# TRAFFIC IMPACT STUDY

## FOR THE

## McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT

EAST ROCKHILL TOWNSHIP
BUCKS COUNTY, PENNSYLVANIA

PREPARED FOR:

SELECT PROPERTIES, INC.

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East Rockhill Township
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# INTRODUCTION

Select Properties, Inc. proposes to develop the McClennen Property Residential Development on an approximate 64.2 acre tract located along Old Bethlehem Pike and along Hill Road north of Three Mile Run Road in East Rockhill Township, Bucks County, Pennsylvania (Figure 1). The proposed development will be comprised of 52 single family detached houses and 204 townhouses. Access to the site will be provided via a roadway that will intersect Old Bethlehem Pike at a point approximately 650 feet north of Park Avenue, and a roadway that will intersect Hill Road at a point directly opposite Stone Edge Road.

The purpose of this report is to present the results of an analysis of the potential traffic impact of the proposed McClennen Property Residential Development on area roads and intersections. The study includes:

- Evaluation of existing conditions on roadways in the area, including completion of peak period Intersection Turning Movement counts and conduct of a volume/capacity analysis of the following intersections:

  - Park Avenue/Three Mile Run Road
  - Old Bethlehem Pike/Three Mile Run Road
  - Old Bethlehem Pike/Park Avenue
  - Old Bethlehem Pike/Rockhill Road/Weikel Road
  - Three Mile Run Road/Hill Road
  - Rockhill Road/Hill Road
  - Hill Road/Stone Edge Road

- Determination of future travel characteristics of the proposed residential development including vehicular trip generation by direction in the respective peak hours, distribution of generated traffic to the area roadways and intersections, and assignment of generated traffic to the various access locations and intersections. Generated traffic is added to existing traffic which has been adjusted upward to reflect background traffic growth and traffic due to other new development in the area to produce total future peak hour traffic volumes.

- Analysis of future traffic conditions including conduct of volume/capacity analyses at the intersections in the area of influence of the proposed development without and with development of the proposed residential development.

- Provision of conclusions and recommendations to facilitate safe and efficient access to the proposed McClennen Property Residential Development.

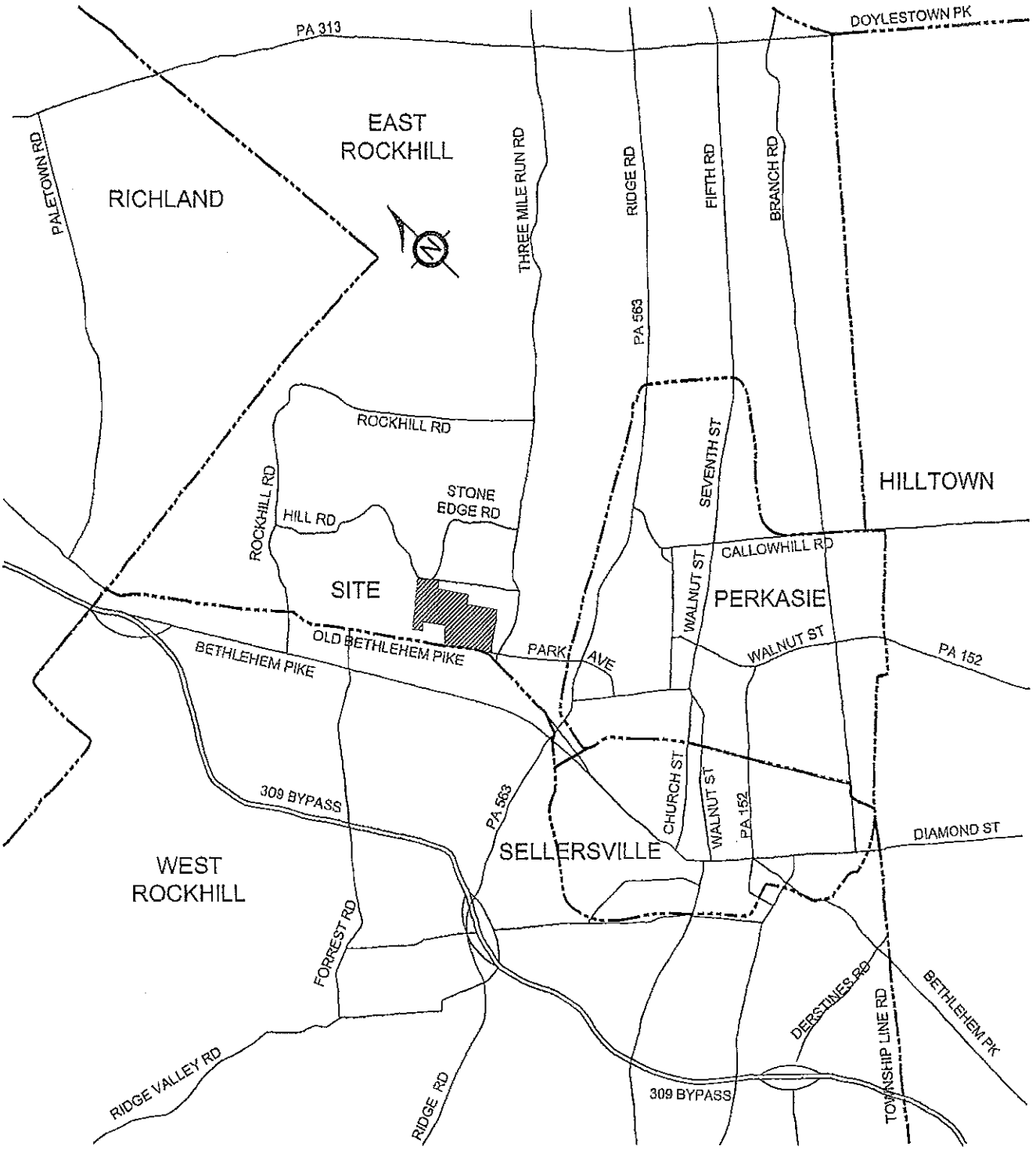


FIGURE 1
SITE LOCATION MAP

McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT
**EAST ROCKHILL TOWNSHIP, PA**

## EXISTING TRAFFIC CONDITIONS

Select Properties, Inc. proposes to develop the McClennen Property Residential Development on an approximate 64.2 acre tract located along Old Bethlehem Pike and along Hill Road north of Three Mile Run Road in East Rockhill Township, Bucks County, Pennsylvania. Access to the site will be provided via a roadway that will intersect Old Bethlehem Pike at a point north of Park Avenue, and a roadway that will intersect Hill Road at a point directly opposite Stone Edge Road.

### *Roadway Characteristics*

Old Bethlehem Pike is a two-way, two-lane local road. Old Bethlehem Pike provides one travel lane in both directions within a cartway width of 18 to 22 feet. Traffic on Old Bethlehem Pike is Stop-sign controlled on the approach to the unsignalized intersection with Park Avenue. The posted speed limit along Old Bethlehem Pike is 35 miles per hour.

Park Avenue is a two-way, two-lane local road. Park Avenue is generally about 22 feet wide, but has been widened for a short distance up to 31 feet immediately south of Three Mile Run Road. The posted speed limit along Park Avenue is 35 miles per hour.

Three Mile Run Road is a two-way, two-lane local road. Three Mile Run Road is generally about 20 to 24 feet wide, but has been widened for a short distance up to 28 feet immediately west of Park Avenue. Traffic on Three Mile Run Road is Stop-sign controlled on the approaches to the unsignalized intersections with Park Avenue and with Old Bethlehem Pike. The posted speed limit along Three Mile Run Road is 35 miles per hour.

Hill Road is a two-way, two-lane local road. Hill Road is generally about 18 to 20 feet wide, but has been widened for a short distance to 30 feet immediately south of Stone Edge Road. Traffic on Hill Road is Stop-sign controlled on the approaches to the unsignalized intersections with Three Mile Run Road and with Rockhill Road. There is no posted speed limit along Hill Road.

Rockhill Road is a two-way, two-lane local road. Rockhill Road is generally about 21 to 22 feet wide. Traffic on Rockhill Road is Stop-sign controlled on the approach to the unsignalized intersection with Old Bethlehem Pike. The posted speed limit along Rockhill Road is 35 miles per hour.

Stone Edge Road is a two-way, two-lane residential street. Stone Edge Road is about 20 feet wide. Traffic on Stone Edge Road is Stop-sign controlled on the approach to the unsignalized intersection with Hill Road. The posted speed limit along Stone Edge Road is 25 miles per hour.

***Existing Traffic Volume***

To establish existing traffic patterns in the vicinity of the proposed hotel development, a series of Intersection Turning Movement Counts were completed in the vicinity of the site. A copy of the Traffic Volume Summary sheets is provided in Appendix A.

A review of the data indicates that traffic demand peaks during two periods of the day -- in the morning between 7:00 AM and 9:00 AM when many people are traveling to work and again in the late afternoon between 4:00 PM and 6:00 PM when most people are traveling home from work. Traffic volumes are lower during the middle of the day and are substantially reduced later in the evening through the late night and early morning hours. To reflect peak traffic periods, intersection turning movement counts were completed for the morning (7:00 AM to 9:00 AM) and the afternoon (4:00 PM to 6:00 PM) peak periods at the following intersections:

- Park Avenue/Three Mile Run Road
- Old Bethlehem Pike/Three Mile Run Road
- Old Bethlehem Pike/Park Avenue
- Old Bethlehem Pike/Rockhill Road/Weikel Road
- Three Mile Run Road/Hill Road
- Rockhill Road/Hill Road
- Hill Road/Stone Edge Road

The four highest consecutive 15 minute periods during the morning and afternoon count periods constitute the peak hours, which are the basis of this Traffic Impact Study. The resulting morning and afternoon peak hour traffic flows are illustrated in the Figures

2 and 3, respectively, for the intersections listed above. The following table summarizes the existing peak hour traffic volumes at each of the intersections listed.

**EXISTING TOTAL INTERSECTION VOLUMES**
**(June, 2010)**

| Intersection | Morning Peak Hour (7:15AM-8:15AM) | Afternoon Peak Hour (4:30PM-5:30PM) |
|---|---|---|
| Park Avenue/Three Mile Run Road | 473 | 722 |
| Old Bethlehem Pike/Three Mile Run Road | 186 | 243 |
| Old Bethlehem Pike/Park Avenue | 376 | 638 |
| Old Bethlehem Pike/Rockhill Road/Weikel Road | 404 | 686 |
| Three Mile Run Road/Hill Road | 197 | 240 |
| Rockhill Road/Hill Road | 112 | 151 |
| Hill Road/Stone Edge Road | 80 | 79 |

***Existing Volume/Capacity Analysis***

While traffic volumes provide a measure of activity on the area road system, it is also important to calculate the ability of the road system to adequately accommodate the traffic demand. This involves a comparison of peak hour traffic demand with available roadway or intersection capacity. Intersections are usually the critical points in any road network. At intersections, conflicts occur between through, crossing and turning traffic. It is at intersections where congestion is most likely to occur.

A volume/capacity analysis was completed for the four intersections in the study area based on the peak hour traffic volumes illustrated in Figures 2 and 3. The volume/ capacity analysis was completed in accordance with the procedures contained in the "Highway Capacity Manual"[(1)]. By definition, capacity represents "the maximum rate of flow that can reasonably be expected to pass a point on a uniform section of a lane or a functioning of an intersection or a uniform section of lane or roadway can be expressed in

(1) *"Highway Capacity Manual", Transportation Research Board, National Research Council, Washington,D.C.,2000.*

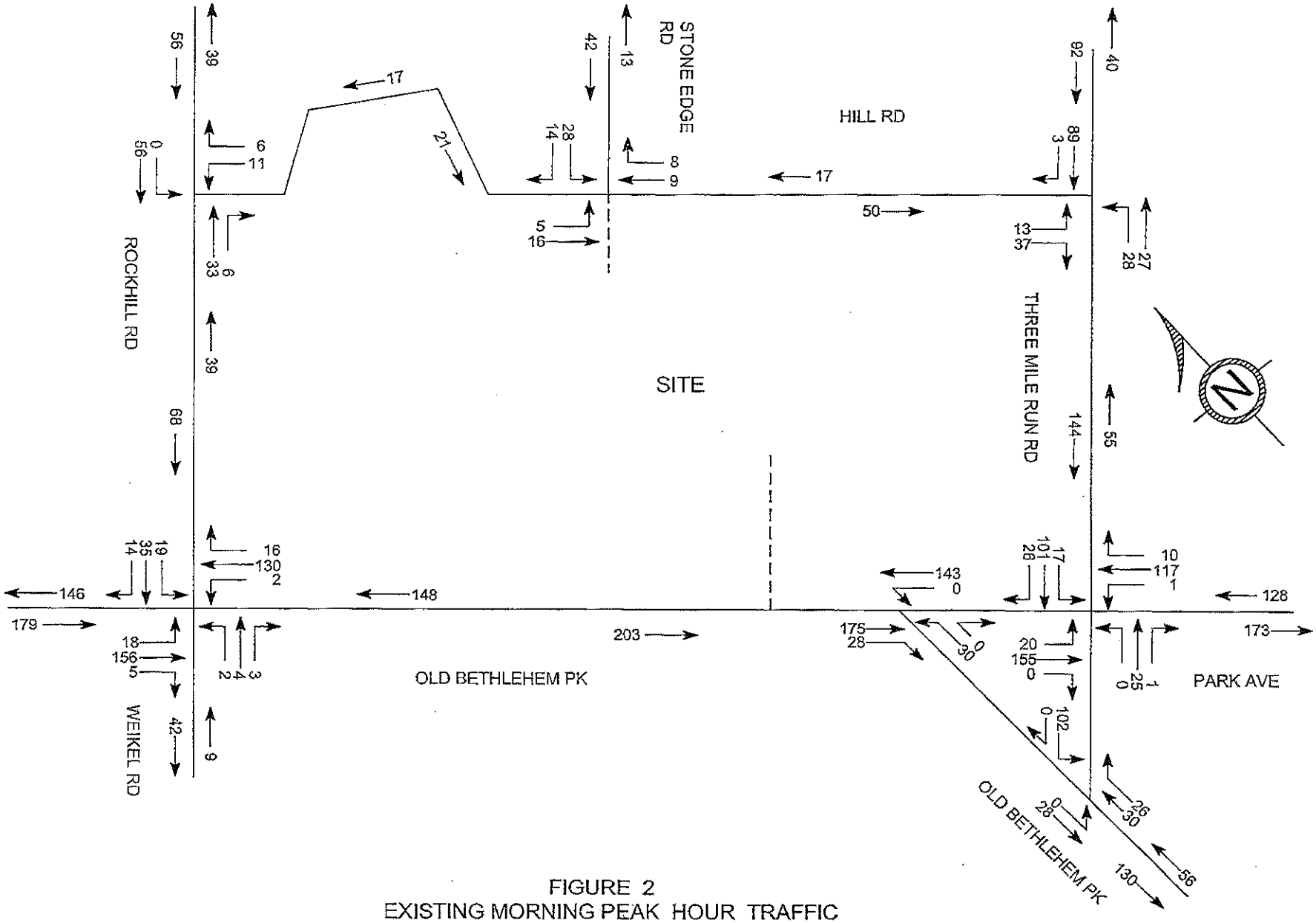


FIGURE 2
EXISTING MORNING PEAK HOUR TRAFFIC
(7:15 AM TO 8:15 AM)

McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT

**EAST ROCKHILL TOWNSHIP, PA**

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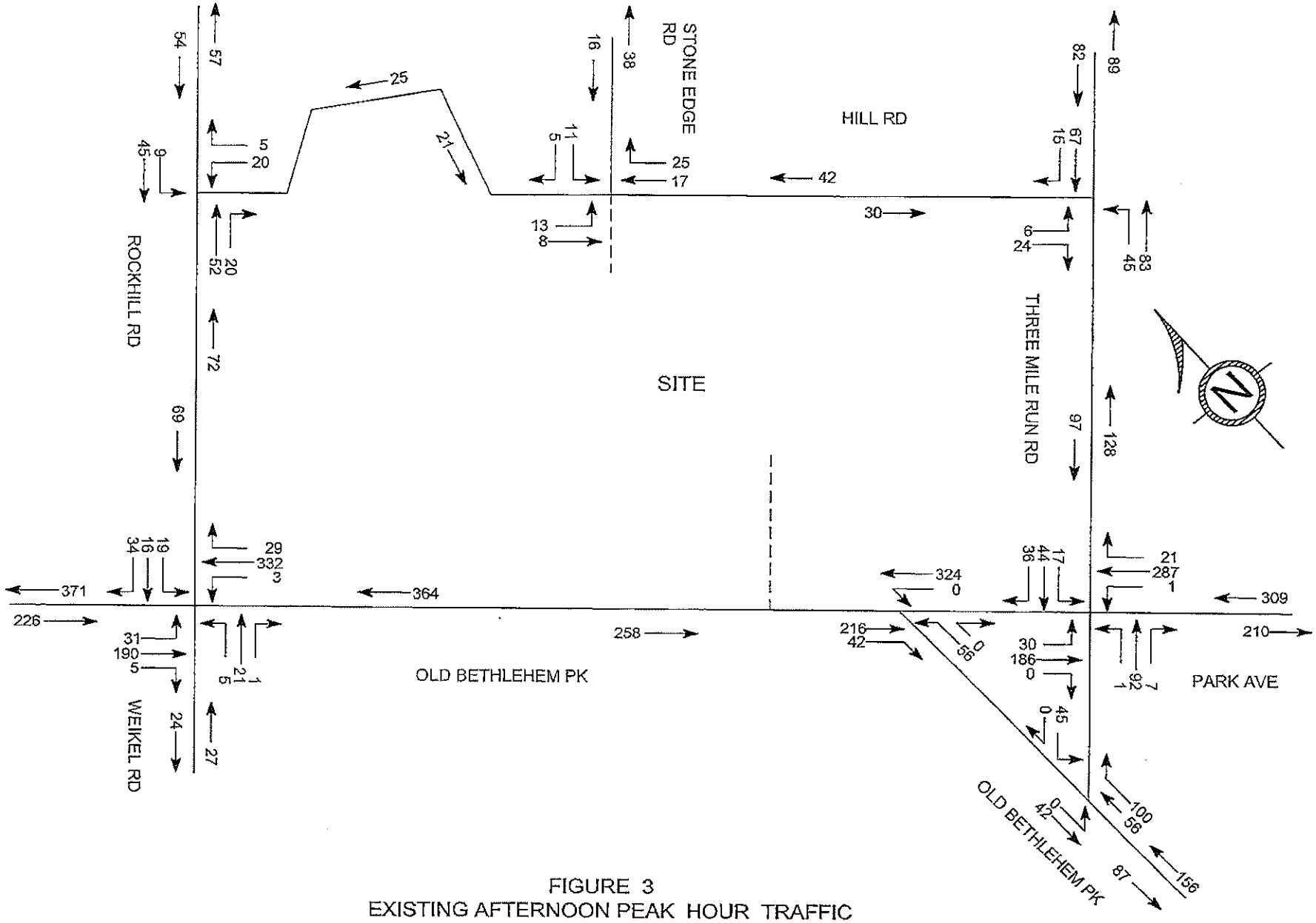


FIGURE 3
EXISTING AFTERNOON PEAK HOUR TRAFFIC
(4:30 PM TO 5:30 PM)
McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT
**EAST ROCKHILL TOWNSHIP, PA**

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terms of levels of service. A Level of Service is defined as "a qualitative measure describing operational conditions within a traffic stream, or the perception by motorists and/or passengers . . . Such measures include speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

In calculating the capacity of an unsignalized intersection, it is assumed that the through movements on the major street and the right turns from the major street are unimpeded and have the right-of-way over all minor street traffic and left turns from the major street. All other movements in the intersection cross, merge with, or are affected by other flows. For each movement, all conflicting flows are summed and a "critical gap" is determined. The control delay of a critical movement includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Since operation at capacity is usually unsatisfactory to most drivers, a descriptive mechanism has been developed which relates capacity with the expected traffic delay. This is known as Level of Service (LOS). Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. A description of the levels of service concept is provided in Appendix B. Appendix B also provides the correlation between levels of service and the average total delay per vehicle at unsignalized intersections.

