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TRAFFIC IMPACT STUDY

PROPOSED DOVER MOBIL

NYS ROUTE 22 AND PLEASANT RIDGE (C.R. 21)

TOWN OF DOVER, NEW YORK

JOB NO. 1884

MARCH 22, 2012

REVISED: APRIL 25, 2012

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SECTION I

INTRODUCTION

A. PROJECT DESCRIPTION AND LOCATION (Figure No. 1)

A new Mobil gas and convenience store which will include a Dunkin Donuts drive-thru with approximately 3,575 sq. ft and 4 gasoline pumps (8 fueling positions) and a diesel fueling station is proposed on the site located on the southeast corner of the intersection of NYS Route 22 and Pleasant Ridge Road in the Town of Dover, New York. The site, which currently contains a diner, is accessed via separate driveways to NYS Route 22, Pleasant Ridge Road as well as NYS Route 55. The location of the site is shown on Figure No. 1. A Design Year of 2014 has been utilized in completing the traffic analysis for the project.

B. SCOPE OF STUDY

This report has been prepared to evaluate the potential traffic impacts associated with the proposed Dover Mobil on the surrounding roadway network.

The study evaluates Existing, No-Build and Build conditions. Traffic counts collected by representatives of John Collins Engineers, P.C. in the vicinity of the site together with data obtained from the NYSDOT were utilized to establish the Existing Traffic Volumes for the study area intersections.

The Existing Traffic Volumes were then projected to a Year 2014 Design Year to take into account expected increases in traffic due to normal background traffic growth in the area. In addition, traffic from other proposed projects in the area was also added to the projected traffic volumes resulting in the Year 2014 No-Build Traffic Volumes.

Estimates of the traffic to be generated by the Dover Mobil project were then made based the result of surveys of similar type facilities and data published by the Institute of Transportation Engineers. The additional traffic volumes to be generated by the proposed expansion were then added to the Year 2014 No-Build Traffic Volumes to obtain the Year 2014 Build Traffic Volumes.

Based on the procedures contained in the *2010 Highway Capacity Manual*, the traffic volumes were then compared to roadway capacities to determine existing and future Levels of Service and operating conditions. Recommendations for improvements were then made where necessary.

SECTION II
TRAFFIC IMPACT ANALYSIS FOR
EXISTING AND FUTURE TRAFFIC CONDITIONS

A. DESCRIPTION OF EXISTING ROADWAYS (Figure No. 1)

As shown on Figure No. 1, the site is served by various area and local roadways including NYS Route 22, Pleasant Ridge Road and NYS Route 55. The following is a brief description of each of these roadways. Copies of the capacity analysis which include lane widths, number of lanes, traffic control and signal timings (where appropriate) are contained in Appendix “C” of this study for each of the individual intersections studied.

1. NYS Route 22/55

Within the Study Area, NYS Route 22/55 is a two lane, State road. South of the site, NYS Route 22/55 intersects with North Quaker Hill Road (C.R. 68), Hurds Corner Road/Old Pawling Road, Kitchen Corners Road and Furlong Road all at unsignalized intersections. In the immediate vicinity of the site, NYS Route 22/55 intersects with Wheeler Road at a signalized intersection. North of Wheeler Road, NYS Route 22 and NYS Route 55 split with NYS Route 22 continuing in a northwesterly direction intersecting with Pleasant Ridge Road at a signalized intersection with NYS Route 55 continuing in a northeasterly direction intersecting with Hutchinson Avenue and Pleasant Ridge Road at unsignalized intersections. North of Pleasant Ridge Road, NYS Route 22 intersects with Rural Avenue and Cricket Hill

Road (C.R. 26) at unsignalized intersections. NYS Route 22/55 has varying speed limits with a 30 mph speed limit approaching Wheeler Road with speed limits of 40 mph to 55 mph at various other locations.

2. Pleasant Ridge Road (C.R. 21)

Pleasant Ridge Road is a two lane County road (C.R. 21) which generally runs in an east/west direction within the Study Area. Pleasant Ridge Road intersects with Hoags Corners Road at an unsignalized intersection west of the Study Area. Pleasant Ridge Road continues in an easterly direction intersecting with NYS Route 22/55 at a signalized intersection before terminating at NYS Route 55 at an unsignalized intersection east of the Study Area. Pleasant Ridge Road has varying speed limits with a 30 mph speed limit approaching the NYS Route 22/55 intersection with speed limits of 40 mph to 55 mph at various other locations.

B. YEAR 2012 EXISTING TRAFFIC VOLUMES (Figures No. 2 and 3)

Recent turning movement traffic counts were conducted by representatives of John Collins Engineers, P.C. on March 7th and 8th of 2012 supplemented with traffic counts obtained from the NYSDOT as well as previous count data collected by our office for the area roadways during 2009. These data were used to identify current traffic conditions in the vicinity of the site and to establish the Year 2012 Existing Traffic Volumes for the Weekday AM and PM Peak Hours at the following intersections:

- NYS Route 22 and Pleasant Ridge Road (C.R. 21)
- NYS Route 22 and NYS Route 55
- NYS Route 55 and Pleasant Ridge Road

The resulting Year 2012 Existing Traffic Volumes for each of the study intersections are shown on Figures No. 2 and 3 for the Weekday Peak AM and Peak PM Hours, respectively.

C. YEAR 2014 NO-BUILD TRAFFIC VOLUMES (Figures No. 4 through 9)

The Year 2012 Existing Traffic Volumes were increased by a growth factor of 1% per year to the 2014 Design Year for a total background growth of 2% to account for normal traffic growth in the area. The resulting Year 2014 Projected Traffic Volumes are shown on Figures No. 4 and 5 for each of the Peak Hours, respectively. In addition, traffic volumes which would be generated by other specific developments in the area were also identified including the Phase 1 of the Dover Knolls development. The Other Development Traffic Volumes which are shown on Figures No. 6 and 7 were added to the Year 2014 Projected Traffic Volumes to obtain the Year 2014 No-Build Traffic Volumes. The Year 2014 No-Build Traffic Volumes are shown on Figures No. 8 and 9 for the Weekday AM and PM Peak Hours, respectively.

D. SITE GENERATED TRAFFIC VOLUMES (Table No. 1)

Estimates of the amount of traffic to be generated by the Dover Mobil during each of the peak hours were developed based on data collected at a similar type facility as well as data published by the

Institute of Transportation Engineers as contained in their report entitled, *Trip Generation*, 8th Edition, 2008. Table No. 1 provides the Hourly Trip Generation Rates and Existing and Anticipated Site Generated Traffic Volumes for each of the Peak Hours.

It should also be noted that for this type of facility a major portion of the trips (typically in excess of 50%) are attracted from the existing traffic stream as pass-by or diverted link trips and are not “new trips” to the roadway system. No credit has been taken herein.

E. ARRIVAL/DEPARTURE DISTRIBUTION (Figures No. 10 and 11)

An arrival and departure distribution was established based on a review of the existing traffic volumes and in order to assign the site generated traffic volumes to the roadway network. The resulting arrival and departure distributions are shown on Figures No. 10 and 11, respectively.

F. YEAR 2014 BUILD TRAFFIC VOLUMES (Figures No. 12 through 15)

The site generated traffic volumes were assigned to the roadway network utilizing the above referenced arrival and departure distributions. The resulting site generated traffic volumes are shown on Figures No. 12 and 13 for each of the Peak Hours. These site generated traffic volumes were added to the Year 2014 No-Build Traffic Volumes resulting in the Year 2014 Build Traffic Volumes which are shown on Figures No. 14 and 15 for the Weekday AM and PM Peak Hours, respectively.

G. DESCRIPTION OF ANALYSIS PROCEDURES

It was necessary to perform capacity analyses in order to determine existing and future traffic operating conditions at the study area intersections. The following is a brief description of the analysis method utilized in this report:

- Signalized Intersection Capacity Analysis

The capacity analysis for a signalized intersection was performed in accordance with the procedures described in the *2010 Highway Capacity Manual*, published by the Transportation Research Board. The terminology used in identifying traffic flow conditions is Levels of Service. A Level of Service “A” represents the best condition and a Level of Service “F” represents the worst condition. A Level of Service “C” is generally used as a design standard while a Level of Service “D” is acceptable during peak periods. A Level of Service “E” represents an operation near capacity. In order to identify an intersection’s Level of Service, the average amount of vehicle delay is computed for each approach to the intersection as well as for the overall intersection.

- Unsignalized Intersection Capacity Analysis

The unsignalized intersection capacity analysis method utilized in this report was also performed in accordance with the procedures described in the *2010 Highway Capacity Manual*. The procedure is based on total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. The average total delay for any particular critical movement is a function of the service rate or capacity of the approach and the degree of saturation. In order to identify the Level of Service, the average amount of vehicle delay is computed for each critical movement to the intersection.

Additional information concerning signalized and unsignalized Levels of Service can be found in Appendix “D” of this report.

