x36"	YIELD
J	W11-2	36"x36"	PEDESTRIAN CROSSING
K	R3-5L	30"x36"	LEFT TURN
L	R3-5SR	30"x36"	OPTIONAL RIGHT TURN
M	R4-7	24"x30"	KEEP RIGHT
N	W16-1	18"x18"	HAZARD MARKER
P	R3-7R	30"x30"	RIGHT LANE MUST TURN RIGHT
Q	R1-5	24"x18"	YIELD TO PEDESTRIANS IN CROSSWALK
R	W3-3	36"x36"	SIGNAL AHEAD



EMERGENCY PRE-EMPTION NOTES

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE NORTHBOUND AND SOUTHBOUND APPROACHES OF ROCKHILL DRIVE AND THE EASTBOUND AND WESTBOUND APPROACHES OF NESHAMINY BOULEVARD 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.
- 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 VEHICLES 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 THE SIGNALS HAVE BEEN ACTUATED BY PEDESTRIAN PUSH BUTTON, AND THE SIGNAL IS PRE-EMPTED, THE PED "WALK (MAN)" INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PED "CLEAR (HAND)" INTERVAL. THIS INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES, BEFORE GOING TO EMERGENCY PRE-EMPTION.
- IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLES, 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 2,4,6, OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 5 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED, PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.



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SYSTEM PERMIT # I-0022

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: BUCKS
MUNICIPALITY: BENSALEM TOWNSHIP
INTERSECTION: NESHAMINY BLVD. (T-329) & ROCKHILL DRIVE (S.R. 2044)

REVIEWED:

MUNICIPAL OFFICIAL — Dist. of Admin. — DATE 3/13/13

RECOMMENDED:

MARK L. KRAY — DATE 5/18/98

WERNER J. EICHORN — DISTRICT TRAFFIC ENGINEER — DATE 5/20/98

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	ADDED SH. #11, CHANGED TIMINGS	NV	3/15/99	RP/MK	3/17/99	JM	3/25/99
2	REVISED COORDINATION	MLK RFK	12/4/03	MLK	12/4/03	LRB	12/5/03
3	REVISED PRE-EMPTION NOTES			WJE	12/5/03	LRB	12/5/03
4	ADDED 4TH LEG AND MODERNIZE	PC&S RFW	3/26/04	MLK	3/29/04	LRB	3/29/04
4	NEW COUNTS/REV. TIMINGS	PAI		[illegible]	3/28/13	[illegible]	5/31/13

SHEET 2 OF 2 | PERMIT # 61-3037 | FILE # 3037

SIGN DETAIL B

96"

16" Neshaminy Blvd 3.5" 6" 8" 4.5"

CLEARVIEW ONE CD45
8" U.C.
6" L.C.
10% Reduction

SIGN DETAIL C

78"

16" Rockhill Dr 3.5" 6" 8" 4.5"

CLEARVIEW ONE CD45
8" U.C.
6" L.C.

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2+5				2+6				4+8				FLASHING
INTERVAL / SIGNAL	1	2	3	4	5	6	7	8	9	10	11	12	
1	G/A	G/A	Y①	R②	G	G	Y	R	R	R	R	R	Y
2	G	G	Y②	R②	G	G	Y	R	R	R	R	R	Y
3,4,10	R	R	R	R	G	G	Y	R	R	R	R	R	Y
5,6,7,8,9	R	R	R	R	R	R	R	R	G	G	Y	R	R
11,12	M	FH③	H④	H④	M	FH	H	H	H	H	H	H	OFF
13,14	H	H	H	H	H	H	H	H	M	FH	H	H	OFF
15,16	H	H	H	H	H	H	H	H	M	FH	H	H	OFF
17,18	H	H	H	H	M	FH	H	H	H	H	H	H	OFF
FIXED			4	2			4	2			4	2	
MINIMUM	3				15≠				5				
PASSAGE	3								4				
MAX. 1	12				60				18				
MAX. 2													
PEDESTRIAN*	③	③			7	10			7	13			
MEMORY	NL				MoR				NL				

* UPON PEDESTRIAN ACTIVATION, OTHERWISE H AT ALL TIMES.

CONTROLLER NOTES:

① G/A IF FOLLOWED BY 2+6
② G IF FOLLOWED BY 2+6
③ TIMING SHALL BE AS SHOWN IN PHASE 2+6, IT MAY TIME IN THIS PHASE OR BE COMPLETED IN PHASE 2+6.
④ M IF FOLLOWED BY 2+6

● SIGNAL TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 4+8.

≠ MINIMUM GREEN TIME. ACTUAL GREEN TIME TO BE DETERMINED BY CYCLE LENGTH AND CLOSED LOOP SYSTEM/TBC BACKUP.

SYSTEM NOTES

REFER TO SYSTEM PERMIT PLAN (I0022) FOR PROGRAM SPLIT, OFFSET AND WEEKLY PROGRAM/ BACKUP TBC CHART.

EMERGENCY PRE-EMPTION PHASING MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2				6				4				8			
INTERVAL / SIGNAL	13	14	15		16	17	18		19	20	21		22	23	24	
1	G/A	Y⑤	R⑥		R	R	R		R	R	R		R	R	R	
2	G	Y⑤	R⑥		R	R	R		R	R	R		R	R	R	
3,4,10	R	R	R		G	Y⑤	R⑥		R	R	R		R	R	R	
5,6,9	R	R	R		R	R	R		G	Y	R		R	R	R	
7,8	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	
17,18	H	H	H		H	H	H		H	H	H		H	H	H	
FIXED TIME	*	4	2		*	4	2		*	4	2		*	4	2	

*FOR DURATION OF 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.

ⓐ G WHEN RETURNING TO PHASE 2+6.
ⓑ G/A WHEN RETURNING TO PHASE 2+6.

SIGNAL INDICATIONS

11" SYMBOLS — 11,12,13,14,15,16,17,18

12" LENS — 1

12" LENS — 2,3,4,5,6,7,8,9,10

SCALE

25' 0 25'

LEGEND

- MAST ARM/ IDENTIFYING LENGTH
- VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- PEDESTRIAN PUSH BUTTON/ SIGN
- SIGN/IDENTIFYING LETTER
- 8"x6" LOOP SENSOR/SIZE
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- EMERGENCY PRE-EMPTION DEVICE
- C.R. CURB RAMP
- UTILITY POLE
- PHASE NUMBER
- INLET
- D.C. DEPRESSED CURB

SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS _____
SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS AND BACKPLATES _____

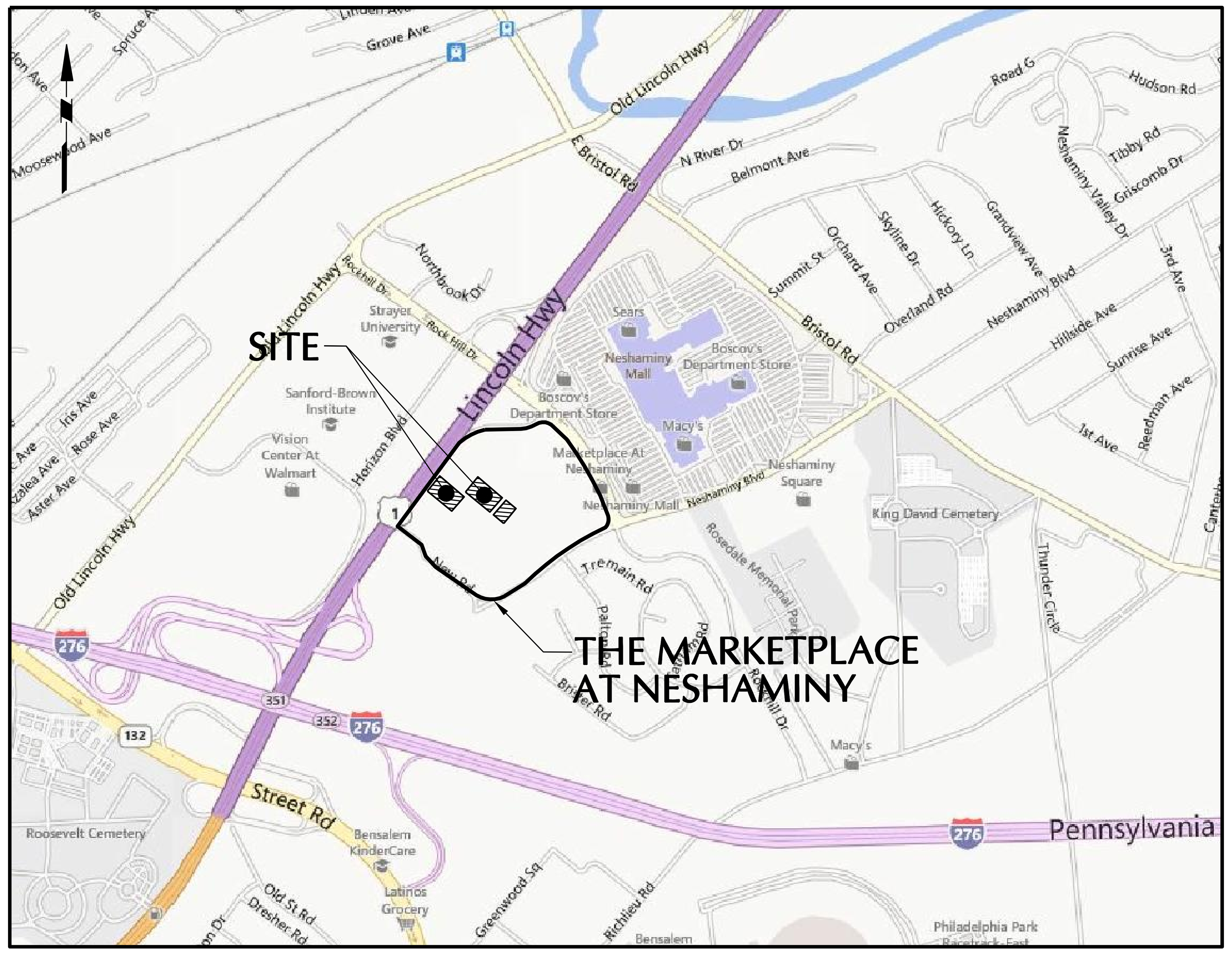
PRELIMINARY AND FINAL LAND DEVELOPMENT PLAN

FOR

THE MARKETPLACE AT NESHAMINY

SITUATED IN:

BENSALEM TOWNSHIP
BUCKS COUNTY, PENNSYLVANIA



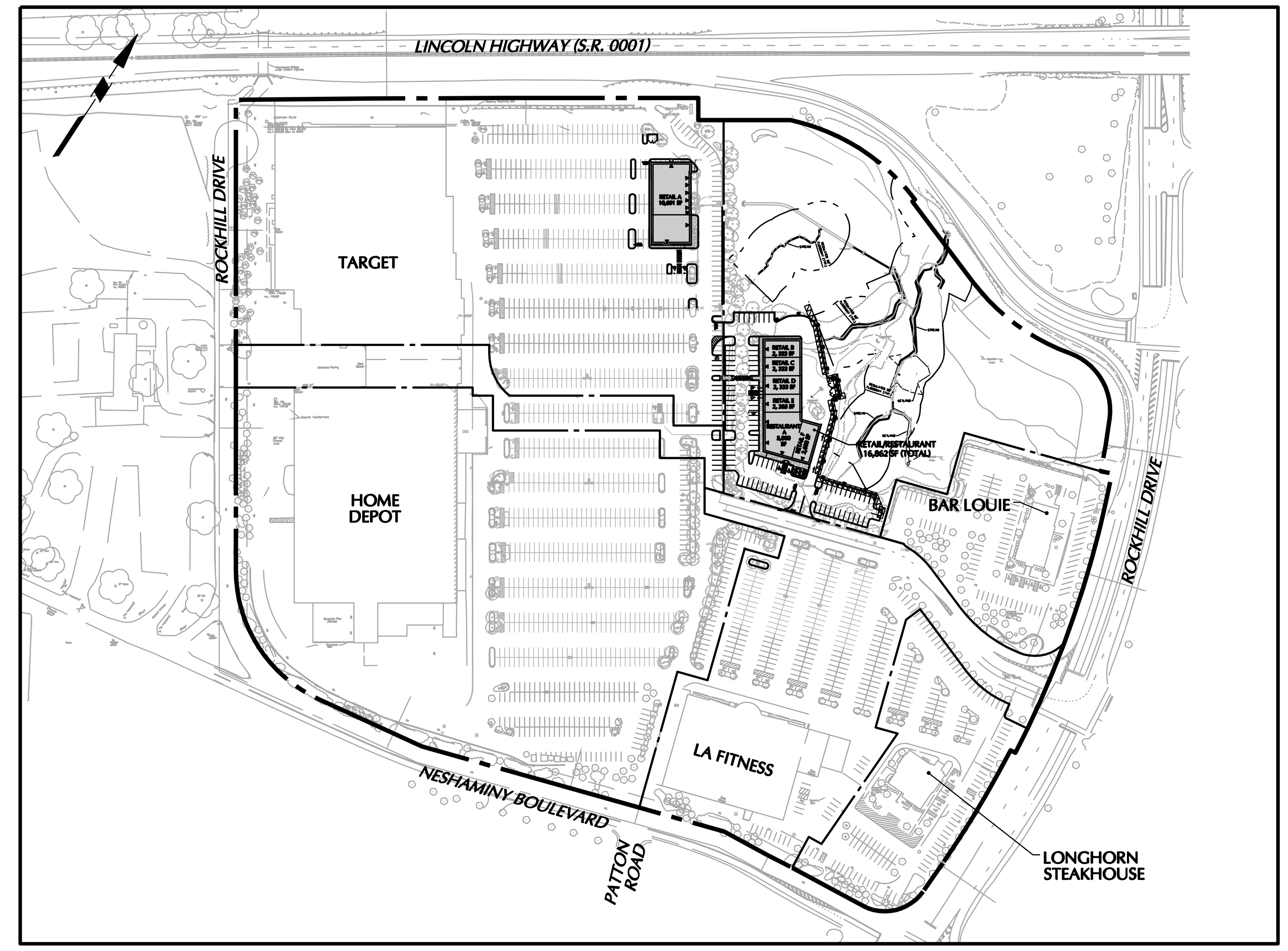
LOCATION MAP

1"=1000'

DRAWING INDEX

DRAWING SEQUENCE	DRAWING NUMBER	DRAWING TITLE	ORIGINAL DATE	DRAWING REVISION
1	GI-001	COVER SHEET	8 JUNE 2016	–
2	GI-101	TAX MAP, ZONING MAP AND ADJACENT PROPERTY OWNER LIST	8 JUNE 2016	–
3	VT-101	PARTIAL TOPOGRAPHIC SURVEY	31 OCTOBER 2014	–
4	CD-101	SITE DEMOLITION PLAN	8 JUNE 2016	–
5	CS-100	MASTER SITE PLAN	8 JUNE 2016	–
6	CS-101	SITE CONSTRUCTION PLAN	8 JUNE 2016	–
7	CS-301	PAVEMENT AND VEHICLE CIRCULATION PLAN	8 JUNE 2016	–
8	CS-501	SITE CONSTRUCTION DETAILS	8 JUNE 2016	–
9	CG-101	POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN	8 JUNE 2016	–
10	CG-102	GRADING & DRAINAGE PLAN	8 JUNE 2016	–
11	CG-201	STORM SEWER PROFILES I	8 JUNE 2016	–
12	CG-202	STORM SEWER PROFILES II	8 JUNE 2016	–
13	CG-501	POST-CONSTRUCTION STORMWATER MANAGEMENT DETAILS I	8 JUNE 2016	–
14	CG-502	POST-CONSTRUCTION STORMWATER MANAGEMENT DETAILS II	8 JUNE 2016	–
15	CG-503	POST-CONSTRUCTION STORMWATER MANAGEMENT DETAILS III	8 JUNE 2016	–
16	CE-101	SOIL EROSION AND SEDIMENT CONTROL PLAN - STAGE I	8 JUNE 2016	–
17	CE-102	SOIL EROSION AND SEDIMENT CONTROL PLAN - STAGE II	8 JUNE 2016	–
18	CE-103	SOIL EROSION AND SEDIMENT CONTROL PLAN - STAGE III	8 JUNE 2016	–
19	CE-104	SOIL EROSION AND SEDIMENT CONTROL PLAN - STAGE IV	8 JUNE 2016	–
20	CE-501	SOIL EROSION AND SEDIMENT CONTROL NOTES & DETAILS	8 JUNE 2016	–
21	CU-101	UTILITY PLAN	8 JUNE 2016	–
22	CU-201	SANITARY SEWER PROFILE	8 JUNE 2016	–
23	CU-501	SEWER AND WATER CONSTRUCTION NOTES AND DETAILS	8 JUNE 2016	–
24	LP-101	LANDSCAPE PLAN	8 JUNE 2016	–
25	LP-501	LANDSCAPE NOTES AND DETAILS	8 JUNE 2016	–
26	LL-101	LIGHTING PLAN	8 JUNE 2016	–
27	LL-501	LIGHTING NOTES AND DETAILS	8 JUNE 2016	–

PROJECT SITE:
BENSALEM TOWNSHIP TAX MAP PAGE 2-1 PARCELS 37, 37-1, 37-4, 37-5, 37-6, 37-7, 38
LOT AREA = 40.66 ACRES
ZONING DISTRICT: HIGHWAY COMMERCIAL DISTRICT (H-C1)
ADDRESS: US 1 AND ROCKHILL DRIVE



SITE MAP

1"=200'

OWNER'S CERTIFICATION

COMMONWEALTH OF PENNSYLVANIA: SS:
COUNTY OF BUCKS

______________________, UNDERSIGNED, HAS LAID OUT UPON MY LAND SITUATE IN BENSALEM TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA, CERTAIN LOTS AND STREETS ACCORDING TO THE ACCOMPANYING PLAN WHICH IS INTENDED TO BE RECORDED.

______________ ______________________
DATE

ON THIS, ___ DAY OF _____________, 20___, BEFORE ME, A NOTARY PUBLIC, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED ____________________, KNOWN TO BE (OR SATISFACTORILY PROVEN) TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE ACCOMPANYING CERTIFICATE AND ACKNOWLEDGED THAT HE/SHE EXECUTED THE SAME FOR THE PURPOSES THEREIN CONTAINED.

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND OFFICIAL SEAL.

____
NOTARY PUBLIC

TOWNSHIP ENGINEER

THIS PLAN REVIEWED BY THE BENSALEM TOWNSHIP ENGINEER, THIS ____ DAY OF __________________20 ___

____
SIGNATURE DATE

TOWNSHIP PLANNING COMMISSION

THIS PLAN REVIEWED BY THE BENSALEM TOWNSHIP PLANNING COMMISSION, THIS ____ DAY OF __________________20 ___

____
SIGNATURE DATE

CORPORATE CERTIFICATION

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF BUCKS

ON THE _______ DAY OF _________________,20____, BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, RESIDING IN ____________________ PERSONALLY APPEARED ____________________________, WHO ACKNOWLEDGED HIMSELF/HERSELF TO BE THE ____________________ OF________________________, A CORPORATION, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HE/SHE EXECUTED THE FOREGOING PLAN BY SIGNING THE NAME OF SAID CORPORATION BY HIMSELF/HERSELF AS THAT SAID CORPORATION IS THE OWNER OF THE LAND SHOWN HEREON. ALL NECESSARY APPROVALS OF THIS PLAN HAVE BEEN OBTAINED AND IS ENDORSED THEREON AND SAID CORPORATION DESIRES THAT THIS PLAN BE DULY RECORDED.

______________________ ______________________
NOTARY PUBLIC MY COMMISSION EXPIRES

I, __________________________, ACKNOWLEDGE MYSELF TO BE THE ________________________ OF ______________________________________, A CORPORATION, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HEREBY CERTIFY THAT THE CORPORATION IS THE SOLE REGISTERED OWNER OF THE LAND HEREIN SUBDIVIDED AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE OF THE SAME AND THAT I DO HEREBY ADOPT THIS PLAN AND DESIRE THE SAME TO BE RECORDED. I DO FURTHER SAVE THE TOWNSHIP HARMLESS AND INDEMNIFY THE TOWNSHIP OF BENSALEM AGAINST ANY LIABILITY OR LOSS RESULTING FROM THE SUBDIVISION OR DEVELOPMENT OF THIS PLAT FOR WHATEVER REASON PRESENT OR FUTURE.