A volume/capacity analysis was completed for the existing morning and afternoon peak hour traffic volumes at the intersections in the study area. The resultant peak hour levels of service are summarized and illustrated for existing peak hour traffic conditions in Figure 4.

As shown in Figure 4, the results of the analysis reveal that all critical movements at all of the unsignalized intersections in the study area are currently operating at an acceptable LOS C or better during both the morning and afternoon peak hours.

In summary, the results of the existing conditions analysis indicate that the roadways and intersections in the vicinity of the site are currently subject to low to moderate peak hour traffic demands. The results of the volume/capacity analysis for existing peak hour traffic indicate that traffic is operating with very little traffic delay and congestion during weekday peak periods.

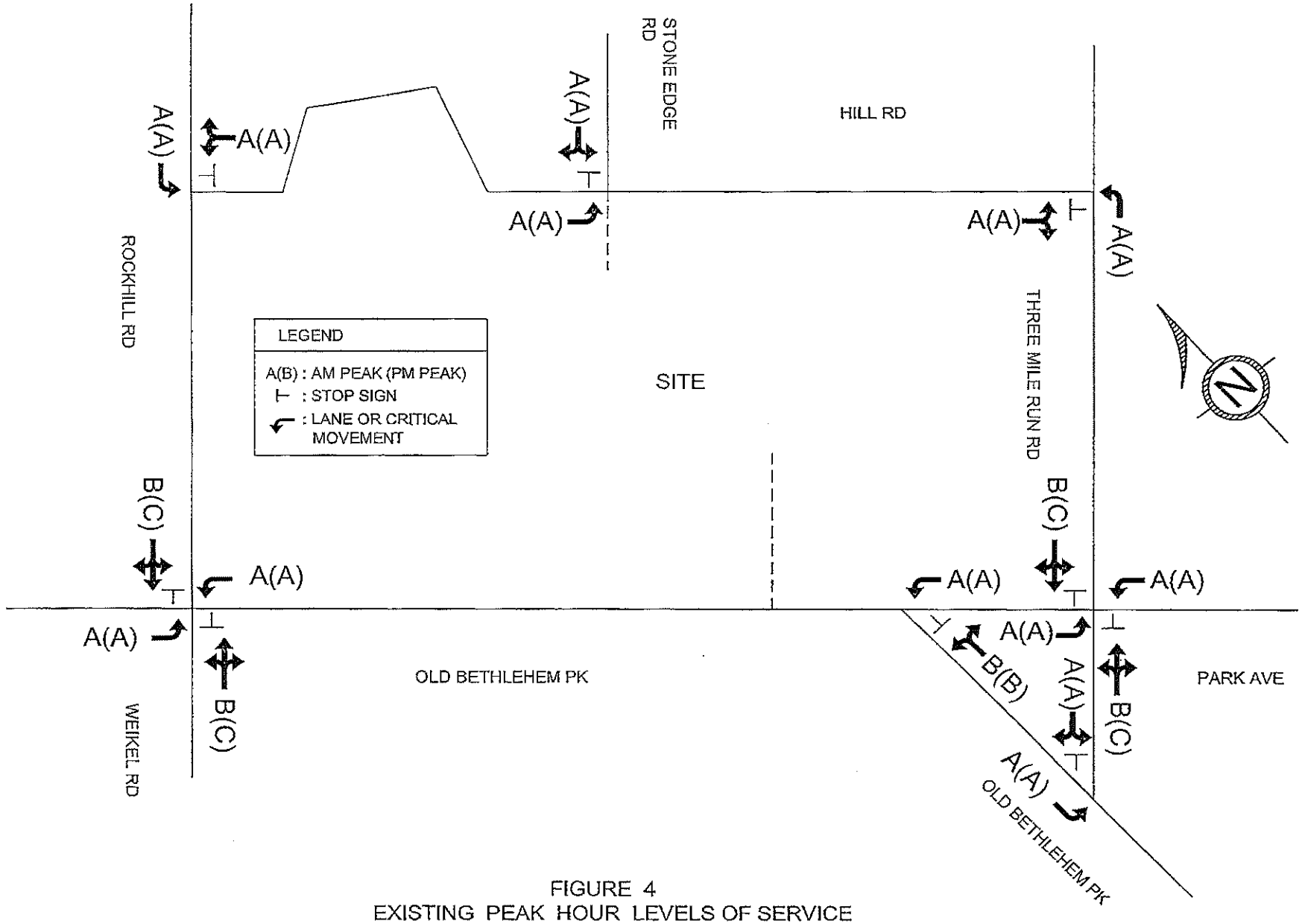


FIGURE 4
EXISTING PEAK HOUR LEVELS OF SERVICE
(JUNE 2010)
McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT
**EAST ROCKHILL TOWNSHIP, PA**

## FUTURE TRAFFIC VOLUME

Select Properties, Inc. proposes to develop the McClennen Property Residential Development on an approximate 64.2 acre tract located along Old Bethlehem Pike and along Hill Road north of Three Mile Run Road in East Rockhill Township, Bucks County, Pennsylvania. The proposed development will be comprised of 52 single family detached houses and 204 townhouses.

The overall impact of new traffic generated by the proposed residential development is established from an estimate of the daily and peak hourly traffic generated by the proposed development in comparison with total future traffic which includes existing base traffic volume data, background traffic growth and traffic activity due to other new developments in close proximity to the site, and traffic generation from the proposed new development. Each of the analysis steps taken to project total future peak hour traffic volume after development of the proposed residential development is discussed below.

### *Site Generated Traffic*

Development of the McClennen Property Residential Development will obviously add some traffic to the roads serving the site -- as would any new development of the property. Estimates of the traffic demand that will be generated by the proposed development were prepared on the basis of trip generation data compiled and evaluated from numerous studies across the country by the Institute of Transportation Engineers[(2)].

Table 1 presents the vehicular trip generation rates calculated for the proposed residential development. Application of these rates to the size of the proposed development produces the daily and peak hourly traffic volumes presented in the bottom of Table 1. As shown, it is anticipated that the proposed residential development will generate about 1,770 vehicular trips per day (total inbound and outbound). Peak hourly traffic is expected to occur coincident with the normal commuter rush hours of the

(2) *Trip Generation, 8th Edition, Institute of Transportation Engineers, Washington, D.C., 2008.*

## TABLE 1

## TRAFFIC GENERATION CHARACTERISTICS
## McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT
## EAST ROCKHILL TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

### TRIP RATES[1]

| Description | Daily | Morning Peak Hour | | | Afternoon Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | In | Out | Total | In | Out | Total |
| Single Family Detached Houses (52 DU)[2] | 10.96 | 0.22 | 0.67 | 0.89 | 0.71 | 0.41 | 1.12 |
| Townhouses (204 DU)[2] | 5.86 | 0.08 | 0.37 | 0.45 | 0.35 | 0.18 | 0.53 |

### TRAFFIC VOLUMES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Single Family Detached Houses (52 DU) | 570 | 12 | 34 | 46 | 37 | 21 | 58 |
| Townhouses (204 DU) | 1,200 | 16 | 75 | 91 | 72 | 36 | 108 |
| TOTAL TRIPS | 1,770 | 28 | 109 | 137 | 109 | 57 | 166 |

(1) *Trip Generation, 8th Edition, Institute of Transportation Engineers, Washington, D.C., 2008.*
(2) *Trips per Dwelling Unit (ITE Land Use Codes 210 and 230).*

adjacent roadway network. During these time periods, peak hourly traffic generation is expected to total 137 trips per hour during the morning peak hour and 166 trips per hour during afternoon peak hour.

***Traffic Distribution***

It is anticipated that traffic generated by the proposed residential development will approach and depart the site according to existing traffic patterns along the roadways in the vicinity of the site. It is, therefore, anticipated that the distribution of new development-generated traffic will be as follows:

- 33% to/from the south on Park Avenue
- 26% to/from the north on Old Bethlehem Pike
- 20% to/from the south on Old Bethlehem Pike
- 8% to/from the east on Three Mile Run Road
- 6% to/from the east on Rockhill Road
- 5% to/from the west on Weikel Road
- 2% to/from the east on Stone Edge Road

Figure 5 shows the results of distributing the traffic generation characteristics listed in Table 1 to the surrounding roadway network based upon the percentages listed above.

***Other Traffic***

Development of the McClennen Property Residential Development will occur over the two years or more. During the period of construction and occupancy of the proposed residential development, other development activity can be expected to occur in the area resulting in an additional increase in traffic volumes on the roadways in the vicinity of the site regardless of development of the McClennen Property.

The analysis of future peak hour traffic conditions without development of the proposed McClennen Property considers traffic growth over a seven year period to account for background traffic growth. Existing peak hourly traffic through the intersections in the study area was factored at a rate of 0.89% per year compounded for seven years (i.e., 6.25%) to account for background traffic growth.

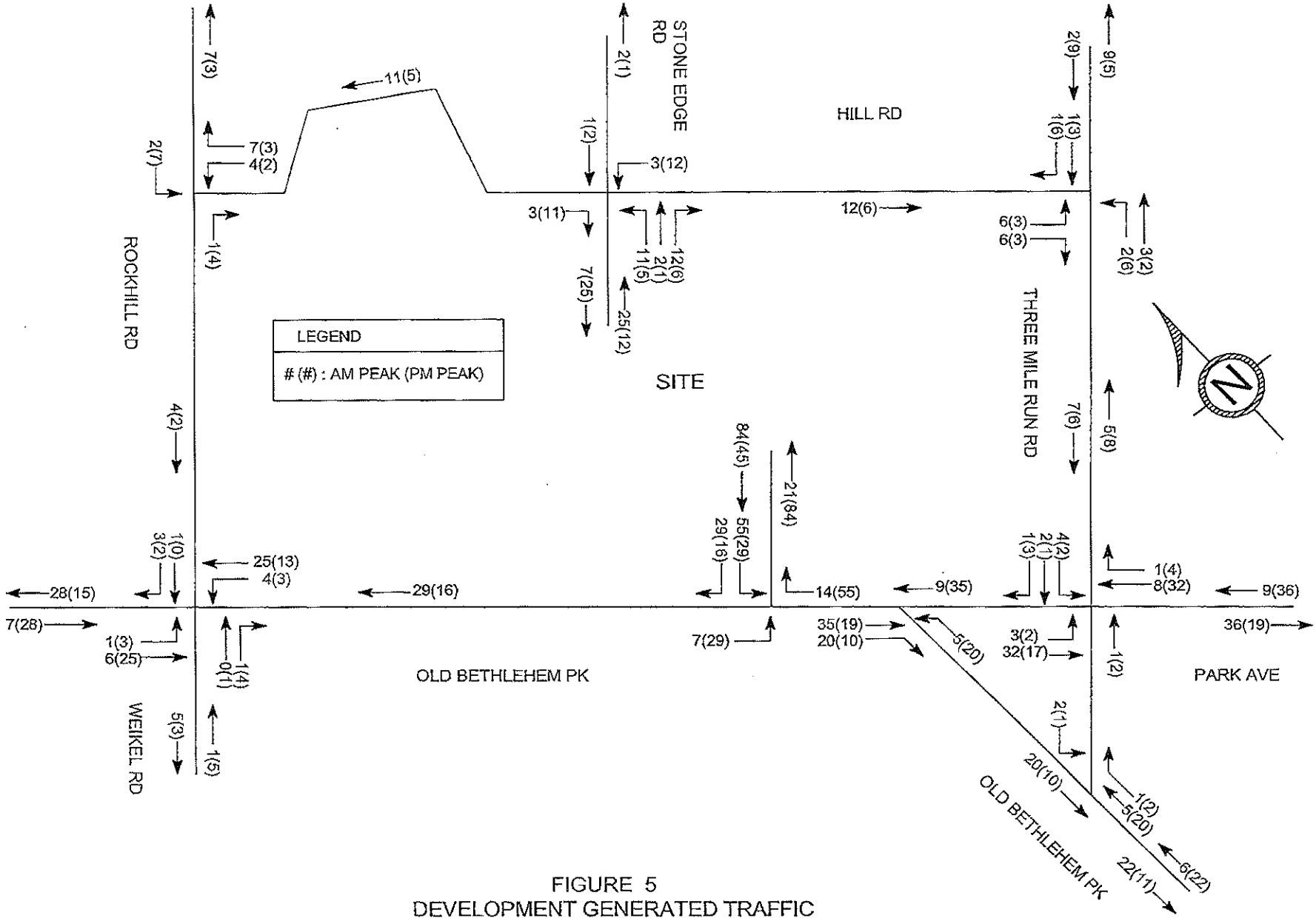


FIGURE 5
DEVELOPMENT GENERATED TRAFFIC

McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT
**EAST ROCKHILL TOWNSHIP, PA**

## FUTURE TRAFFIC CONDITIONS

Evaluation of the performance of the key intersections in the study area under future conditions without and after development of the proposed McClennen Property Residential Development requires a comparison of the available roadway and intersection capacity with projected future traffic demands. Projected future levels of service are determined from these comparisons which, in turn, may indicate the need for improvements to the area roadway network. It should be noted that the analysis of future conditions is based on peak hour traffic conditions. Traffic demand at other times of the day will be reduced relative to peak hour traffic.

### *Future (2017) Volume/Capacity Analysis Without Development*

Future (2017) morning and afternoon peak hour traffic volumes without development of the McClennen Property are presented in Figures 6 and 7, respectively. A volume/capacity analysis was completed for the traffic projections illustrated in Figures 6 and 7. The results of the analysis are summarized in terms of levels of service in Figure 8 for future (2017) peak hour traffic conditions without development of the McClennen Property.

Obviously, as traffic volume increases, traffic delay will also increase and level of service can be expected to worsen in some locations, regardless of development of the McClennen Property. As shown in Figure 8, however, the results of the analysis reveal that, with one exception, all critical movements at all of the unsignalized intersections in the study area will continue to operate at an acceptable LOS C or better during both the morning and afternoon peak hours. Eastbound traffic on the Stop-sign controlled approach of Three Mile Run Road at the intersection with Park Avenue is indicated to operate at an acceptable LOS D during the afternoon peak hour.

### *Future (2017) Volume/Capacity Analysis After Development*

The volumes illustrated in Figure 5 were added to the future (2017) peak hour traffic volumes without development as previously presented in Figures 6 and 7. Figures 9 and 10 illustrate total future (2017) morning and afternoon peak hourly traffic volumes after development of the proposed McClennen Property Residential Development.