H. RESULTS OF TRAFFIC ANALYSIS (Table No. 2)

Capacity analyses were performed at each of the study area intersections utilizing the procedures described above to evaluate current and future operating conditions. Summarized below is a brief description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service and any recommended improvements for each of the intersections studied.

Table No. 2 also summarizes the results of the capacity analysis (Levels of Service and average vehicle delays) for the Year 2012 Existing, Year 2014 No-Build and Year 2014 Build Conditions. Copies of the capacity analysis for each of the individual intersections are contained in Appendix “C” of this report. A SYNCHRO analysis was also completed for the roadway network to analyze the affects of queuing on the study area intersections.

1. NYS Route 22 and Pleasant Ridge Road (C.R. 21)

Pleasant Ridge Road (C.R. 21) intersects with NYS Route 22 at a signalized intersection. All approaches to the intersection consist of one lane.

Existing

Capacity analysis conducted utilizing the Year 2012 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “B” during each of the peak hours.

No-Build

Capacity analysis conducted utilizing the Year 2014 No-Build Traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service “B” during each of the peak hours.

Build

Capacity analysis conducted utilizing the Year 2014 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service “B” during each of the peak hours.

2. NYS Route 22 and Dover Mobil Access

The existing Dover Mobil site is accessed from NYS Route 22 via a full movement driveway. Each of the approaches to the intersection consists of one lane. It is recommended that the driveway be limited to right turn in/right turn out.

The capacity analysis conducted at this intersection utilizing the Year 2014 Build Traffic Volumes indicates that the intersection will to operate at a Level of Service “B” or better during the AM and PM Peak Hours.

3. NYS 22/55 Intersection

NYS Route 55 northbound separates from NYS Route 22 north of Wheeler Road and NYS Route 55 southbound joins NYS Route 22 south of Pleasant Ridge Road. NYS Route 55 southbound traffic enters the NYS Route 22 Corridor at an unsignalized intersection.

Existing

Capacity analysis conducted utilizing the Year 2012 Existing Traffic Volumes indicates that the NYS Route 55 traffic is currently operating at a Level of Service “C” or better during each of the peak hours.

No-Build

Capacity analysis conducted utilizing the Year 2014 No-Build Traffic Volumes indicates that the NYS Route 55 traffic is projected to operate at a Level of Service “C” during the Weekday Peak AM Highway Hour, is projected to operate at a level of Service “C” during the Weekday Peak PM Highway Hour.

Build

Capacity analysis conducted utilizing the Year 2014 Build Traffic Volumes indicates that the NYS Route 55 traffic turning left onto Route 22 southbound is projected to operate at a Level of Service “D” during the Weekday Peak AM Highway Hour, is projected to operate at a Level of Service “C” during the Weekday Peak PM Highway Hour.

4. NYS Route 55 and Dover Mobil Access Driveway

The Dover Mobil access intersects NYS Route 55 at an unsignalized “T” shaped intersection. Each approach to the intersection consists of one lane and the Mobil access will be “Stop” sign controlled.

5. NYS Route 55 and Pleasant Ridge Road (C.R. 21)

Pleasant Ridge Road intersects with NYS Route 55 at an unsignalized intersection. The NYS Route 55 northbound approach consists of one lane in the form of a shared left/through lane and the NYS Route 55 southbound approach consists of one lane in the form of a shared through/right turn lane. The Pleasant Ridge Road eastbound approach consists of one lane for left and right turn movements and is “Stop” sign controlled.

Existing

Capacity analysis conducted utilizing the Year 2012 Existing Traffic Volumes indicates that the Pleasant Ridge Road approach is currently operating at a Level of Service “B” during each of the peak hours, with all other movements operating at a Level of Service “A”.

No-Build

Capacity analysis conducted utilizing the Year 2014 No-Build Traffic Volumes indicates that the Pleasant Ridge Road approach is projected to operate at a Level of Service “C” or better during each of the peak hours, with all other movements are projected to operate at a Level of Service “A”.

Build

Capacity analysis conducted utilizing the Year 2014 Build Traffic Volumes indicates that the Pleasant Ridge Road approach is projected to operate at a Level of Service “C” during each of the peak hours, with all other movements projected to continue to operate at a Level of Service “A”.

6. Pleasant Ridge Road and Dover Mobil Access Driveway

The Dover Mobil Access intersects Pleasant Ridge Road at an unsignalized “T” shaped intersection. Each approach to the intersection consists of one lane and the Mobil Access will be “Stop” sign controlled.

Conducting the analysis with the 2014 Build Traffic Volumes indicates that the Levels of Service “B” during each of the peak hours.

I. ACCESS AND CIRCULATION

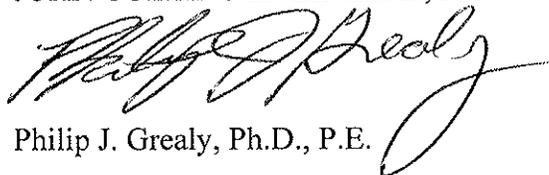
A review of the site plans indicates that stacking for approximately 9 vehicles is provided at the drive-through window with additional stacking of approximately 6 vehicles available prior to them affecting the driveway entrance areas. This will be adequate to meet the expected peak loading on the proposed drive-through window. Also, the entrance and exit to the drive-through area should be signed with “One-Way” and “Do Not Enter” signs as appropriate along with additional pavement marking.

J. SUMMARY AND CONCLUSION

As summarized in this report, with the completion of the recommended improvements, the traffic generated by the Dover Mobil project can be accommodated on the roadway system in the vicinity of the site. Based on the analysis contained in this report, similar Levels of Service will be experienced under future No-Build and Future Build Conditions.

Respectfully submitted,

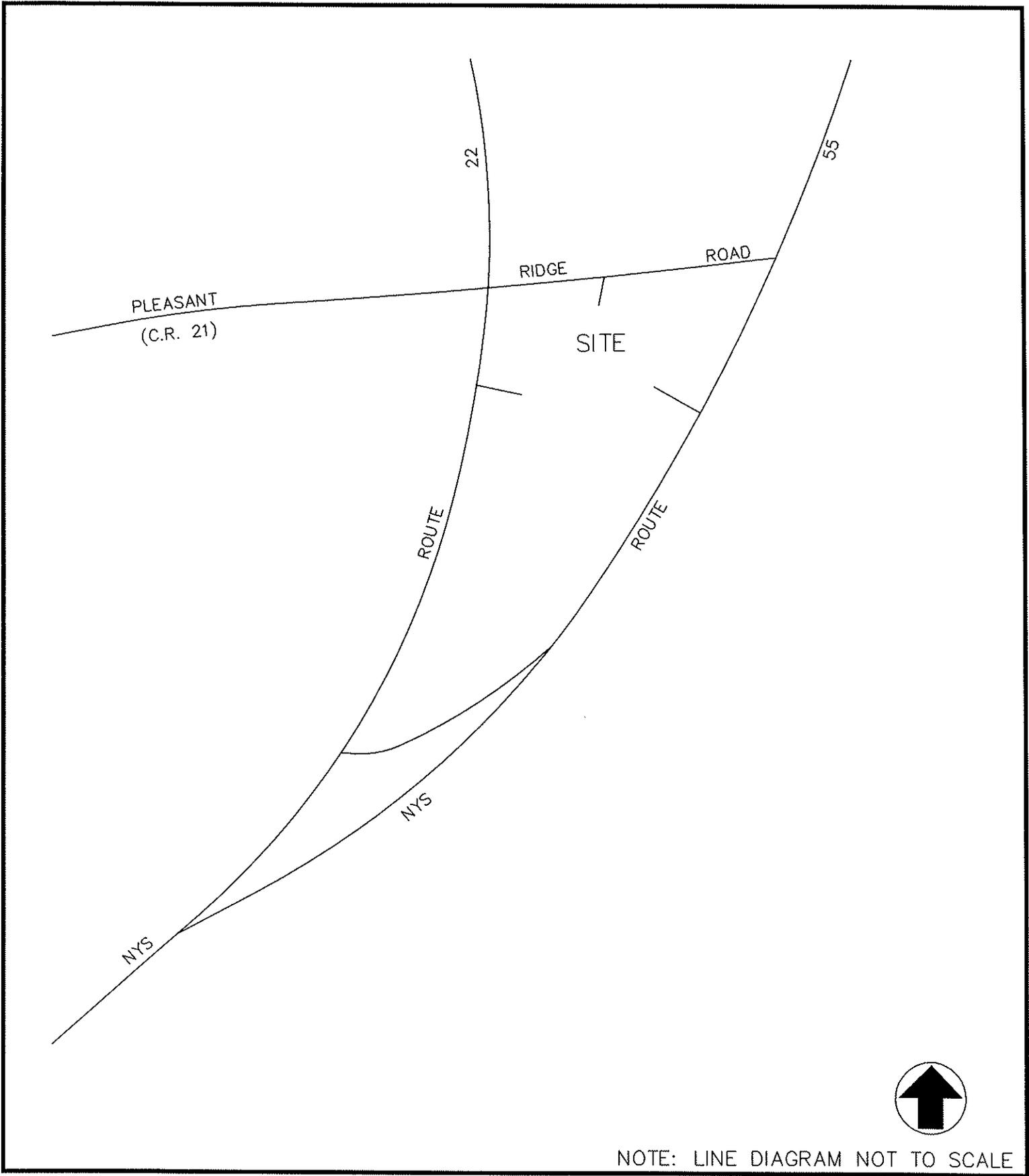
JOHN COLLINS ENGINEERS, P.C.