______________________ ______________________
CORPORATE OFFICIAL OFFICE

APPROVAL BY GOVERNING BODY

APPROVED BY THE BENSALEM TOWNSHIP COUNCIL OF BENSALEM TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA, ON THE _______ DAY OF ______________,20____.

____

____

____

BUCKS COUNTY PLANNING COMMISSION

THIS PLAN REVIEWED BY THE BUCKS COUNTY PLANNING COMMISSION THIS ___________ DAY OF ____________20 ___.

____
CHAIRMAN

____
SECRETARY

CERTIFICATE OF COUNTY RECORDER OF DEEDS

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS IN BUCKS COUNTY, PENNSYLVANIA, IN PLAN BOOK _______, PAGE ________, ON THE _____ DAY OF ____________20 ____.

____
SIGNATURE DATE

APPLICANT / OWNER:

PARAMOUNT REALTY SERVICES, INC.

PARAMOUNT REALTY SERVICES, INC.
1195 ROUTE 70
SUITE 2000
LAKEWOOD, NJ 08701
PHONE: (732) 961-8112

CIVIL ENGINEER:

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES
30 South 17th Street, Suite 1300
Philadelphia, PA 19103-4005
P: 215.864.0640 F: 215.864.0671
www.langan.com

NEW JERSEY PENNSYLVANIA NEW YORK CONNECTICUT
FLORIDA VIRGINIA CALIFORNIA
ABU DHABI DUBAI ATHENS DOHA ISTANBUL

GENERAL SITE NOTES:

1. THE CONTRACTOR SHALL FURNISH, INSTALL, TEST AND COMPLETE ALL WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH, THESE PLANS DO NOT COMPLETELY REPRESENT, NOR ARE THEY INTENDED TO REPRESENT, ALL SPECIFIC INSTRUCTIONS REQUIRED FOR SITEWORK CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS DEPICTED ON THESE PLANS IN ACCORDANCE WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS IN EFFECT AT THE TIME OF CONSTRUCTION.
2. THE CONTRACTOR SHALL ACCEPT THE SITE AS IS. THE CONTRACTOR SHALL ASSESS CONDITIONS, AND THE KIND, QUALITY AND QUANTITY OF WORK REQUIRED. THE OWNER AND ENGINEER MAKE NO GUARANTEE IN REGARD TO THE ACCURACY OF ANY INFORMATION THAT WAS OBTAINED DURING INVESTIGATIONS. THE CONTRACTOR SHALL: MAKE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS; CORRELATE CONDITIONS WITH THE DRAWINGS; AND, RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL PERFORM ADDITIONAL TOPOGRAPHIC SURVEYS HE/SHE DEEMS NECESSARY, PROVIDED THEY ARE COORDINATED WITH THE OWNER. ANY CONDITIONS DETERMINED BY THE CONTRACTOR THAT DIFFER FROM THE INFORMATION SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL PAYMENT OR CHANGES TO THE CONTRACT DURATION, OR ANY OTHER CLAIMS AGAINST THE OWNER OR OWNER'S ENGINEER.
3. THE CONTRACTOR SHALL, WHEN HE/SHE DEEMS NECESSARY, PROVIDE A WRITTEN REQUEST FOR INFORMATION (RFI) TO THE OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITEWORK ITEM. THE (RFI) SHALL BE IN A FORM ACCEPTABLE TO OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER AND SHALL ALLOW FOR A MINIMUM OF THREE WORK DAYS FOR A WRITTEN REPLY. RFIS SHALL BE NUMBERED CONSECUTIVELY BY DATE SUBMITTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITEWORK ITEMS CONSTRUCTED DIFFERENTLY THAN INTENDED OR AS DEPICTED ON THE PLANS.
4. INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUFFICIENTLY REVIEW ALL PLANS, PROFILES AND ANY OTHER INFORMATION IN THE CONTRACT DOCUMENTS FOR CONSISTENCY PRIOR TO BID. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND BY THE CONTRACTOR OR HIS ASSIGNS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER IN WRITING, IN THE FORMAT OF AN RFI PRIOR TO BID.
5. THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED THROUGHOUT THE PLAN SET AS WELL AS REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE TO ALL THESE DOCUMENTS.
6. CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ALL CONSTRUCTION STAKEOUT FOR THIS PROJECT MUST BE COMPLETED FROM THE SITE SPECIFIC SURVEY CONTROL (HORIZONTAL AND VERTICAL) UPON WHICH THE DESIGN IS BASED. THE CONTRACTOR SHOULD NOT RELY ON OR RE-ESTABLISH SURVEY CONTROL BY GPS OR OTHER METHODS FOR USE IN CONSTRUCTION STAKEOUT OR ANY OTHER PURPOSE FOR THIS PROJECT. ANY DISCREPANCIES BETWEEN THE EXISTING HORIZONTAL OR VERTICAL DATA SHOWN ON THESE DRAWINGS AND THAT ENCOUNTERED IN THE FIELD MUST BE REPORTED TO THE DESIGN TEAM PRIOR TO CONSTRUCTION FOR RESOLUTION.

ACT 287 AS AMENDED

IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE PENNSYLVANIA ACT 181 OF 2006 AND TO CONTACT THE "ONE CALL SYSTEM" THREE (3) WORKING DAYS (UNLESS OTHERWISE NOTED) PRIOR TO START OF CONSTRUCTION.

PENNSYLVANIA ONE CALL 1-800-242-1776

AQUA PENNSYLVANIA INC. 762 W LANCASTER AVE BRYN MAWR, PA. 19010 (610) 562-1402	VERIZON PENNSYLVANIA 900 RACE STREET, 6TH FLOOR PHILADELPHIA, PA 19107 (215) 351-8947
AT&T LOCAL SERVICES 2315 SALEM RD A10 CONYERS, GA. 33013 (770) 929-4584	COMCAST CABLE COMMUNICATIONS INC. 55 INDUSTRIAL DR IVYLAND, PA. 18974 (215) 918-3137
PECO ENERGY COMPANY 400 PARK AVE WARMINSTER, PA 18974 (215) 956-3121	BUCKS COUNTY WATER AND SEWER AUTHORITY 1275 ALMSHOUSE RD WARRINGTON, PA 18976 (800) 222-2068
BENSALEM TOWNSHIP 3800 HULMEVILLE RD BENSALEM, PA 19020 (215) 633-3733	

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 STOP BEFORE DIG!

CALL BEFORE YOU DIG
IN PA, TOLL FREE
1 - 800 - 242-1776
FOR FREE MARKOUTS TO LOCATE UNDERGROUND UTILITIES
" IT'S THE LAW "

BRIAN
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

Date Submitted: 8 JUNE 2016
Drawing No.
GI-001
SHEET 1 OF 27

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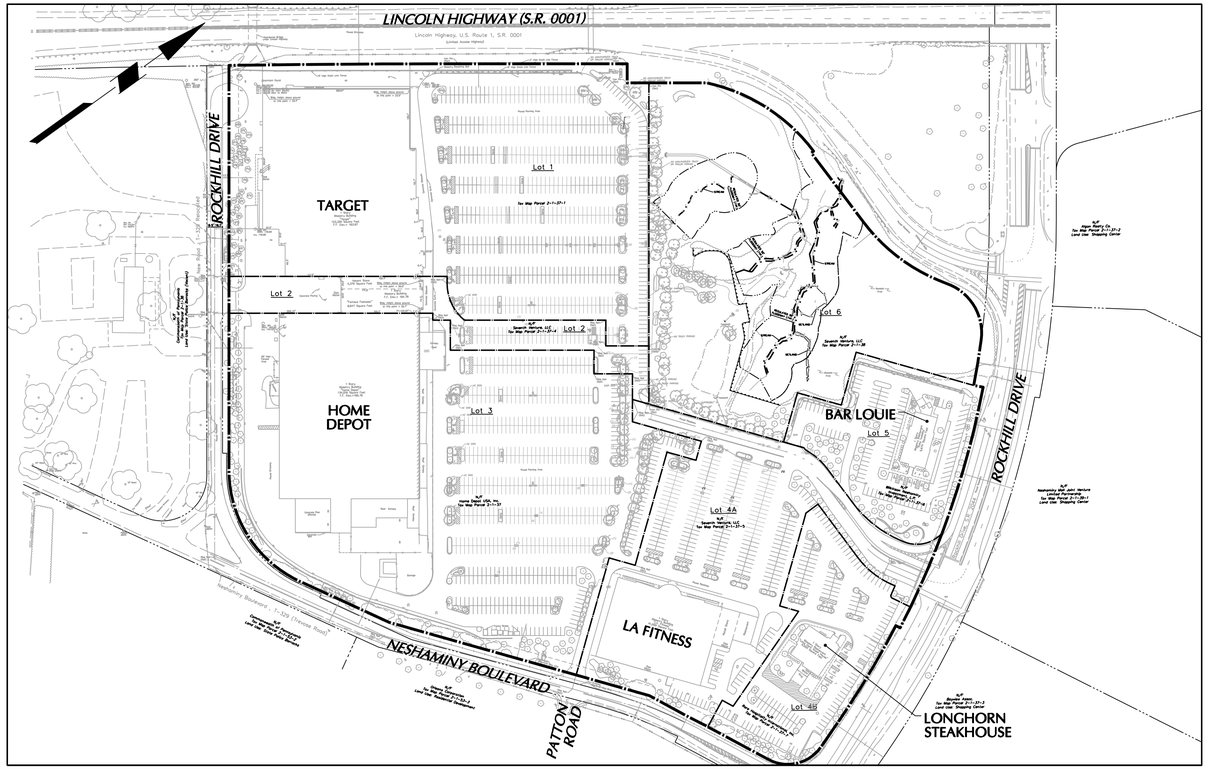
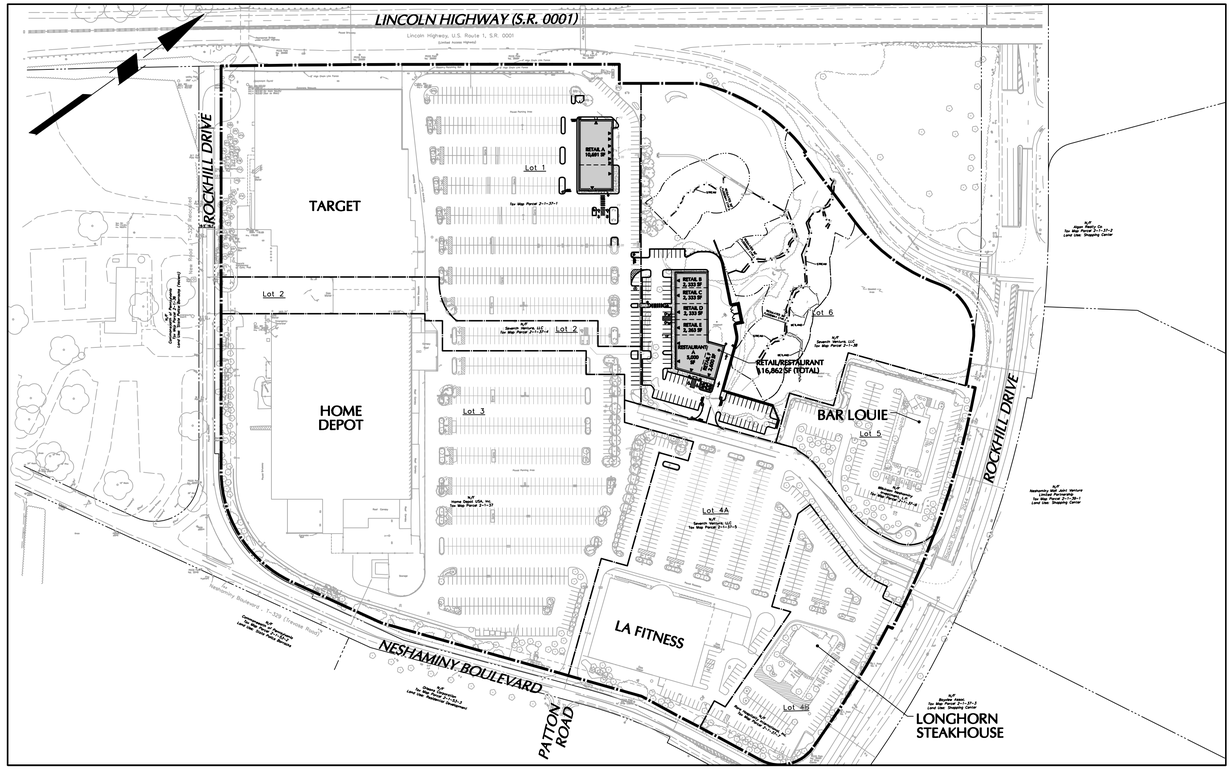


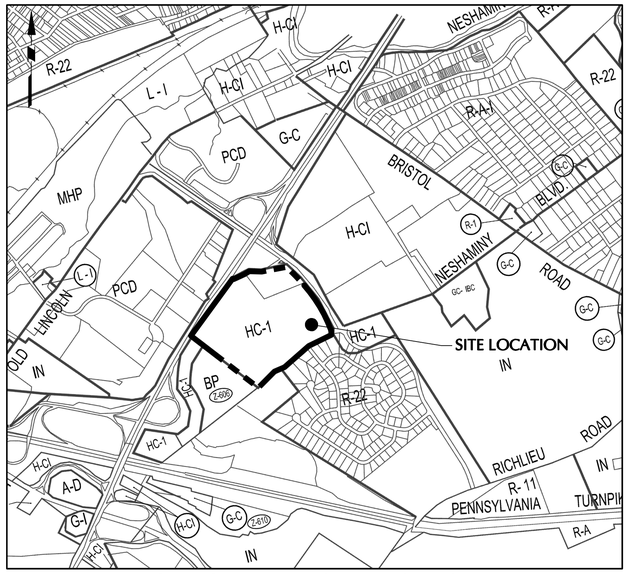
EXISTING CONDITIONS PLAN

SCALE 1" = 150'



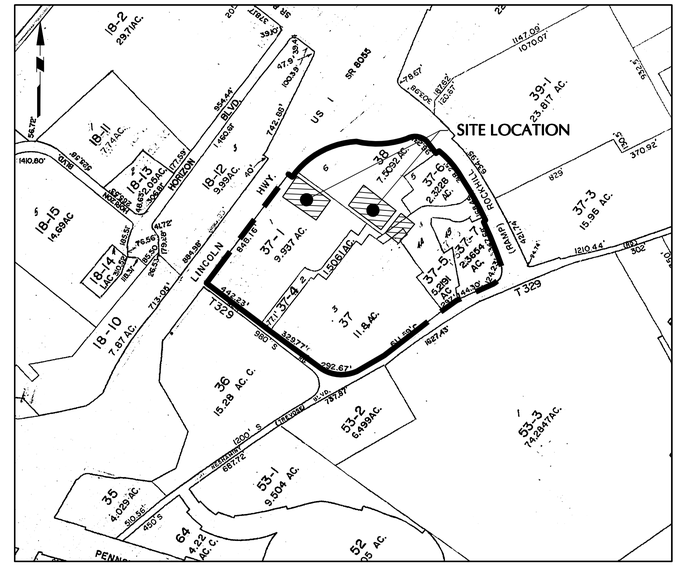
PROPOSED SITE PLAN

SCALE 1" = 150'



ZONING MAP - BENSALEM TOWNSHIP
BUCKS COUNTY, PA

SCALE 1" = 1000'



TAX MAP - BENSALEM TOWNSHIP
BUCKS COUNTY, PA

SCALE 1" = 500'

BRIAN M. CONLON
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

DATE

LANGAN
30 South 17th Street, Suite 1300, Philadelphia, PA 19103
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ABU DHABI ATHENS DOHA DUBAI ISTANBUL
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project

THE MARKETPLACE AT NESHAMINY

BENSALEM TOWNSHIP
BUCKS COUNTY PENNSYLVANIA

Drawing Title

TAX MAP, ZONING MAP AND ADJACENT PROPERTY OWNER LIST

Project No. 220048101	Drawing No.
Date 8 JUNE 2016	GI-101
Scale AS NOTED	
Drawn By TFH	
Checked By	SHEET 2 OF 27

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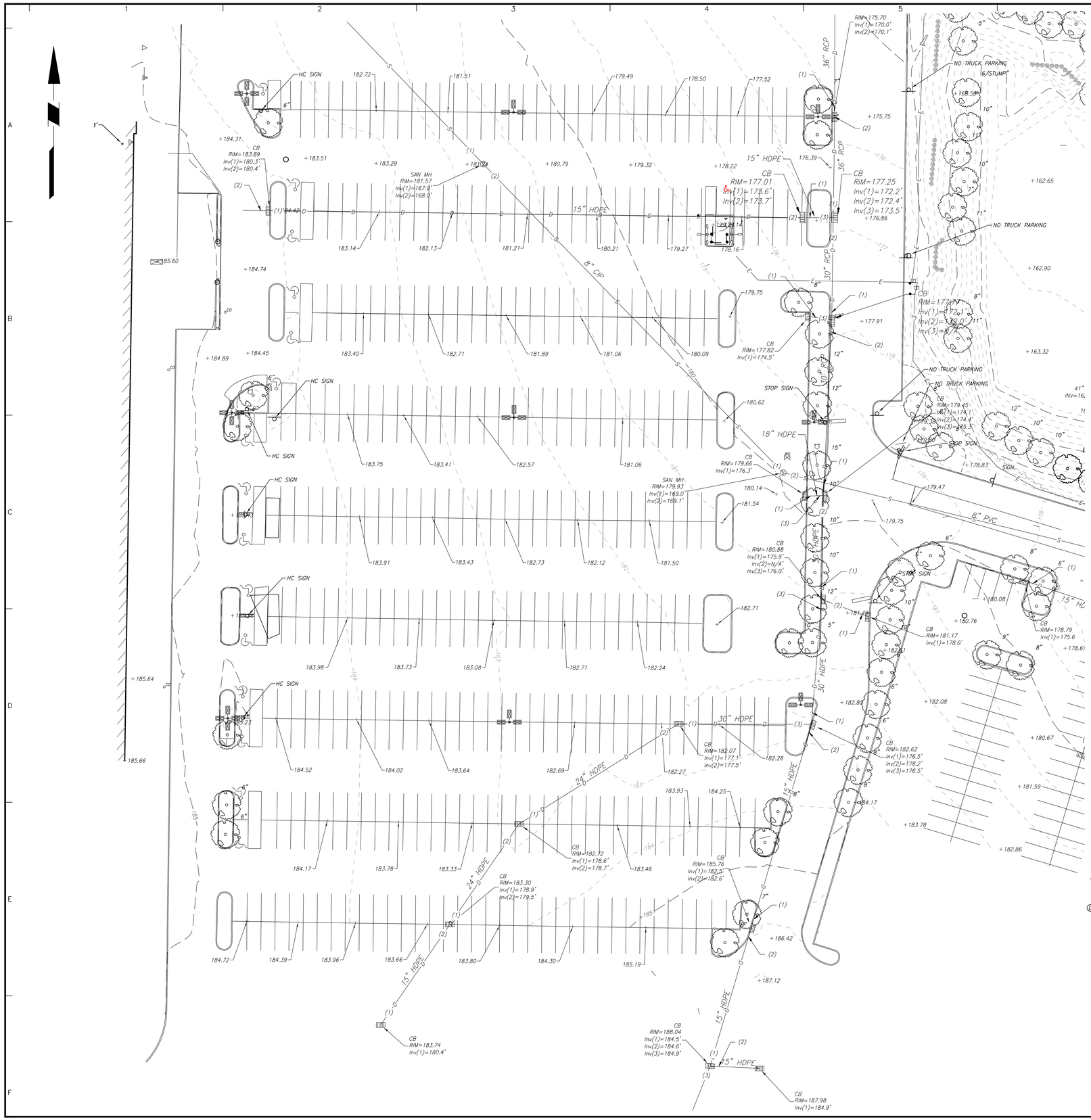

NOTES

1. THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE SEARCH. THEREFORE THIS PROPERTY MAY BE SUBJECT TO ADDITIONAL EASEMENTS, RIGHTS-OF-WAY, COVENANTS, ETC. AS MAY BE DISCLOSED IN A CURRENT, COMPREHENSIVE TITLE SEARCH.