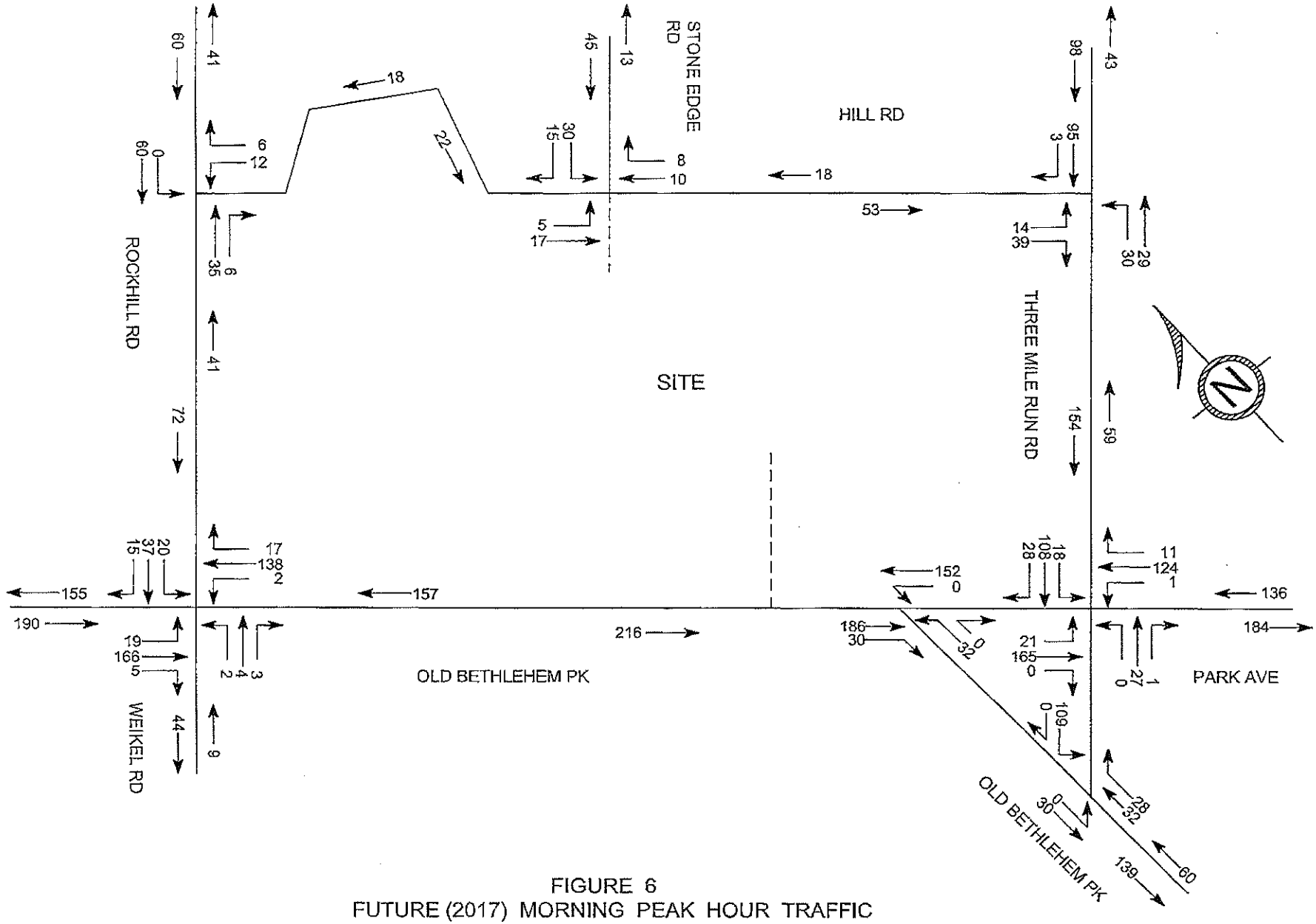


FIGURE 6
FUTURE (2017) MORNING PEAK HOUR TRAFFIC
WITHOUT DEVELOPMENT

McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT

**EAST ROCKHILL TOWNSHIP, PA**

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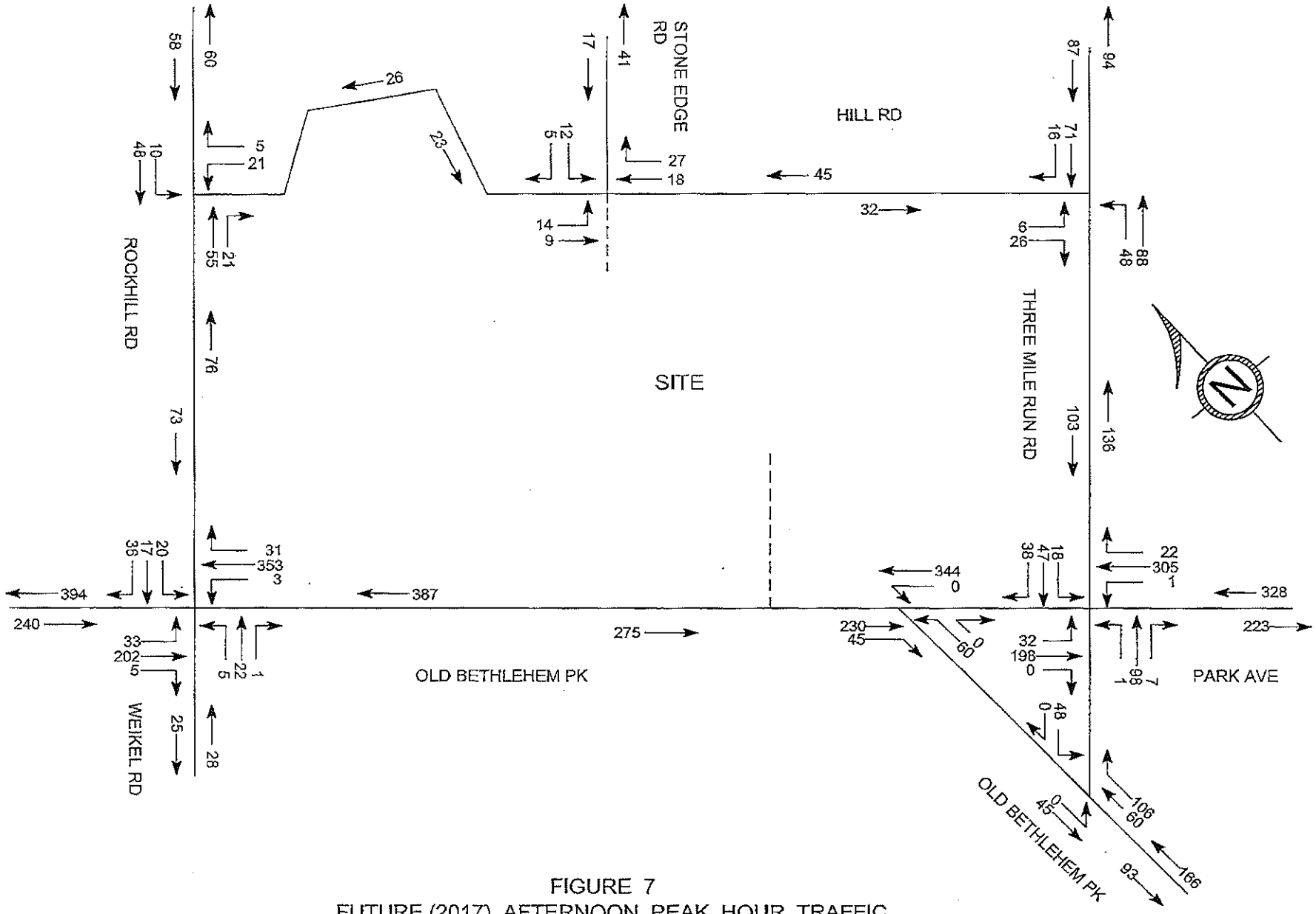


FIGURE 7
FUTURE (2017) AFTERNOON PEAK HOUR TRAFFIC
WITHOUT DEVELOPMENT
McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT
**EAST ROCKHILL TOWNSHIP, PA**

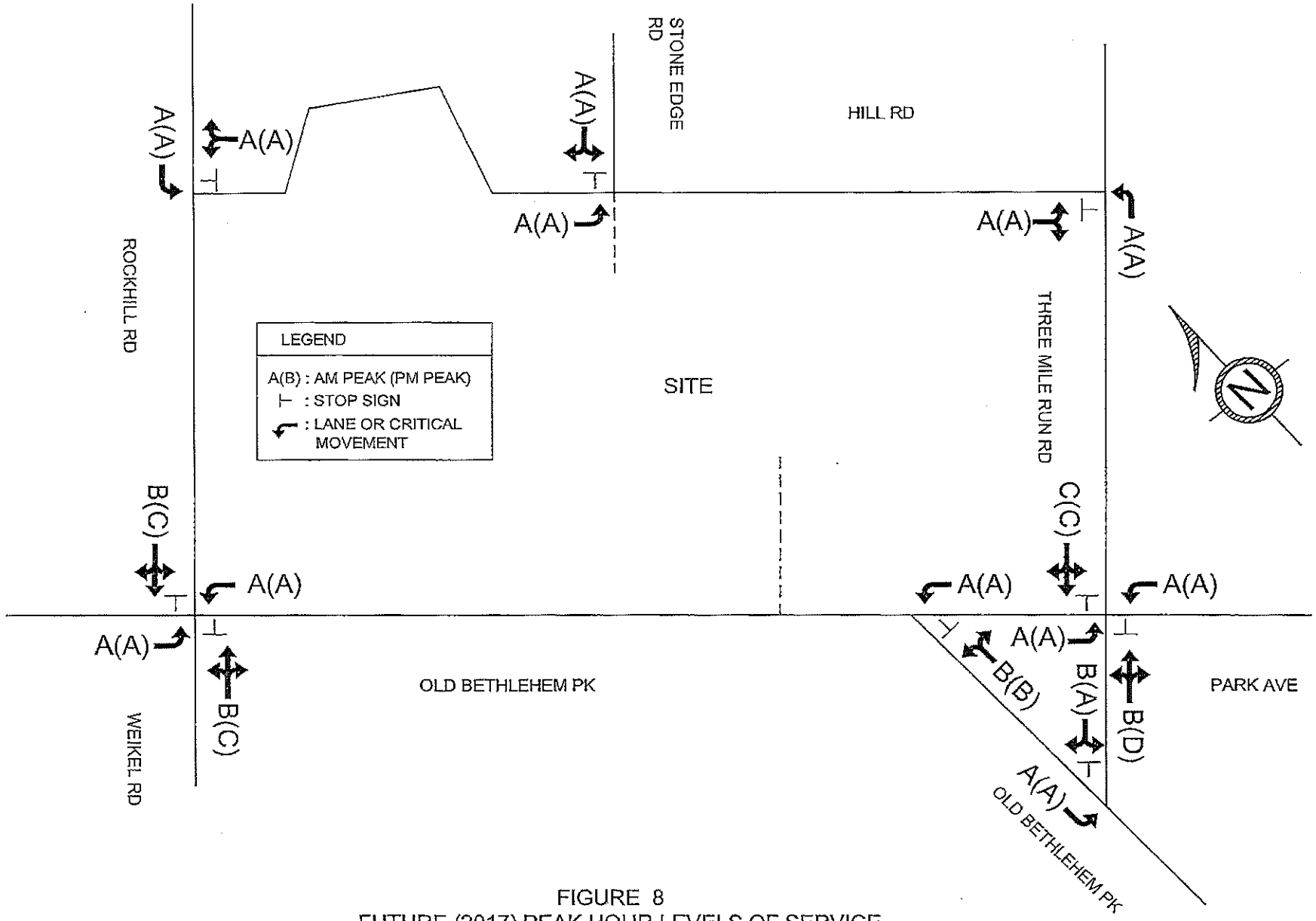


FIGURE 8
FUTURE (2017) PEAK HOUR LEVELS OF SERVICE
WITHOUT DEVELOPMENT
McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT
**EAST ROCKHILL TOWNSHIP, PA**

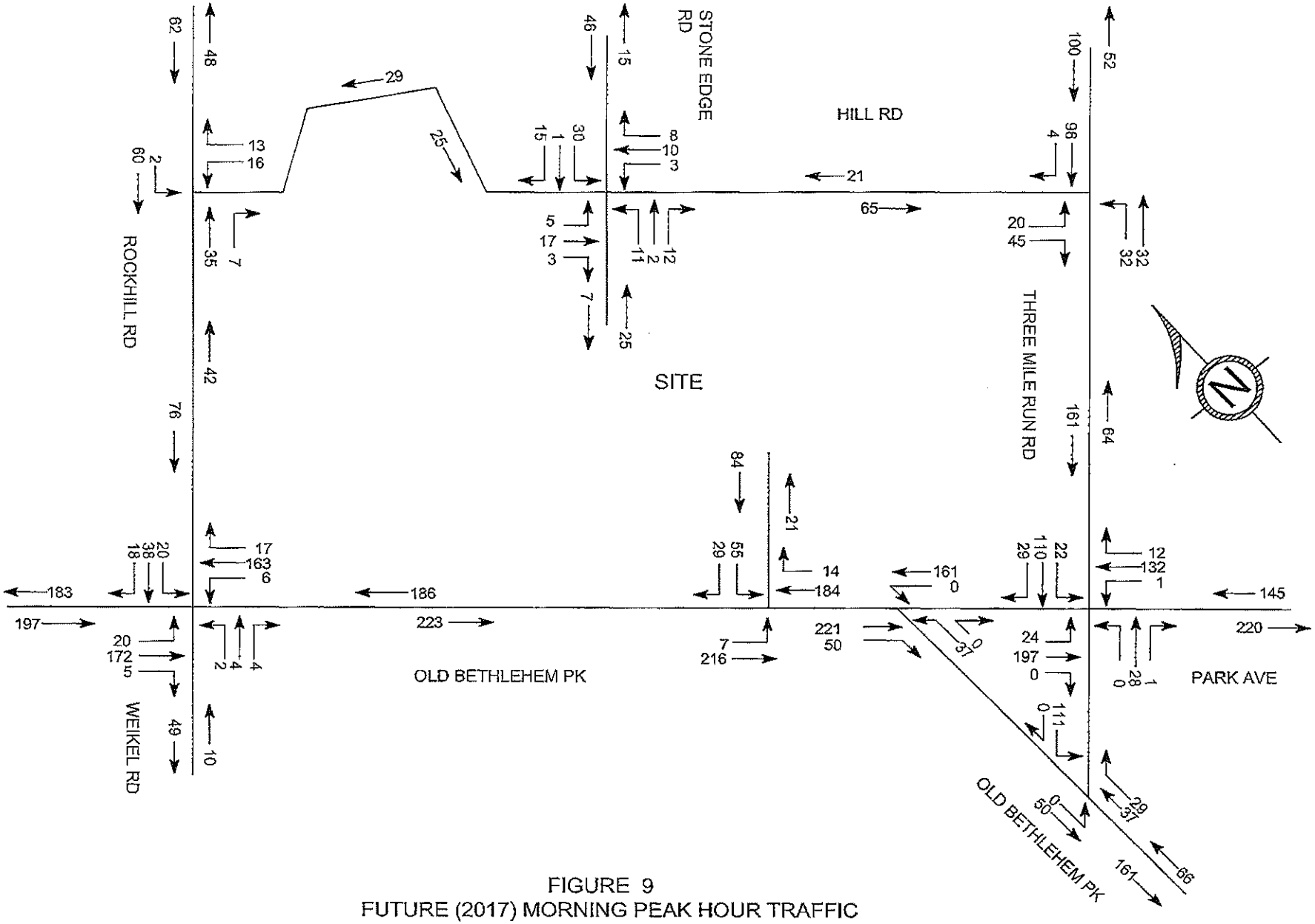


FIGURE 9
FUTURE (2017) MORNING PEAK HOUR TRAFFIC
AFTER DEVELOPMENT

McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT

**EAST ROCKHILL TOWNSHIP, PA**

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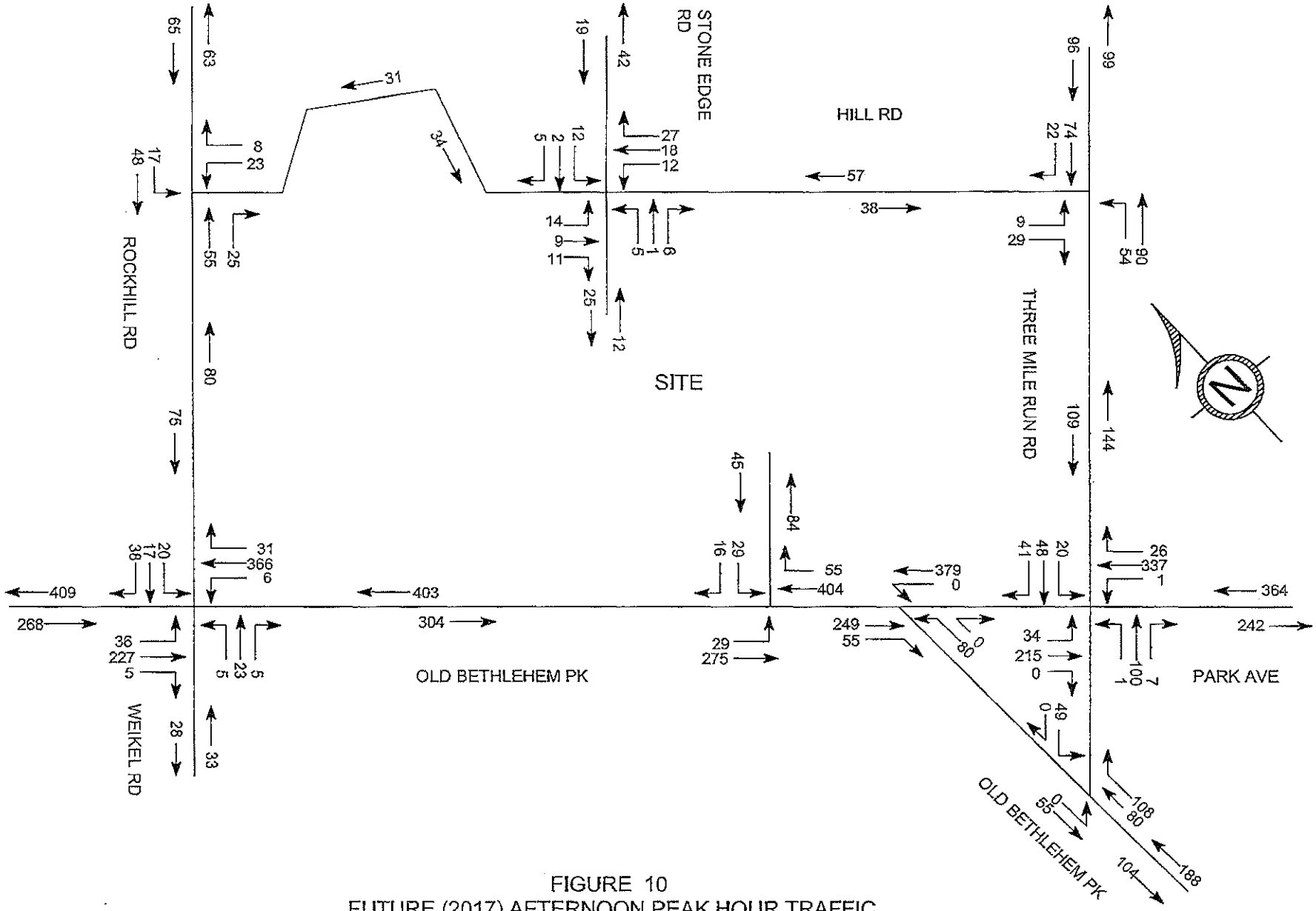


FIGURE 10
FUTURE (2017) AFTERNOON PEAK HOUR TRAFFIC
AFTER DEVELOPMENT

McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT

**EAST ROCKHILL TOWNSHIP, PA**

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A volume/capacity analysis was completed at the intersections in the study area based on the peak hour traffic volumes illustrated in Figures 9 and 10. Figure 11 presents the results of the volume/capacity analysis for future peak hour traffic conditions after development of the McClennen Property Residential Development.

As shown in Figure 11, the results of the analysis reveal that, with one additional exception, all critical movements at all of the unsignalized intersections in the study area will continue to operate at an acceptable LOS C or better during both the morning and afternoon peak hours. Westbound traffic on the Stop-sign controlled approach of Three Mile Run Road at the intersection with Park Avenue is indicated to also operate at an acceptable LOS D during the afternoon peak hour.

***Site Access***

As described previously, access to the site will be provided via a roadway that will intersect Old Bethlehem Pike at a point approximately 650 feet north of Park Avenue, and a roadway that will intersect Hill Road at a point directly opposite Stone Edge Road. Both access roads will be constructed to provide one entry lane and one exit lane.

Review of warrants for widening to provide separate turning lanes at either access location reveals that Old Bethlehem Pike should be widened to provide a separate left turn lane 75 feet long with a bay taper 100 feet long with the appropriate through lane transition tapers. Otherwise, warrants are not satisfied for widening for a right turn deceleration lane for access along Old Bethlehem Pike; and, warrants are not satisfied for widening for a separate left turn lane or a right turn deceleration lane for access along Hill Road.