A handwritten signature in black ink, appearing to read 'Philip J. Grealy', written in a cursive style.

Philip J. Grealy, Ph.D., P.E.

APPENDIX "A"

FIGURES



NOTE: LINE DIAGRAM NOT TO SCALE

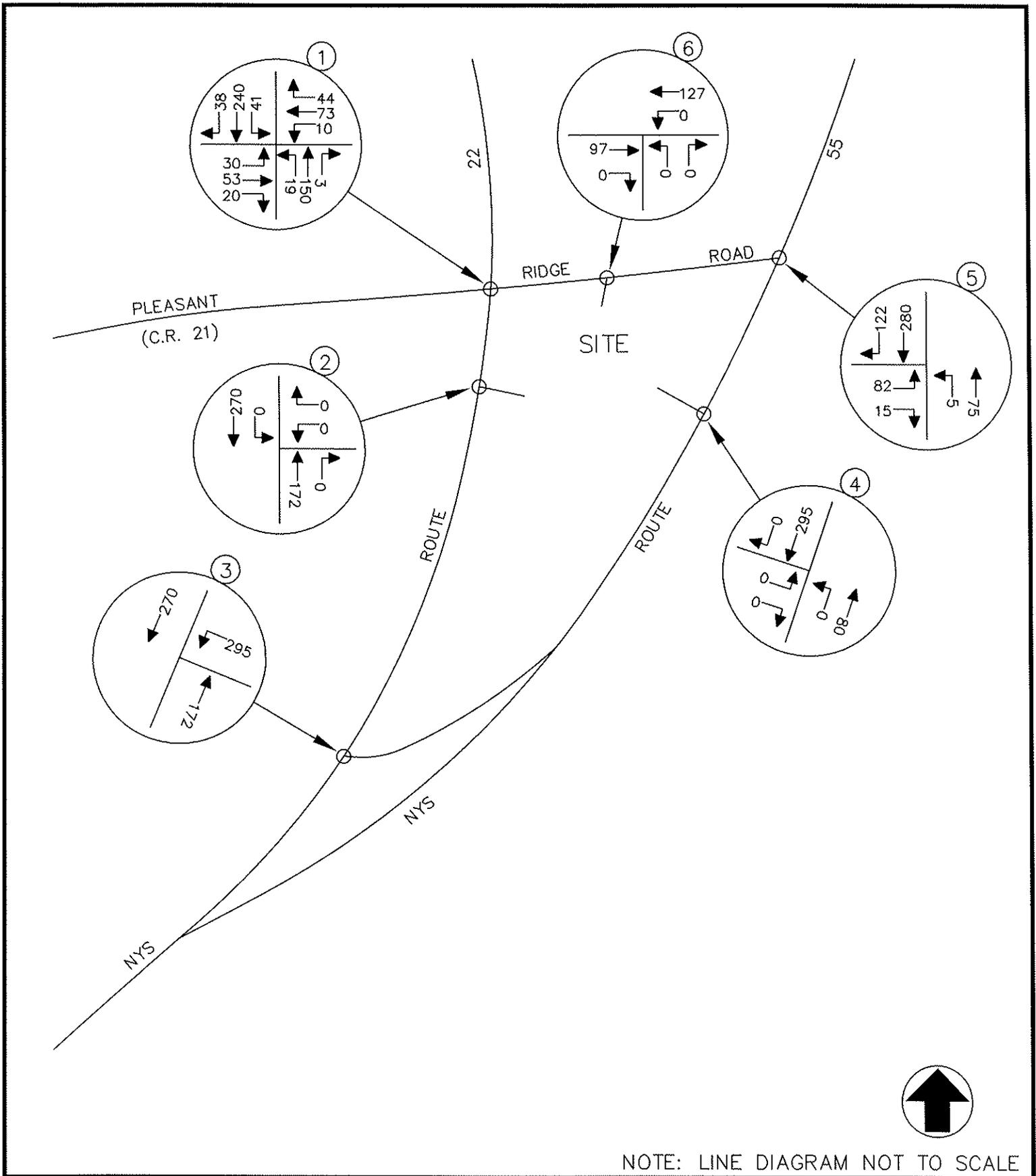
DOVER MOBIL
DOVER, NEW YORK

SITE LOCATION MAP

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO.1



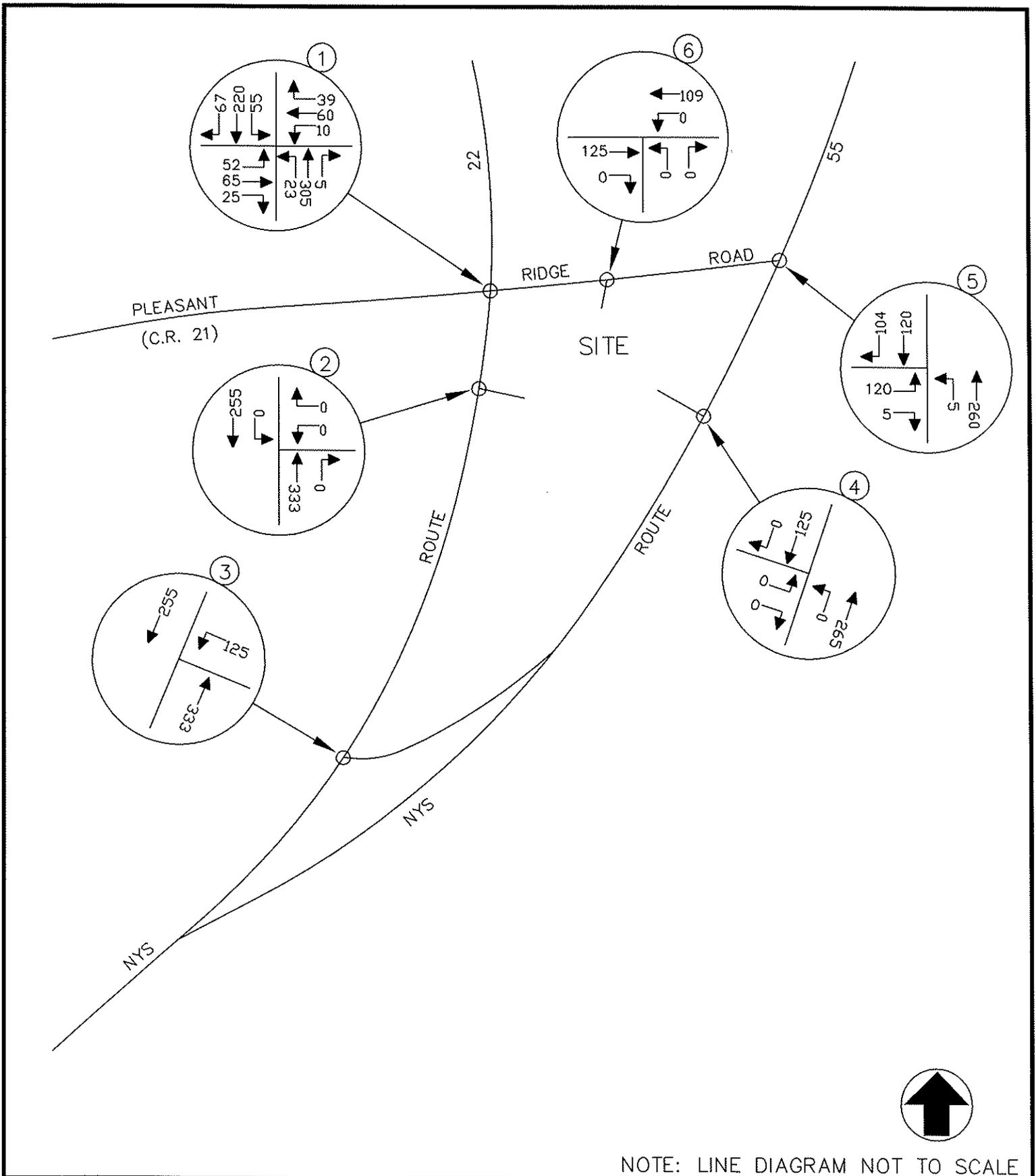
NOTE: LINE DIAGRAM NOT TO SCALE
 2012 EXISTING TRAFFIC VOLUMES
 WEEKDAY PEAK AM HOUR