2. PARTIAL TOPOGRAPHIC INFORMATION SHOWN BASED ON A FIELD SURVEY PERFORMED BY LANGAN ENGINEERING & ENVIRONMENTAL SERVICES DURING APRIL, 2014

3. MERIDIAN IS REFERENCED AN ASSUMED COORDINATE SYSTEM.

4. VERTICAL DATUM IS ASSUMED.

5. OFFSETS (IF SHOWN) ARE FOR SURVEY REFERENCES ONLY AND ARE NOT TO BE USED FOR CONSTRUCTION OF ANY TYPE.

6. WETLANDS, ENVIRONMENTAL AND/OR HAZARDOUS MATERIALS LOCATION, IF ANY, NOT COVERED UNDER THIS CONTRACT.

7. BASED ON FEMA FLOOD INSURANCE RATE MAP(FIRM), COMMUNITY PANEL NO. 42017C0439F, EFFECTIVE DATE MAY 18, 1999. BUCKS COUNTY, PENNSYLVANIA, THE SUBJECT PROPERTY LIES WITHIN ZONE X; AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN.

8. UNLESS SPECIFICALLY NOTED HEREON, STORM AND SANITARY SEWER INFORMATION (INCLUDING PIPE INVERT, PIPE MATERIAL, AND PIPE SIZE) WAS OBSERVED AND MEASURED AT FIELD LOCATED STRUCTURES (MANHOLES/CATCH BASINS, ETC.). CONDITIONS CAN VARY FROM THOSE ENCOUNTERED AT THE TIMES WHEN AND LOCATIONS WHERE DATA IS OBTAINED. DESPITE MEETING THE REQUIRED STANDARD OF CARE THE SURVEYOR CANNOT AND DOES NOT WARRANT THAT PIPE MATERIAL AND/OR PIPE SIZE THROUGHOUT THE PIPE RUN ARE THE SAME AS THOSE OBSERVED AT EACH STRUCTURE, OR THAT THE PIPE RUN IS STRAIGHT BETWEEN THE LOCATED STRUCTURES. ADDITIONAL UTILITY (WATER, GAS, ELECTRIC ETC%%133) DATA MAY BE SHOWN FROM FIELD LOCATED SURFACE MARKINGS (BY OTHERS), EXISTING STRUCTURES, AND/OR FROM EXISTING DRAWINGS, UNLESS SPECIFICALLY NOTED HERE-ON THE SURVEYOR HAS NOT EXCAVATED TO PHYSICALLY LOCATE THE UNDERGROUND UTILITIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE SHOWN UNDERGROUND UTILITIES ARE EITHER IN SERVICE, ABANDONED OR SUITABLE FOR USE, NOR ARE IN THE EXACT LOCATION OR CONFIGURATION INDICATED HEREON. PRIOR TO ANY DESIGN OR CONSTRUCTION THE PROPER UTILITY AGENCIES MUST BE CONTACTED FOR VERIFICATION OF UTILITY TYPE AND FOR FIELD LOCATIONS.

9. THIS PLAN IS NOT VALID UNLESS STAMPED WITH THE SEAL OF THE UNDERSIGNED PROFESSIONAL(S).

LEGEND (NOT SHOWN TO SCALE)

- HYDRANT
- STREET LIGHT
- AREA LIGHT
- SIGNAL POLE
- POLE
- ANCHOR POLE
- MANHOLE (TYPE AS LABELED)
- WATER VALVE
- GAS VALVE
- UNKNOWN VALVE
- CATCH BASIN
- SPOT ELEVATION
- CLEAN OUT
- TREE
- BM-1 BENCH MARK
- SIGN
- BOLLARD
- METAL COVER
- ELECTRIC BOX
- DOOR
- DOUBLE DOOR
- GARAGE DOOR
- PARKING METER
- STORM DRAIN
- SANITARY LINE
- GAS LINE
- WATER LINE
- ELECTRIC LINE
- TELEPHONE LINE
- COMBINED SEWER LINE
- CABLE TV LINE
- STEAM LINE
- UNKNOWN UTILITY LINE
- OVERHEAD WIRE
- GUIDE RAIL (TYPE AS NOTED)
- FENCE (TYPE AS NOTED)
- TREE LINE
- PROPERTY/RIGHT-OF-WAY LINE
- CONTOUR LINE
- REFERENCED UTILITY LINE (TYPE AS NOTED)- PLOTTED FROM EXISTING MAPPING

30 0 15 30
SCALE IN FEET

Date	Description	No.
REVISIONS		

SHAUN F. HIGGINS DATE
PROFESSIONAL LAND SURVEYOR
PA Lic. No. SU-051088-E

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES
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FLORIDA VIRGINIA CALIFORNIA
ABU DHABI DUBAI ATHENS DOHA ISTANBUL

PARAMOUNT REALTY SERVICES, INC.

Project
MARKETPLACE AT NESHAMINY

BESALEM TOWNSHIP
BUCKS COUNTY PENNSYLVANIA

Drawing Title
PARTIAL TOPOGRAPHIC SURVEY

Project No. 220048101	Drawing No. VT-101
Date 31 OCTOBER 2014	
Scale 1"=30'	
Drawn By ASB	
Submission Date	Sheet 3 of 27

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ALL EXISTING BITUMINOUS AND CONCRETE PAVEMENT MUST BE REMOVED COMPLETELY THROUGHOUT THE SITE TO PERMIT PROPER GRADING AND FILL PLACEMENT AS WELL AS FACILITATE BUILDING CONSTRUCTION AND UTILITY INSTALLATIONS. THE REUSE OF EXISTING PAVEMENT / SLAB MATERIALS AFTER PROCESSING SHOULD BE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS AND ENVIRONMENTAL STATUTES AND AT THE DIRECTION OF THE OWNER AND GEOTECHNICAL ENGINEER.

ACT 287 AS AMENDED

IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE PENNSYLVANIA ACT 181 OF 2006 AND TO CONTACT THE "ONE CALL SYSTEM" THREE (3) WORKING DAYS (UNLESS OTHERWISE NOTED) PRIOR TO START OF CONSTRUCTION.

PENNSYLVANIA ONE CALL 1-800-242-1776
SERIAL NO. 20101102688

AQUA PENNSYLVANIA INC.
762 W LANCASTER AVE.
BRYN MAWR, PA. 19010
(610) 562-1402

VERIZON PENNSYLVANIA
900 RACE STREET, 6TH FLOOR
PHILADELPHIA, PA 19107
(215) 351-8947

AT&T LOCAL SERVICES
2315 SALEM RD A10
CONYERS, GA. 33013
(770) 929-4584

COMCAST CABLE COMMUNICATIONS INC.
55 INDUSTRIAL DR
IVYLAND, PA. 18974
(215) 918-3137

PECO ENERGY COMPANY
400 PARK AVE
WARMINSTER, PA 18974
(215) 956-3121

BUCKS COUNTY WATER AND SEWER AUTHORITY
1275 ALMSHOUSE RD
WARRINGTON, PA 18976
(800) 222-2068

BENSALEM TOWNSHIP
3800 HULMEVILLE RD
BENSALEM, PA 19020
(215) 633-3733

ALL EXISTING UTILITIES TO BE REMOVED ARE TO BE DISCONNECTED PRIOR TO THE START OF DEMOLITION. FURTHER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH ALL UTILITY COMPANIES PRIOR TO DISCONNECTING AND DEMOLITION OF SAID UTILITIES.

THE INTENT OF THIS PLAN IS TO IDENTIFY THE LIMITS OF DEMOLITION. HOWEVER, THE REMOVAL AND DEMOLITION SHALL BE PERFORMED IN ACCORDANCE WITH BENSALEM TOWNSHIP AND OTHER APPLICABLE REGULATIONS AS WELL AS THE EROSION CONTROL PLANS, SPECIFICALLY THE CONSTRUCTION STAGING.

UTILITY SERVICES FOR THE EXISTING SHOPPING CENTER AND IT'S TENANTS SHALL REMAIN OPERATIONAL DURING UTILITY DEMOLITION.

DUE TO UNKNOWN FIELD CONDITIONS, THIS PLAN SHOULD NOT BE CONSIDERED ALL INCLUSIVE AS ADDITIONAL ITEMS MAY BE FOUND THAT SHALL BE DEMOLISHED.

THE CONTRACTOR IS RESPONSIBLE FOR THE COSTS AND INSTALLATION OF DEMOLITION / CONSTRUCTION FENCE. THE LIMITS OF FENCE ON THIS PLAN ARE SHOWN FOR GRAPHICAL PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ACTUAL LIMITS AND AMOUNT OF FENCE REQUIRED IN ADDITION TO THE SECURITY OF THE WORK AREA

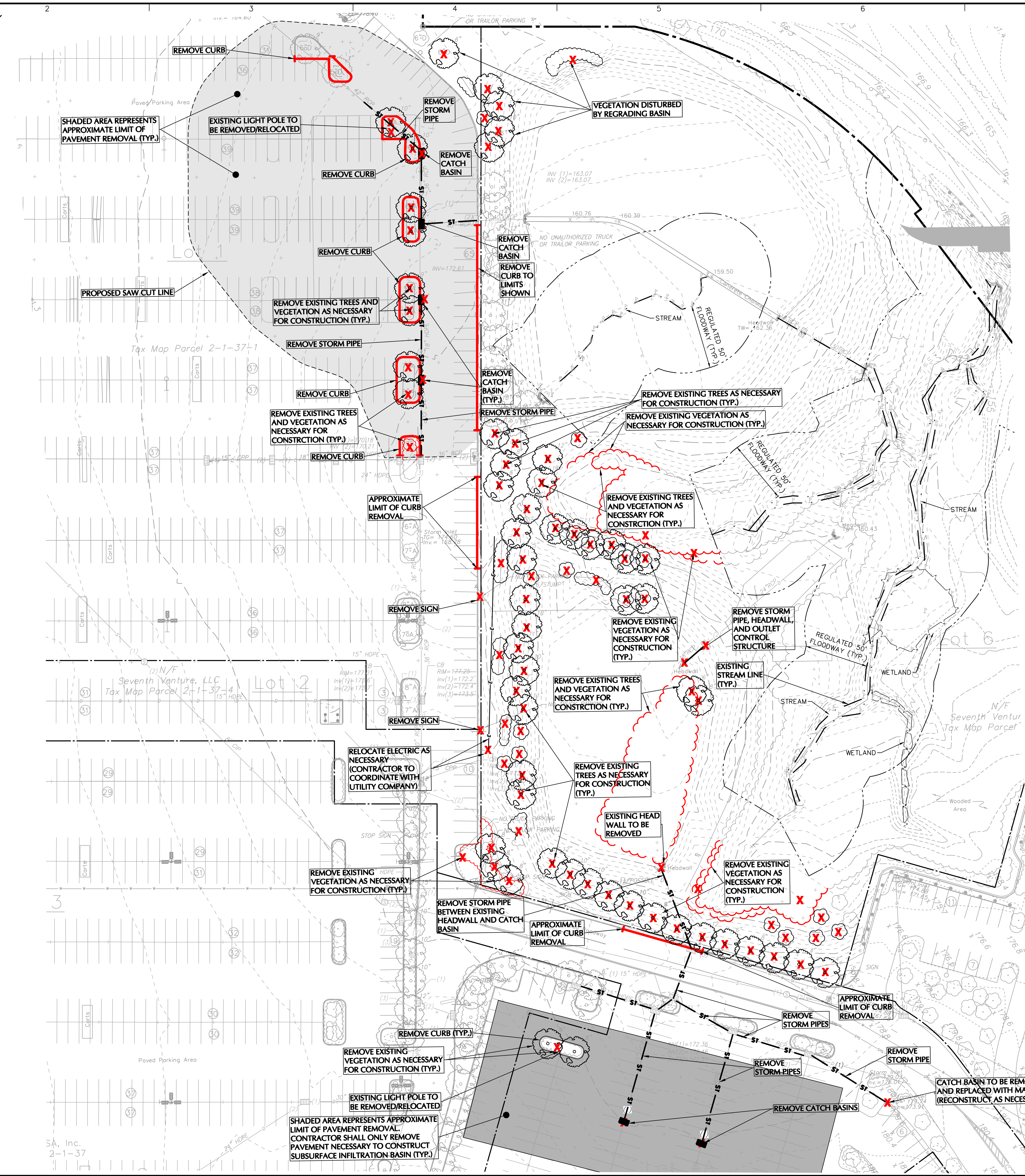
IN AREAS OF EXCAVATION, ALL EXISTING UTILITIES TO REMAIN SHALL BE CHECKED FOR PROPER COVER BY THE CONTRACTOR AS REQUIRED BY THE UTILITY OWNER. SHOULD MINIMUM COVER NOT EXIST, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH SAID UTILITY COMPANY TO LOWER THE UTILITY TO PROVIDE PROPER COVER.

ALL STRUCTURES SHOWN WITH AN "X" AND AS FUTHER LABELED ON THE PLAN SHALL BE REMOVED. ALL OTHER STRUCTURES, FEATURES ARE TO REMAIN UNLESS OTHERWISE NOTED.

EXISTING UTILITIES THAT ARE TO REMAIN IN AREAS OF REGRADING OR OTHER IMPROVEMENTS SHOULD BE ADJUSTED TO BE FLUSH WITH PROPOSED SURFACE EITHER WITHIN PAVEMENT OR LAWN AREA

GENERAL SITE NOTES:

1. THE CONTRACTOR SHALL FURNISH, INSTALL, TEST AND COMPLETE ALL WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH, THESE PLANS DO NOT COMPLETELY REPRESENT, NOR ARE THEY INTENDED TO REPRESENT, ALL SPECIFIC INSTRUCTIONS REQUIRED FOR SITEWORK CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS DEPICTED ON THESE PLANS IN ACCORDANCE WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS IN EFFECT AT THE TIME OF CONSTRUCTION.
2. THE CONTRACTOR SHALL ACCEPT THE SITE AS IS. THE CONTRACTOR SHALL ASSESS CONDITIONS, AND THE KIND, QUALITY AND QUANTITY OF WORK REQUIRED. THE OWNER AND ENGINEER MAKE NO GUARANTEE IN REGARD TO THE ACCURACY OF ANY INFORMATION THAT WAS OBTAINED DURING INVESTIGATIONS. THE CONTRACTOR SHALL: MAKE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS; CORRELATE CONDITIONS WITH THE DRAWINGS; AND, RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL PERFORM ADDITIONAL TOPOGRAPHIC SURVEYS HE/SHE DEEMS NECESSARY, PROVIDED THEY ARE COORDINATED WITH THE OWNER. ANY CONDITIONS DETERMINED BY THE CONTRACTOR THAT DIFFER FROM THE INFORMATION SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL PAYMENT OR CHANGES TO THE CONTRACT DURATION, OR ANY OTHER CLAIMS AGAINST THE OWNER OR OWNER'S ENGINEER.
3. THE CONTRACTOR SHALL, WHEN HE/SHE DEEMS NECESSARY, PROVIDE A WRITTEN REQUEST FOR INFORMATION (RFI) TO THE OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITEWORK ITEM. THE (RFI) SHALL BE IN A FORM ACCEPTABLE TO OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER AND SHALL ALLOW FOR A MINIMUM OF THREE WORK DAYS FOR A WRITTEN REPLY. RFIS SHALL BE NUMBERED CONSECUTIVELY BY DATE SUBMITTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITEWORK ITEMS CONSTRUCTED DIFFERENTLY THAN INTENDED OR AS DEPICTED ON THE PLANS.
4. INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUFFICIENTLY REVIEW ALL PLANS, PROFILES AND ANY OTHER INFORMATION IN THE CONTRACT DOCUMENTS FOR CONSISTENCY PRIOR TO BID. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND BY THE CONTRACTOR OR HIS ASSIGNS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER IN WRITING, IN THE FORMAT OF AN RFI PRIOR TO BID.
5. THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED THROUGHOUT THE PLAN SET AS WELL AS REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE TO ALL THESE DOCUMENTS.
6. CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ALL CONSTRUCTION STAKEOUT FOR THIS PROJECT MUST BE COMPLETED FROM THE SITE SPECIFIC SURVEY CONTROL (HORIZONTAL AND VERTICAL) UPON WHICH THE DESIGN IS BASED. THE CONTRACTOR SHOULD NOT RELY ON OR RE-ESTABLISH SURVEY CONTROL BY GPS OR OTHER METHODS FOR USE IN CONSTRUCTION STAKEOUT OR ANY OTHER PURPOSE FOR THIS PROJECT. ANY DISCREPANCIES BETWEEN THE EXISTING HORIZONTAL OR VERTICAL DATA SHOWN ON THESE DRAWINGS AND THAT ENCOUNTERED IN THE FIELD MUST BE REPORTED TO THE DESIGN TEAM PRIOR TO CONSTRUCTION FOR RESOLUTION.