Based on the posted speed limit of 35 miles per hour along Old Bethlehem Pike, it is desirable to provide adequate safe sight distance of 440 feet to the left and 350 feet to the right of the proposed access location. Observations indicate, however, that adequate sight distance well in excess of 500 feet is available in both directions along Old Bethlehem Pike for traffic exiting and entering to/from the proposed site access roadway.

Similarly, it is desirable to provide adequate safe sight distance of 440 feet to the left and 350 feet to the right of the proposed access location that will intersect Hill Road. Observations indicate that adequate sight distance in excess of 500 feet is available in

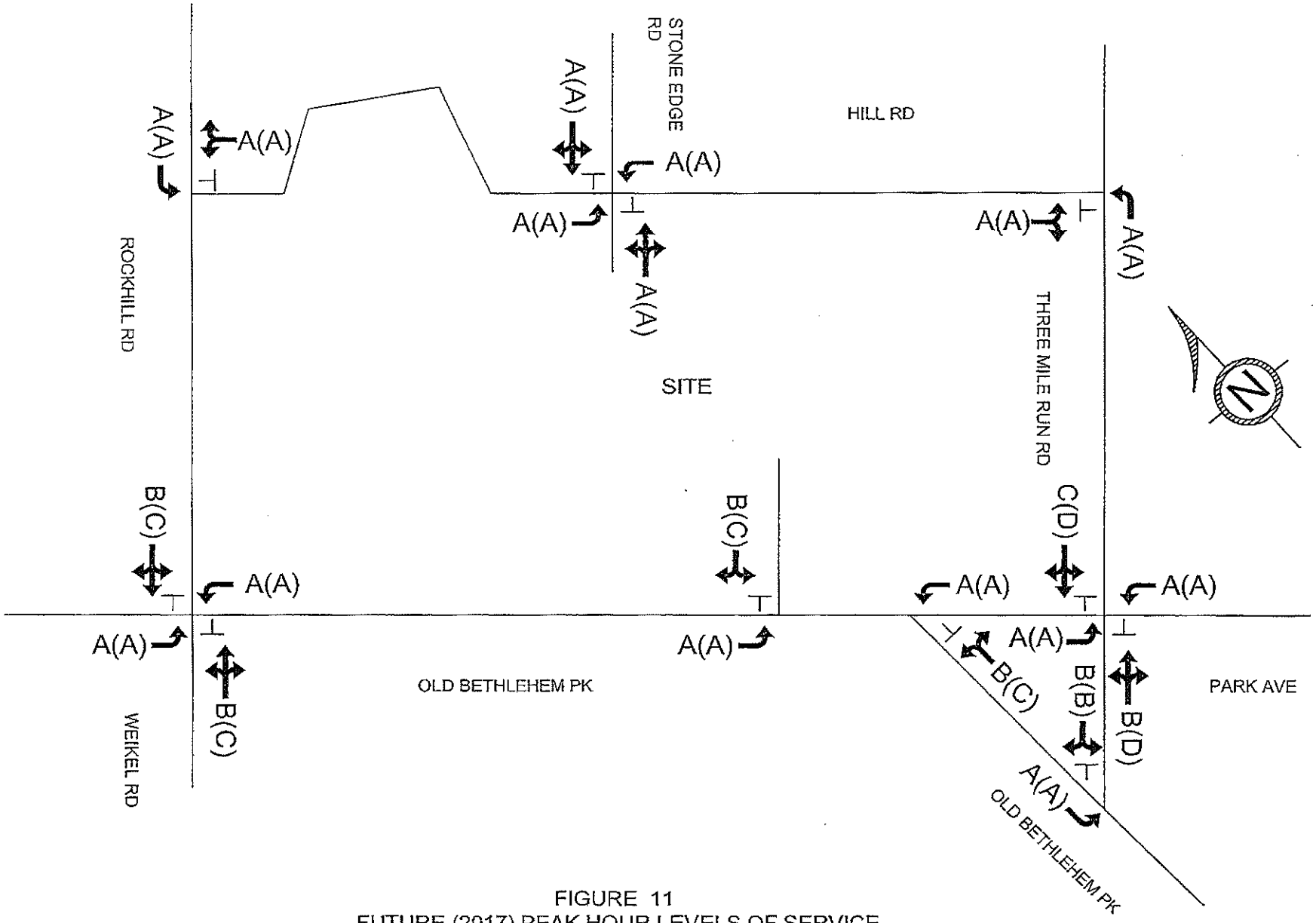


FIGURE 11
FUTURE (2017) PEAK HOUR LEVELS OF SERVICE
AFTER DEVELOPMENT

McCLENNEN PROPERTY RESIDENTIAL DEVELOPMENT

**EAST ROCKHILL TOWNSHIP, PA**

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both directions along Hill Road for traffic exiting and entering to/from the proposed site access roadway.

Finally, all critical movements at the new access roadways that will provide access for the proposed residential development will operate at an acceptable LOS C or better after development.

## CONCLUSIONS

Select Properties, Inc. proposes to develop the McClennen Property Residential Development on an approximate 64.2 acre tract located along Old Bethlehem Pike and along Hill Road north of Three Mile Run Road in East Rockhill Township, Bucks County, Pennsylvania. The proposed development will be comprised of 52 single family detached houses and 204 townhouses. Access to the site will be provided via a roadway that will intersect Old Bethlehem Pike at a point approximately 650 feet north of Park Avenue, and a roadway that will intersect Hill Road at a point directly opposite Stone Edge Road.

In analyzing traffic conditions in the vicinity of the site, this Traffic Impact Study has resulted in the following conclusions and recommendations:

- The results of the existing conditions analysis indicate that the roadways and intersections in the vicinity of the site are currently subject to low to moderate peak hour traffic demands. The results of the volume/capacity analysis for existing peak hour traffic indicate that traffic is operating with very little traffic delay and congestion during weekday peak periods.

- It is anticipated that the proposed McClennen Property Residential Development will generate about 1,770 vehicular trips per day (total inbound and outbound). Peak hourly traffic is expected to occur coincident with the normal commuter rush hours of the adjacent roadway network. During these time periods, peak hourly traffic generation is expected to total 137 trips per hour during the morning peak hour and 166 trips per hour during afternoon peak hour.

- This analysis of future peak hour traffic conditions without development of the proposed business hotel considers traffic growth over the next seven years or so to account for background traffic growth. Existing peak hourly traffic through the intersections in the study area was factored at a rate of 0.89% per year compounded for seven years (i.e., 6.25%) to account for background traffic growth.

- As traffic volume increases, traffic delay will also increase. Regardless of development of the McClennen Property, all critical movements at all of the unsignalized intersections in the study area will continue to operate at an acceptable LOS C or better during both the morning and afternoon peak hours, with one exception. Eastbound traffic on the Stop-sign controlled approach of

Three Mile Run Road at the intersection with Park Avenue is indicated to operate at an acceptable LOS D during the afternoon peak hour.

- With development of the McClennen Property as proposed, all critical movements at all of the unsignalized intersections in the study area will continue to operate at an acceptable LOS C or better during both the morning and afternoon peak hours, with one additional exception. Westbound traffic on the Stop-sign controlled approach of Three Mile Run Road at the intersection with Park Avenue is indicated to also operate at an acceptable LOS D during the afternoon peak hour.

- Both access roadways will be constructed to provide one entry lane and one exit lane. Review of warrants for widening to provide separate turning lanes at either access location reveals that Old Bethlehem Pike should be widened to provide a separate left turn lane 75 feet long with a bay taper 100 feet long with the appropriate through lane transition tapers. Otherwise, warrants are not satisfied for widening for a right turn deceleration lane for access along Old Bethlehem Pike; and, warrants are not satisfied for widening for a separate left turn lane or a right turn deceleration lane for access along Hill Road.

- Based on the posted speed limit of 35 miles per hour along Old Bethlehem Pike, it is desirable to provide adequate safe sight distance of 440 feet to the left and 350 feet to the right of the proposed access location. Observations indicate, however, that adequate sight distance well in excess of 500 feet is available in both directions along Old Bethlehem Pike for traffic exiting and entering to/from the proposed site access roadway. Similarly, it is desirable to provide adequate safe sight distance of 440 feet to the left and 350 feet to the right of the proposed access location that will intersect Hill Road. Observations indicate that adequate sight distance in excess of 500 feet is available in both directions along Hill Road for traffic exiting and entering to/from the proposed site access roadway.

- Table 2 summarizes the results of the volume/capacity analysis for the existing, future without development, and future after development scenarios. As indicated, there is little change in the peak hour operating characteristics of the intersections included in the study area due to new traffic generated by the proposed McClennen Property Residential Development.

Based on results of the foregoing Traffic Impact Study, safe and efficient access will be provided to the proposed McClennen Property Residential Development.

## TABLE 2
## LEVEL OF SERVICE (DELAY) SUMMARY

| Intersection | Approach | AM Peak Hour LOS (Delay sec./veh.) | | | PM Peak Hour LOS (Delay sec./veh.) | | |
|---|---|---|---|---|---|---|---|
| | | Existing | Future W/O Development | Future After Development | Existing | Future W/O Development | Future After Development |
| Park Avenue & Three Mile Run Road | EB L/T/R | B | B | B | C | D | D |
| | WB L/T/R | B | C | C | C | C | D |
| | NB L | A | A | A | A | A | A |
| | SB L | A | A | A | A | A | A |
| Old Bethlehem Pike & Three Mile Run Road | WB L/R | A | B | B | A | A | B |
| | SB L | A | A | A | A | A | A |
| Old Bethlehem Pike & Park Avenue | EB L/R | B | B | B | B | B | C |
| | NB L | A | A | A | A | A | A |
| Old Bethlehem Pike & Rockhill Road/Weikel Road | EB L/T/R | B | B | B | C | C | C |
| | WB L/T/R | B | B | B | C | C | C |
| | NB L | A | A | A | A | A | A |
| | SB L | A | A | A | A | A | A |
| Three Mile Run Road & Hill Road | EB L | A | A | A | A | A | A |
| | SB L/R | A | A | A | A | A | A |
| Rockhill Road & Hill Road | WB L | A | A | A | A | A | A |
| | NB L/R | A | A | A | A | A | A |
| Hill Road & Stone Edge Road/Site Access | EB L/R or L/T/R | A | A | A | A | A | A |
| | WB L/T/R | - | - | A | - | - | A |
| | NB L | - | - | A | - | - | A |
| | SB L | A | A | A | A | A | A |
| Old Bethlehem Pike & Site Access | WB L/R | - | - | B | - | - | C |
| | SB L | - | - | A | - | - | A |

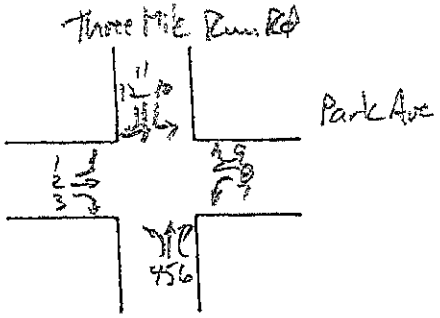
# APPENDIX A

# INTERSECTION TURNING MOVEMENT COUNTS

HEINRICH & KLEIN ASSOCIATES, INC.
TRAFFIC ENGINEERING & PLANNING

# TRAFFIC VOLUME SUMMARY

MUNICIPALITY East Rockhill Rd PA
LOCATION Park Ave & Three Mile Run Rd DATE 6/16/10
HOURS 7:00-9:00 Am & 4:00-6:00 PM WEATHER Overcast
COUNT MADE BY: Frank
REMARKS

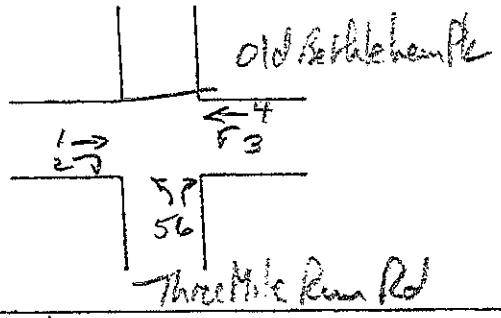


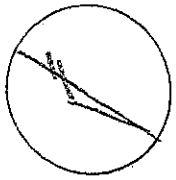
| TIME | From South on Park Ave L1 | S2 | R3 | Total | From East on Three Mile Run Rd L4 | S5 | R6 | Total | From North on Park Ave L7 | S8 | R9 | Total | From West on Three Mile Run Rd L10 | S11 | R12 | Total | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00-7:15 | 0 | 31 | 1 | 2 32 | 1 | 20 | 4 | 1 25 | 6 | 27 | 0 | 1 33 | 0 | 2 | 0 | 0 2 | 92 |
| 7:15-7:30 | 0 | 28 | 4 | 2 32 | 5 | 23 | 6 | 2 34 | 4 | 27 | 0 | 3 31 | 0 | 5 | 0 | 0 5 | 102 x |
| 7:30-7:45 | 0 | 29 | 3 | 3 32 | 3 | 39 | 7 | 1 49 | 1 | 44 | 0 | 2 45 | 0 | 3 | 0 | 0 3 | 129 x |
| 7:45-8:00 | 1 | 34 | 3 | 4 38 | 5 | 24 | 9 | 2 38 | 9 | 53 | 0 | 1 62 | 0 | 10 | 0 | 0 10 | 148 x |
| 8:00-8:15 | 0 | 26 | 0 | 0 26 | 4 | 15 | 4 | 3 23 | 6 | 31 | 0 | 1 37 | 0 | 7 | 1 | 0 8 | 94 x |
| 8:15-8:30 | 1 | 18 | 2 | 3 21 | 5 | 16 | 7 | 2 28 | 8 | 34 | 0 | 5 42 | 1 | 7 | 0 | 1 8 | 99 |
| 8:30-8:45 | 0 | 27 | 2 | 0 29 | 2 | 12 | 5 | 2 19 | 1 | 20 | 0 | 1 21 | 0 | 9 | 1 | 0 10 | 79 |
| 8:45-9:00 | 1 | 30 | 3 | 1 34 | 1 | 12 | 4 | 0 17 | 6 | 31 | 0 | 1 37 | 0 | 0 | 0 | 0 0 | 88 |
| AM Peak Hour 7:15-8:15 | 1 | 117 | 10 | 9 128 | 17 | 101 | 26 | 8 144 | 20 | 155 | 0 | 7 175 | 0 | 25 | 1 | 0 26 | 473 |
| 4:00-4:15 | 0 | 60 | 4 | 1 64 | 2 | 10 | 4 | 0 16 | 5 | 50 | 0 | 0 55 | 0 | 19 | 0 | 0 19 | 154 |
| 4:15-4:30 | 0 | 52 | 7 | 1 59 | 2 | 15 | 5 | 1 22 | 8 | 56 | 0 | 1 64 | 0 | 15 | 0 | 0 15 | 160 |
| 4:30-4:45 | 0 | 85 | 7 | 1 92 | 2 | 9 | 6 | 0 17 | 6 | 44 | 0 | 0 50 | 0 | 12 | 0 | 1 12 | 171 x |
| 4:45-5:00 | 0 | 56 | 7 | 1 63 | 9 | 12 | 11 | 1 32 | 6 | 49 | 0 | 0 55 | 1 | 26 | 3 | 1 30 | 180 x |
| 5:00-5:15 | 1 | 76 | 3 | 0 80 | 3 | 15 | 11 | 0 29 | 8 | 46 | 0 | 0 54 | 0 | 25 | 1 | 0 26 | 189 x |
| 5:15-5:30 | 0 | 70 | 4 | 2 74 | 3 | 8 | 8 | 0 19 | 10 | 47 | 0 | 0 57 | 0 | 29 | 3 | 0 32 | 182 x |
| 5:30-5:45 | 1 | 53 | 12 | 2 66 | 5 | 12 | 9 | 2 26 | 9 | 43 | 0 | 0 52 | 0 | 18 | 0 | 0 18 | 162 |
| 5:45-6:00 | 0 | 66 | 7 | 1 73 | 7 | 12 | 3 | 0 22 | 4 | 47 | 0 | 0 51 | 0 | 23 | 1 | 1 24 | 170 |
| PM Peak Hour 4:30-5:30 | 1 | 287 | 21 | 4 309 | 17 | 44 | 36 | 1 97 | 30 | 186 | 0 | 0 216 | 1 | 92 | 7 | 2 100 | 722 |
| TOTAL | | | | | | | | | | | | | | | | | |

HEINRICH & KLEIN ASSOCIATES, INC.
TRAFFIC ENGINEERING & PLANNING

# TRAFFIC VOLUME SUMMARY

MUNICIPALITY East Rockhill Twp PA
LOCATION Old Bethlehem Pk & Three Mile Run Rd DATE 6/16/10
HOURS 7:00-9:00 AM & 4:00-6:00 PM WEATHER Overcast
COUNT MADE BY: AAH
REMARKS