DOVER MOBIL
 DOVER, NEW YORK

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FIG. NO. 2



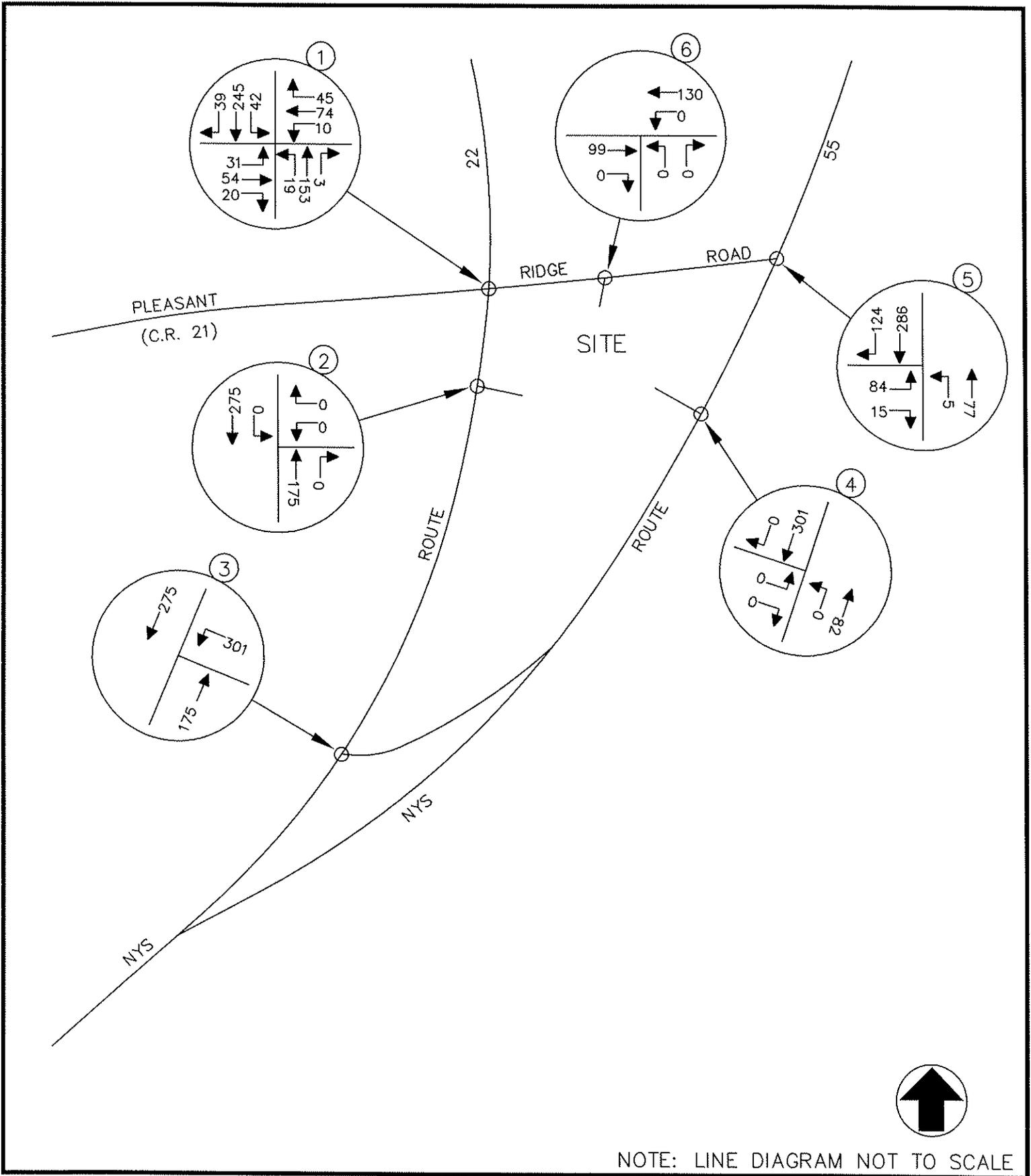
NOTE: LINE DIAGRAM NOT TO SCALE
 2012 EXISTING TRAFFIC VOLUMES
 WEEKDAY PEAK PM HOUR

DOVER MOBIL
 DOVER, NEW YORK

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FIG. NO. 3



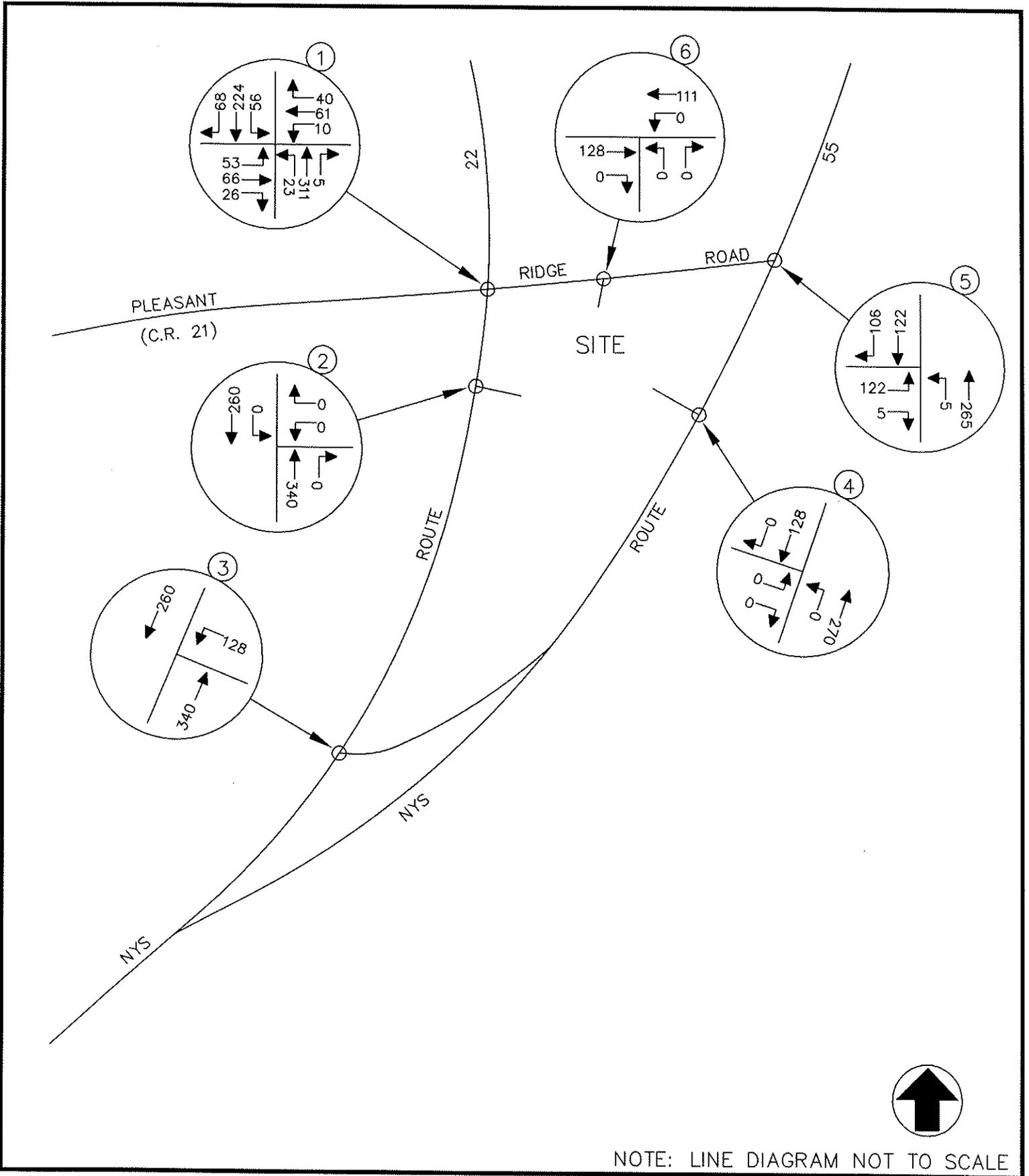
DOVER MOBIL
DOVER, NEW YORK

2014 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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FIG. NO.4