SITE DEMOLITION NOTES

1. THIS PLAN IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY TO IDENTIFY THE LIMITS OF DEMOLITION AND SHALL NOT BE CONSIDERED ALL INCLUSIVE. ADDITIONAL ITEMS MAY BE FOUND THAT SHALL BE DEMOLISHED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACTUAL LIMITS & EXTENTS OF DEMOLITION.
2. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL PROVISIONS OF BENSALEM TOWNSHIP, AND OTHER JURISDICTIONAL AGENCIES. DEMOLITION AND REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH SAID REGULATIONS AS WELL AS THE EROSION CONTROL PLANS, SPECIFICALLY THE CONSTRUCTION STAGING.
3. THE CONTRACTOR IS TO PROVIDE EROSION AND SEDIMENTATION CONTROL MEASURES PER APPROVED PLAN PRIOR TO THE START OF EARTH DISTURBING ACTIVITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS INCLUDING, BUT NOT LIMITED TO, SIDEWALK/STREET CLOSING, DEMOLITION, DISPOSAL AND ASBESTOS ABATEMENT.
5. CONTRACTOR SHALL MAINTAIN ALL EXISTING PARKING, SIDEWALKS, DRIVES, ETC. CLEAR AND FREE FROM ANY CONSTRUCTION ACTIVITY AND/OR MATERIAL TO ENSURE EASY AND SAFE PEDESTRIAN AND VEHICULAR TRAFFIC TO AND FROM THE SITE. CONTRACTOR MUST PROTECT THE PUBLIC AT ALL TIMES WITH FENCING, BARRICADES, ENCLOSURES, ETC. TO THE BEST PRACTICES. CONTRACTOR MUST COORDINATE WITH OWNER PRIOR TO ANY CONSTRUCTION TO ESTABLISH CUSTOMER ACCESS AND TRAFFIC FLOW DURING ALL PHASES OF WORK. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR THE SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES. CONTRACTOR SHALL COORDINATE/PHASE ALL CONSTRUCTION ACTIVITY AND UTILITY INTERRUPTIONS WITH THE OWNER TO MINIMIZE DISTURBANCE AND INCONVENIENCE TO EXISTING SHOPPING CENTER OPERATION AND THE CUSTOMERS.
6. THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL OFFSITE PROPERTY AND STRUCTURES FROM ANY AND ALL DAMAGE DURING THE DEMOLITION OPERATION. THE CONTRACTOR SHALL USE ANY NECESSARY PROTECTION SCREENS, PLATFORMS, BRACING, UNDERPINNING, ETC. TO PROTECT OFFSITE PROPERTY. ANY DAMAGE CAUSED BY THE CONTRACTOR OR HIS AGENTS SHALL BE IMMEDIATELY REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE COSTS AND INSTALLATION OF DEMOLITION CONSTRUCTION FENCE. THE LIMITS OF FENCE ON THIS PLAN ARE SHOWN FOR GRAPHICAL PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ACTUAL LIMITS AND AMOUNT OF FENCE (WITH APPROVAL BY THE OWNER) REQUIRED IN ADDITION TO THE SECURITY OF THE WORK AREA.
8. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
9. THE CONTRACTOR SHALL INSPECT THE SITE THOROUGHLY AND FIELD VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES AND LATERALS. UNDERGROUND ELECTRIC, TELEPHONE, VAULTS, GAS, WATER MAINS, ETC. ARE APPROXIMATE AND MUST BE FIELD VERIFIED. UTILITY INFORMATION HAS BEEN COMPILED FROM FIELD SURVEYS PERFORMED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES AND FROM UTILITY COMPANY RECORD PLANS. OTHER UTILITIES MAY ALSO EXIST. ALL CONTRACTORS USING THESE PLANS FOR DEMOLITION SHALL CONFIRM ALL UTILITIES IN THE FIELD FOR EXACT LOCATIONS, SIZES, MATERIALS, AND ELEVATIONS.
10. ALL EXISTING SEWERS, PIPING AND UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES. GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL LINES BEFORE PROCEEDING WITH THE WORK. UTILITIES DETERMINED TO BE ABANDONED AND LEFT IN PLACE SHALL BE GROUTED IF UNDER BUILDING.
11. ELECTRICAL, TELEPHONE, CABLE, WATER, FIBER OPTIC CABLE AND/OR GAS LINES NEEDING TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE AFFECTED UTILITY COMPANY. ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY IS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICE. CONTRACTOR SHALL PAY CLOSE ATTENTION TO EXISTING UTILITIES WITHIN THE ROAD RIGHT-OF-WAY DURING CONSTRUCTION.
12. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY'S FORCES AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL FEES AND CHARGES.
13. ALL EXISTING UTILITIES TO BE REMOVED ARE TO BE DISCONNECTED PRIOR TO THE START OF DEMOLITION. FURTHER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH ALL UTILITY COMPANIES PRIOR TO DISCONNECTING AND DEMOLITION OF SAID UTILITIES.
14. THE CONTRACTOR SHALL COORDINATE WATERMAIN WORK WITH THE FIRE DEPARTMENT AND THE UTILITY DEPARTMENT TO PLAN PROPOSED IMPROVEMENTS AND TO ENSURE ADEQUATE FIRE PROTECTION IS CONSTANTLY AVAILABLE TO THE SHOPPING CENTER AND SITE THROUGH OUT THIS SPECIFIC WORK AND THROUGH ALL PHASES OF CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR ARRANGING/PROVIDING ANY REQUIRED WATERMAIN SHUT OFFS DURING CONSTRUCTION. ANY COSTS ASSOCIATED WITH WATERMAIN SHUT OFFS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NO EXTRA COMPENSATION WILL BE PROVIDED.
15. DEMOLITION CONTRACTOR SHALL COORDINATE DECOMMISSIONING AND REMOVAL OF UTILITY LINES WITH UTILITY CONTRACTOR AS TO LOCATION AND CONDITION OF CAPPING. THE ACCESS SHALL REMAIN OPEN AND OPERATIONAL AT ALL TIMES.
16. THE CONTRACTOR SHALL MAINTAIN UNINTERRUPTED UTILITY SERVICE TO THE SURROUNDING PROPERTIES AND EXISTING SHOPPING CENTER TENANTS AT ALL TIMES.
17. ALL EXISTING UNDERGROUND UTILITIES THAT WILL NOT BE MAINTAINED IN SERVICE SHOULD EITHER BE REMOVED AND REPLACED WITH APPROVED COMPACTED FILL, OR BE ABANDONED IN PLACE BY FILLING WITH GROUT AND CAPPING, PROVIDED THAT THEY DO NOT INTERFERE WITH ANY OF THE PROPOSED CONSTRUCTION.
18. ALL EXISTING BITUMINOUS AND CONCRETE PAVEMENT MUST BE REMOVED COMPLETELY THROUGHOUT THE PROJECT AREA TO PERMIT PROPER GRADING AND FILL PLACEMENT AS WELL AS FACILITATE BUILDING CONSTRUCTION AND UTILITY INSTALLATIONS. THE REUSE OF EXISTING PAVEMENT/SLAB MATERIALS AFTER PROCESSING SHOULD BE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS AND ENVIRONMENTAL STATUTES AND AT THE DIRECTION OF THE OWNER AND GEOTECHNICAL ENGINEER.
19. CONTRACTOR MAY LIMIT SAW-CUT & PAVEMENT REMOVAL TO ONLY THOSE AREAS WHERE IT IS REQUIRED AS SHOWN ON THESE CONSTRUCTION PLANS BUT IF ANY DAMAGE IS INCURRED ON ANY OF THE SURROUNDING PAVEMENT, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IT'S REMOVAL AND REPAIR.
20. AS THIS PLAN IS NOT ALL INCLUSIVE, THE CONTRACTOR IS TO DEMOLISH ALL BUILDINGS, FLOOR SLABS, UTILITIES, ETC. THAT ARE WITHIN 4 FEET OF PROPOSED GRADE AND WITHIN 10 FEET OF CENTERLINE OF PROPOSED UTILITIES.
21. ALL EXISTING FOUNDATIONS AND ALL SUPPORTING UTILITIES WITHIN THE PROPOSED BUILDING FOOTPRINTS AND WITHIN A 10' WIDE ZONE BEYOND THE FOOTPRINT LIMITS MUST BE REMOVED AND REPLACED WITH APPROVED STRUCTURAL FILL COMPACTED PER SPECIFICATION.
22. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER THE SPECIFICATIONS.
23. ALL EXISTING STRUCTURES, FENCING, TREES, ETC. WITHIN CONSTRUCTION AREA SHALL BE REMOVED SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM DEMOLITION AND SHALL SAFELY AND LEGALLY DISPOSE OF ALL THESE ITEMS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND REGULATORY AUTHORITY HAVING JURISDICTION. ALL RECYCLING MUST BE DONE IN ACCORDANCE WITH APPLICABLE REGULATIONS. BURNING OF ANY DEMOLISHED MATERIALS ON-SITE SHALL NOT BE PERMITTED. ANY RECYCLING OF DEMOLITION DEBRIS SHALL BE APPROVED BY THE OWNER.
24. THE CONTRACTOR SHALL PREPARE AND IMPLEMENT A WASTE MANAGEMENT PLAN IN ACCORDANCE WITH THE PENNSYLVANIA DEP, FEDERAL & LOCAL REGULATIONS IF CONTAMINATED MATERIAL IS ENCOUNTERED DURING DEMOLITION AND/OR CONSTRUCTION.
25. LANDSCAPING TO REMAIN IS TO BE PROTECTED DURING ALL SITE WORK. REFER TO THE LANDSCAPING PLAN.
26. SHOULD REMOVAL AND/OR RELOCATION ACTIVITIES DAMAGE FENCING, LIGHTING AND/OR STORM INLET STRUCTURES, THE CONTRACTOR SHALL PROVIDE NEW MATERIALS / STRUCTURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. EXCEPT FOR MATERIALS DESIGNED TO BE RELOCATED ON THIS PLAN, ALL OTHER CONSTRUCTION MATERIALS SHALL BE NEW.
27. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED AT CONTRACTOR'S EXPENSE.

ALL EXISTING UNDERGROUND UTILITIES THAT WILL NOT BE MAINTAINED IN SERVICE SHOULD EITHER BE REMOVED AND REPLACED WITH APPROVED COMPACTED FILL, OR BE ABANDONED IN PLACE BY FILLING WITH GROUT AND CAPPING, PROVIDED THAT THEY DO NOT INTERFERE WITH ANY OF THE PROPOSED CONSTRUCTION.

THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM DEMOLITION AND SHALL SAFELY AND LEGALLY DISPOSE OF ALL THESE ITEMS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND REGULATORY AUTHORITY HAVING JURISDICTION. ALL RECYCLING MUST BE DONE IN ACCORDANCE WITH APPLICABLE REGULATIONS. BURNING OF ANY DEMOLISHED MATERIALS ON-SITE SHALL NOT BE PERMITTED. ANY RECYCLING OF DEMOLITION DEBRIS SHALL BE APPROVED BY THE OWNER.

LEGEND

- CONSTRUCTION FENCE
- LIMIT OF DISTURBANCE
- REMOVE STORM (ST)
- REMOVE SEWER (S)
- REMOVE WATER (W)
- REMOVE TELEPHONE (T)
- REMOVE ELECTRIC (E)
- X REMOVE EXISTING FEATURE
- REMOVE CATCH BASIN
- REMOVE PAVEMENT
- PROPOSED SAWCUT LINE
- REMOVE CURB/CONCRETE BUMPERS
- REMOVE TREE

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CALL BEFORE YOU DIG
IN PA, TOLL FREE
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FOR FREE MARKOUTS TO LOCATE UNDERGROUND UTILITIES
" IT'S THE LAW "

SCALE IN FEET: 40 0 10 25 40

Date	Description	No.

REVISIONS

BRIAN M. CONLON — DATE
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

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Project
THE MARKETPLACE AT NESHAMINY
BENSALEM TOWNSHIP
BUCKS COUNTY — PENNSYLVANIA

Drawing Title
SITE DEMOLITION PLAN

Project No. 220048102
Date 8 JUNE 2016
Scale 1"=40'
Drawn By TFH
Checked By
Drawing No. CD-101
SHEET 4 OF 27

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Filename: \\Langan.com\data\PH\data1\220048102\Cadd Data - 220048102\SheetFiles\2016.01.xx - Submission 1\220048102-CD-101.dwg Date: 6/9/2016 Time: 16:17 User: tholmes Style Table: Langan.stb Layout: CD-101

LOCATION MAP

SITE CONSTRUCTION NOTES:

1. SITE ADDRESS:
   US 1 AND ROCKHILL DRIVE
   BENSALEM, PA 19020
2. APPLICANT/OWNER:
   PARAMOUNT REALTY SERVICES, INC.
   1195 ROUTE 70
   BENSALEM TOWNSHIP, PA 19020
3. THE OVERALL MARKETPLACE AT NESHAMINY PROPERTY CONSISTS OF APPROXIMATELY 40.7 ACRES LOCATED IN BENSALEM TOWNSHIP, BUCKS COUNTY.
4. ALL DRAWINGS IN THIS PLAN SET ARE MADE PART OF THIS RECORD PLAN AND ALL INFORMATION SHOWN HEREON SHALL BE CONSIDERED APPLICABLE FOR THE COMPLETION OF THIS PROJECT. INDIVIDUAL PLANS SHALL NOT BE USED SINCE THEY CONSTITUTE ONLY A PART OF THE COMPLETE SET OF PLANS FOR THIS PROJECT.
5. THIS APPLICATION PROPOSES THE CONSTRUCTION OF A 16,862 SQUARE FOOT RETAIL/RESTAURANT BUILDING AND A 10,691 SF RETAIL BUILDING ALONG WITH THE SUPPORTING INFRASTRUCTURE INCLUDING PARKING, DRIVE AISLES, LIGHTING, LANDSCAPING AND UTILITIES, INCLUDING BUT NOT LIMITED TO WATER, SANITARY SEWER, TELEPHONE, ELECTRIC, GAS AND STORM DRAINAGE FACILITIES.
6. THIS SITE PLAN IS BASED UPON EXISTING PHYSICAL CONDITIONS AT THE SUBJECT SITE DURING A FIELD SURVEY BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES IN APRIL 2014, AUGUST 2015 AND THE FOLLOWING REFERENCE PLAN:
   A. SHEET VT-101, PARTIAL TOPOGRAPHIC SURVEY, DATED 10/31/14, PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS INCLUDING, BUT NOT LIMITED TO, SIDEWALK/STREET CLOSING AND DEMOLITION.
8. ALL TOWNSHIP, COUNTY AND STATE OCCUPANCY PERMITS SHALL BE OBTAINED FOR CONSTRUCTION AND IMPROVEMENTS WITHIN TOWNSHIP, COUNTY AND STATE ROADS.
9. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL APPLICABLE PROVISIONS, STANDARDS AND SPECIFICATIONS, CONSTRUCTION REQUIREMENTS AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND DETAILS OF BENSALEM TOWNSHIP, BUCKS COUNTY, PADEP, PENNDOT, AND OSHA WHERE APPLICABLE.
10. ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO STRUCTURES, UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS, POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCLUDED IN BASE BID.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING THE DAMAGE DONE TO ANY EXISTING ITEM DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO STRUCTURES, UTILITIES, STORM DRAINAGE, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND NOTIFY THE CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION START.
13. THE CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE AND FEDERAL REGULATIONS IN DISPOSING OF DEMOLISHED MATERIALS REMOVED FROM THE SITE.
14. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF CANOPIES, EXIT DOORS, RAMPS, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS, CONCRETE PADS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
15. ALL DISTURBED AREAS ARE TO RECEIVE SIX INCHES OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
16. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (LATEST EDITION) FROM THE U.S. DEPARTMENT OF TRANSPORTATION.
17. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. BASED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), COMMUNITY PANEL NO. 42017C0439J, EFFECTIVE DATE MARCH 16, 2015, FOR BUCKS COUNTY, PENNSYLVANIA, THE SUBJECT PROPERTY LIES IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
19. NATURAL RESOURCES DELINEATION PERFORMED ON 8/10/2015 AND 8/14/2015 BY LANGAN WETLAND SCIENTISTS.

GENERAL SITE NOTES:

1. THE CONTRACTOR SHALL FURNISH, INSTALL, TEST AND COMPLETE ALL WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH, THESE PLANS DO NOT COMPLETELY REPRESENT, NOR ARE THEY INTENDED TO REPRESENT, ALL SPECIFIC INSTRUCTIONS REQUIRED FOR SITEWORK CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS DEPICTED ON THESE PLANS IN ACCORDANCE WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS IN EFFECT AT THE TIME OF CONSTRUCTION.
2. THE CONTRACTOR SHALL ACCEPT THE SITE AS IS. THE CONTRACTOR SHALL ASSESS CONDITIONS, AND THE KIND, QUALITY AND QUANTITY OF WORK REQUIRED. THE OWNER AND ENGINEER MAKE NO GUARANTEE IN REGARD TO THE ACCURACY OF ANY INFORMATION THAT WAS OBTAINED DURING INVESTIGATIONS. THE CONTRACTOR SHALL MAKE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS, CORRELATE CONDITIONS WITH THE DRAWINGS; AND, RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL PERFORM ADDITIONAL TOPOGRAPHIC SURVEYS HE/SHE DEEMS NECESSARY, PROVIDED THEY ARE COORDINATED WITH THE OWNER. ANY CONDITIONS DETERMINED BY THE CONTRACTOR THAT DIFFER FROM THE INFORMATION SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL PAYMENT OR CHANGES TO THE CONTRACT DURATION, OR ANY OTHER CLAIMS AGAINST THE OWNER OR OWNER'S ENGINEER.
3. THE CONTRACTOR SHALL, WHEN HE/SHE DEEMS NECESSARY, PROVIDE A WRITTEN REQUEST FOR INFORMATION (RFI) TO THE OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE AND ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITEWORK ITEM. THE (RFI) SHALL BE IN A FORM ACCEPTABLE TO OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER AND SHALL ALLOW FOR A MINIMUM OF THREE WORK DAYS FOR A WRITTEN REPLY. RFIS SHALL BE NUMBERED CONSECUTIVELY BY DATE SUBMITTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITEWORK ITEMS CONSTRUCTED DIFFERENTLY THAN INTENDED OR AS DEPICTED ON THE PLANS.
4. INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUFFICIENTLY REVIEW ALL PLANS, PROFILES AND ANY OTHER INFORMATION IN THE CONTRACT DOCUMENTS FOR CONSISTENCY PRIOR TO BID. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND BY THE CONTRACTOR OR HIS ASSIGNS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER IN WRITING, IN THE FORMAT OF AN RFI PRIOR TO BID.
5. THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED THROUGHOUT THE PLAN SET AS WELL AS REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE TO ALL THESE DOCUMENTS.
6. CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ALL CONSTRUCTION STAKEOUT FOR THIS PROJECT MUST BE COMPLETED FROM THE SITE SPECIFIC SURVEY CONTROL (HORIZONTAL AND VERTICAL) UPON WHICH THE DESIGN IS BASED. THE CONTRACTOR SHOULD NOT RELY ON OR RE-ESTABLISH SURVEY CONTROL BY GPS OR OTHER METHODS FOR USE IN CONSTRUCTION STAKEOUT OR ANY OTHER PURPOSE FOR THIS PROJECT. ANY DISCREPANCIES BETWEEN THE EXISTING HORIZONTAL OR VERTICAL DATA SHOWN ON THESE DRAWINGS AND THAT ENCOUNTERED IN THE FIELD MUST BE REPORTED TO THE DESIGN TEAM PRIOR TO CONSTRUCTION FOR RESOLUTION.

REFER TO ARCHITECTURAL PLAN SETS FOR ALL BUILDING INFORMATION, INCLUDING ELEVATIONS, FLOOR PLANS, UTILITY CONNECTIONS AND SIGNAGE INFORMATION.

REFER TO DETAIL SHEET CS-501 FOR SITE IMPROVEMENT DETAILS

REFER TO DRAWING CS-101 FOR DETAILED SITE PLAN INFORMATION

REFER TO PAVEMENT AND VEHICLE CIRCULATION PLAN, DRAWING CS-301, FOR LIMITS OF STANDARD AND HEAVY DUTY PAVING AND TRUCK ROUTES.

ALL SIGNS SHALL CONFORM TO THE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

BENSALEM TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA
H-C1-HIGHWAY COMMERCIAL DISTRICT
ZONING SUMMARY

APPLICABLE REGULATIONS	PERMITTED/REQUIRED	EXISTING	PROPOSED
ZONING DISTRICT DESIGNATION: HIGHWAY COMMERCIAL DISTRICT (H-C1)			
SCHEDULE OF USE REGULATIONS			
PERMITTED USE:	MAJOR SHOPPING CENTER	MAJOR SHOPPING CENTER	MAJOR SHOPPING CENTER (A)
AREA AND HEIGHT REGULATIONS			
MINIMUM LOT AREA:	15,000 SQUARE FEET	1,771,150 SQUARE FEET (40.66 ACRES)	1,771,150 SQUARE FEET (40.66 ACRES) (B)
MINIMUM LOT WIDTH:	75 FEET	>75 FEET	>75 FEET
MAXIMUM BUILDING COVERAGE:	35%	18.65% (330,360 SQUARE FEET)	20.13% (356,444 SQUARE FEET)
MAXIMUM IMPERVIOUS COVERAGE:	75% (1,328,362 SQUARE FEET)	60.16% (1,065,451 SQUARE FEET)	63.78% (1,129,569 SQUARE FEET)
MINIMUM FRONT YARDS:	50 FEET	50 FEET	50 FEET
MINIMUM SIDE YARD:	10 FEET	N/A	N/A
MINIMUM REAR YARD:	25 FEET	N/A	N/A
MAXIMUM BUILDING HEIGHT:	55 FEET	35 FEET	35 FEET
PARKING REQUIREMENTS			
MAJOR SHOPPING CENTER:	5 SPACES PER 1,000 SQUARE OF GLA FOR A MAJOR SHOPPING CENTER REQUIRED EXISTING: 1,652 SPACES (329,040 SQUARE FEET) REQUIRED PROPOSED: 1,783 SPACES (356,593 SQUARE FEET)	1,919 SPACES (5.83 SPACES/ 1,000 SF)	1,923 SPACES (5.39 SPACES/ 1,000 SF)
MINIMUM NUMBER OF HANDICAP SPACES:	REQUIRED EXISTING: 29 SPACES REQUIRED PROPOSED: 28 SPACES	48	54
MINIMUM PARKING SPACE SIZE (90°)	9 FEET x 18 FEET	9 FEET x 18 FEET	9 FEET x 18 FEET
MINIMUM ONE-WAY DRIVE AISLE WIDTH (90°)	18 FEET	N/A	18 FEET
MINIMUM TWO-WAY DRIVE AISLE WIDTH (90°)	24 FEET	24 FEET	24 FEET
MINIMUM RESIDENTIAL BUFFER STRIP	20 FEET	20 FEET	20 FEET
MINIMUM YARD ADJACENT TO RESIDENTIAL USE	75' FROM REAR BUFFER STRIP	30 FEET (AT LA FITNESS)	30 FEET (AT LA FITNESS) (C)
MINIMUM WETLANDS BUFFER	50 FEET	> 50 FEET	> 50 FEET

NOTES:

(A) PER SECTION 232-408(15)(B), IN A MAJOR SHOPPING CENTER, THE INDIVIDUAL LOTS OR PARCELS WHICH ARE CREATED FOR THE PURPOSE OF ESTABLISHING SEPARATE OWNERSHIP SHALL NOT BE REQUIRED TO COMPLY WITH SECTION 232-409 LOT AREA, LOT WIDTH, BUILDING AREA AND YARD REQUIREMENTS PROVIDED THAT THE FOLLOWING CONDITIONS ARE MET:

1. THE OVERALL TRACT, LOT OR PARCEL BEING DEVELOPED AS A MAJOR SHOPPING CENTER COMPLIES WITH THE LOT AREA, LOT WIDTH, BUILDING AREA, AND YARD REQUIREMENTS OF SECTION 232-409
2. A CROSS EASEMENT AGREEMENT IS RECORDED WITH THE FINAL PLAN PROVIDING FOR RECIPROCAL RIGHTS FOR THE INDICIAL LOTS OR PARCELS RELATING TO INGRESS AND EGRESS, UTILITIES, STORMWATER MANAGEMENT, MAINTENANCE OF COMMON AREAS AND, UNLESS THE PARKING REQUIREMENTS FOR THE INDIVIDUAL LOT OR PARCEL ARE MET ON THAT LOT OR PARCEL, AND PARKING ON THAT LOT OR PARCEL IS NOT REQUIRED BY ANY OTHER LOT OR PARCEL TO MEET THE REQUIREMENTS OF THIS SECTION, THE COMMON USE OF PARKING AREAS.
3. EACH INDIVIDUAL LOT OR PARCEL CONTAINS A MINIMUM OF .75 ACRES OR ONE OR MORE BUILDINGS CONTAINING IN THE AGGREGATE A MINIMUM OF 25,000 SQUARE FEET.