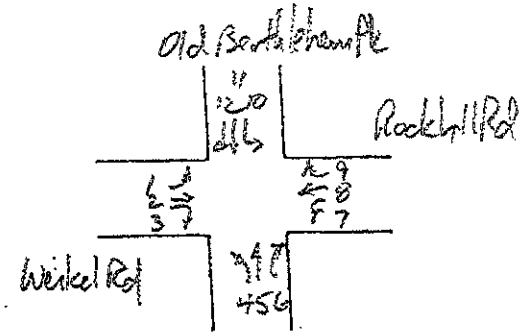



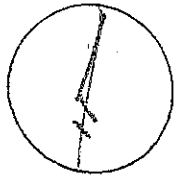

| TIME | From South on Old Bethlehem Pk L | S1 | R2 | Total | From North on Old Bethlehem Pk L3 | S4 | R | Total | From East on Three Mile Run Rd L5 | S | R6 | Total | L | S | R | Total | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00-7:15 | | 6 | 2 | 1 8 | 0 | 6 | | 1 6 | 20 | | 0 | 1 20 | | | | | 34 |
| 7:15-7:30 | | 9 | 5 | 2 14 | 0 | 2 | | 1 2 | 23 | | 0 | 2 23 | | | | | 39 x |
| 7:30-7:45 | | 6 | 3 | 3 9 | 0 | 12 | | 2 12 | 39 | | 0 | 1 39 | | | | | 60 x |
| 7:45-8:00 | | 10 | 10 | 2 20 | 0 | 6 | | 0 6 | 25 | | 0 | 2 25 | | | | | 51 x |
| 8:00-8:15 | | 5 | 8 | 1 13 | 0 | 8 | | 1 8 | 15 | | 0 | 3 15 | | | | | 36 x |
| 8:15-8:30 | | 0 | 8 | 1 8 | 0 | 0 | | 0 0 | 17 | | 0 | 2 17 | | | | | 25 |
| 8:30-8:45 | | 3 | 10 | 0 13 | 0 | 8 | | 2 8 | 12 | | 0 | 2 12 | | | | | 33 |
| 8:45-9:00 | | 4 | 0 | 0 4 | 0 | 9 | | 1 9 | 13 | | 0 | 0 13 | | | | | 26 |
| AM Peak Hour 7:15-8:15 | | 30 | 26 | 8 56 | 0 | 28 | | 4 28 | 102 | | 0 | 8 102 | | | | | 186 |
| 4:00-4:15 | | 10 | 19 | 1 29 | 0 | 10 | | 1 10 | 10 | | 0 | 0 10 | | | | | 49 |
| 4:15-4:30 | | 12 | 15 | 1 27 | 0 | 14 | | 0 14 | 15 | | 0 | 1 15 | | | | | 56 |
| 4:30-4:45 | | 12 | 12 | 1 24 | 0 | 13 | | 0 13 | 9 | | 0 | 0 9 | | | | | 46 x |
| 4:45-5:00 | | 15 | 30 | 1 45 | 0 | 12 | | 0 12 | 12 | | 0 | 1 12 | | | | | 69 x |
| 5:00-5:15 | | 15 | 26 | 0 41 | 0 | 8 | | 0 8 | 16 | | 0 | 0 16 | | | | | 65 x |
| 5:15-5:30 | | 14 | 32 | 0 46 | 0 | 9 | | 0 9 | 8 | | 0 | 0 8 | | | | | 63 x |
| 5:30-5:45 | | 11 | 18 | 1 29 | 0 | 5 | | 0 5 | 13 | | 0 | 2 13 | | | | | 47 |
| 5:45-6:00 | | 9 | 42 | 1 51 | 0 | 4 | | 0 4 | 12 | | 0 | 0 12 | | | | | 67 |
| PM Peak Hour 4:30-5:30 | | 56 | 100 | 2 156 | 0 | 42 | | 0 42 | 45 | | 0 | 1 45 | | | | | 243 |
| TOTAL | | | | | | | | | | | | | | | | | |

HEINRICH & KLEIN ASSOCIATES, INC.
TRAFFIC ENGINEERING & PLANNING

# TRAFFIC VOLUME SUMMARY

MUNICIPALITY E. Rockhill Twp PA
LOCATION Old Bethlehem Pike & Rockhill Rd / Weikel Rd
DATE AM 6/24/10 PM 6/22/10
HOURS 7:00-9:00 AM & 4:00-6:00 PM
WEATHER AM: Clear PM Cloudy
COUNT MADE BY: Staff
REMARKS



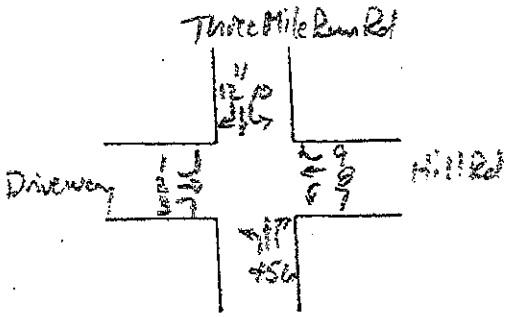



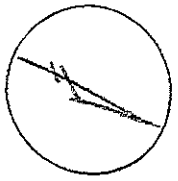

| TIME | From West on Weikel Rd L1 | S2 | R3 | Total | From South on Old Bethlehem Pk L4 | S5 | R6 | Total | From East on Rockhill Rd L7 | S8 | R9 | Total | From North on Old Bethlehem Pk L10 | S11 | R12 | Total | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00-7:15 | 0 | 1 | 0 | 0 1 | 0 | 27 | 2 | 1 29 | 1 | 5 | 1 | 0 7 | 2 | 42 | 1 | 2 45 | 82 |
| 7:15-7:30 | 0 | 1 | 1 | 0 2 | 0 | 34 | 4 | 1 38 | 6 | 10 | 3 | 0 19 | 5 | 36 | 1 | 2 42 | 101 |
| 7:30-7:45 | 0 | 1 | 2 | 0 3 | 0 | 23 | 3 | 0 26 | 6 | 10 | 4 | 1 20 | 3 | 31 | 2 | 0 36 | 85 |
| 7:45-8:00 | 1 | 1 | 0 | 0 2 | 2 | 48 | 4 | 3 54 | 4 | 9 | 4 | 0 17 | 6 | 57 | 0 | 1 63 | 136 |
| 8:00-8:15 | 1 | 1 | 0 | 1 2 | 0 | 25 | 5 | 1 30 | 3 | 6 | 3 | 0 12 | 4 | 32 | 2 | 3 38 | 82 |
| 8:15-8:30 | 0 | 3 | 0 | 0 3 | 0 | 37 | 2 | 4 39 | 5 | 8 | 2 | 0 15 | 3 | 34 | 1 | 3 38 | 95 |
| 8:30-8:45 | 0 | 0 | 0 | 0 0 | 0 | 38 | 2 | 1 40 | 6 | 5 | 3 | 0 14 | 2 | 28 | 0 | 2 30 | 84 |
| 8:45-9:00 | 0 | 0 | 4 | 0 4 | 0 | 44 | 2 | 2 46 | 2 | 6 | 3 | 0 11 | 3 | 38 | 1 | 1 42 | 103 |
| AM Peak Hour 7:15-8:15 | 2 | 4 | 3 | 1 9 | 2 | 130 | 16 | 5 148 | 19 | 35 | 14 | 1 68 | 18 | 156 | 5 | 6 179 | 404 |
| 4:00-4:15 | 0 | 3 | 0 | 0 3 | 0 | 92 | 10 | 1 102 | 4 | 4 | 9 | 0 17 | 3 | 51 | 2 | 2 56 | 178 |
| 4:15-4:30 | 1 | 4 | 0 | 0 5 | 1 | 62 | 7 | 1 70 | 0 | 5 | 3 | 0 8 | 7 | 42 | 2 | 0 51 | 134 |
| 4:30-4:45 | 0 | 5 | 0 | 0 5 | 0 | 80 | 6 | 0 86 | 4 | 4 | 10 | 1 18 | 5 | 47 | 0 | 0 52 | 161 |
| 4:45-5:00 | 2 | 2 | 1 | 0 5 | 2 | 75 | 7 | 3 84 | 2 | 5 | 6 | 0 13 | 8 | 34 | 1 | 1 43 | 145 |
| 5:00-5:15 | 0 | 8 | 0 | 1 8 | 0 | 81 | 8 | 0 89 | 5 | 3 | 6 | 0 14 | 8 | 57 | 2 | 0 67 | 178 |
| 5:15-5:30 | 3 | 6 | 0 | 0 9 | 1 | 96 | 8 | 1 105 | 8 | 4 | 12 | 0 24 | 10 | 52 | 2 | 0 64 | 202 |
| 5:30-5:45 | 0 | 6 | 0 | 0 6 | 0 | 74 | 9 | 2 83 | 7 | 9 | 5 | 0 21 | 5 | 42 | 1 | 0 48 | 158 |
| 5:45-6:00 | 0 | 5 | 0 | 0 5 | 1 | 61 | 7 | 1 69 | 6 | 8 | 7 | 0 21 | 5 | 41 | 1 | 0 47 | 142 |
| PM Peak Hour 4:30-5:30 | 5 | 21 | 1 | 1 27 | 3 | 332 | 29 | 4 364 | 19 | 16 | 34 | 1 69 | 31 | 190 | 5 | 1 226 | 686 |
| TOTAL | | | | | | | | | | | | | | | | | |

HEINRICH & KLEIN ASSOCIATES, INC.
TRAFFIC ENGINEERING & PLANNING

# TRAFFIC VOLUME SUMMARY

MUNICIPALITY East Rockhill Twp. PA
LOCATION Three Mile Run Rd & Hill Rd DATE 6/17/10
HOURS 700-900 AM & 400-600 PM WEATHER Clear
COUNT MADE BY: Arnold
REMARKS



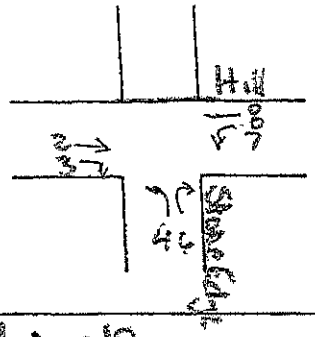
INDICATE NORTH BY ARROW

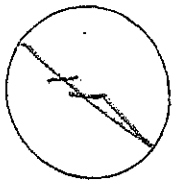
| | From South on Driveway | | | | From East on Three Mile Run Rd | | | | From North on Hill Rd | | | | From West on Three Mile Run Rd | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | L 1 | S 2 | R 3 | Total | L 4 | S 5 | R 6 | Total | L 7 | S 8 | R 9 | Total | L 10 | S 11 | R 12 | Total | Total |
| 7:00-7:15 | 0 | 0 | 1 | 0 1 | 1 | 16 | 3 | 0 20 | 1 | 0 | 11 | 1 12 | 6 | 8 | 0 | 0 14 | 47 |
| 7:15-7:30 | 0 | 0 | 0 | 0 0 | 0 | 23 | 2 | 3 25 | 7 | 0 | 11 | 2 18 | 5 | 2 | 0 | 1 7 | 50 x |
| 7:30-7:45 | 0 | 0 | 0 | 0 0 | 0 | 22 | 1 | 2 23 | 1 | 0 | 13 | 0 14 | 4 | 5 | 0 | 1 9 | 46 x |
| 7:45-8:00 | 0 | 0 | 0 | 0 0 | 0 | 27 | 0 | 0 27 | 3 | 0 | 8 | 0 11 | 11 | 4 | 0 | 1 15 | 53 x |
| 8:00-8:15 | 0 | 0 | 0 | 0 0 | 0 | 17 | 0 | 2 17 | 2 | 0 | 5 | 1 7 | 8 | 16 | 0 | 4 24 | 48 x |
| 8:15-8:30 | 0 | 0 | 0 | 0 0 | 0 | 21 | 0 | 1 21 | 1 | 0 | 11 | 1 12 | 3 | 14 | 0 | 3 17 | 50 |
| 8:30-8:45 | 0 | 0 | 0 | 0 0 | 0 | 19 | 0 | 3 19 | 4 | 0 | 9 | 3 13 | 3 | 9 | 0 | 2 12 | 44 |
| 8:45-9:00 | 2 | 0 | 1 | 0 3 | 0 | 20 | 0 | 1 20 | 4 | 0 | 8 | 2 12 | 4 | 5 | 1 | 2 10 | 45 |
| AM Peak Hour 7:15-8:15 | 0 | 0 | 0 | 0 0 | 0 | 89 | 3 | 7 92 | 13 | 0 | 37 | 3 50 | 28 | 27 | 0 | 7 55 | 197 |
| 4:00-4:15 | 0 | 0 | 0 | 0 0 | 0 | 8 | 2 | 0 10 | 2 | 0 | 5 | 1 7 | 14 | 19 | 0 | 1 33 | 50 |
| 4:15-4:30 | 0 | 0 | 1 | 0 1 | 0 | 13 | 5 | 0 18 | 5 | 0 | 4 | 0 9 | 5 | 23 | 0 | 0 28 | 56 |
| 4:30-4:45 | 0 | 0 | 0 | 0 0 | 0 | 11 | 6 | 0 17 | 2 | 0 | 3 | 0 5 | 9 | 19 | 0 | 0 28 | 50 x |
| 4:45-5:00 | 0 | 0 | 0 | 0 0 | 0 | 21 | 5 | 1 26 | 2 | 0 | 6 | 0 8 | 12 | 21 | 0 | 0 33 | 67 x |
| 5:00-5:15 | 0 | 0 | 0 | 0 0 | 0 | 14 | 2 | 0 16 | 1 | 0 | 8 | 0 9 | 10 | 17 | 1 | 1 28 | 53 x |
| 5:15-5:30 | 0 | 0 | 0 | 0 0 | 0 | 21 | 2 | 1 23 | 1 | 0 | 7 | 0 8 | 14 | 25 | 0 | 0 39 | 70 x |
| 5:30-5:45 | 0 | 0 | 0 | 0 0 | 1 | 13 | 4 | 0 18 | 0 | 0 | 5 | 0 5 | 13 | 17 | 1 | 0 31 | 54 |
| 5:45-6:00 | 0 | 0 | 1 | 0 1 | 0 | 12 | 3 | 0 15 | 1 | 0 | 10 | 0 11 | 8 | 24 | 0 | 1 32 | 59 |
| PM Peak Hour 4:30-5:30 | 0 | 0 | 0 | 0 0 | 0 | 67 | 15 | 2 82 | 6 | 0 | 24 | 0 30 | 45 | 82 | 1 | 1 128 | 240 |
| TOTAL | | | | | | | | | | | | | | | | | |

HEINRICH & KLEIN ASSOCIATES, INC.
TRAFFIC ENGINEERING & PLANNING

# TRAFFIC VOLUME SUMMARY

MUNICIPALITY E. Rockhill Twp.
LOCATION Hill Rd & Stone Edge Rd DATE 6/16/10, 6/17/10
HOURS 4-6, 7-9 WEATHER Clear
COUNT MADE BY: RH
REMARKS



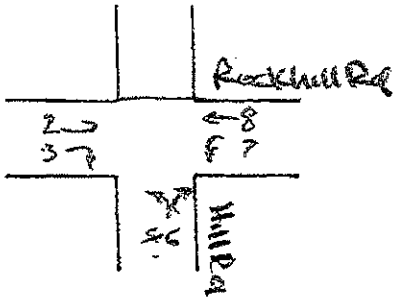
INDICATE NORTH BY ARROW

| | From South Hill Rd | | | | From East Stone Edge | | | | From North Hill Rd | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | L | S 2 | R 3 | Total | L 4 | S | R 6 | Total | L 7 | S 8 | R | Total | L | S | R | Total | Total |
| 7:00-7:15 | | 3 | 2 | 5 | 6 | | 1 | 7 | 0 | 5 | | 5 | | | | | 17 |
| 7:15-7:30 | | 2 | 2 | 4 | 8 | | 2 | 10 | 2 | 7 | | 2 9 | | | | | 23 x |
| 7:30-7:45 | | 1 | 1 | 2 | 10 | | 3 | 13 | 1 | 4 | | 5 | | | | | 20 x |
| 7:45-8:00 | | 4 | 2 | 6 | 6 | | 6 | 12 | 0 | 2 | | 2 | | | | | 20 x |
| 8:00-8:15 | | 2 | 3 | 5 | 4 | | 3 | 7 | 2 | 3 | | 1 5 | | | | | 17 x |
| 8:15-8:30 | | 1 | 1 | 2 | 3 | | 1 | 4 | 0 | 3 | | 3 | | | | | 9 |
| 8:30-8:45 | | 0 | 1 | 1 | 5 | | 2 | 2 7 | 3 | 2 | | 1 5 | | | | | 13 |
| 8:45-9:00 | | 0 | 2 | 2 2 | 5 | | 2 | 1 7 | 0 | 2 | | 2 | | | | | 11 |
| AM | | | | | | | | | | | | | | | | | |
| Peak Hour | | 9 | 8 | 0 17 | 28 | | 14 | 0 42 | 5 | 16 | | 3 21 | | | | | 80 |
| 7:15-8:15 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 4:00-4:15 | | 6 | 3 | 9 | 3 | | 6 | 1 9 | 1 | | 3 | 4 | | | | | 22 |
| 4:15-4:30 | | 5 | 6 | 11 | 3 | | 2 | 5 | 2 | | 4 | 6 | | | | | 22 |
| 4:30-4:45 | | 6 | 5 | 11 | 2 | | 1 | 3 | 2 | | 2 | 4 | | | | | 18 x |
| 4:45-5:00 | | 4 | 7 | 11 | 4 | | 4 | 8 | 7 | | 4 | 11 | | | | | 30 x |
| 5:00-5:15 | | 5 | 6 | 1 11 | 4 | | 0 | 4 | 2 | | 1 | 3 | | | | | 18 x |
| 5:15-5:30 | | 2 | 7 | 9 | 1 | | 0 | 1 | 2 | | 1 | 3 | | | | | 13 x |
| 5:30-5:45 | | 2 | 8 | 10 | 3 | | 2 | 5 | 1 | | 1 | 2 | | | | | 17 |
| 5:45-6:00 | | 2 | 10 | 12 | 4 | | 0 | 4 | 5 | | 1 | 6 | | | | | 22 |
| PM | | | | | | | | | | | | | | | | | |
| Peak Hour | | 17 | 25 | 1 42 | 11 | | 5 | 0 16 | 13 | | 8 | 0 21 | | | | | 79 |
| 4:30-5:30 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| TOTAL | | | | | | | | | | | | | | | | | |

HEINRICH & KLEIN ASSOCIATES, INC.
TRAFFIC ENGINEERING & PLANNING

# TRAFFIC VOLUME SUMMARY

MUNICIPALITY E. Rockhill Twp
LOCATION Hill Rd & Rockhill Rd
DATE 6/22/10
HOURS 4-6, 7-9
WEATHER cloudy / clear 6/24/10
COUNT MADE BY: RA
REMARKS



INDICATE NORTH BY ARROW

| | From West Rockhill Rd | | | | From South Hill | | | | From East Rockhill Rd | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | L | $S_2$ | $R_3$ | Total | $L_4$ | S | $R_6$ | Total | $L_7$ | $S_8$ | R | Total | L | S | R | Total | Total |
| 7:00-7:15 | | 4 | 0 | 4 | 2 | | 2 | 4 | 1 | 4 | | 5 | | | | | 13 |
| 7:15-7:30 | | 9 | 1 | 10 | 3 | | 1 | 4 | 0 | 13 | | 13 | | | | | 27 x |
| 7:30-7:45 | | 3 | 2 | 5 | 5 | | 0 | 5 | 0 | 17 | | 17 | | | | | 27 x |
| 7:45-8:00 | | 10 | 1 | 11 | 2 | | 3 | 1 5 | 0 | 14 | | 14 | | | | | 30 x |
| 8:00-8:15 | | 11 | 2 | 13 | 1 | | 2 | 3 | 0 | 12 | | 12 | | | | | 28 x |
| 8:15-8:30 | | 3 | 3 | 6 | 3 | | 2 | 5 | 1 | 10 | | 11 | | | | | 22 |
| 8:30-8:45 | | 5 | 0 | 5 | 3 | | 1 | 4 | 0 | 9 | | 9 | | | | | 18 |
| 8:45-9:00 | | 6 | 0 | 6 | 8 | | 1 | 9 | 1 | 6 | | 7 | | | | | 22 |
| AM Peak Hour 7:15-8:15 | | 33 | 6 | 0 39 | 11 | | 6 | 1 17 | 0 | 56 | | 0 56 | | | | | 112 |
| 4:00-4:15 | | 16 | 5 | 21 | 6 | | 1 | 7 | 3 | | 12 | 15 | | | | | 43 |
| 4:15-4:30 | | 10 | 4 | 14 | 3 | | 1 | 4 | 0 | | 6 | 6 | | | | | 24 |
| 4:30-4:45 | | 16 | 7 | 23 | 5 | | 1 | 6 | 1 | | 14 | 15 | | | | | 44 x |
| 4:45-5:00 | | 7 | 3 | 10 | 5 | | 2 | 7 | 2 | | 6 | 8 | | | | | 25 x |
| 5:00-5:15 | | 15 | 8 | 1 23 | 3 | | 1 | 4 | 1 | | 9 | 10 | | | | | 37 x |
| 5:15-5:30 | | 14 | 2 | 16 | 7 | | 1 | 8 | 5 | | 16 | 21 | | | | | 45 x |
| 5:30-5:45 | | 14 | 6 | 20 | 0 | | 1 | 1 | 2 | | 12 | 14 | | | | | 35 |
| 5:45-6:00 | | 8 | 3 | 11 | 4 | | 1 | 5 | 2 | | 10 | 12 | | | | | 28 |
| PM Peak Hour 4:30-5:30 | | 52 | 20 | 1 72 | 20 | | 5 | 0 25 | 9 | | 45 | 0 54 | | | | | 151 |
| TOTAL | | | | | | | | | | | | | | | | | |

# APPENDIX B

# DESCRIPTION OF LEVEL OF SERVICE

## TABLE B-1

## DESCRIPTION OF LEVELS OF SERVICE

The concept of levels of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six levels of service (LOS) are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with LOS A representing the best operating condition and LOS F the worst.