NOTE: LINE DIAGRAM NOT TO SCALE

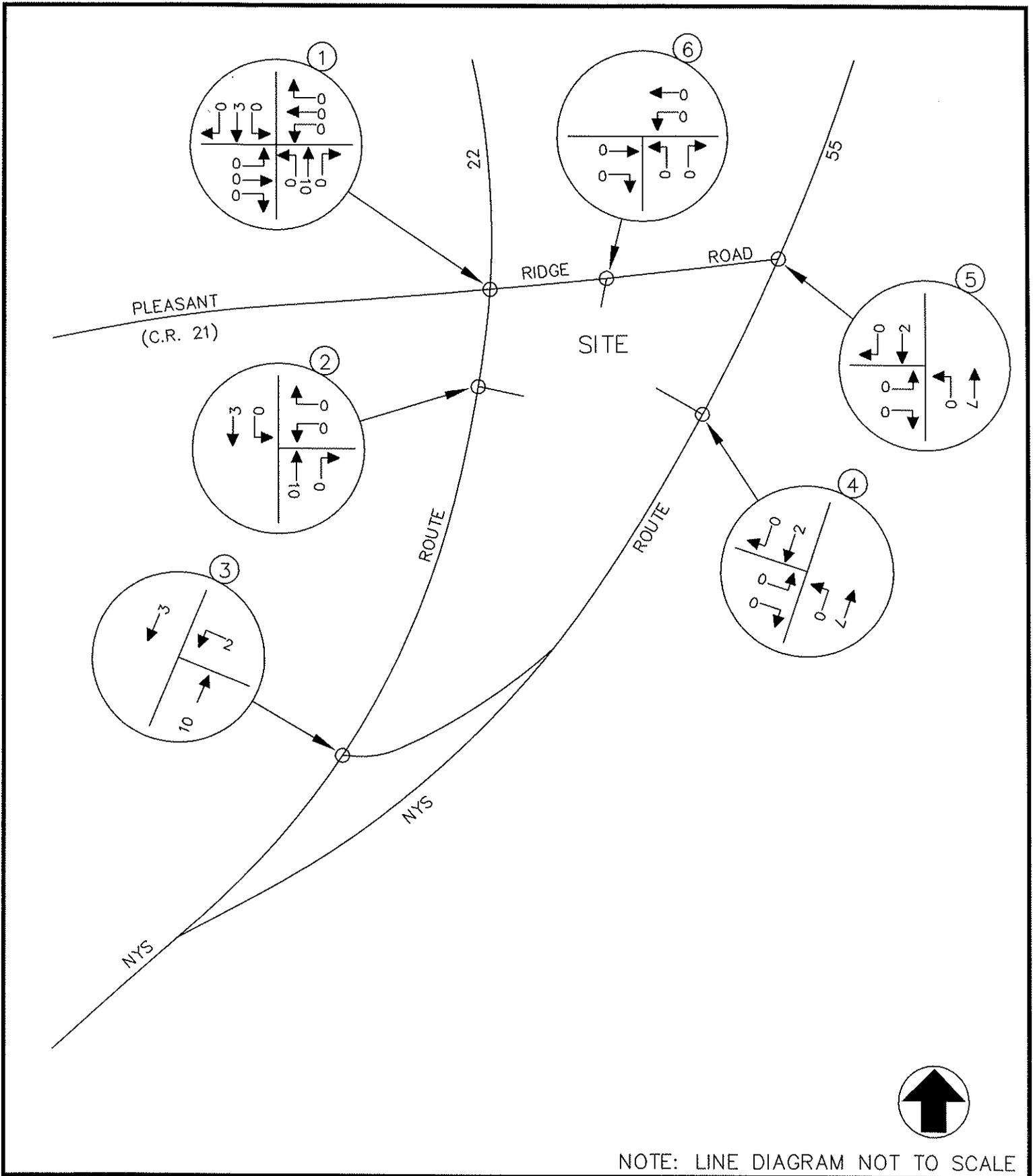
DOVER MOBIL
DOVER, NEW YORK

2014 PROJECTED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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FIG. NO. 5



NOTE: LINE DIAGRAM NOT TO SCALE

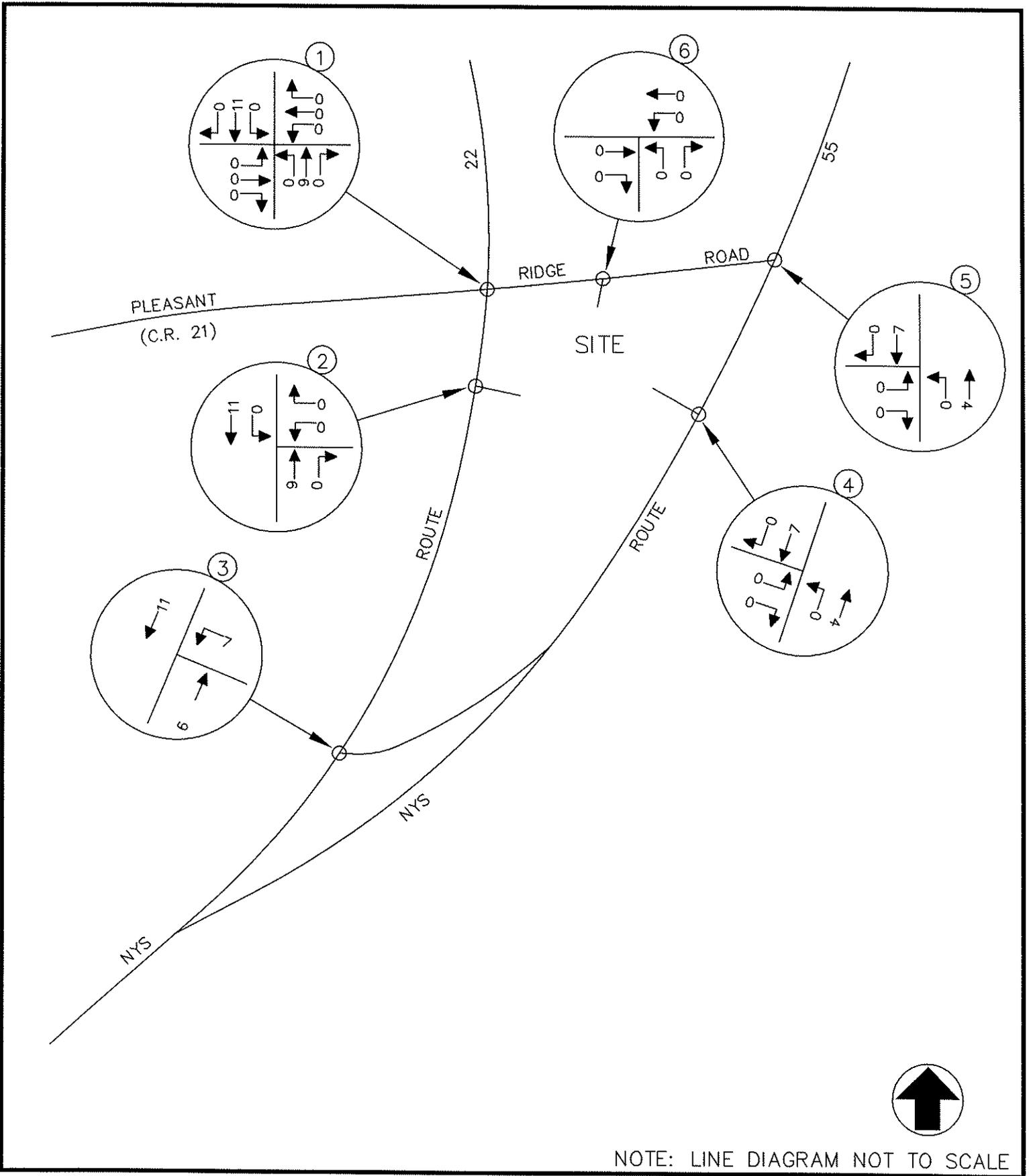
DOVER MOBIL
DOVER, NEW YORK

OTHER DEVELOPMENT TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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FIG. NO. 6