(B) THE SHOPPING CENTER CONSISTS OF 7 TOTAL TAX PARCELS. THE TOTAL AREA TO THE ULTIMATE RIGHT-OF-WAY LINE IS 40.66 ACRES AND THIS IS THE AREA USED FOR ALL OF THE APPLICABLE CALCULATIONS IN THIS ZONING TABLE. THE TOTAL AREA TO THE TITLE LINE IS 42.09 ACRES.

(C) PER SECTION 232-593, COMMERCIAL DISTRICTS ABUTTING AN RURAL OR RESIDENT DISTRICT BOUNDARY LINE SHALL PROVIDE A YARD WHICH SHALL NOT BE LESS THAN 75 FEET IN WIDTH, MEASURED FROM THE REAR OF THE 20-FOOT BUFFERYARD. 30 FEET IS PROVIDED ADJACENT TO THE LA FITNESS. THIS IS AN EXISTING NON-CONFORMITY THAT WILL NOT BE AFFECTED BY THIS PROPOSED APPLICATION.

LEGEND

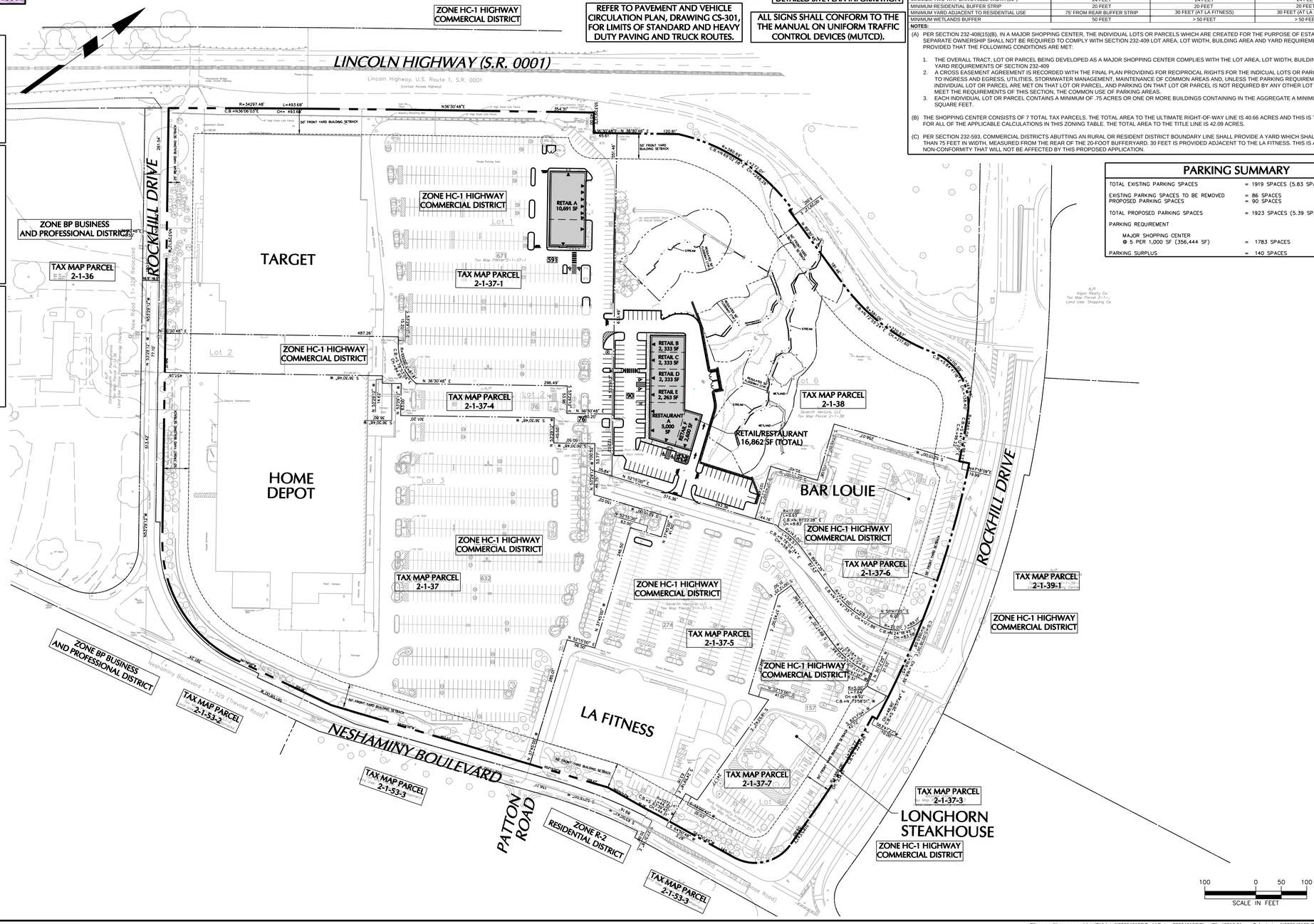
- PROPERTY LINE
- BUILDING SETBACK LINE
- BUFFERYARD LINE
- PARKING SETBACK LINE
- ZONING BOUNDARY LINE
- STREAM FLOODWAY
- BUILDING LINE
- CURB
- 33 PROPOSED PARKING SUBTOTAL
- 33 EXISTING PARKING SUBTOTAL
- 10 PARKING COUNT
- 10 EXISTING PARKING COUNT
- TRAFFIC SIGN
- CONCRETE
- 2 TRAFFIC SIGN DESIGNATION
- DOORWAY

BUILDING SUMMARY

EXISTING BUILDING GFA:	SIZE
TARGET	123,000 SF
HOME DEPOT	134,516 SF
LA FITNESS	38,000 SF
LONGHORN STEAKHOUSE	10,000 SF
BAR LOUIE	5,000 SF
FAMOUS FOOTWEAR	8,554 SF
FLIRT BEAUTY	4,453 SF
JIMMY JOHNS	1,284 SF
MIRACLE EAR	1,141 SF
SPORTS CLIP	1,546 SF
HAIR CUTTERY	1,546 SF
TOTAL EXISTING BUILDING SF.	329,040 SF
PROPOSED BUILDING GFA:	
PROPOSED MULTI-UNIT RETAIL/REST.	16,862 SF
PROPOSED RETAIL	10,691 SF
TOTAL PROPOSED BUILDING SF	27,553 SF
TOTAL EXISTING GFA	329,040 SF
TOTAL PROPOSED GFA	356,593 SF
TOTAL INCREASE IN GFA	27,553 SF

PARKING SUMMARY

TOTAL EXISTING PARKING SPACES	= 1919 SPACES (5.83 SPACES/1,000 SF)
EXISTING PARKING SPACES TO BE REMOVED	= 86 SPACES
PROPOSED PARKING SPACES	= 90 SPACES
TOTAL PROPOSED PARKING SPACES	= 1923 SPACES (5.39 SPACES/1,000 SF)
PARKING REQUIREMENT	
MAJOR SHOPPING CENTER @ 5 PER 1,000 SF (356,444 SF)	= 1783 SPACES
PARKING SURPLUS	= 140 SPACES



APPROVAL BY GOVERNING BODY

APPROVED BY THE BENSALEM TOWNSHIP COUNCIL OF BENSALEM TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA, ON THE _____ DAY OF _____, 20___.

_____
_____
_____
_____

BUCKS COUNTY PLANNING COMMISSION

THIS PLAN REVIEWED BY THE BUCKS COUNTY PLANNING COMMISSION THIS _____ DAY OF _____, 20___.

_____
CHAIRMAN

_____
SECRETARY

CERTIFICATE OF COUNTY RECORDER OF DEEDS

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS IN BUCKS COUNTY, PENNSYLVANIA, IN PLAN BOOK _____, PAGE _____, ON THE ____ DAY OF _____, 20___.

_____
SIGNATURE DATE

TOWNSHIP ENGINEER

THIS PLAN REVIEWED BY THE BENSALEM TOWNSHIP ENGINEER, THIS ____ DAY OF _____, 20___.

_____
SIGNATURE DATE

TOWNSHIP PLANNING COMMISSION

THIS PLAN REVIEWED BY THE BENSALEM TOWNSHIP PLANNING COMMISSION, THIS ____ DAY OF _____, 20___.

_____
SIGNATURE DATE

OWNER'S CERTIFICATION

COMMONWEALTH OF PENNSYLVANIA: SS:
COUNTY OF BUCKS

_____, UNDERSIGNED, HAS LAID OUT UPON MY LAND SITUATE IN BENSALEM TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA, CERTAIN LOTS AND STREETS ACCORDING TO THE ACCOMPANYING PLAN WHICH IS INTENDED TO BE RECORDED.

_____ _____
DATE

ON THIS, ___ DAY OF _____, 20___, BEFORE ME, A NOTARY PUBLIC, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED _____, KNOWN TO BE (OR SATISFACTORILY PROVEN) TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE ACCOMPANYING CERTIFICATE AND ACKNOWLEDGED THAT HE/SHE EXECUTED THE SAME FOR THE PURPOSES THEREIN CONTAINED.

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND OFFICIAL SEAL.

_____
NOTARY PUBLIC

CORPORATE CERTIFICATION

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF BUCKS

ON THE _____ DAY OF _____, 20___ BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, RESIDING IN _____ PERSONALLY APPEARED _____, WHO ACKNOWLEDGED HIMSELF/HERSELF TO BE THE _____ OF _____, A CORPORATION, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HE/SHE EXECUTED THE FOREGOING PLAN BY SIGNING THE NAME OF SAID CORPORATION BY HIMSELF/HERSELF AS THAT SAID CORPORATION IS THE OWNER OF THE LAND SHOWN HEREON. ALL NECESSARY APPROVALS OF THIS PLAN HAVE BEEN OBTAINED AND IS ENDORSED THEREON AND SAID CORPORATION DESIRES THAT THIS PLAN BE DULY RECORDED.

_____ _____
NOTARY PUBLIC MY COMMISSION EXPIRES

I, _____, ACKNOWLEDGE MYSELF TO BE THE _____ OF _____, A CORPORATION, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HEREBY CERTIFY THAT THE CORPORATION IS THE SOLE REGISTERED OWNER OF THE LAND HEREIN SUBDIVIDED AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE OF THE SAME AND THAT I DO HEREBY ADOPT THIS PLAN AND DESIRE THE SAME TO BE RECORDED. I DO FURTHER SAVE THE TOWNSHIP HARMLESS AND INDEMNIFY THE TOWNSHIP OF BENSALEM AGAINST ANY LIABILITY OR LOSS RESULTING FROM THE SUBDIVISION OR DEVELOPMENT OF THIS PLAT FOR WHATEVER REASON PRESENT OR FUTURE.

_____ _____
CORPORATE OFFICIAL OFFICE

Date	Description	No.

REVISIONS

BRIAN M. CONLON DATE
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

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Project
THE MARKETPLACE AT NESHAMINY
BENSALEM TOWNSHIP
BUCKS COUNTY PENNSYLVANIA

Drawing Title
MASTER SITE PLAN

Project No. 220048102	Drawing No. CS-100
Date 8 JUNE 2016	
Scale 1"=100'	
Drawn By TFH	
Checked By BMC	SHEET 5 OF 27

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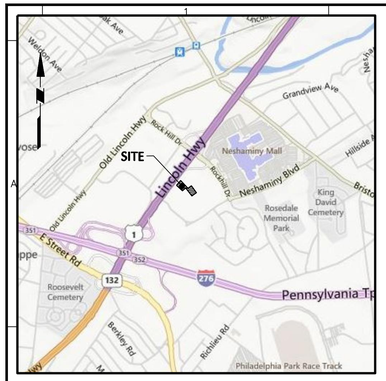


LOCATION MAP

1"=2000'

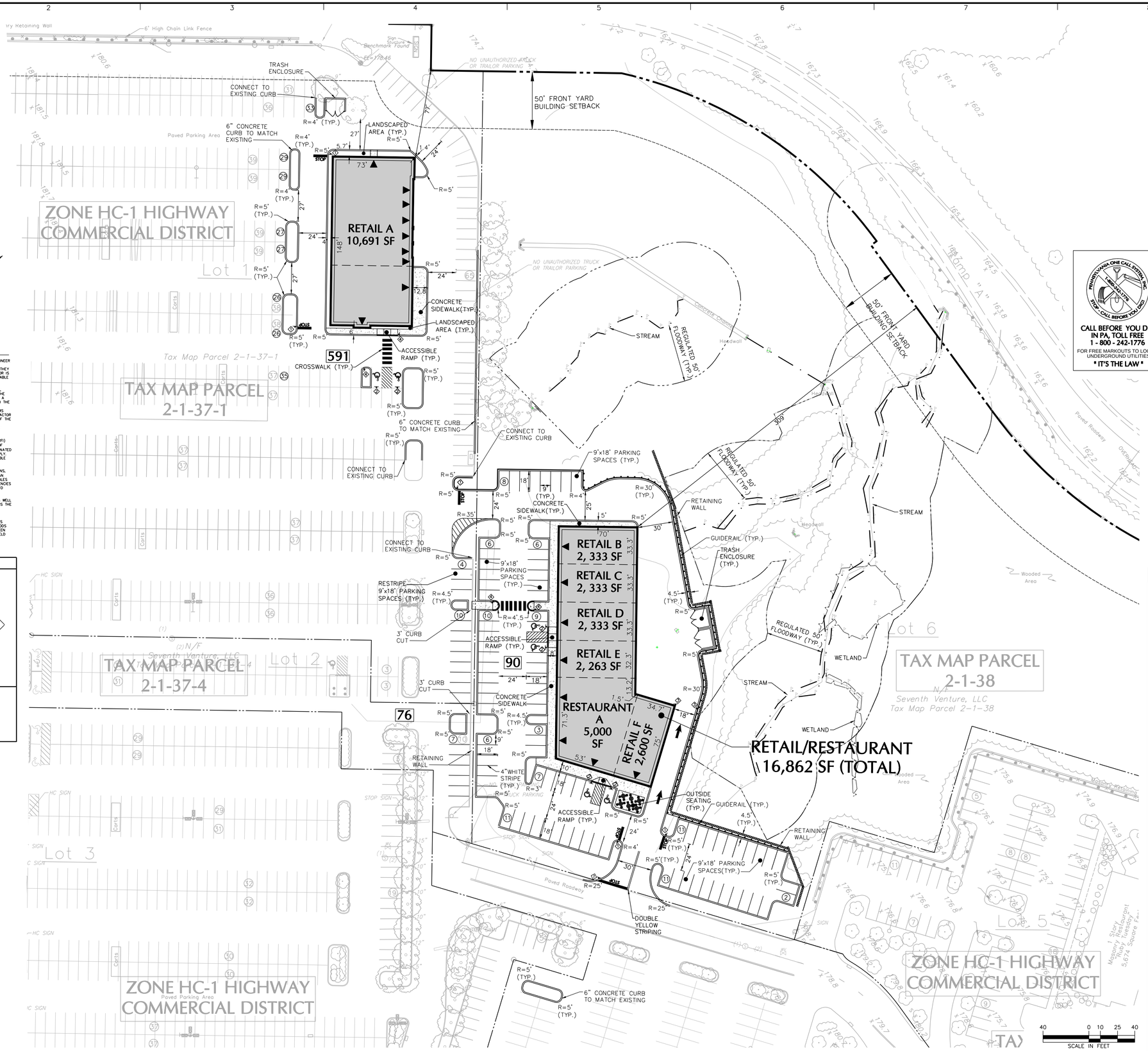
GENERAL SITE NOTES:

1. THE CONTRACTOR SHALL FURNISH, INSTALL, TEST AND COMPLETE ALL WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH, THESE PLANS DO NOT COMPLETELY REPRESENT, NOR ARE THEY INTENDED TO REPRESENT, ALL SPECIFIC INSTRUCTIONS REQUIRED FOR SITEWORK CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS DEPICTED ON THESE PLANS IN ACCORDANCE WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS IN EFFECT AT THE TIME OF CONSTRUCTION.
2. THE CONTRACTOR SHALL ACCEPT THE SITE AS IS. THE CONTRACTOR SHALL ASSESS CONDITIONS, AND THE KIND, QUALITY AND QUANTITY OF WORK REQUIRED. THE OWNER AND ENGINEER MAKE NO GUARANTEE IN REGARD TO THE ACCURACY OF ANY INFORMATION THAT WAS OBTAINED DURING INVESTIGATIONS. THE CONTRACTOR SHALL: MAKE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS; CORRELATE CONDITIONS WITH THE DRAWINGS; AND, RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL PERFORM ADDITIONAL TOPOGRAPHIC SURVEYS HE/SHE DEEMS NECESSARY, PROVIDED THEY ARE COORDINATED WITH THE OWNER. ANY CONDITIONS DETERMINED BY THE CONTRACTOR THAT DIFFER FROM THE INFORMATION SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL PAYMENT OR CHANGES TO THE CONTRACT DURATION, OR ANY OTHER CLAIMS AGAINST THE OWNER OR OWNER'S ENGINEER.
3. THE CONTRACTOR SHALL, WHEN HE/SHE DEEMS NECESSARY, PROVIDE A WRITTEN REQUEST FOR INFORMATION (RFI) TO THE OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITEWORK ITEM. THE (RFI) SHALL BE IN A FORM ACCEPTABLE TO OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER AND SHALL ALLOW FOR A MINIMUM OF THREE WORK DAYS FOR A WRITTEN REPLY. RFIS SHALL BE NUMBERED CONSECUTIVELY BY DATE SUBMITTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITEWORK ITEMS CONSTRUCTED DIFFERENTLY THAN INTENDED OR AS DEPICTED ON THE PLANS.
4. INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUFFICIENTLY REVIEW ALL PLANS, PROFILES AND ANY OTHER INFORMATION IN THE CONTRACT DOCUMENTS FOR CONSISTENCY PRIOR TO BID. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND BY THE CONTRACTOR OR HIS ASSIGNS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER IN WRITING, IN THE FORMAT OF AN RFI PRIOR TO BID.
5. THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED THROUGHOUT THE PLAN SET AS WELL AS REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE TO ALL THESE DOCUMENTS.
6. CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ALL CONSTRUCTION STAKEOUT FOR THIS PROJECT MUST BE COMPLETED FROM THE SITE SPECIFIC SURVEY CONTROL (HORIZONTAL AND VERTICAL) UPON WHICH THE DESIGN IS BASED. THE CONTRACTOR SHOULD NOT RELY ON OR ESTABLISH SURVEY CONTROL BY GPS OR OTHER METHODS FOR USE IN CONSTRUCTION STAKEOUT OR ANY OTHER PURPOSE FOR THIS PROJECT. ANY DISCREPANCIES BETWEEN THE EXISTING HORIZONTAL OR VERTICAL DATA SHOWN ON THESE DRAWINGS AND THAT ENCOUNTERED IN THE FIELD MUST BE REPORTED TO THE DESIGN TEAM PRIOR TO CONSTRUCTION FOR RESOLUTION.

SIGN LEGEND

NOTES:

1. THE SYMBOLS REPRESENTING THE PROPOSED SIGN IS SHOWN GRAPHICALLY AND DO NOT REPRESENT EXACT LOCATIONS. THE LOCATIONS OF THE SIGNS SHALL BE PLACED AND COORDINATED WITH THE TOWNSHIP OF BENSALEM.
2. REFER TO DETAIL FOR INFORMATION OF THE SIGN.
3. ALL SIGNS SHALL CONFORM TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (LATEST EDITION) FROM THE U.S. DEPARTMENT OF TRANSPORTATION.
4. SIGN MATERIALS SHALL BE MADE OF REFLECTIVE SHEETING ON ALUMINUM BLANKS MOUNTED ON GALVANIZED STEEL POSTS, ALL CONFORMING TO PADOT STANDARD SPECIFICATIONS.