**LEVEL OF SERVICE A** represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist, passenger, or pedestrian is excellent.

**LEVEL OF SERVICE B** is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. The level of comfort and convenience provided is somewhat less than that at LOS A, because the presence of others in the traffic stream begins to affect individual behavior.

**LEVEL OF SERVICE C** is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with other users in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.

**LEVEL OF SERVICE D** represents high-density, but stable flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.

**LEVEL OF SERVICE E** represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and motorist or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.

**LEVEL OF SERVICE F** is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may proceed at reasonable speeds for several hundred feet or more, then be required to stop in cyclic fashion. LOS is used to describe the operating conditions within the queue, as well as the point at which arrival flow exceeds discharge flow which causes the queue to form.

## TABLE B-2

## LEVEL OF SERVICE

## UNSIGNALIZED INTERSECTIONS

At unsignalized intersections the criteria used to evaluate the quality of flow is the measure of the adequacy of the number of acceptable gaps in the through traffic stream for drivers facing a STOP or YIELD condition. Variables affecting the gaps are the distribution or arrival of vehicles in the through traffic stream, percentage of trucks, grades, and the amount of time it requires to enter the traffic stream from a stop position (critical gap size). The control delay of a critical movement includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

As a result, the following criteria has been established:

| Level of Service | Delay Range (sec./veh/) |
|---|---|
| A | less than 10 |
| B | 10 to 15 |
| C | 15 to 25 |
| D | 25 to 35 |
| E | 35 to 50 |
| F | more than 50 |

# APPENDIX C

# VOLUME/CAPACITY ANALYSIS WORKSHEETS

# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & THREE MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 117 | 10 | 20 | 155 | 0 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 139 | 11 | 28 | 218 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 5 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 25 | 1 | 17 | 101 | 26 |
| Peak-Hour Factor, PHF | 0.65 | 0.65 | 0.65 | 0.73 | 0.73 | 0.73 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 38 | 1 | 23 | 138 | 35 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 6 | 6 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 1 | 28 | | 196 | | | 39 | |
| C (m) (veh/h) | 1364 | 1413 | | 557 | | | 504 | |
| v/c | 0.00 | 0.02 | | 0.35 | | | 0.08 | |
| 95% queue length | 0.00 | 0.06 | | 1.57 | | | 0.25 | |
| Control Delay (s/veh) | 7.6 | 7.6 | | 14.9 | | | 12.7 | |
| LOS | A | A | | B | | | B | |
| Approach Delay (s/veh) | -- | -- | 14.9 | | | 12.7 | | |
| Approach LOS | -- | -- | B | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & THREE MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 287 | 21 | 30 | 186 | 0 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 341 | 25 | 42 | 261 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 92 | 7 | 17 | 44 | 36 |
| Peak-Hour Factor, PHF | 0.65 | 0.65 | 0.65 | 0.73 | 0.73 | 0.73 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 141 | 10 | 23 | 60 | 49 |
| Percent Heavy Vehicles | 0 | 2 | 2 | 0 | 2 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 1 | 42 | | 132 | | | 152 | |
| C (m) (veh/h) | 1315 | 1204 | | 382 | | | 341 | |
| v/c | 0.00 | 0.03 | | 0.35 | | | 0.45 | |
| 95% queue length | 0.00 | 0.11 | | 1.51 | | | 2.21 | |
| Control Delay (s/veh) | 7.7 | 8.1 | | 19.3 | | | 23.8 | |
| LOS | A | A | | C | | | C | |
| Approach Delay (s/veh) | -- | -- | 19.3 | | | 23.8 | | |
| Approach LOS | -- | -- | C | | | C | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH. PK. & 3 MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 30 | 26 | 0 | 28 | |
| Peak-Hour Factor, PHF | 1.00 | 0.70 | 0.70 | 0.58 | 0.58 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 42 | 37 | 0 | 48 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 102 | | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.65 | 1.00 | 0.65 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 156 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 8 | 0 | 0 |
| Percent Grade (%) | 0 | | | -2 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 0 | | 156 | | | | |
| C (m) (veh/h) | | 1532 | | 886 | | | | |
| v/c | | 0.00 | | 0.18 | | | | |
| 95% queue length | | 0.00 | | 0.64 | | | | |
| Control Delay (s/veh) | | 7.3 | | 9.9 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.9 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH. PK. & 3 MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 56 | 100 | 0 | 42 | |
| Peak-Hour Factor, PHF | 1.00 | 0.85 | 0.85 | 0.81 | 0.81 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 65 | 117 | 0 | 51 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 45 | | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.70 | 1.00 | 0.70 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 64 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 2 | 0 | 0 |
| Percent Grade (%) | | 0 | | | -2 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 0 | | 64 | | | | |
| C (m) (veh/h) | | 1405 | | 831 | | | | |
| v/c | | 0.00 | | 0.08 | | | | |
| 95% queue length | | 0.00 | | 0.25 | | | | |
| Control Delay (s/veh) | | 7.6 | | 9.7 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.7 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & OLD BETHLEHEM PIKE |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: OLD BETHLEHEM PIKE | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 143 | | | 175 | 28 |
| Peak-Hour Factor, PHF | 0.86 | 0.86 | 1.00 | 1.00 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 166 | 0 | 0 | 246 | 39 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 30 | | 0 | | | |
| Peak-Hour Factor, PHF | 0.75 | 1.00 | 0.75 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 40 | 0 | 0 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 13 | 0 | 13 | 0 | 0 | 0 |
| Percent Grade (%) | -1 | | | 0 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 0 | | | | | | 40 | |
| C (m) (veh/h) | 1289 | | | | | | 574 | |
| v/c | 0.00 | | | | | | 0.07 | |
| 95% queue length | 0.00 | | | | | | 0.22 | |
| Control Delay (s/veh) | 7.8 | | | | | | 11.7 | |
| LOS | A | | | | | | B | |
| Approach Delay (s/veh) | -- | -- | | | | 11.7 | | |
| Approach LOS | -- | -- | | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & OLD BETHLEHEM PIKE |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: OLD BETHLEHEM PIKE | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 324 | | | 216 | 42 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 385 | 0 | 0 | 227 | 44 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 56 | | 0 | | | |
| Peak-Hour Factor, PHF | 0.93 | 1.00 | 0.93 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 60 | 0 | 0 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 2 | 0 | 2 | 0 | 0 | 0 |
| Percent Grade (%) | | -1 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 0 | | | | | | 60 | |
| C (m) (veh/h) | 1304 | | | | | | 459 | |
| v/c | 0.00 | | | | | | 0.13 | |
| 95% queue length | 0.00 | | | | | | 0.45 | |
| Control Delay (s/veh) | 7.8 | | | | | | 14.0 | |
| LOS | A | | | | | | B | |
| Approach Delay (s/veh) | -- | -- | | | | 14.0 | | |
| Approach LOS | -- | -- | | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH PK & ROCKHILL/WEIKEL |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL/WEIKEL ROADS | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 2 | 130 | 16 | 18 | 156 | 5 |
| Peak-Hour Factor, PHF | 0.69 | 0.69 | 0.69 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 2 | 188 | 23 | 25 | 219 | 7 |
| Percent Heavy Vehicles | 0 | -- | -- | 6 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 2 | 4 | 3 | 19 | 35 | 14 |
| Peak-Hour Factor, PHF | 0.75 | 0.75 | 0.75 | 0.85 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 2 | 5 | 4 | 22 | 41 | 16 |
| Percent Heavy Vehicles | 0 | 25 | 0 | 0 | 3 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 2 | 25 | | 79 | | | 11 | |
| C (m) (veh/h) | 1354 | 1336 | | 535 | | | 515 | |
| v/c | 0.00 | 0.02 | | 0.15 | | | 0.02 | |
| 95% queue length | 0.00 | 0.06 | | 0.52 | | | 0.07 | |
| Control Delay (s/veh) | 7.7 | 7.7 | | 12.9 | | | 12.1 | |
| LOS | A | A | | B | | | B | |
| Approach Delay (s/veh) | -- | -- | 12.9 | | | 12.1 | | |
| Approach LOS | -- | -- | B | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH PK & ROCKHILL/WEIKEL |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL/WEIKEL ROADS | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 3 | 332 | 29 | 31 | 190 | 5 |
| Peak-Hour Factor, PHF | 0.69 | 0.69 | 0.69 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 4 | 481 | 42 | 43 | 267 | 7 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 5 | 21 | 1 | 19 | 16 | 34 |
| Peak-Hour Factor, PHF | 0.75 | 0.75 | 0.75 | 0.85 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 6 | 28 | 1 | 22 | 18 | 39 |
| Percent Heavy Vehicles | 0 | 5 | 0 | 0 | 6 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 4 | 43 | | 79 | | | 35 | |
| C (m) (veh/h) | 1301 | 1054 | | 360 | | | 249 | |
| v/c | 0.00 | 0.04 | | 0.22 | | | 0.14 | |
| 95% queue length | 0.01 | 0.13 | | 0.82 | | | 0.48 | |
| Control Delay (s/veh) | 7.8 | 8.6 | | 17.8 | | | 21.8 | |
| LOS | A | A | | C | | | C | |
| Approach Delay (s/veh) | -- | -- | 17.8 | | | 21.8 | | |
| Approach LOS | -- | -- | C | | | C | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | THREE MILE RUN RD. & HILL RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 28 | 27 | | | 89 | 3 |
| Peak-Hour Factor, PHF | 0.57 | 0.57 | 1.00 | 1.00 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 49 | 47 | 0 | 0 | 104 | 3 |
| Percent Heavy Vehicles | 14 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 13 | | 37 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.69 | 1.00 | 0.69 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 18 | 0 | 53 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 0 | 6 |
| Percent Grade (%) | 0 | | | 1 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 49 | | | | | | 71 | |
| C (m) (veh/h) | 1412 | | | | | | 859 | |
| v/c | 0.03 | | | | | | 0.08 | |
| 95% queue length | 0.11 | | | | | | 0.27 | |
| Control Delay (s/veh) | 7.6 | | | | | | 9.6 | |
| LOS | A | | | | | | A | |
| Approach Delay (s/veh) | -- | -- | | | | 9.6 | | |
| Approach LOS | -- | -- | | | | A | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | THREE MILE RUN RD. & HILL RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |
| | |

Project Description: McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 45 | 83 | | | 67 | 15 |
| Peak-Hour Factor, PHF | 0.82 | 0.82 | 1.00 | 1.00 | 0.79 | 0.79 |
| Hourly Flow Rate, HFR (veh/h) | 54 | 101 | 0 | 0 | 84 | 18 |
| Percent Heavy Vehicles | 14 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 6 | | 24 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.83 | 1.00 | 0.83 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 7 | 0 | 28 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 0 | 6 |
| Percent Grade (%) | | 0 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 54 | | | | | | 35 | |
| C (m) (veh/h) | 1418 | | | | | | 868 | |
| v/c | 0.04 | | | | | | 0.04 | |
| 95% queue length | 0.12 | | | | | | 0.13 | |
| Control Delay (s/veh) | 7.6 | | | | | | 9.3 | |
| LOS | A | | | | | | A | |
| Approach Delay (s/veh) | -- | -- | | | | 9.3 | | |
| Approach LOS | -- | -- | | | | A | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | HILL ROAD & STONE EDGE ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: STONE EDGE ROAD | North/South Street: HILL ROAD

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 9 | 8 | 5 | 16 | |
| Peak-Hour Factor, PHF | 1.00 | 0.71 | 0.71 | 0.58 | 0.58 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 12 | 11 | 8 | 27 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 20 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 1 | 0 | 1 | 0 |
| Configuration | | T | R | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 28 | | 14 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.81 | 1.00 | 0.81 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 34 | 0 | 17 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 0 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 8 | | 51 | | | | |
| C (m) (veh/h) | | 1483 | | 988 | | | | |
| v/c | | 0.01 | | 0.05 | | | | |
| 95% queue length | | 0.02 | | 0.16 | | | | |
| Control Delay (s/veh) | | 7.4 | | 8.8 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 8.8 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | HILL ROAD & STONE EDGE ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: STONE EDGE ROAD | North/South Street: HILL ROAD

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 17 | 25 | 13 | 8 | |
| Peak-Hour Factor, PHF | 1.00 | 0.95 | 0.95 | 0.48 | 0.48 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 17 | 26 | 27 | 16 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 1 | 0 | 1 | 0 |
| Configuration | | T | R | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 11 | | 5 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.50 | 1.00 | 0.50 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 22 | 0 | 10 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | 0 | | | 1 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 27 | | 32 | | | | |
| C (m) (veh/h) | | 1579 | | 946 | | | | |
| v/c | | 0.02 | | 0.03 | | | | |
| 95% queue length | | 0.05 | | 0.10 | | | | |
| Control Delay (s/veh) | | 7.3 | | 8.9 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 8.9 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | ROCKHILL ROAD & HILL ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 33 | 6 | 0 | 56 | |
| Peak-Hour Factor, PHF | 1.00 | 0.75 | 0.75 | 0.82 | 0.82 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 44 | 8 | 0 | 68 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 11 | | 6 | | | |
| Peak-Hour Factor, PHF | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 12 | 0 | 7 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 9 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | -3 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 0 | | 19 | | | | |
| C (m) (veh/h) | | 1567 | | 930 | | | | |
| v/c | | 0.00 | | 0.02 | | | | |
| 95% queue length | | 0.00 | | 0.06 | | | | |
| Control Delay (s/veh) | | 7.3 | | 9.0 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.0 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | ROCKHILL ROAD & HILL ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | EXISTING CONDITIONS |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 52 | 20 | 9 | 45 | |
| Peak-Hour Factor, PHF | 1.00 | 0.75 | 0.75 | 0.82 | 0.82 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 69 | 26 | 10 | 54 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 20 | | 5 | | | |
| Peak-Hour Factor, PHF | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 23 | 0 | 5 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | -3 | | | 0 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 10 | | 28 | | | | |
| C (m) (veh/h) | | 1512 | | 877 | | | | |
| v/c | | 0.01 | | 0.03 | | | | |
| 95% queue length | | 0.02 | | 0.10 | | | | |
| Control Delay (s/veh) | | 7.4 | | 9.2 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.2 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & THREE MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 124 | 11 | 21 | 165 | 0 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 147 | 13 | 29 | 232 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 5 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 27 | 1 | 18 | 108 | 28 |
| Peak-Hour Factor, PHF | 0.65 | 0.65 | 0.65 | 0.73 | 0.73 | 0.73 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 41 | 1 | 24 | 147 | 38 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 6 | 6 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 1 | 29 | | 209 | | | 42 | |
| C (m) (veh/h) | 1348 | 1401 | | 539 | | | 487 | |
| v/c | 0.00 | 0.02 | | 0.39 | | | 0.09 | |
| 95% queue length | 0.00 | 0.06 | | 1.82 | | | 0.28 | |
| Control Delay (s/veh) | 7.7 | 7.6 | | 15.8 | | | 13.1 | |
| LOS | A | A | | C | | | B | |
| Approach Delay (s/veh) | -- | -- | 15.8 | | | 13.1 | | |
| Approach LOS | -- | -- | C | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & THREE MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 305 | 22 | 32 | 198 | 0 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 363 | 26 | 45 | 278 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 98 | 7 | 18 | 47 | 38 |
| Peak-Hour Factor, PHF | 0.65 | 0.65 | 0.65 | 0.73 | 0.73 | 0.73 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 150 | 10 | 24 | 64 | 52 |
| Percent Heavy Vehicles | 0 | 2 | 2 | 0 | 2 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 1 | 45 | | 140 | | | 161 | |
| C (m) (veh/h) | 1296 | 1181 | | 352 | | | 318 | |
| v/c | 0.00 | 0.04 | | 0.40 | | | 0.51 | |
| 95% queue length | 0.00 | 0.12 | | 1.85 | | | 2.70 | |
| Control Delay (s/veh) | 7.8 | 8.2 | | 21.8 | | | 27.4 | |
| LOS | A | A | | C | | | D | |
| Approach Delay (s/veh) | -- | -- | 21.8 | | | 27.4 | | |
| Approach LOS | -- | -- | C | | | D | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH. PK. & 3 MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 32 | 28 | 0 | 30 | |
| Peak-Hour Factor, PHF | 1.00 | 0.70 | 0.70 | 0.58 | 0.58 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 45 | 40 | 0 | 51 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 109 | | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.65 | 1.00 | 0.65 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 167 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 8 | 0 | 0 |
| Percent Grade (%) | | 0 | | | -2 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 0 | | 167 | | | | |
| C (m) (veh/h) | | 1524 | | 877 | | | | |
| v/c | | 0.00 | | 0.19 | | | | |
| 95% queue length | | 0.00 | | 0.70 | | | | |
| Control Delay (s/veh) | | 7.4 | | 10.1 | | | | |
| LOS | | A | | B | | | | |
| Approach Delay (s/veh) | -- | -- | 10.1 | | | | | |
| Approach LOS | -- | -- | B | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH. PK. & 3 MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 60 | 106 | 0 | 45 | |
| Peak-Hour Factor, PHF | 1.00 | 0.85 | 0.85 | 0.81 | 0.81 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 70 | 124 | 0 | 55 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 48 | | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.70 | 1.00 | 0.70 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 68 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 2 | 0 | 0 |
| Percent Grade (%) | | 0 | | | -2 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 0 | | 68 | | | | |
| C (m) (veh/h) | | 1391 | | 819 | | | | |
| v/c | | 0.00 | | 0.08 | | | | |
| 95% queue length | | 0.00 | | 0.27 | | | | |
| Control Delay (s/veh) | | 7.6 | | 9.8 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.8 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & OLD BETHLEHEM PIKE |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: OLD BETHLEHEM PIKE | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 152 | | | 186 | 30 |
| Peak-Hour Factor, PHF | 0.86 | 0.86 | 1.00 | 1.00 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 176 | 0 | 0 | 261 | 42 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 32 | | 0 | | | |
| Peak-Hour Factor, PHF | 0.75 | 1.00 | 0.75 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 42 | 0 | 0 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 13 | 0 | 13 | 0 | 0 | 0 |
| Percent Grade (%) | | -1 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 0 | | | | | | 42 | |
| C (m) (veh/h) | 1269 | | | | | | 555 | |
| v/c | 0.00 | | | | | | 0.08 | |
| 95% queue length | 0.00 | | | | | | 0.24 | |
| Control Delay (s/veh) | 7.8 | | | | | | 12.0 | |
| LOS | A | | | | | | B | |
| Approach Delay (s/veh) | -- | -- | | | | 12.0 | | |
| Approach LOS | -- | -- | | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & OLD BETHLEHEM PIKE |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description: McCLENNEN PROPERTY