NOTE: LINE DIAGRAM NOT TO SCALE

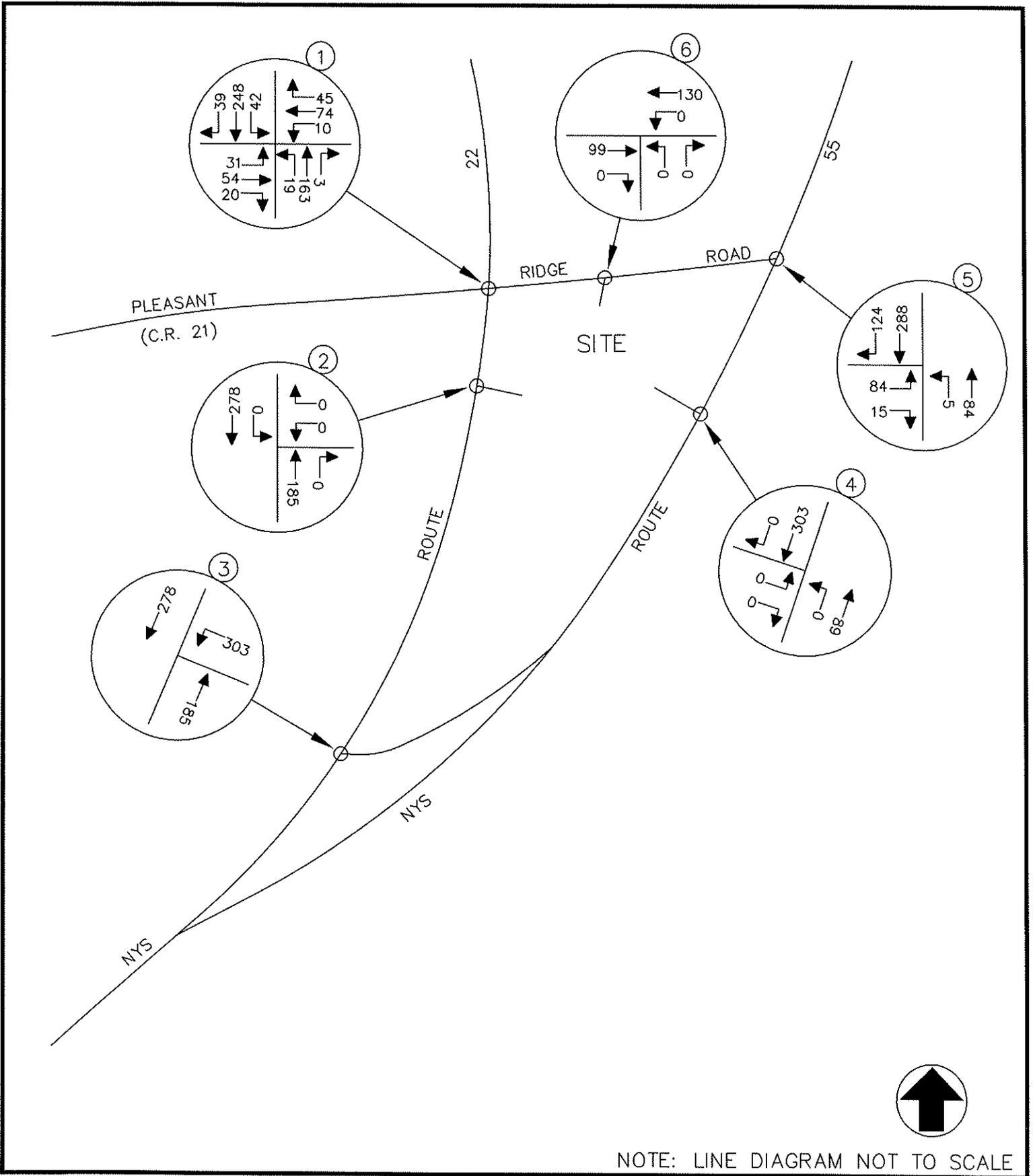
DOVER MOBIL
DOVER, NEW YORK

OTHER DEVELOPMENT TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO.7



NOTE: LINE DIAGRAM NOT TO SCALE

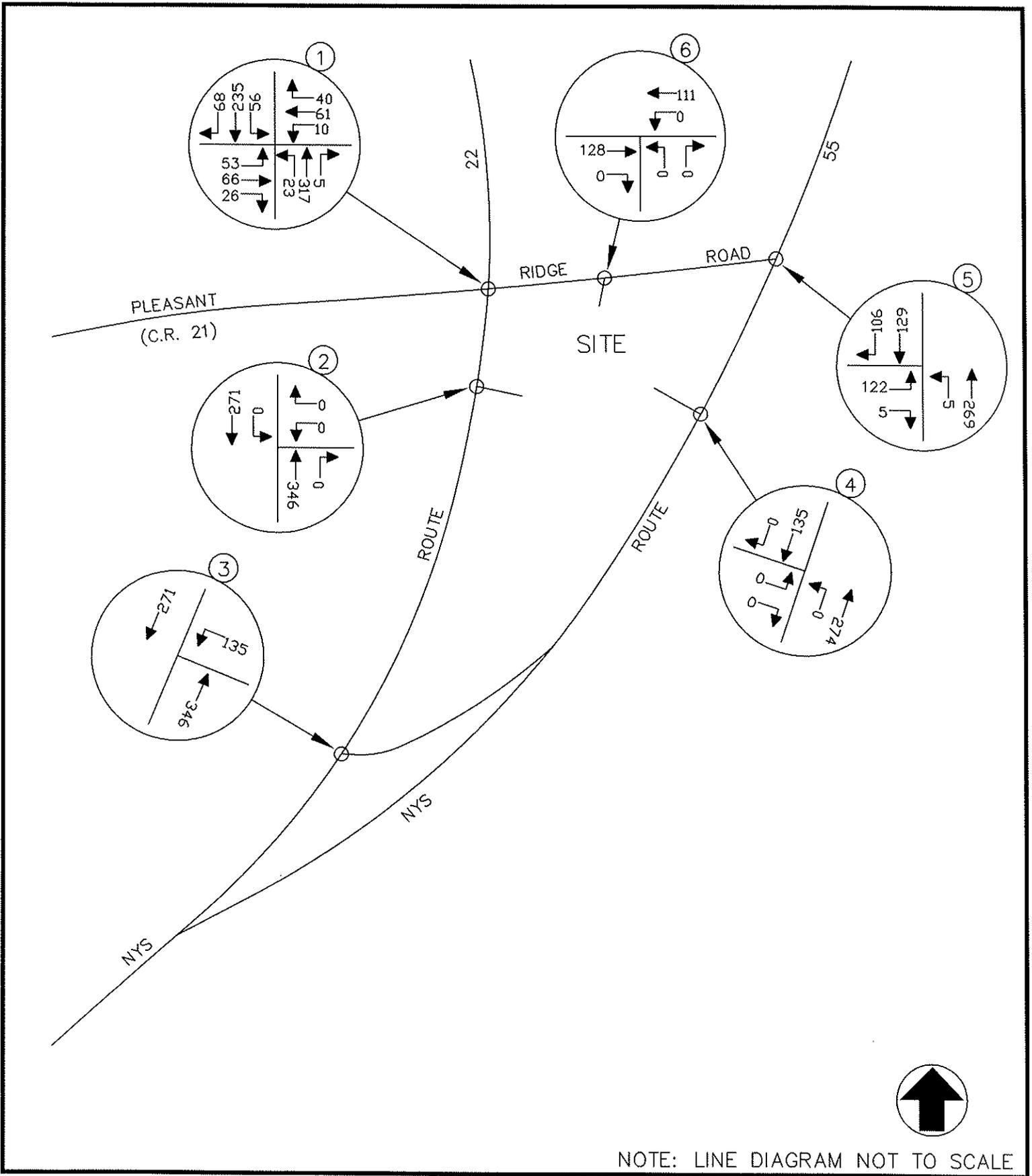
DOVER MOBIL
DOVER, NEW YORK

2014 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 8



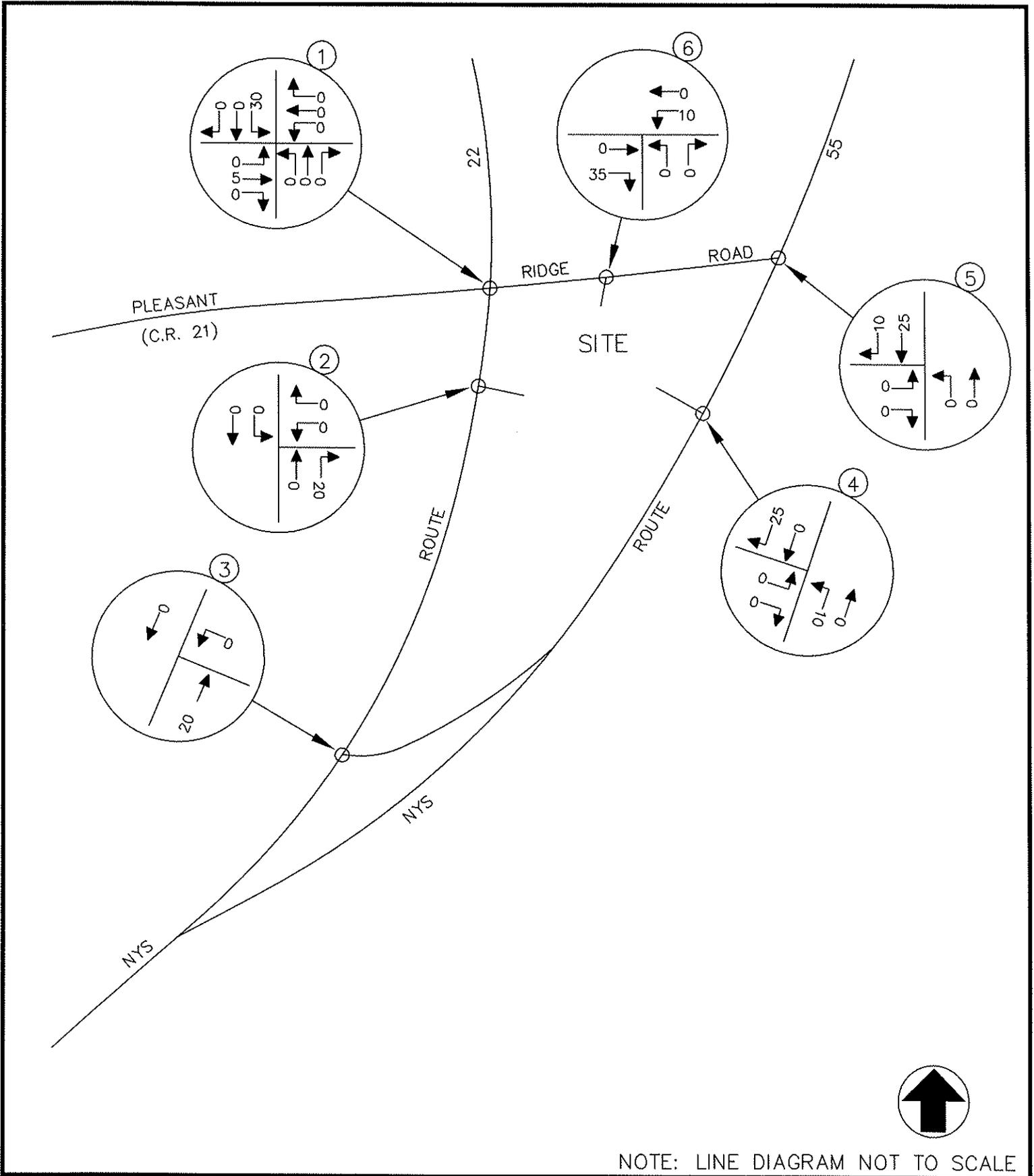
DOVER MOBIL
DOVER, NEW YORK