LEGEND

- PROPERTY LINE
- BUILDING SETBACK LINE
- BUFFERYARD LINE
- PARKING SETBACK LINE
- GUIDERAIL
- ZONING BOUNDARY LINE
- BUILDING LINE
- CURB
- 33 PROPOSED PARKING SUBTOTAL
- 33 EXISTING PARKING SUBTOTAL
- 10 PARKING COUNT
- 10 EXISTING PARKING COUNT
- TRAFFIC SIGN
- CONRETE
- TRAFFIC SIGN DESIGNATION
- DOORWAY

REFER TO DETAIL SHEET CS-501 FOR SITE IMPROVEMENT DETAILS

REFER TO PAVEMENT AND VEHICLE CIRCULATION PLAN, DRAWING CS-301, FOR LIMITS OF STANDARD AND HEAVY DUTY PAVING AND TRUCK ROUTES.

ALL SIGNS SHALL CONFORM TO THE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

REFER TO DRAWING CS-100 FOR NOTES AND SITE STATISTICS.

REFER TO ARCHITECTURAL PLAN SETS FOR ALL BUILDING INFORMATION, INCLUDING ELEVATIONS, FLOOR PLANS, UTILITY CONNECTIONS AND SIGNAGE INFORMATION.

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" IT'S THE LAW "

Date	Description	No.

REVISIONS

BRIAN M. CONLON — DATE
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

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Project

THE MARKETPLACE AT NESHAMINY

BENSALEM TOWNSHIP
BUCKS COUNTY — PENNSYLVANIA

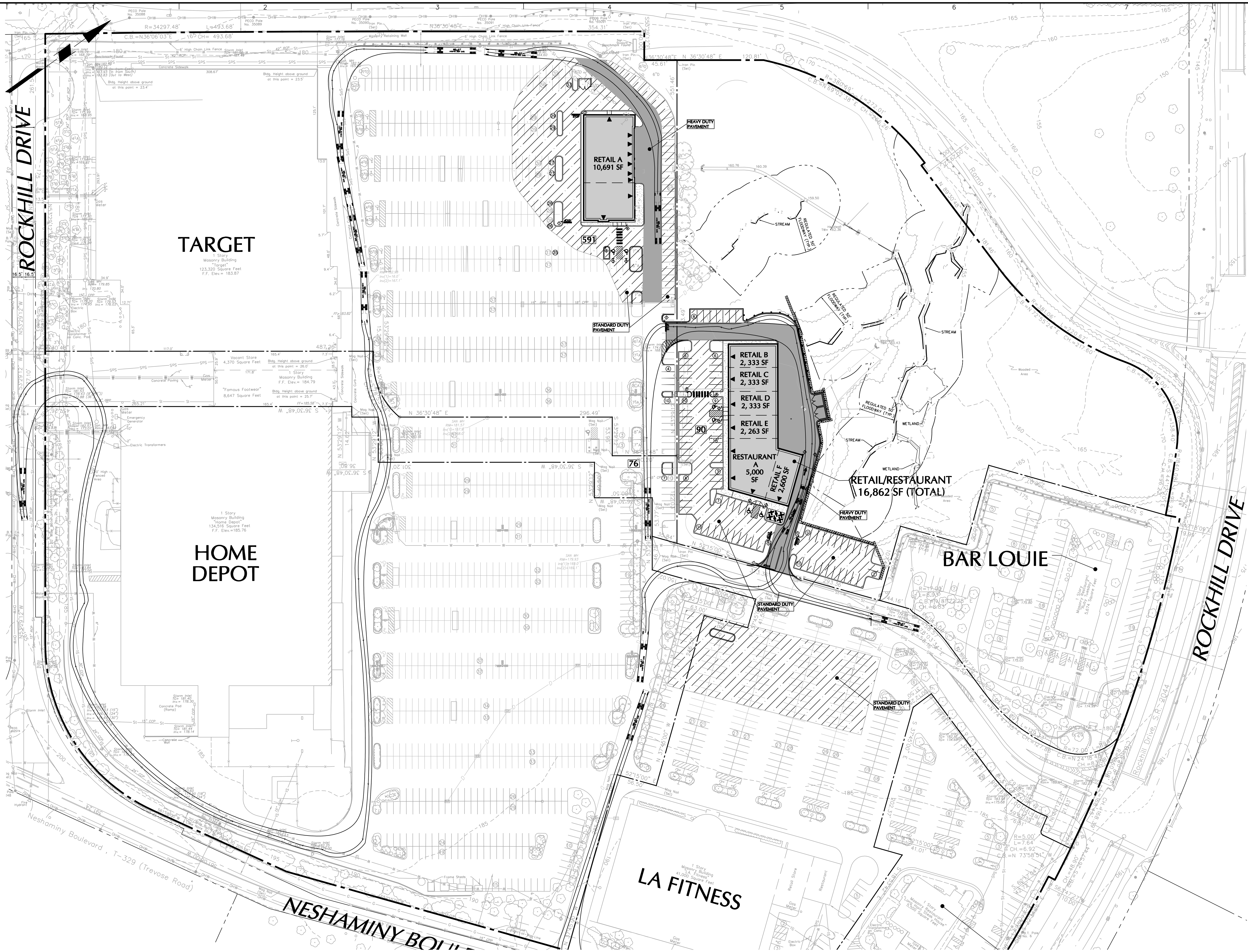
Drawing Title

SITE CONSTRUCTION PLAN

Project No. 220048102	Drawing No. CS-101
Date 8 JUNE 2016	
Scale 1"=40'	
Drawn By TFH	
Checked By	SHEET 6 OF 27

40 0 10 25 40
SCALE IN FEET

Filename: \\Langan.com\data\PHdata1\220048102\Cadd Data - 220048102\SheetFiles\2016.01.xx - Submission 1\220048102-CS-101.dwg Date: 6/9/2016 Time: 16:19 User: tholmes Style Table: Langan.stb Layout: CS-101



PAVEMENT PLAN

SCALE 1" = 60'

60 0 20 40 60
SCALE IN FEET

TRUCK LEGEND

REPRESENTS AASHTO WB-67 SEMITRAILER TRUCKS

PAVING LEGEND

REPRESENTS HEAVY DUTY ASPHALT PAVEMENT

REPRESENTS STANDARD DUTY ASPHALT PAVEMENT

Date	Description	No.

REVISIONS

BRIAN M. CONLON DATE
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

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Project

THE MARKETPLACE AT NESHAMINY

BENSALEM TOWNSHIP
BUCKS COUNTY PENNSYLVANIA

Drawing Title

PAVEMENT AND VEHICLE CIRCULATION PLAN

Project No. 220048102	Drawing No.
Date 8 JUNE 2016	CS-301
Scale 1" = 60'	
Drawn By JOB	
Checked By BMC	SHEET 7 OF 27

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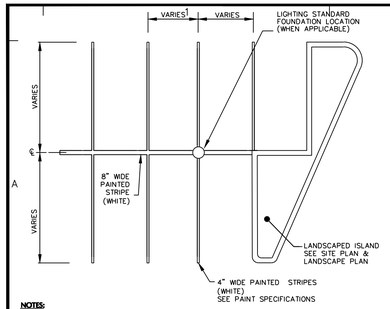
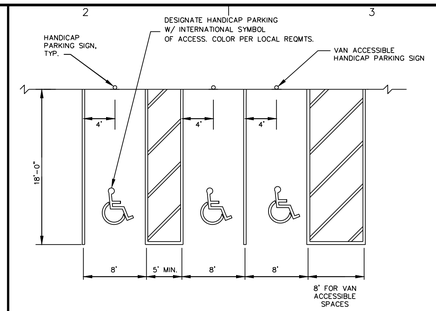


NOTES:

1. MARKINGS FOR PARKING LOT SHALL BE ACCORDING TO REQUIREMENTS AS OUTLINED IN SECTION 3A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. IF DIFFERENT THAN THE ABOVE, PARKING STALL STRIPING TO MATCH EXISTING.

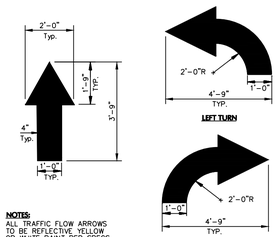
PARKING STALL STRIPING



NOTES:

1. MARKINGS FOR PARKING LOT SHALL BE ACCORDING TO REQUIREMENTS AS OUTLINED IN SECTION 3A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. SEE SITE PLAN FOR EXACT LAYOUT.

HANDICAP PARKING STALL STRIPING



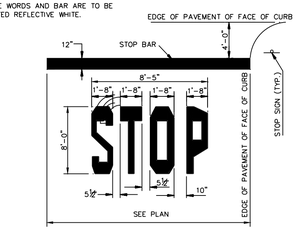
NOTES:

ALL TRAFFIC FLOW ARROWS TO BE REFLECTIVE YELLOW OR WHITE PAINT PER SPECS.

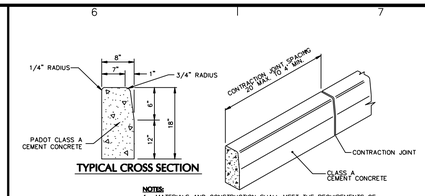
TRAFFIC FLOW ARROWS

NOTES:

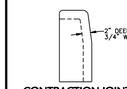
1. WORDS AND ARROWS FOR DRIVEWAYS SHALL BE APPLIED ACCORDING TO REQUIREMENTS AS OUTLINED IN SECTION 3B OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS
2. THESE WORDS AND BAR ARE TO BE PAINTED REFLECTIVE WHITE.



STOP BAR



TYPICAL CROSS SECTION

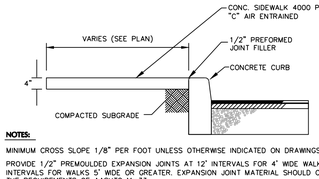


CONTRACTION JOINT

NOTES:

1. MATERIALS AND CONSTRUCTION SHALL MEET THE REQUIREMENTS OF PUBLICATION 408,SECTION 630.
2. SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
3. PLACE 3/4" PREMOLDED EXPANSION JOINT FILTER MATERIAL AT STRUCTURES AND AT THE END OF THE WORK DAY. CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS-SECTIONAL AREA OF CURB.
4. MINIMUM OF 28 DAYS COMPRESSIVE STRENGTH OF 4000 PSI AND WITH 6% AIR-ENTRAINMENT.
5. ALL AREAS ADJACENT TO STRAIGHT CURBS, INLET UTILITY COVERS AND TRENCH REPAIR AREAS SHALL BE SEALED WITH AC-20.
6. PROVIDE 4-INCH AASHTO #57 BASE MATERIAL.
7. 6-INCH REVEAL CURB TO BE PROVIDED THROUGHOUT SITE. 8-INCH REVEAL CURB TO BE PROVIDED WITHIN TOWNSHIP AND PADOT RIGHT-OF-WAY. 5-FOOT TAPER FROM 8-INCH TO 6-INCH SHALL START AT TANGENT POINT OF CURB RADIUS FOR ALL DRIVEWAYS.
8. CONCRETE CURB TO MATCH EXISTING.

6" CONCRETE CURB



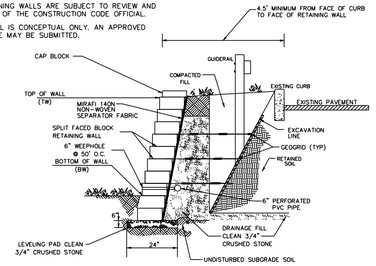
NOTES:

1. MINIMUM CROSS SLOPE 1/8" PER FOOT UNLESS OTHERWISE INDICATED ON DRAWINGS.
2. PROVIDE 1/2" PREMOULDED EXPANSION JOINTS AT 12' INTERVALS FOR 4' WIDE WALKS AND AT 10' INTERVALS FOR WALKS 5' WIDE OR GREATER. EXPANSION JOINT MATERIAL SHOULD CONFORM TO THE REQUIREMENTS OF AASHTO M-33.
3. PROVIDE CONTRACTION JOINTS AT 4 FOOT INTERVALS FOR WALK LESS THAN 5' WIDE AND AT 5' INTERVALS FOR WALKS 5' WIDE OR GREATER
4. SUBGRADE BENEATH CONCRETE TO BE COARSE GRAINED SAND (6" MIN.)
5. ALL CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.

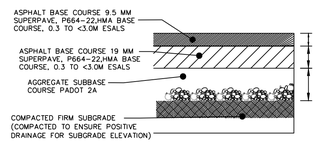
SIDEWALK

NOTES:

1. PRIOR TO CONSTRUCTION DETAILED SIGNED AND SEALED CALCULATIONS WILL BE SUBMITTED TO TOWNSHIP ENGINEER FOR REVIEW.
2. THE RETAINING WALLS WILL BE DESIGNED TO BE CONSISTENT WITH THE BUILDING ARCHITECTURE.
3. THE RETAINING WALLS ARE SUBJECT TO REVIEW AND APPROVAL OF THE CONSTRUCTION CODE OFFICIAL.
4. THIS DETAIL IS CONCEPTUAL ONLY. AN APPROVED SUBSTITUTE MAY BE SUBMITTED.



RETAINING WALL



STANDARD DUTY PAVEMENT	HEAVY DUTY PAVEMENT
2" MIN.	2" MIN.
2" MIN.	3" MIN.
6" MIN.	8" MIN.

FLEXIBLE PAVEMENT SECTIONS

R1-1
30" X 30"
WHITE LEGEND
RED
BACKGROUND

R7-8
12" X 18"
GREEN LEGEND, BORDER, AND ARROW, WHITE BACKGROUND AND HANDICAP SYMBOL, BLUE SQUARE
BEHIND HANDICAP SYMBOL

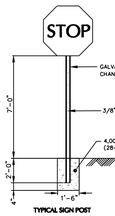
12" X 6"
BLUE LEGEND
WHITE BACKGROUND
REFLECTORIZED OR ILLUMINATED

R7-8P
10" X 12"
BLACK LEGEND
WHITE BACKGROUND
REFLECTORIZED OR ILLUMINATED

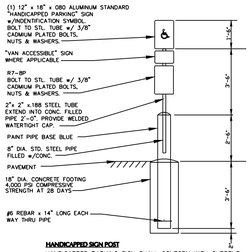
R1-5L
30"X36"
LEGEND AND ARROW - BLACK
PED SYMBOL - BLACK
BACKGROUND - WHITE (RETROREFLECTIVE)
YIELD SYMBOL - RED (RETROREFLECTIVE)

36" X 36"
RED LEGEND
WHITE BACKGROUND
REFLECTORIZED OR ILLUMINATED

OM-3R
12" X 36"
BLACK ON YELLOW
REFLECTORIZED



TYPICAL SIGN POST



HANDICAPPED SIGN POST

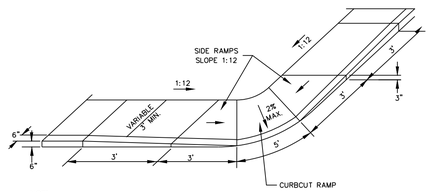
HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE & LOCAL CODES AND REGULATIONS.
ADD "VAN ACCESSIBLE SPACE" SIGN AS APPLICABLE.

NOTES:

1. ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
2. ALL POSTS SHALL BE EMBEDDED 2'-0" MINIMUM BELOW GRADE.
3. ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH CURRENT ASTM SPECIFICATIONS.
4. ALL TRAFFIC CONTROL SIGNS ARE TO BE MOUNTED TO BREAK-AWAY SIGN POSTS.
5. SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND NUMBERS.
6. BOLTS SHALL NOT PROTRUDE MORE THAN ¼" BEYOND THE NUT WHEN TIGHT BUT SHALL ENGAGE ALL THREADS IN THE NUT.
7. ALL TRAFFIC AND PEDESTRIAN SIGNAGE DIMENSIONS, COLORS, DETAILS, LOCATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND ALL CURRENT AMENDMENTS AND THE CURRENT "STANDARD HIGHWAY SIGNS PUBLICATIONS".
8. ALL SIGNS SHALL BE OF THE ENCAPSULATED LENS TYPE.
9. ALL SIGN MATERIALS SHALL BE MADE OF REFLECTIVE SHEETING ON ALUMINUM BLANKS MOUNTED ON GALVANIZED STEEL POSTS, ALL CONFORMING TO NJDOT STANDARD SPECIFICATIONS.
10. ALL CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.

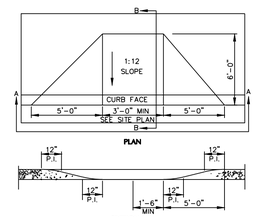
SIGNS

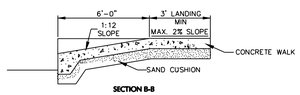
NOTE:
TRUNCATED DOMES SHALL BE INSTALLED FOR ALL HANDICAP RAMPS. REFER TO DETAIL.



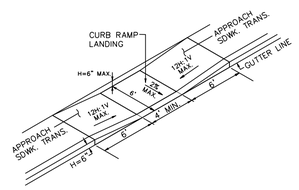
NOTE:
ALL CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.

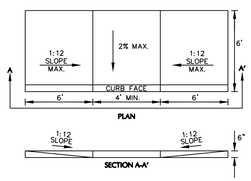
HANDICAP RAMP (ON CORNER)

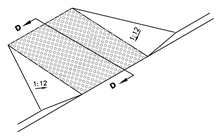


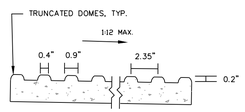


HANDICAP RAMP (ON STRAIGHT CURB)



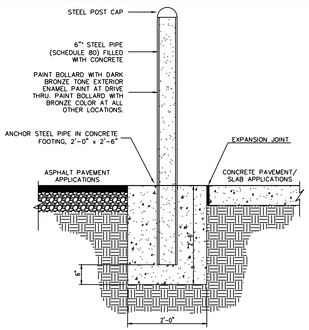




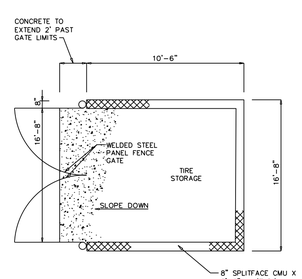


SECTION D-D

HANDICAP RAMP DETAILS

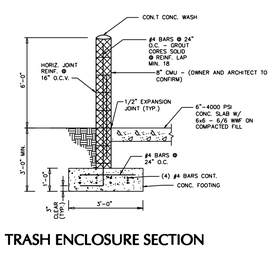


BOLLARD

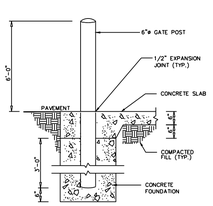


NOTE:

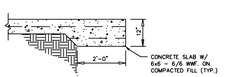
1. THE ENCLOSURE FACADE TO MATCH THE EXISTING BUILDING.
2. THE DUMPSTER SHALL HAVE A MASONRY ENCLOSURE AND SELF-LATCHING GATE.



TRASH ENCLOSURE SECTION



GATE POST DETAIL



DETAIL

TRASH ENCLOSURE

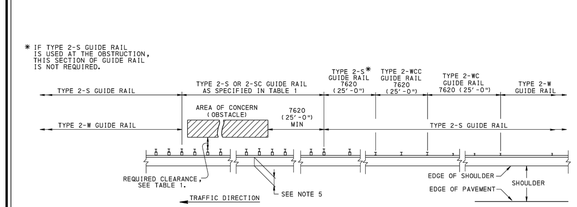
NOTES

1. THE TREATMENTS SHOWN ARE FOR FOUR-LANE DIVIDED HIGHWAYS. USE THE APPROACH END TREATMENT AT BOTH SIDES OF THE OBSTRUCTION ON TWO-LANE FACILITIES WITH TWO-WAY TRAFFIC.
2. THIS STANDARD HAS BEEN PREPARED AS A GUIDE FOR THE PLACEMENT OF GUIDE RAIL AND MEDIAN BARRIER. IT IS IMPRACTICAL TO PROVIDE A STANDARD FOR ALL POSSIBLE CONDITIONS. MODIFICATIONS OF TREATMENTS CAN BE MADE TO FIT EXISTING CONDITIONS; HOWEVER, FOLLOW THE RECOMMENDED GUIDELINES IN PUBLICATION 13M, DM-2, CHAPTER 12.
3. THIS DISTANCE VARIES. DETERMINE THE REQUIRED LENGTH USING THE GUIDELINES FOUND IN PUBLICATION 13M, DM-2, CHAPTER 12, AND SHOW ON THE TABULATIONS. WHERE CALCULATIONS SHOW A DISTANCE LESS THAN 15000 (50'-0") , USE 15000 (50'-0") AS A MINIMUM DISTANCE.
4. WHEN THE MINIMUM UNOBSTRUCTED DISTANCE FROM BACK OF GUIDE RAIL POST TO FACE OF OBSTRUCTION IS LESS THAN 300 (1'-0") , USE TYPE 2-SCC DOUBLE NESTED RAIL.
5. THE TYPICAL DISTANCE FROM THE EDGE OF SHOULDER TO THE FRONT FACE OF THE W-BEAM RAIL ELEMENT IS 600 (2'-0"). THIS MAY VARY1 BASE THE ACTUAL PLACEMENT OF THE GUIDE RAIL SYSTEM SELECTED ON FIELD CONDITIONS. LOCATE THE SYSTEM SELECTED AS FAR FROM THE EDGE OF SHOULDER AS POSSIBLE AND STILL MAINTAIN REQUIRED CLEARANCES DETERMINED FROM TABLE 1.
6. 1800 (6'-0") STEEL TUBE MAY BE USED WITHOUT SOIL PLATE.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN ( ) PARENTHESES.