East/West Street: OLD BETHLEHEM PIKE | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 344 | | | 230 | 45 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 409 | 0 | 0 | 242 | 47 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 60 | | 0 | | | |
| Peak-Hour Factor, PHF | 0.93 | 1.00 | 0.93 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 64 | 0 | 0 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 2 | 0 | 2 | 0 | 0 | 0 |
| Percent Grade (%) | -1 | | | 0 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 0 | | | | | | 64 | |
| C (m) (veh/h) | 1284 | | | | | | 435 | |
| v/c | 0.00 | | | | | | 0.15 | |
| 95% queue length | 0.00 | | | | | | 0.51 | |
| Control Delay (s/veh) | 7.8 | | | | | | 14.7 | |
| LOS | A | | | | | | B | |
| Approach Delay (s/veh) | -- | -- | | | | 14.7 | | |
| Approach LOS | -- | -- | | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH PK & ROCKHILL/WEIKEL |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL/WEIKEL ROADS | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 2 | 138 | 17 | 19 | 166 | 5 |
| Peak-Hour Factor, PHF | 0.69 | 0.69 | 0.69 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 2 | 200 | 24 | 26 | 233 | 7 |
| Percent Heavy Vehicles | 0 | -- | -- | 6 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 2 | 4 | 3 | 20 | 37 | 15 |
| Peak-Hour Factor, PHF | 0.75 | 0.75 | 0.75 | 0.85 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 2 | 5 | 4 | 23 | 43 | 17 |
| Percent Heavy Vehicles | 0 | 25 | 0 | 0 | 3 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 2 | 26 | | 83 | | | 11 | |
| C (m) (veh/h) | 1339 | 1321 | | 517 | | | 495 | |
| v/c | 0.00 | 0.02 | | 0.16 | | | 0.02 | |
| 95% queue length | 0.00 | 0.06 | | 0.57 | | | 0.07 | |
| Control Delay (s/veh) | 7.7 | 7.8 | | 13.3 | | | 12.4 | |
| LOS | A | A | | B | | | B | |
| Approach Delay (s/veh) | -- | -- | 13.3 | | | 12.4 | | |
| Approach LOS | -- | -- | B | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH PK & ROCKHILL/WEIKEL |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL/WEIKEL ROADS | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 3 | 353 | 31 | 33 | 202 | 5 |
| Peak-Hour Factor, PHF | 0.69 | 0.69 | 0.69 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 4 | 511 | 44 | 46 | 284 | 7 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 5 | 22 | 1 | 20 | 17 | 36 |
| Peak-Hour Factor, PHF | 0.75 | 0.75 | 0.75 | 0.85 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 6 | 29 | 1 | 23 | 19 | 42 |
| Percent Heavy Vehicles | 0 | 5 | 0 | 0 | 6 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 4 | 46 | | 84 | | | 36 | |
| C (m) (veh/h) | 1282 | 1026 | | 337 | | | 228 | |
| v/c | 0.00 | 0.04 | | 0.25 | | | 0.16 | |
| 95% queue length | 0.01 | 0.14 | | 0.97 | | | 0.55 | |
| Control Delay (s/veh) | 7.8 | 8.7 | | 19.2 | | | 23.7 | |
| LOS | A | A | | C | | | C | |
| Approach Delay (s/veh) | -- | -- | 19.2 | | | 23.7 | | |
| Approach LOS | -- | -- | C | | | C | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | THREE MILE RUN RD. & HILL RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 30 | 29 | | | 95 | 3 |
| Peak-Hour Factor, PHF | 0.57 | 0.57 | 1.00 | 1.00 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 52 | 50 | 0 | 0 | 111 | 3 |
| Percent Heavy Vehicles | 14 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 14 | | 39 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.69 | 1.00 | 0.69 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 20 | 0 | 56 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 0 | 6 |
| Percent Grade (%) | | 0 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 52 | | | | | | 76 | |
| C (m) (veh/h) | 1404 | | | | | | 845 | |
| v/c | 0.04 | | | | | | 0.09 | |
| 95% queue length | 0.12 | | | | | | 0.30 | |
| Control Delay (s/veh) | 7.7 | | | | | | 9.7 | |
| LOS | A | | | | | | A | |
| Approach Delay (s/veh) | -- | -- | | | | 9.7 | | |
| Approach LOS | -- | -- | | | | A | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | THREE MILE RUN RD. & HILL RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 48 | 88 | | | 71 | 16 |
| Peak-Hour Factor, PHF | 0.82 | 0.82 | 1.00 | 1.00 | 0.79 | 0.79 |
| Hourly Flow Rate, HFR (veh/h) | 58 | 107 | 0 | 0 | 89 | 20 |
| Percent Heavy Vehicles | 14 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 6 | | 26 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.83 | 1.00 | 0.83 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 7 | 0 | 31 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 0 | 6 |
| Percent Grade (%) | | 0 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 58 | | | | | | 38 | |
| C (m) (veh/h) | 1410 | | | | | | 862 | |
| v/c | 0.04 | | | | | | 0.04 | |
| 95% queue length | 0.13 | | | | | | 0.14 | |
| Control Delay (s/veh) | 7.7 | | | | | | 9.4 | |
| LOS | A | | | | | | A | |
| Approach Delay (s/veh) | -- | -- | | | | 9.4 | | |
| Approach LOS | -- | -- | | | | A | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | HILL ROAD & STONE EDGE ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: STONE EDGE ROAD | North/South Street: HILL ROAD

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 10 | 8 | 5 | 17 | |
| Peak-Hour Factor, PHF | 1.00 | 0.71 | 0.71 | 0.58 | 0.58 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 14 | 11 | 8 | 29 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 20 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 1 | 0 | 1 | 0 |
| Configuration | | T | R | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 30 | | 15 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.81 | 1.00 | 0.81 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 37 | 0 | 18 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | 0 | | | 1 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 8 | | 55 | | | | |
| C (m) (veh/h) | | 1480 | | 983 | | | | |
| v/c | | 0.01 | | 0.06 | | | | |
| 95% queue length | | 0.02 | | 0.18 | | | | |
| Control Delay (s/veh) | | 7.4 | | 8.9 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 8.9 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | HILL ROAD & STONE EDGE ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: STONE EDGE ROAD | North/South Street: HILL ROAD

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 18 | 27 | 14 | 9 | |
| Peak-Hour Factor, PHF | 1.00 | 0.95 | 0.95 | 0.48 | 0.48 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 18 | 28 | 29 | 18 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 1 | 0 | 1 | 0 |
| Configuration | | T | R | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 12 | | 5 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.50 | 1.00 | 0.50 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 24 | 0 | 10 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | 0 | | | 1 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 29 | | 34 | | | | |
| C (m) (veh/h) | | 1575 | | 935 | | | | |
| v/c | | 0.02 | | 0.04 | | | | |
| 95% queue length | | 0.06 | | 0.11 | | | | |
| Control Delay (s/veh) | | 7.3 | | 9.0 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.0 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | ROCKHILL ROAD & HILL ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 35 | 6 | 0 | 60 | |
| Peak-Hour Factor, PHF | 1.00 | 0.75 | 0.75 | 0.82 | 0.82 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 46 | 8 | 0 | 73 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 12 | | 6 | | | |
| Peak-Hour Factor, PHF | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 14 | 0 | 7 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 9 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | -3 | | | 0 | | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 0 | | 21 | | | | |
| C (m) (veh/h) | | 1564 | | 919 | | | | |
| v/c | | 0.00 | | 0.02 | | | | |
| 95% queue length | | 0.00 | | 0.07 | | | | |
| Control Delay (s/veh) | | 7.3 | | 9.0 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.0 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | ROCKHILL ROAD & HILL ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 W/O DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 55 | 21 | 10 | 48 | |
| Peak-Hour Factor, PHF | 1.00 | 0.75 | 0.75 | 0.82 | 0.82 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 73 | 28 | 12 | 58 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 21 | | 5 | | | |
| Peak-Hour Factor, PHF | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 24 | 0 | 5 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | -3 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 12 | | 29 | | | | |
| C (m) (veh/h) | | 1504 | | 864 | | | | |
| v/c | | 0.01 | | 0.03 | | | | |
| 95% queue length | | 0.02 | | 0.10 | | | | |
| Control Delay (s/veh) | | 7.4 | | 9.3 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.3 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & THREE MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description: McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 132 | 12 | 24 | 197 | 0 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 157 | 14 | 33 | 277 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 5 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 28 | 1 | 22 | 110 | 29 |
| Peak-Hour Factor, PHF | 0.65 | 0.65 | 0.65 | 0.73 | 0.73 | 0.73 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 43 | 1 | 30 | 150 | 39 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 6 | 6 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 1 | 33 | | 219 | | | 44 | |
| C (m) (veh/h) | 1298 | 1388 | | 496 | | | 444 | |
| v/c | 0.00 | 0.02 | | 0.44 | | | 0.10 | |
| 95% queue length | 0.00 | 0.07 | | 2.23 | | | 0.33 | |
| Control Delay (s/veh) | 7.8 | 7.7 | | 17.9 | | | 14.0 | |
| LOS | A | A | | C | | | B | |
| Approach Delay (s/veh) | -- | -- | 17.9 | | | 14.0 | | |
| Approach LOS | -- | -- | C | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & THREE MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description: McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 337 | 26 | 34 | 215 | 0 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 401 | 30 | 47 | 302 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 1 | 100 | 7 | 20 | 48 | 41 |
| Peak-Hour Factor, PHF | 0.65 | 0.65 | 0.65 | 0.73 | 0.73 | 0.73 |
| Hourly Flow Rate, HFR (veh/h) | 1 | 153 | 10 | 27 | 65 | 56 |
| Percent Heavy Vehicles | 0 | 2 | 2 | 0 | 2 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 1 | 47 | | 148 | | | 164 | |
| C (m) (veh/h) | 1270 | 1139 | | 309 | | | 287 | |
| v/c | 0.00 | 0.04 | | 0.48 | | | 0.57 | |
| 95% queue length | 0.00 | 0.13 | | 2.46 | | | 3.29 | |
| Control Delay (s/veh) | 7.8 | 8.3 | | 26.9 | | | 33.0 | |
| LOS | A | A | | D | | | D | |
| Approach Delay (s/veh) | -- | -- | 26.9 | | | 33.0 | | |
| Approach LOS | -- | -- | D | | | D | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH. PK. & 3 MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 37 | 29 | 0 | 50 | |
| Peak-Hour Factor, PHF | 1.00 | 0.70 | 0.70 | 0.58 | 0.58 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 52 | 41 | 0 | 86 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 111 | | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.65 | 1.00 | 0.65 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 170 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 8 | 0 | 0 |
| Percent Grade (%) | | 0 | | | -2 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 0 | | 170 | | | | |
| C (m) (veh/h) | | 1514 | | 834 | | | | |
| v/c | | 0.00 | | 0.20 | | | | |
| 95% queue length | | 0.00 | | 0.76 | | | | |
| Control Delay (s/veh) | | 7.4 | | 10.4 | | | | |
| LOS | | A | | B | | | | |
| Approach Delay (s/veh) | -- | -- | 10.4 | | | | | |
| Approach LOS | -- | -- | B | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH. PK. & 3 MILE RUN RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description: McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 80 | 108 | 0 | 55 | |
| Peak-Hour Factor, PHF | 1.00 | 0.85 | 0.85 | 0.81 | 0.81 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 94 | 127 | 0 | 67 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 49 | | 0 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.70 | 1.00 | 0.70 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 70 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 2 | 0 | 0 |
| Percent Grade (%) | | 0 | | | -2 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 0 | | 70 | | | | |
| C (m) (veh/h) | | 1360 | | 782 | | | | |
| v/c | | 0.00 | | 0.09 | | | | |
| 95% queue length | | 0.00 | | 0.29 | | | | |
| Control Delay (s/veh) | | 7.6 | | 10.1 | | | | |
| LOS | | A | | B | | | | |
| Approach Delay (s/veh) | -- | -- | 10.1 | | | | | |
| Approach LOS | -- | -- | B | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & OLD BETHLEHEM PIKE |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: OLD BETHLEHEM PIKE | North/South Street: PARK AVENUE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 161 | | | 221 | 50 |
| Peak-Hour Factor, PHF | 0.86 | 0.86 | 1.00 | 1.00 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 187 | 0 | 0 | 311 | 70 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 37 | | 0 | | | |
| Peak-Hour Factor, PHF | 0.75 | 1.00 | 0.75 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 49 | 0 | 0 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 13 | 0 | 13 | 0 | 0 | 0 |
| Percent Grade (%) | | -1 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 0 | | | | | | 49 | |
| C (m) (veh/h) | 1189 | | | | | | 504 | |
| v/c | 0.00 | | | | | | 0.10 | |
| 95% queue length | 0.00 | | | | | | 0.32 | |
| Control Delay (s/veh) | 8.0 | | | | | | 12.9 | |
| LOS | A | | | | | | B | |
| Approach Delay (s/veh) | -- | -- | | | | 12.9 | | |
| Approach LOS | -- | -- | | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | PARK AVE. & OLD BETHLEHEM PIKE |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description: McCLENNEN PROPERTY

East/West Street: OLD BETHLEHEM PIKE

North/South Street: PARK AVENUE

Intersection Orientation: North-South

Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 0 | 379 | | | 249 | 55 |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 1.00 | 1.00 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 451 | 0 | 0 | 262 | 57 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 80 | | 0 | | | |
| Peak-Hour Factor, PHF | 0.93 | 1.00 | 0.93 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 86 | 0 | 0 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 2 | 0 | 2 | 0 | 0 | 0 |
| Percent Grade (%) | | -1 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 0 | | | | | | 86 | |
| C (m) (veh/h) | 1252 | | | | | | 400 | |
| v/c | 0.00 | | | | | | 0.22 | |
| 95% queue length | 0.00 | | | | | | 0.81 | |
| Control Delay (s/veh) | 7.9 | | | | | | 16.4 | |
| LOS | A | | | | | | C | |
| Approach Delay (s/veh) | -- | -- | | | | 16.4 | | |
| Approach LOS | -- | -- | | | | C | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH PK & ROCKHILL/WEIKEL |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL/WEIKEL ROADS | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 6 | 163 | 17 | 20 | 172 | 5 |
| Peak-Hour Factor, PHF | 0.69 | 0.69 | 0.69 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 8 | 236 | 24 | 28 | 242 | 7 |
| Percent Heavy Vehicles | 0 | -- | -- | 6 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 2 | 4 | 4 | 20 | 38 | 18 |
| Peak-Hour Factor, PHF | 0.75 | 0.75 | 0.75 | 0.85 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 2 | 5 | 5 | 23 | 44 | 21 |
| Percent Heavy Vehicles | 0 | 25 | 0 | 0 | 3 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 8 | 28 | | 88 | | | 12 | |
| C (m) (veh/h) | 1328 | 1282 | | 484 | | | 472 | |
| v/c | 0.01 | 0.02 | | 0.18 | | | 0.03 | |
| 95% queue length | 0.02 | 0.07 | | 0.66 | | | 0.08 | |
| Control Delay (s/veh) | 7.7 | 7.9 | | 14.1 | | | 12.8 | |
| LOS | A | A | | B | | | B | |
| Approach Delay (s/veh) | -- | -- | 14.1 | | | 12.8 | | |
| Approach LOS | -- | -- | B | | | B | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETH PK & ROCKHILL/WEIKEL |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description: McCLENNEN PROPERTY