2012 NO-BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 9



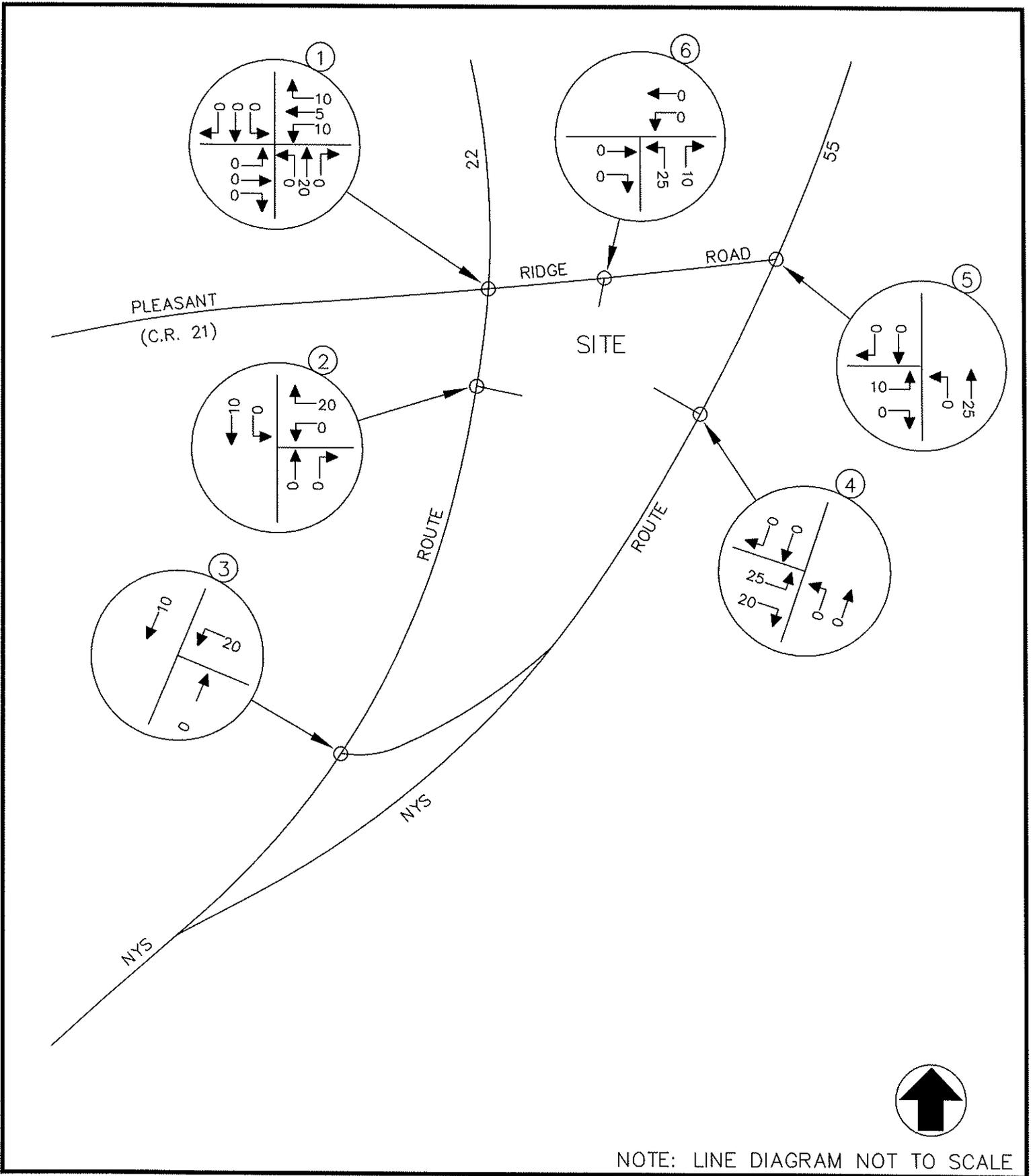
NOTE: LINE DIAGRAM NOT TO SCALE
 ARRIVAL DISTRIBUTION
 (ALL VALUES EXPRESSED AS A %)

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FIG. NO. 10



NOTE: LINE DIAGRAM NOT TO SCALE

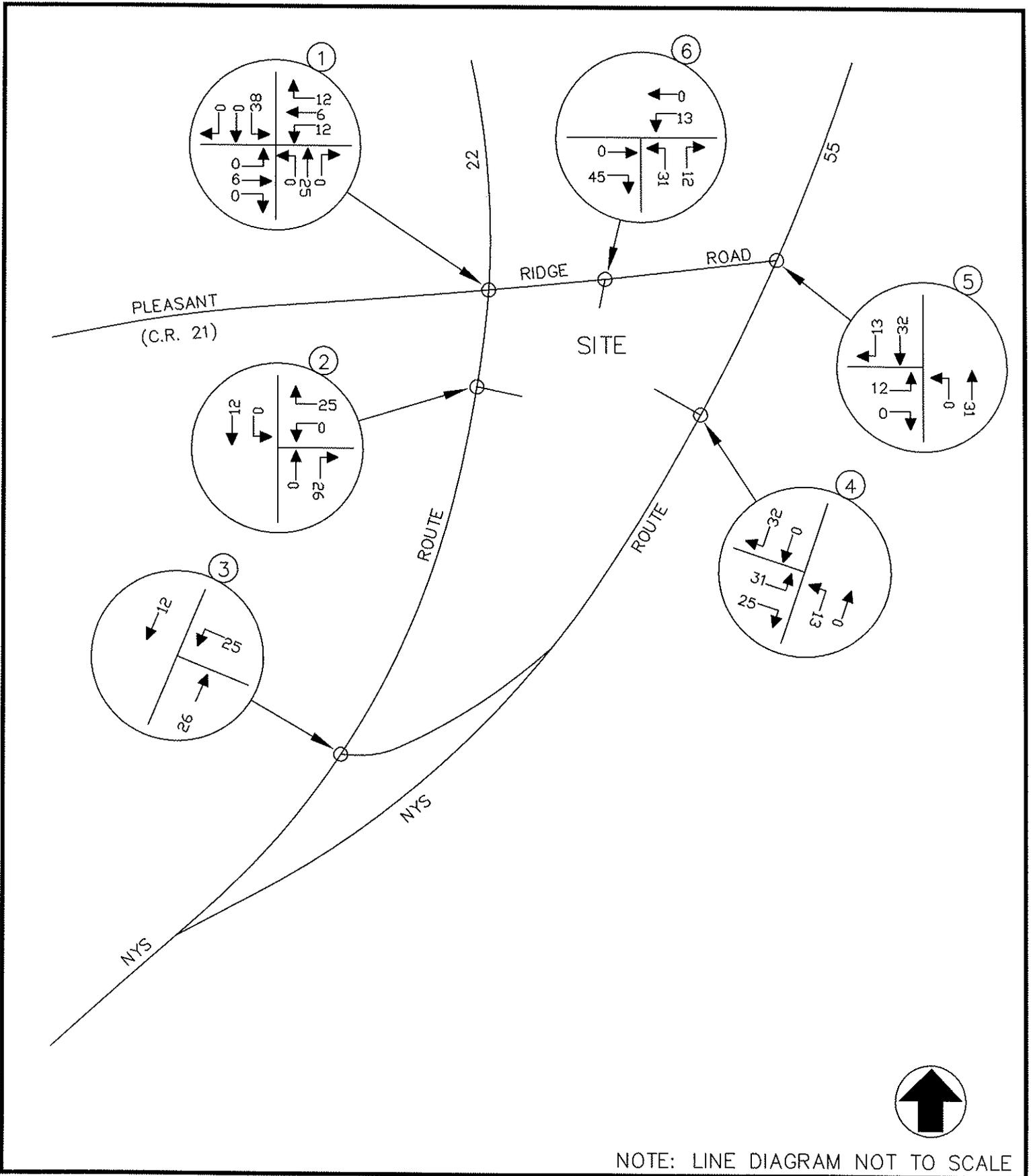
DOVER MOBIL
DOVER, NEW YORK

DEPARTURE DISTRIBUTION
(ALL VALUES EXPRESSED AS A %)