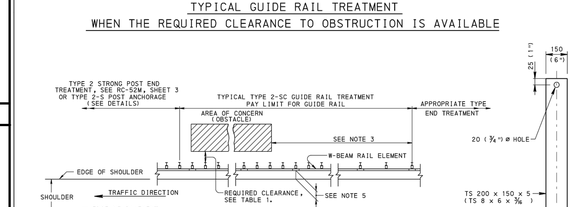
TABLE 1

TYPE OF GUIDE RAIL	REQUIRED † CLEARANCES
2-SCC	300 (1'-0")
2-SC	600 (2'-0")
2-S	900 (3'-0")
2-WCC	1200 (4'-0")
2-WC	1500 (5'-0")
2-W	2100 (7'-0")

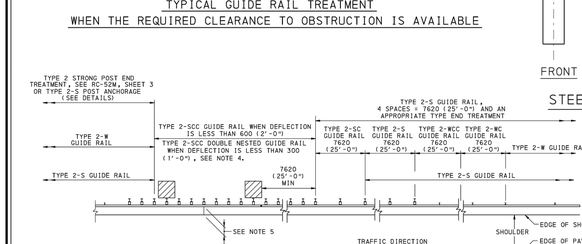
† THE MINIMUM UNOBSTRUCTED DISTANCE FROM BACK OF GUIDE RAIL POST TO AREA OF CONCERN (FACE OF OBSTRUCTION).



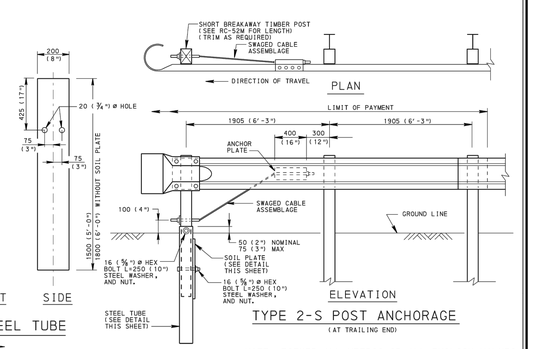
TYPICAL GUIDE RAIL TREATMENT
WHEN THE REQUIRED CLEARANCE TO OBSTRUCTION IS AVAILABLE



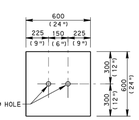
TYPICAL GUIDE RAIL TREATMENT
WHEN THE REQUIRED CLEARANCE TO OBSTRUCTION IS AVAILABLE



TYPICAL GUIDE RAIL TREATMENT WHEN THE REQUIRED
CLEARANCE TO OBSTRUCTION IS NOT AVAILABLE



TYPE 2-S POST ANCHORAGE
(AT TRAILING END)



SOIL PLATE
6 (¼") THICK

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

BARRIER PLACEMENT AT OBSTRUCTIONS

RECOMMENDED JUN. 1, 2010 — CHIEF, HWY. QA DIVISION
RECOMMENDED JUN. 1, 2010 — DIRECTOR, BUREAU OF DESIGN
SHT 1 OF 7
RC-54M

GUIDERAIL

Date	Description	No.

REVISIONS

BRIAN M. CONLON — DATE
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

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Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
THE MARKETPLACE AT NESHAMINY
BENSALEM TOWNSHIP
BUCKS COUNTY PENNSYLVANIA

Drawing Title
SITE CONSTRUCTION DETAILS

Project No. 220048102	Drawing No. CS-501
Date 8 JUNE 2016	
Scale N.T.S.	
Drawn By TFH	
Checked By BMC	SHEET 8 OF 27

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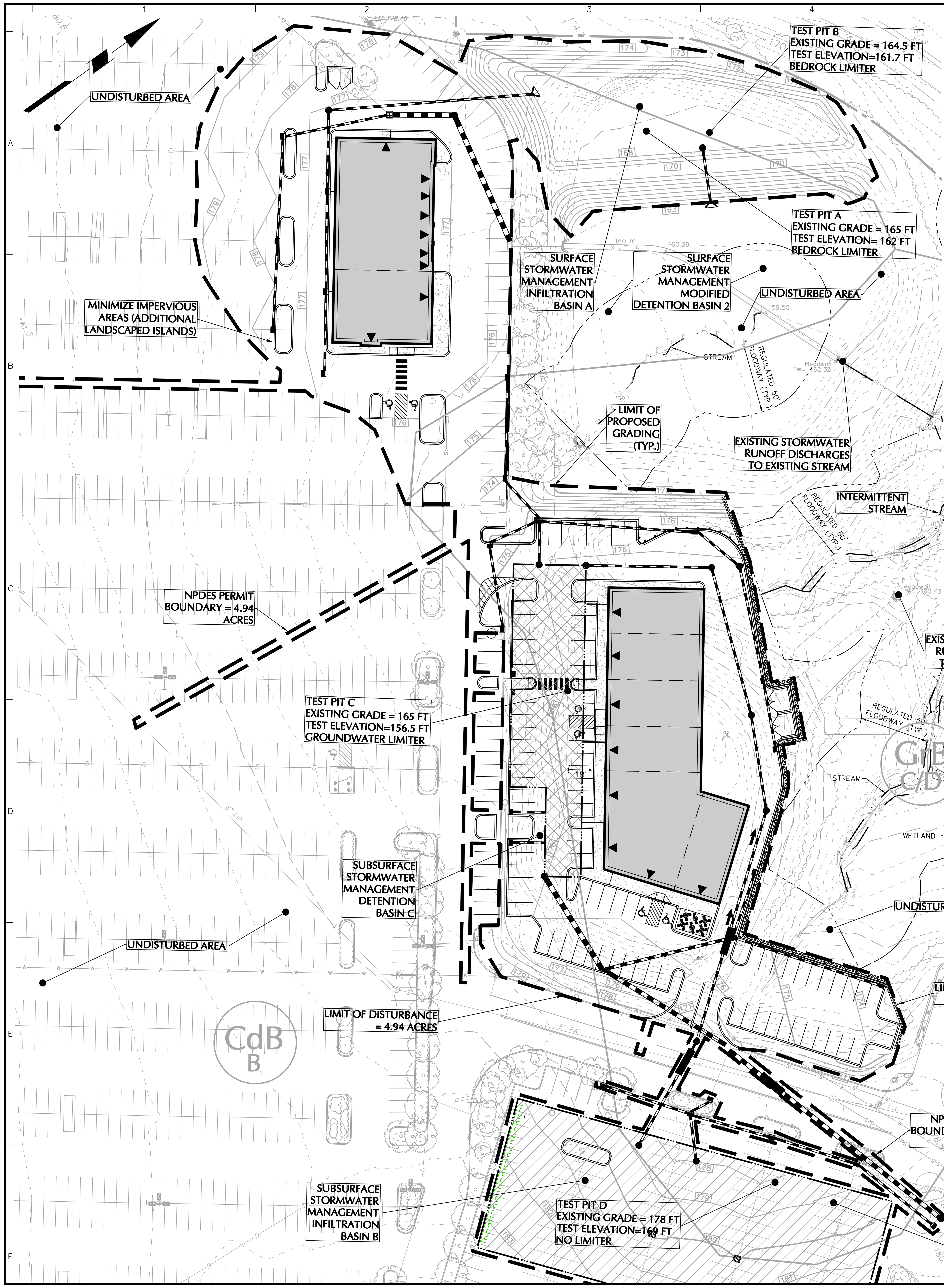


BMP CONSTRUCTION SEQUENCE

1. AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING.

2. AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.

3. REFER TO CONSTRUCTION SEQUENCES FOR ALL STAGES ON DRAWING CE-501.

4. BEGIN CONSTRUCTION OF THE STORM DRAINAGE SYSTEM.

5. CONSTRUCT SUBSURFACE STORMWATER MANAGEMENT INFILTRATION SYSTEM.
   - 5.1. AREAS FOR SUBSURFACE STORMWATER MANAGEMENT SYSTEMS SHALL BE CLEARLY MARKED BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION. PROVIDE PHOTO DEMONSTRATING THAT SUBSURFACE INFILTRATION IS STAKED.
   - 5.2. INSTALL TEMPORARY SEDIMENT-CONTROL BMP'S AS SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLANS (DRAWINGS CE-101-103).
   - 5.3. COMPLETE SITE ELEVATION GRADING AND STABILIZE THE SOIL DISTURBED WITHIN THE LIMITS OF DISTURBANCE. STABILIZE GRADING WITHIN THE LIMIT OF DISTURBANCE EXCEPT FOR THE SUBSURFACE STORMWATER MANAGEMENT AREAS. DO NOT FINALIZE SUBSURFACE STORMWATER MANAGEMENT EXCAVATION AND CONSTRUCTION UNTIL THE DRAINAGE AREA IS FULLY STABILIZED.
   - 5.4. <u>CRITICAL STAGE – LICENSED PROFESSIONAL SHALL OVERSEE THIS STAGE OF CONSTRUCTION.</u> EXCAVATE SUBSURFACE STORMWATER MANAGEMENT SYSTEM TO PROPOSED ELEVATION. THE BOTTOM OF THE SUBSURFACE STORMWATER MANAGEMENT AREA SHALL BE AT A LEVEL GRADE. SCARIFY THE EXISTING SOIL SURFACES. DO NOT COMPACT IN-SITU SOILS. INSTALL CHAMBERS AND END CAPS.
   - 5.5. COMPLETE FINAL GRADING TO ACHIEVE PROPOSED DESIGN ELEVATIONS.
   - 5.6. CONSTRUCT INFLOW PIPES AND CONNECTIONS BUT DO NOT ALLOW RUNOFF TO ENTER THE SUBSURFACE STORMWATER MANAGEMENT AREAS AT THIS STAGE.
   - 5.7. <u>CRITICAL STAGE – LICENSED PROFESSIONAL SHALL OVERSEE THIS STAGE OF CONSTRUCTION.</u> INSTALL SUBSURFACE STORMWATER MANAGEMENT SYSTEMS AS SHOWN ON PLAN AND SPECIFICATIONS AS INDICATED ON THE MANUFACTURER'S PLANS AND DETAILS.
   - 5.8. WHEN THE SITE IS FULLY VEGETATED AND THE SOIL MANTLE STABILIZED THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT THE DRAINAGE AREAS AT HIS/ HER DISCRETION BEFORE THE AREA IS BROUGHT ONLINE AND SEDIMENT CONTROL DEVISES ARE REMOVED.

6. CONSTRUCT SURFACE INFILTRATION AREA. INFILTRATION AREA TO BE PROTECTED FROM COMPACTION.
   - 6.1. AREAS FOR SURFACE INFILTRATION SHALL BE CLEARLY MARKED BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION. PROVIDE PHOTO DEMONSTRATING THAT SURFACE INFILTRATION PERIMETER IS STAKED.
   - 6.2. INSTALL TEMPORARY SEDIMENT-CONTROL BMP'S AS SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLANS (DRAWINGS CE-101-103).
   - 6.3. COMPLETE SITE ELEVATION GRADING AND STABILIZE THE SOIL DISTURBED WITHIN THE LIMITS OF DISTURBANCE. STABILIZE GRADING WITHIN THE LIMIT OF DISTURBANCE EXCEPT WITH THE SURFACE INFILTRATION AREAS. DO NOT FINALIZE SURFACE INFILTRATION EXCAVATION AND CONSTRUCTION UNTIL THE DRAINAGE AREA IS FULLY STABILIZED.
   - 6.4. <u>CRITICAL STAGE – LICENSED PROFESSIONAL SHALL OVERSEE THIS STAGE OF CONSTRUCTION.</u> EXCAVATE SURFACE INFILTRATION TO PROPOSED ELEVATION. THE BOTTOM OF THE SURFACE INFILTRATION AREA SHALL BE AT A LEVEL GRADE. SCARIFY THE EXISTING SOIL SURFACES. DO NOT COMPACT IN-SITU SOILS.
   - 6.5. COMPLETE FINAL GRADING TO ACHIEVE PROPOSED DESIGN ELEVATIONS.
   - 6.6. CONSTRUCT INFLOW PIPES AND FLARED END SECTIONS BUT DO NOT ALLOW RUNOFF TO ENTER THE SURFACE INFILTRATION AREAS AT THIS STAGE.
   - 6.7. <u>CRITICAL STAGE- LICENSED PROFESSIONAL SHALL OVERSEE THIS STAGE OF CONSTRUCTION.</u> INSTALL SURFACE INFILTRATION SOILS AS SHOWN ON PLAN AND SPECIFICATIONS AS INDICATED ON THE LANDSCAPE PLANS AND DETAILS. REFER TO LANDSCAPING PLANS FOR SOIL SPECIFICATIONS BACKFILL THE EXCAVATED AREA AS SOON AS THE SUBGRADE PREPARATION IS COMPLETE TO AVOID ACCUMULATION OF DEBRIS. PLACE SURFACE INFILTRATION SOIL IN 6-12 INCHES LIFTS AND TAMP LIGHTLY. OVERFILLING IS RECOMMENDED TO ACCOUNT FOR SETTLEMENT.
   - 6.8. PRESOAK SURFACE INFILTRATION SOIL AT LEAST ONE DAY PRIOR TO FINAL GRADING AND LANDSCAPING TO ALLOW FOR SETTLEMENT.
   - 6.9. SURFACE INFILTRATION SOILS SHALL NOT BE SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT ONCE INSTALLED. IF IT IS ESSENTIAL THAT EQUIPMENT BE USED IN THE AREA, ALL EQUIPMENT MUST BE APPROVED BY THE ENGINEER. USE OF EQUIPMENT WITH NARROW TRACKS OR TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES SHALL NOT BE USED.
   - 6.10. AFTER ALLOWING FOR SETTLEMENT, COMPLETE FINAL GRADING WITHIN ABOUT 2 INCHES OF THE PROPOSED DESIGN ELEVATION.
   - 6.11. INSTALL PLANTINGS AND SEED MIX AS INDICATED ON THE LANDSCAPE DRAWINGS.
   - 6.12. WATER VEGETATION AT THE END OF EACH DAY FOR TWO WEEKS AFTER PLANING IS COMPLETED. WATER VEGETATION REGULARLY DURING FIRST YEAR TO ENSURE SUCCESSFUL ESTABLISHMENT.
   - 6.13. AFTER SURFACE INFILTRATION AREAS ARE COMPLETED, THESE AREAS SHALL BE CLEARLY MARKED TO AVOID FURTHER SOIL DISTURBANCE AND COMPACTION.
   - 6.14. PROTECT SURFACE INFILTRATION FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION.
   - 6.15. WHEN THE SITE IF FULLY VEGETATED AND THE SOIL MANTLE STABILIZED THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT THE SURFACE INFILTRATION DRAINAGE AREAS AT HIS/HER DISCRETION BEFORE THE AREA IS BROUGHT ONLINE AND SEDIMENT CONTROL DEVISES ARE REMOVED.

REFER TO DRAWING CG-502 FOR SUBSURFACE AND SURFACE STORMWATER MANAGEMENT, DETAILS AND MAINTENANCE PROGRAM.

CRITICAL STAGES OF BMP INSTALLATION: THE CRITICAL STAGES OF THE IMPLEMENTATION OF THE PSCM PLAN WHERE A LICENSED PROFESSIONAL OR DESIGNEE WILL BE PRESENT ARE DENOTED IN THE BMP CONSTRUCTION SEQUENCES ON THIS PLAN AND CE-501.

SOIL LIMITATIONS AND RESOLUTIONS:

THE SITE SOILS LOCATED ON OR ADJACENT TO THE PROJECT SITE CONSIST OF THE FOLLOWING:

- CHESTER SILT LOAM (CdB), 3-8% SLOPES, 6-8.25 FEET TYPICAL DEPTH TO WATER TABLE AND 6.58 FEET TYPICAL DEPTH TO PARALITHIC BEDROCK.
  - O LIMITATIONS INCLUDE CORROSIVE TO CONCRETE, CORROSIVE TO STEEL, LAWNS AND GOLF FAIRWAYS, LOCAL ROADS AND STREETS, SHALLOW EXCAVATIONS, SMALL COMMERCIAL BUILDINGS, AND UNPAVED LOCAL ROADS AND STREETS.
- UDORTHENTS, SCHIST AND GNEISS, (UfB), > 5 FEET TYPICAL DEPTH TO WATER TABLE AND 3.3 TO 6 FEET TYPICAL DEPTH TO PARALITHIC BEDROCK.
  - O LIMITATIONS INCLUDE CORROSIVE TO CONCRETE, DWELLINGS WITH BASEMENTS, DWELLINGS WITHOUT BASEMENTS, LAWNS AND GOLF FAIRWAYS, LOCAL ROADS AND STREETS, SHALLOW EXCAVATIONS, SMALL COMMERCIAL BUILDINGS, AND UNPAVED LOCAL ROADS AND STREETS.
- GLENNVILLE SILT LOAM (Grb), 3-8% SLOPES, 1.66 FEET TYPICAL DEPTH TO WATER TABLE, 1.25 TO 2.5 TYPICAL DEPTH TO FAGINPAN BEDROCK, AND 5 TO 8.25 FEET TYPICAL DEPTH TO PARALITHIC BEDROCK.
  - O LIMITATIONS INCLUDE CORROSIVE TO CONCRETE, CORROSIVE TO STEEL, DWELLINGS WITH BASEMENTS, DWELLINGS WITHOUT BASEMENTS, LAWNS AND GOLF FAIRWAYS, LOCAL ROADS AND STREETS, SHALLOW EXCAVATIONS, SMALL COMMERCIALS BUILDINGS, AND UNPAVED LOCAL ROADS AND STREETS.
- URBAN LAND, CHESTER COMPLEX (UgB), 0-8% SLOPES, > 6.5 FEET TYPICAL DEPTH TO WATER TABLE, 0.83 TO 8.25 TYPICAL DEPTH TO LITHIC BEDROCK, AND 6 TO 8.25 FEET TYPICAL DEPTH TO PARALITHIC BEDROCK.
  - O THIS URBAN LAND DESIGNATION DOES NOT LIST LIMITATIONS BECAUSE IT IS A PREVIOUSLY DISTURBED AREA THAT WAS PREPARED FOR USE AS STRUCTURAL FILL BELOW BUILDINGS AND PAVING.