East/West Street: ROCKHILL/WEIKEL ROADS | North/South Street: OLD BETHLEHEM PIKE

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 6 | 366 | 31 | 36 | 227 | 5 |
| Peak-Hour Factor, PHF | 0.69 | 0.69 | 0.69 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 8 | 530 | 44 | 50 | 319 | 7 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LTR | | | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 5 | 23 | 5 | 20 | 17 | 38 |
| Peak-Hour Factor, PHF | 0.75 | 0.75 | 0.75 | 0.85 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 6 | 30 | 6 | 23 | 19 | 44 |
| Percent Heavy Vehicles | 0 | 5 | 0 | 0 | 6 | 0 |
| Percent Grade (%) | | 1 | | | -1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LTR | LTR | | LTR | | | LTR | |
| v (veh/h) | 8 | 50 | | 86 | | | 42 | |
| C (m) (veh/h) | 1245 | 1009 | | 309 | | | 222 | |
| v/c | 0.01 | 0.05 | | 0.28 | | | 0.19 | |
| 95% queue length | 0.02 | 0.16 | | 1.11 | | | 0.68 | |
| Control Delay (s/veh) | 7.9 | 8.8 | | 21.1 | | | 25.0 | |
| LOS | A | A | | C | | | C | |
| Approach Delay (s/veh) | -- | -- | 21.1 | | | 25.0 | | |
| Approach LOS | -- | -- | C | | | C | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | THREE MILE RUN RD. & HILL RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 32 | 32 | | | 96 | 4 |
| Peak-Hour Factor, PHF | 0.57 | 0.57 | 1.00 | 1.00 | 0.85 | 0.85 |
| Hourly Flow Rate, HFR (veh/h) | 56 | 56 | 0 | 0 | 112 | 4 |
| Percent Heavy Vehicles | 14 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 20 | | 45 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.69 | 1.00 | 0.69 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 28 | 0 | 65 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 0 | 6 |
| Percent Grade (%) | | 0 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 56 | | | | | | 93 | |
| C (m) (veh/h) | 1401 | | | | | | 826 | |
| v/c | 0.04 | | | | | | 0.11 | |
| 95% queue length | 0.12 | | | | | | 0.38 | |
| Control Delay (s/veh) | 7.7 | | | | | | 9.9 | |
| LOS | A | | | | | | A | |
| Approach Delay (s/veh) | -- | -- | | | | 9.9 | | |
| Approach LOS | -- | -- | | | | A | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | THREE MILE RUN RD. & HILL RD. |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description: McCLENNEN PROPERTY

East/West Street: THREE MILE RUN ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 54 | 90 | | | 74 | 22 |
| Peak-Hour Factor, PHF | 0.82 | 0.82 | 1.00 | 1.00 | 0.79 | 0.79 |
| Hourly Flow Rate, HFR (veh/h) | 65 | 109 | 0 | 0 | 93 | 27 |
| Percent Heavy Vehicles | 14 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | LT | | | | | TR |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 9 | | 29 |
| Peak-Hour Factor, PHF | 1.00 | 1.00 | 1.00 | 0.83 | 1.00 | 0.83 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 10 | 0 | 34 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 6 | 0 | 6 |
| Percent Grade (%) | | 0 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | | | | | | LR | |
| v (veh/h) | 65 | | | | | | 44 | |
| C (m) (veh/h) | 1396 | | | | | | 831 | |
| v/c | 0.05 | | | | | | 0.05 | |
| 95% queue length | 0.15 | | | | | | 0.17 | |
| Control Delay (s/veh) | 7.7 | | | | | | 9.6 | |
| LOS | A | | | | | | A | |
| Approach Delay (s/veh) | -- | -- | | | | | 9.6 | |
| Approach LOS | -- | -- | | | | | A | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | ROCKHILL ROAD & HILL ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 35 | 7 | 2 | 60 | |
| Peak-Hour Factor, PHF | 1.00 | 0.75 | 0.75 | 0.82 | 0.82 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 46 | 9 | 2 | 73 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 16 | | 13 | | | |
| Peak-Hour Factor, PHF | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 18 | 0 | 15 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 9 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | -3 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 2 | | 33 | | | | |
| C (m) (veh/h) | | 1563 | | 934 | | | | |
| v/c | | 0.00 | | 0.04 | | | | |
| 95% queue length | | 0.00 | | 0.11 | | | | |
| Control Delay (s/veh) | | 7.3 | | 9.0 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.0 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | ROCKHILL ROAD & HILL ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: ROCKHILL ROAD | North/South Street: HILL ROAD

Intersection Orientation: East-West | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 55 | 25 | 17 | 48 | |
| Peak-Hour Factor, PHF | 1.00 | 0.75 | 0.75 | 0.82 | 0.82 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 73 | 33 | 20 | 58 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 23 | | 8 | | | |
| Peak-Hour Factor, PHF | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 |
| Hourly Flow Rate, HFR (veh/h) | 27 | 0 | 9 | 0 | 0 | 0 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | -3 | | | 0 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | LR | | | | |

## Delay, Queue Length, and Level of Service

| Approach | Eastbound | Westbound | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 20 | | 36 | | | | |
| C (m) (veh/h) | | 1498 | | 855 | | | | |
| v/c | | 0.01 | | 0.04 | | | | |
| 95% queue length | | 0.04 | | 0.13 | | | | |
| Control Delay (s/veh) | | 7.4 | | 9.4 | | | | |
| LOS | | A | | A | | | | |
| Approach Delay (s/veh) | -- | -- | 9.4 | | | | | |
| Approach LOS | -- | -- | A | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | HILL ROAD & STONE EDGE ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description: McCLENNEN PROPERTY

East/West Street: STONE EDGE ROAD/SITE ACCESS | North/South Street: HILL ROAD

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 3 | 10 | 8 | 5 | 17 | 3 |
| Peak-Hour Factor, PHF | 0.71 | 0.71 | 0.71 | 0.58 | 0.58 | 0.58 |
| Hourly Flow Rate, HFR (veh/h) | 4 | 14 | 11 | 8 | 29 | 5 |
| Percent Heavy Vehicles | 0 | -- | -- | 20 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 1 | 0 | 1 | 0 |
| Configuration | LT | | R | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 11 | 2 | 12 | 30 | 1 | 15 |
| Peak-Hour Factor, PHF | 0.69 | 0.69 | 0.69 | 0.81 | 0.81 | 0.81 |
| Hourly Flow Rate, HFR (veh/h) | 15 | 2 | 17 | 37 | 1 | 18 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 1 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | LTR | | LTR | | | LTR | |
| v (veh/h) | 4 | 8 | | 56 | | | 34 | |
| C (m) (veh/h) | 1591 | 1480 | | 938 | | | 951 | |
| v/c | 0.00 | 0.01 | | 0.06 | | | 0.04 | |
| 95% queue length | 0.01 | 0.02 | | 0.19 | | | 0.11 | |
| Control Delay (s/veh) | 7.3 | 7.4 | | 9.1 | | | 8.9 | |
| LOS | A | A | | A | | | A | |
| Approach Delay (s/veh) | -- | -- | 9.1 | | | 8.9 | | |
| Approach LOS | -- | -- | A | | | A | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | HILL ROAD & STONE EDGE ROAD |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: STONE EDGE ROAD/SITE ACCESS | North/South Street: HILL ROAD

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 12 | 18 | 27 | 14 | 9 | 11 |
| Peak-Hour Factor, PHF | 0.95 | 0.95 | 0.95 | 0.48 | 0.48 | 0.48 |
| Hourly Flow Rate, HFR (veh/h) | 12 | 18 | 28 | 29 | 18 | 22 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 1 | 0 | 1 | 0 |
| Configuration | LT | | R | LTR | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | 5 | 1 | 6 | 12 | 2 | 5 |
| Peak-Hour Factor, PHF | 0.75 | 0.75 | 0.75 | 0.50 | 0.50 | 0.50 |
| Hourly Flow Rate, HFR (veh/h) | 6 | 1 | 8 | 24 | 4 | 10 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent Grade (%) | | 1 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | LTR | | | LTR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | LT | LTR | | LTR | | | LTR | |
| v (veh/h) | 12 | 29 | | 38 | | | 15 | |
| C (m) (veh/h) | 1583 | 1575 | | 855 | | | 902 | |
| v/c | 0.01 | 0.02 | | 0.04 | | | 0.02 | |
| 95% queue length | 0.02 | 0.06 | | 0.14 | | | 0.05 | |
| Control Delay (s/veh) | 7.3 | 7.3 | | 9.4 | | | 9.1 | |
| LOS | A | A | | A | | | A | |
| Approach Delay (s/veh) | -- | -- | 9.4 | | | 9.1 | | |
| Approach LOS | -- | -- | A | | | A | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | AM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETHLEHEM PK & SITE ACCESS |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: OLD BETHLEHEM PIKE | North/South Street: SITE ACCESS

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 184 | 14 | 7 | 216 | |
| Peak-Hour Factor, PHF | 0.86 | 0.86 | 0.86 | 0.71 | 0.71 | 0.71 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 213 | 16 | 9 | 304 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 55 | | 29 |
| Peak-Hour Factor, PHF | 0.75 | 1.00 | 0.75 | 0.75 | 1.00 | 0.75 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 73 | 0 | 38 |
| Percent Heavy Vehicles | 13 | 0 | 13 | 0 | 0 | 0 |
| Percent Grade (%) | | -1 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 9 | | 111 | | | | |
| C (m) (veh/h) | | 1351 | | 565 | | | | |
| v/c | | 0.01 | | 0.20 | | | | |
| 95% queue length | | 0.02 | | 0.72 | | | | |
| Control Delay (s/veh) | | 7.7 | | 12.9 | | | | |
| LOS | | A | | B | | | | |
| Approach Delay (s/veh) | -- | -- | 12.9 | | | | | |
| Approach LOS | -- | -- | B | | | | | |

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# TWO-WAY STOP CONTROL SUMMARY

## General Information

| | |
|---|---|
| Analyst | AUH |
| Agency/Co. | H&K |
| Date Performed | 7/10/2010 |
| Analysis Time Period | PM PEAK |

## Site Information

| | |
|---|---|
| Intersection | OLD BETHLEHEM PK & SITE ACCESS |
| Jurisdiction | EAST ROCKHILL TWP., PA |
| Analysis Year | 2017 AFTER DEVELOPMENT |

Project Description McCLENNEN PROPERTY

East/West Street: OLD BETHLEHEM PIKE | North/South Street: SITE ACCESS

Intersection Orientation: North-South | Study Period (hrs): 0.25

## Vehicle Volumes and Adjustments

| Major Street | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | 404 | 55 | 29 | 275 | |
| Peak-Hour Factor, PHF | 0.84 | 0.84 | 0.84 | 0.95 | 0.95 | 0.95 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 480 | 65 | 30 | 289 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 0 | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration | | | TR | LT | | |
| Upstream Signal | | 0 | | | 0 | |

| Minor Street | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume (veh/h) | | | | 29 | | 16 |
| Peak-Hour Factor, PHF | 0.93 | 1.00 | 0.93 | 0.70 | 1.00 | 0.70 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 41 | 0 | 22 |
| Percent Heavy Vehicles | 2 | 0 | 2 | 0 | 0 | 0 |
| Percent Grade (%) | | -1 | | | 1 | |
| Flared Approach | | N | | | N | |
| Storage | | 0 | | | 0 | |
| RT Channelized | | | 0 | | | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration | | LT | | LR | | | | |
| v (veh/h) | | 30 | | 63 | | | | |
| C (m) (veh/h) | | 1034 | | 361 | | | | |
| v/c | | 0.03 | | 0.17 | | | | |
| 95% queue length | | 0.09 | | 0.62 | | | | |
| Control Delay (s/veh) | | 8.6 | | 17.1 | | | | |
| LOS | | A | | C | | | | |
| Approach Delay (s/veh) | -- | -- | 17.1 | | | | | |
| Approach LOS | -- | -- | C | | | | | |

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# APPENDIX D

# TURN LANE WARRANT ANALYSIS

**Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)**

(L = % Left Turns in Advancing Volume)

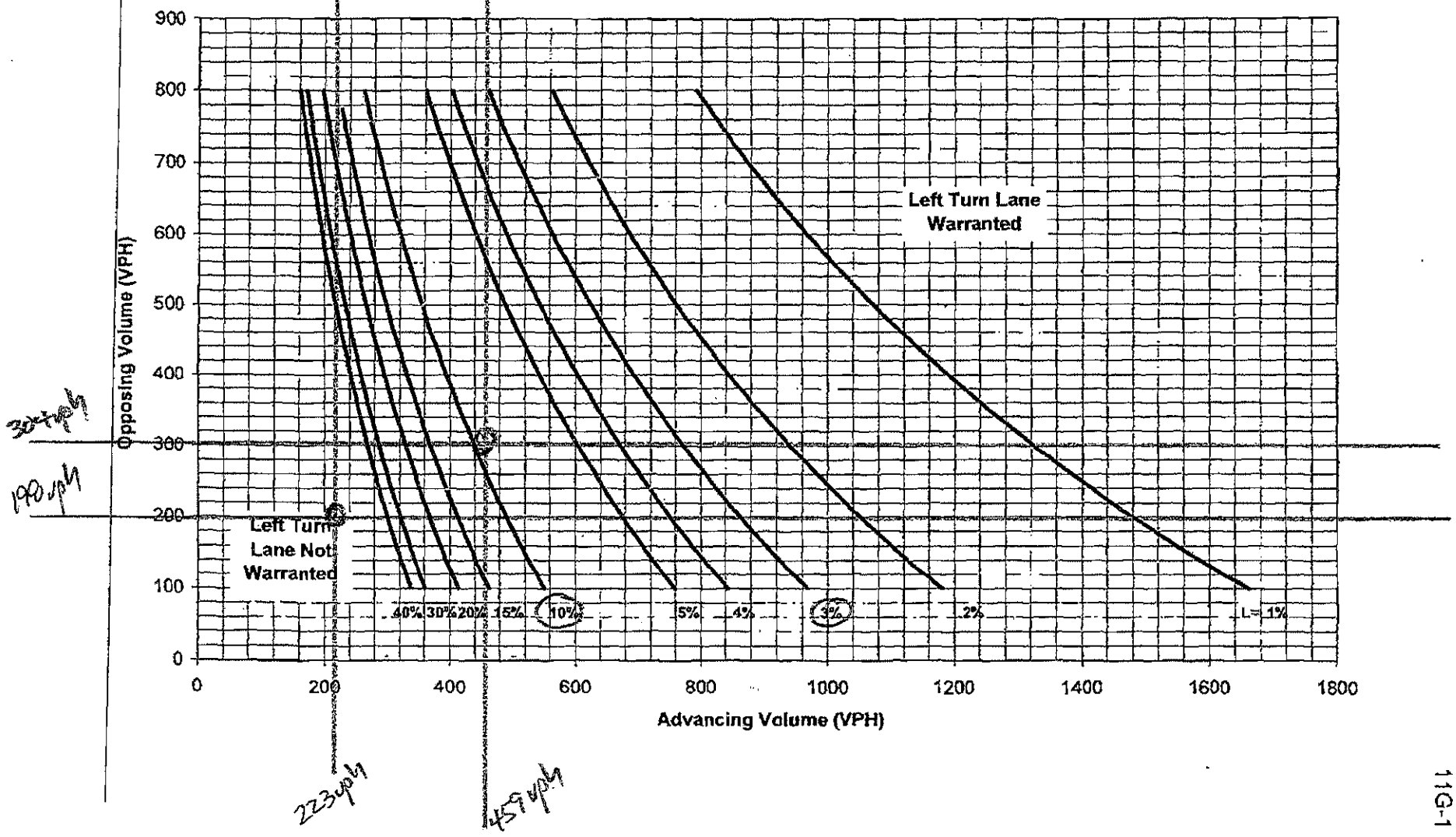
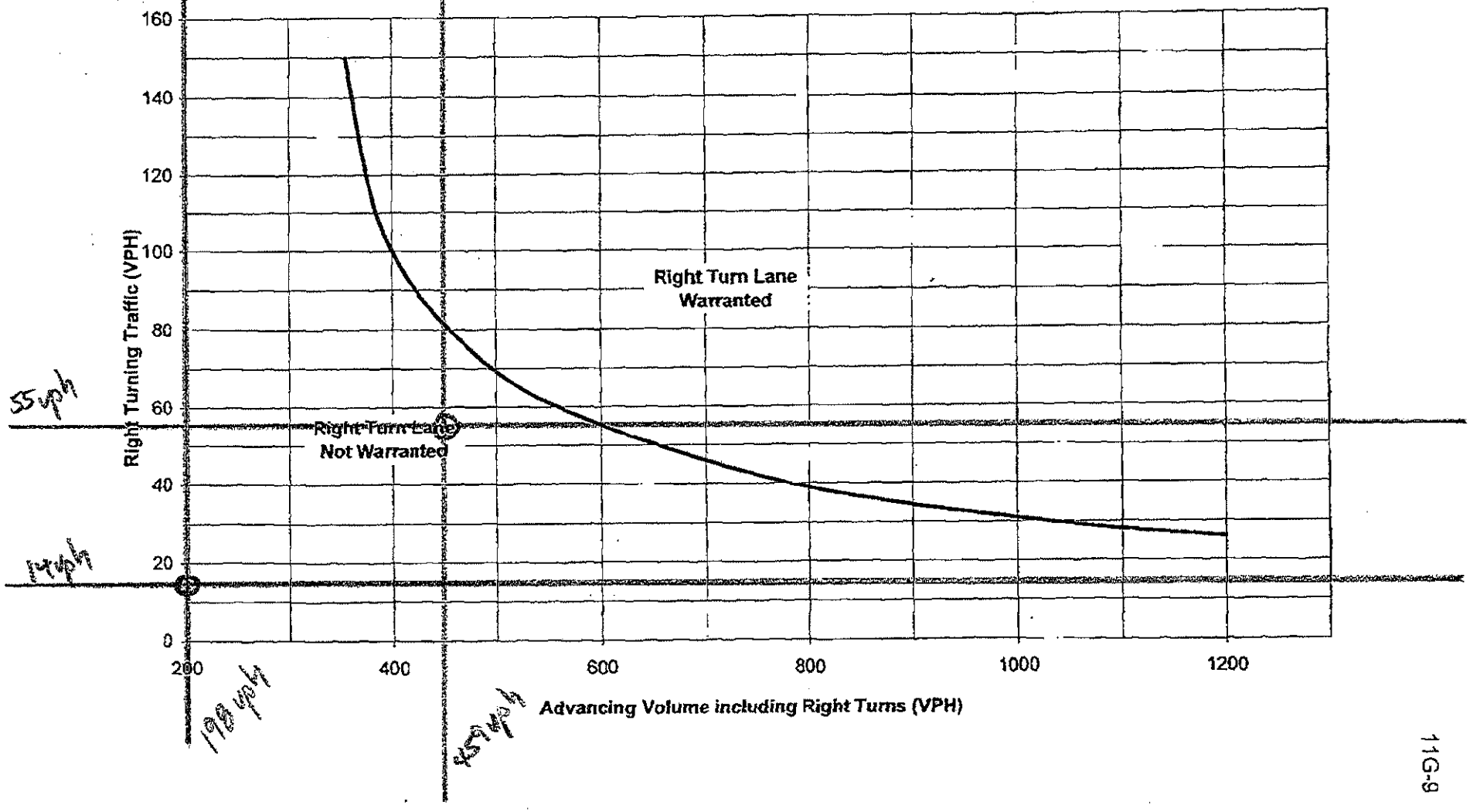
Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)