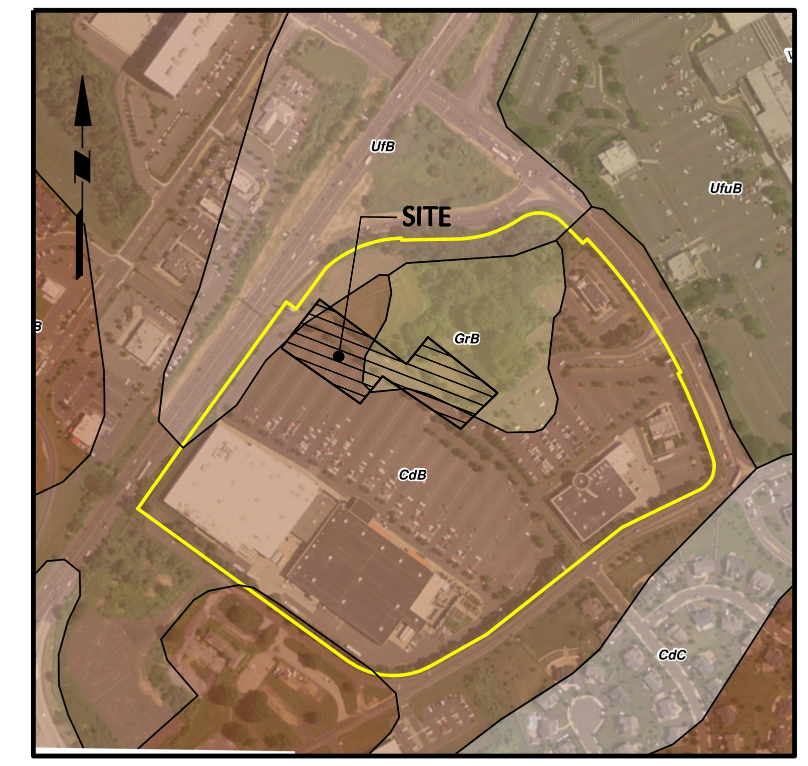
THE RESOLUTIONS FOR SOIL LIMITATIONS ARE AS FOLLOWS:

- CHESTER SILT LOAM (CdB)
  - O HPDE AND PVC PIPING IS PROPOSED. EXTENSIVE LANDSCAPING IS NOT PROPOSED. NO LOCAL ROADS AND STREETS, BOTH PAVED AND UNPAVED, ARE PROPOSED. BUILDINGS WITHIN THIS CLASSIFICATION ARE NOT PROPOSED TO HAVE BASEMENTS.
- UDORTHENTS, SCHIST AND GNEISS (UfB)
  - O THIS SOIL TYPE IS LOCATED TO THE NORTH OF THE SITE. THE PROPOSED PROJECT INCLUDES MINIMAL DISTURBANCE IN THIS CLASSIFICATION, HOWEVER, THE PROPOSED IMPROVEMENTS WILL BE CONSTRUCTED IN APPROVED FILL.
- GLENVILLE SILT LOAM (LoC)
  - O AREAS OF DEVELOPMENT WITHIN THE CLASSIFICATION OF GLENVILLE SILT LOAM WILL CONSIST OF APPROVED FILL FOR THE PROPOSED APPLICATIONS.
- URBAN LAND (UgB)
  - O THIS SOIL DOES NOT INCLUDE THE TYPE OF SOIL LIMITATIONS ASSOCIATED WITH NATIVE SOILS BECAUSE IT WAS PREVIOUSLY PREPARED AS STRUCTURAL FILL AND THE PROPOSED PROJECT DOES NOT INCLUDE ANY DISTURBANCE TO THIS SOIL.

		LIMITATIONS (SEE "SOIL LIMITATIONS AND RESOLUTIONS" NOTES FOR RESOLUTIONS)									TYPICAL DEPTHS	
MAP SYMBOL	SOIL TYPE AND CHARACTERISTICS	CORROSIVE TO CONCRETE	CORROSIVE TO STEEL	DWELLINGS WITH BASEMENTS	DWELLINGS WITHOUT BASEMENTS	LAWNS, LANDSCAPING, AND GOLF FAIRWAYS	LOCAL ROADS AND STREETS	SHALLOW EXCAVATIONS	SMALL COMMERCIAL BUILDINGS	UNPAVED LOCAL ROADS AND STREETS	DEPTH TO WATER TABLE	DEPTH TO BEDROCK
GrB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	MODERATE	HIGH	VERY LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	VERY LIMITED	VERY LIMITED	SOMEWHAT LIMITED	VERY LIMITED	6" TO 36"	15" TO 30" TO FRAGIPAN 60" TO 99" TO PARALITHIC
CdB	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES	HIGH	MODERATE	NOT LIMITED	NOT LIMITED	SOMEWHAT LIMITED	VERY LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	VERY LIMITED	>80"	> 80"
UfB	UDORTHENTS, SCHIST AND GNEISS	MODERALTE	LOW	SOMEWHAT LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	VERY LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	60"	40" TO 72" TO PARALITHIC
UkB	URBAN LAND-CHESTER COMPLEX, 0-8% SLOPES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>80"	72" TO 99" TO PARALITHIC

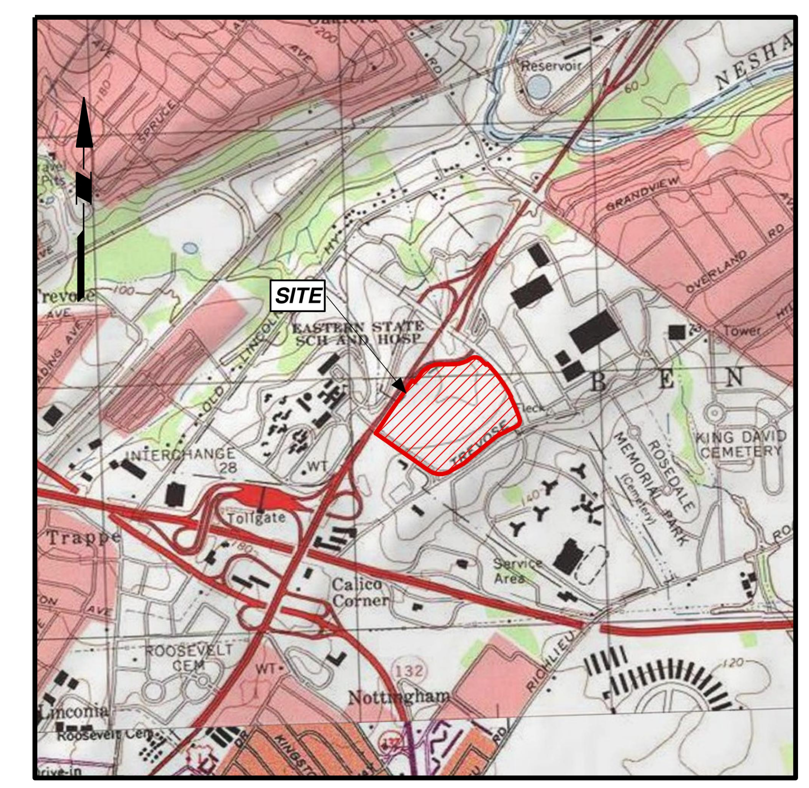
LOCATION MAP

1"=2000'



SOIL MAP

1"=500'



USGS MAP

1"=2000'

LEGEND

— — — 48 — — —	EXISTING CONTOUR
—— D ——	EXISTING STORM PIPE
	EXISTING STORM INLET
(S)	EXISTING STORM MANHOLE
—— S ——	EXISTING SANITARY SEWER
—— W ——	EXISTING WATER
—— G ——	EXISTING GAS
—— T&E ——	EXISTING TELEPHONE/ELECTRIC
+ 44.25	PROPOSED SPOT ELEVATION
48	PROPOSED CONTOUR
	PROPOSED STORM PIPE
	PROPOSED STORM INLET
●	PROPOSED STORM MANHOLE
- - - - - - -	PROPOSED SAWCUT LINE
	SUBSURFACE STORMWATER INFILTRATION FACILITY
	SUBSURFACE STORMWATER DETENTION FACILITY

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 STOP - CALL BEFORE YOU DIG!

CALL BEFORE YOU DIG IN PA, TOLL FREE 1 - 800 - 242-1776
FOR FREE MARKOUTS TO LOCATE UNDERGROUND UTILITIES
" IT'S THE LAW "

NOTES:

1. <u>SITE ADDRESS:</u>
   US 1 AND ROCKHILL DRIVE
   BENSALEM, PA 19020
2. <u>APPLICANT:</u>
   PARAMOUNT REALTY SERVICES, INC.
   1195 ROUTE 70
   BENSALEM TOWNSHIP, PA 19020
3. RECYCLING AND DISPOSAL OF WASTES AND BUILDING MATERIALS SHALL BE DONE IN ACCORDANCE WITH THE SOLID WASTE MANAGEMENT REGULATIONS IN 25 PA CODE 260.1 ET SEQ., 271.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THIS SITE.
4. PROJECT WASTES MAY INCLUDE CONCRETE, ASPHALT, TOPSOIL DETERGENTS, PAINTS, CLEANING SOLVENTS, PESTICIDES, WOOD SCRAPS, FERTILIZERS AND PETROLEUM BASED PRODUCTS.

Date	Description	No.

REVISIONS

BRIAN M. CONLON — DATE
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

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Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
THE MARKETPLACE AT NESHAMINY
BENSALEM TOWNSHIP
BUCKS COUNTY **PENNSYLVANIA**

Drawing Title
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN

Project No. **220048102**	Drawing No.
Date **8 JUNE 2016**	**CG-101**
Scale **1"=40'**	
Drawn By **TFH**	
Checked By **BMC**	**SHEET 9 OF 27**

40 0 10 25 40
SCALE IN FEET

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Filename: \\Langan.com\data\PH\data1\220048102\Cadd Data - 220048102\SheetFiles\2016.01.xx - Submission 1\220048102-CG-101.dwg Date: 6/9/2016 Time: 16:22 User: tholmes Style Table: Langan.stb Layout: CG-101

GENERAL SITE NOTES:

1. THE CONTRACTOR SHALL FURNISH, INSTALL, TEST AND COMPLETE ALL WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH, THESE PLANS DO NOT COMPLETELY REPRESENT, NOR ARE THEY INTENDED TO REPRESENT, ALL SPECIFIC INSTRUCTIONS REQUIRED FOR SITEWORK CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS DEPICTED ON THESE PLANS IN ACCORDANCE WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS IN EFFECT AT THE TIME OF CONSTRUCTION.
2. THE CONTRACTOR SHALL ACCEPT THE SITE AS IS. THE CONTRACTOR SHALL ASSESS CONDITIONS, AND THE KIND, QUALITY AND QUANTITY OF WORK REQUIRED. THE OWNER AND ENGINEER MAKE NO GUARANTEE IN REGARD TO THE ACCURACY OF ANY INFORMATION THAT WAS OBTAINED DURING INVESTIGATIONS. THE CONTRACTOR SHALL MAKE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS; CORRELATE CONDITIONS WITH THE DRAWINGS; AND, RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL PERFORM ADDITIONAL TOPOGRAPHIC SURVEYS HE/SHE DEEMS NECESSARY, PROVIDED THEY ARE COORDINATED WITH THE OWNER. ANY CONDITIONS DETERMINED BY THE CONTRACTOR THAT DIFFER FROM THE INFORMATION SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL PAYMENT OR CHANGES TO THE CONTRACT DURATION, OR ANY OTHER CLAIMS AGAINST THE OWNER OR OWNER'S ENGINEER.
3. THE CONTRACTOR SHALL, WHEN HE/SHE DEEMS NECESSARY, PROVIDE A WRITTEN REQUEST FOR INFORMATION (RFI) TO THE OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITEWORK ITEM. THE (RFI) SHALL BE IN A FORM ACCEPTABLE TO OWNER AND/OR OWNER'S DESIGNATED REPRESENTATIVE, AND ENGINEER AND SHALL ALLOW FOR A MINIMUM OF THREE WORK DAYS FOR A WRITTEN REPLY. RFIS SHALL BE NUMBERED CONSECUTIVELY BY DATE SUBMITTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITEWORK ITEMS CONSTRUCTED DIFFERENTLY THAN INTENDED OR AS DEPICTED ON THE PLANS.
4. INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUFFICIENTLY REVIEW ALL PLANS, PROFILES AND ANY OTHER INFORMATION IN THE CONTRACT DOCUMENTS FOR CONSISTENCY PRIOR TO BID. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND BY THE CONTRACTOR OR HIS ASSIGNS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER IN WRITING, IN THE FORMAT OF AN RFI PRIOR TO BID.
5. THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED THROUGHOUT THE PLAN SET AS WELL AS REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE TO ALL THESE DOCUMENTS.
6. CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ALL CONSTRUCTION STAKEOUT FOR THIS PROJECT MUST BE COMPLETED FROM THE SITE SPECIFIC SURVEY CONTROL (HORIZONTAL AND VERTICAL) UPON WHICH THE DESIGN IS BASED. THE CONTRACTOR SHOULD NOT RELY ON OR RE-ESTABLISH SURVEY CONTROL BY GPS OR OTHER METHODS FOR USE IN CONSTRUCTION STAKEOUT OR ANY OTHER PURPOSE FOR THIS PROJECT. ANY DISCREPANCIES BETWEEN THE EXISTING HORIZONTAL OR VERTICAL DATA SHOWN ON THESE DRAWINGS AND THAT ENCOUNTERED IN THE FIELD MUST BE REPORTED TO THE DESIGN TEAM PRIOR TO CONSTRUCTION FOR RESOLUTION.

LEGEND

48	*EXISTING CONTOUR*
D	*EXISTING STORM PIPE*
	EXISTING STORM INLET
S	*EXISTING STORM MANHOLE*
S	*EXISTING SANITARY SEWER*
W	*EXISTING WATER*
G	*EXISTING GAS*
T&E	*EXISTING TELEPHONE/ELECTRIC*
+ 44.25	PROPOSED SPOT ELEVATION
48	PROPOSED CONTOUR
	PROPOSED STORM PIPE
	PROPOSED STORM INLET
	PROPOSED STORM MANHOLE
	PROPOSED SAWCUT LINE
	SUBSURFACE STORMWATER INFILTRATION FACILITY
	SUBSURFACE STORMWATER DETENTION FACILITY

SPOT ELEVATIONS SHOWN OFFSET FROM THE CURB AND GUTTER LINES ARE THE ELEVATIONS ALONG SAID LINES AND ARE SHOWN OFFSET FOR GRAPHICAL PURPOSES ONLY.

SPOT ELEVATIONS PROVIDED REPRESENT BOTTOM OF CURB ELEVATIONS. TOP OF CURB ELEVATIONS ARE PLUS 0.5' ABOVE BOTTOM OF CURB UNLESS OTHERWISE NOTED.

ALL STORM SEWER PIPE LENGTHS ARE MEASURED FROM CENTER OF STRUCTURES AND REPRESENT LINEAR FOOTAGE.

BEDDING AND BACKFILL REQUIREMENTS FOR HDPE PIPE TO BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS SHOWN ON DRAWING CG-501.

THE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR FINAL BUILDING FOOTPRINTS, UTILITIES AND GRADING INFORMATION.

REFER TO DRAWINGS CG-501 CG-502 FOR STORM SEWER NOTES AND DETAILS

THE STORMWATER FACILITIES SHOWN ON THESE PLANS ARE A BASIC AND PERPETUAL PART OF THE STORMWATER MANAGEMENT SYSTEM OF THE PROPOSED SITE LOCATED IN BENSALEM TOWNSHIP, BUCKS COUNTY, COMMONWEALTH OF PENNSYLVANIA, AND SUCH ARE TO BE PROTECTED AND PRESERVED IN ACCORDANCE WITH THE APPROVED FINAL PLANS BY THE OWNERS, THEIR SUCCESSORS AND ASSIGNS OF THESE LANDS. BENSALEM TOWNSHIP AND/OR ITS AGENTS RESERVE THE RIGHT AND PRIVILEGE TO ENTER UPON THESE LANDS FROM TIME TO TIME FOR THE INSPECTION OF THESE FACILITIES IN ORDER TO DETERMINE THAT PROPER OPERATION AND MAINTENANCE AND THAT THE STRUCTURAL AND DESIGN INTEGRITY IS BEING MAINTAINED BY THE OWNER

GRADING AND DRAINAGE NOTES:

1. NO TOPSOIL SHALL BE REMOVED FROM THE SITE OR USED AS SPOIL. TOPSOIL MOVED DURING THE COURSE OF CONSTRUCTION SHALL BE REDISTRIBUTED SO AS TO PROVIDE AT LEAST SIX (6) INCHES OF COVER TO ALL VEGETATED AREAS OF THE SITE AND SHALL BE STABILIZED BY SEEDING OR PLANTING.
2. THE EROSION AND SEDIMENTATION CONTROL PLAN IS AN INTEGRAL PART OF THE STORMWATER MANAGEMENT SYSTEM DURING CONSTRUCTION OF CERTAIN PHASES. THE EROSION AND SEDIMENTATION CONTROL PLANS SHALL BE REFERENCED AND USED IN CONJUNCTION WITH THIS DRAWING TO COMPLETE CONSTRUCTION PHASING.
3. LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM EXISTING RECORDS AND/OR ABOVE-GROUND OBSERVATIONS AT THE SITE. COMPLETENESS OR ACCURACY OF LOCATIONS AND DEPTHS CANNOT BE GUARANTEED. ALL CONTRACTORS AND OTHER PERSONS UTILIZING THIS PLAN AND THE INFORMATION CONTAINED THEREON ARE CAUTIONED THAT EXCEPT INDIVIDUAL USING THIS PLAN MUST VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES BEFORE STARTING WORK.
4. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
5. THE SITE IS TO BE GRADED SMOOTHLY AND EVENLY IN ACCORDANCE WITH THE PROPOSED CONTOURS AND SPOT ELEVATIONS. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING A POSITIVE DRAINAGE FLOW TO ALL CATCH BASINS WITHOUT CREATING ANY FLAT SPOTS THAT WILL RESULT IN STANDING WATER (PUDDLING OR PONDING).
6. ALL PERISHABLE AND OTHER ORGANIC MATTER SHALL BE REMOVED FROM THE CONSTRUCTION SITE. REFER TO THE DEMOLITION PLAN, DRAWING CD-101, FOR ALL EXISTING FEATURES TO BE REMOVED.
7. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
8. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE OTHER UTILITIES ARE ENCOUNTERED THE EXACT LOCATION OF WHICH IS UNKNOWN, THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
9. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
10. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED BY CONTRACTOR AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
11. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
12. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
13. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
14. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
15. PAVEMENT SHALL BE SAW CUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL AND GRADING SHALL BE REMOVED IMMEDIATELY. STOCKPILING OF DEBRIS IS NOT PERMITTED.
16. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
17. TOPOGRAPHIC AND PLANIMETRICS INFORMATION OBTAINED FROM GROUND SURVEYS BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC. COMPLETED DURING JULY AND AUGUST 2014. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR HIS REVIEW.
18. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 6 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH COUNTY SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
19. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
20. CONSTRUCTION SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING STORM SEWER STRUCTURES, PIPES, AND ALL UTILITIES PRIOR TO CONSTRUCTION.

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SCALE IN FEET

ACT 287 AS AMENDED

IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE PENNSYLVANIA ACT 181 OF 2006 AND TO CONTACT THE "ONE CALL SYSTEM" THREE (3) WORKING DAYS (UNLESS OTHERWISE NOTED) PRIOR TO START OF CONSTRUCTION.

PENNSYLVANIA ONE CALL 1-800-242-1776
SERIAL NO. 20101102688

AQUA PENNSYLVANIA INC.
762 W LANCASTER AVE
BRYN MAWR, PA 19010
(610) 562-1402

AT&T LOCAL SERVICES
2315 SALEM RD A10
CONYERS, GA. 33013
(770) 929-4584

PECO ENERGY COMPANY
400 PARK AVE
WARMINSTER, PA 18974
(215) 956-3121

BENSALEM TOWNSHIP
3800 HULMEVILLE RD
BENSALEM, PA 19020
(215) 633-3733

VERIZON PENNSYLVANIA
900 RACE STREET, 6TH FLOOR
PHILADELPHIA, PA 19107
(215) 351-8947

COMCAST CABLE COMMUNICATIONS INC.
55 INDUSTRIAL DR
IVYLAND, PA. 18974
(215) 918-3137

BUCKS COUNTY WATER AND SEWER AUTHORITY
1275 ALMSHOUSE RD
WARRINGTON, PA 18976
(800) 222-2068

PENNSYLVANIA ONE CALL SYSTEM, INC.
1-800-242-1776
STOP - CALL BEFORE YOU DIG!

CALL BEFORE YOU DIG IN PA, TOLL FREE
1 - 800 - 242-1776
FOR FREE MARKOUTS TO LOCATE UNDERGROUND UTILITIES
" IT'S THE LAW "

Date	Description	No.
REVISIONS		

BRIAN M. CONLON DATE
PROFESSIONAL ENGINEER
PA Lic. No. PE061782

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Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
THE MARKETPLACE AT NESHAMINY
BENSALEM TOWNSHIP
BUCKS COUNTY PENNSYLVANIA

Drawing Title
GRADING & DRAINAGE PLAN

Project No. 220048102	Drawing No. CG-102
Date 8 JUNE 2016	
Scale 1"=50'	
Drawn By TFH	
Checked By BMC	SHEET 10 OF 27

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