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 11



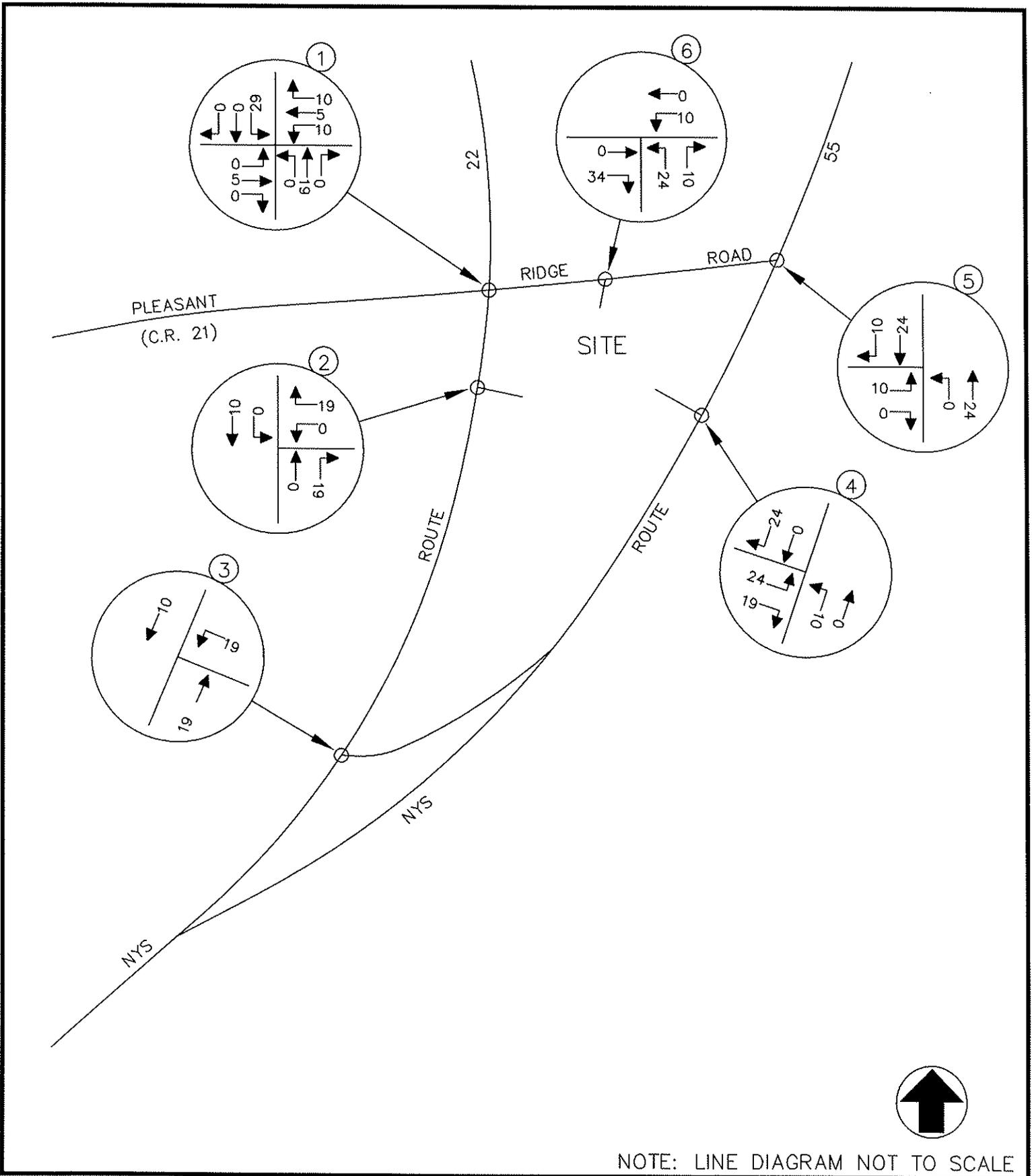
NOTE: LINE DIAGRAM NOT TO SCALE
 SITE GENERATED TRAFFIC VOLUMES
 WEEKDAY PEAK AM HOUR

DOVER MOBIL
 DOVER, NEW YORK

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 12



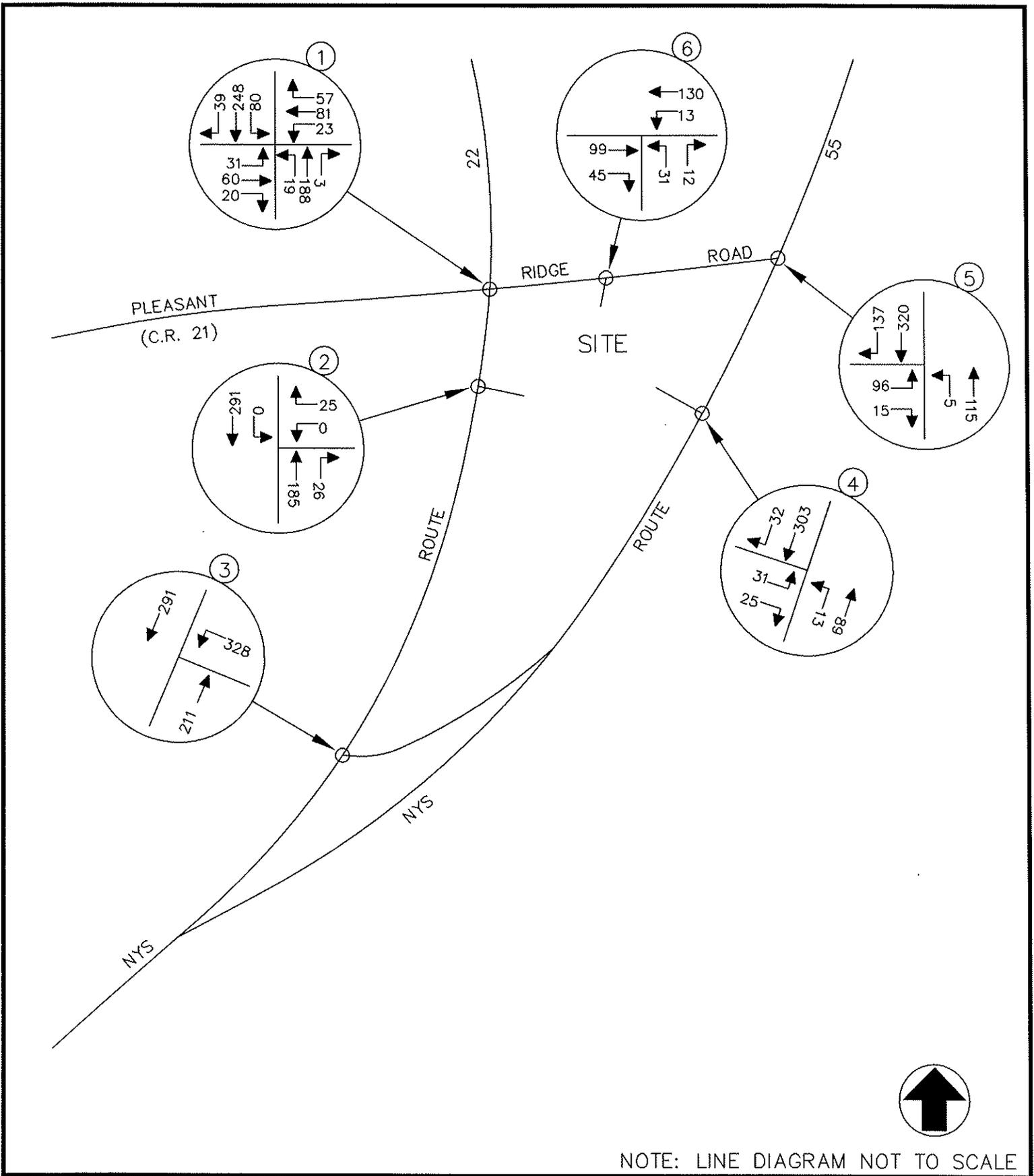
NOTE: LINE DIAGRAM NOT TO SCALE
 SITE GENERATED TRAFFIC VOLUMES
 WEEKDAY PEAK PM HOUR

DOVER MOBIL
 DOVER, NEW YORK

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 13



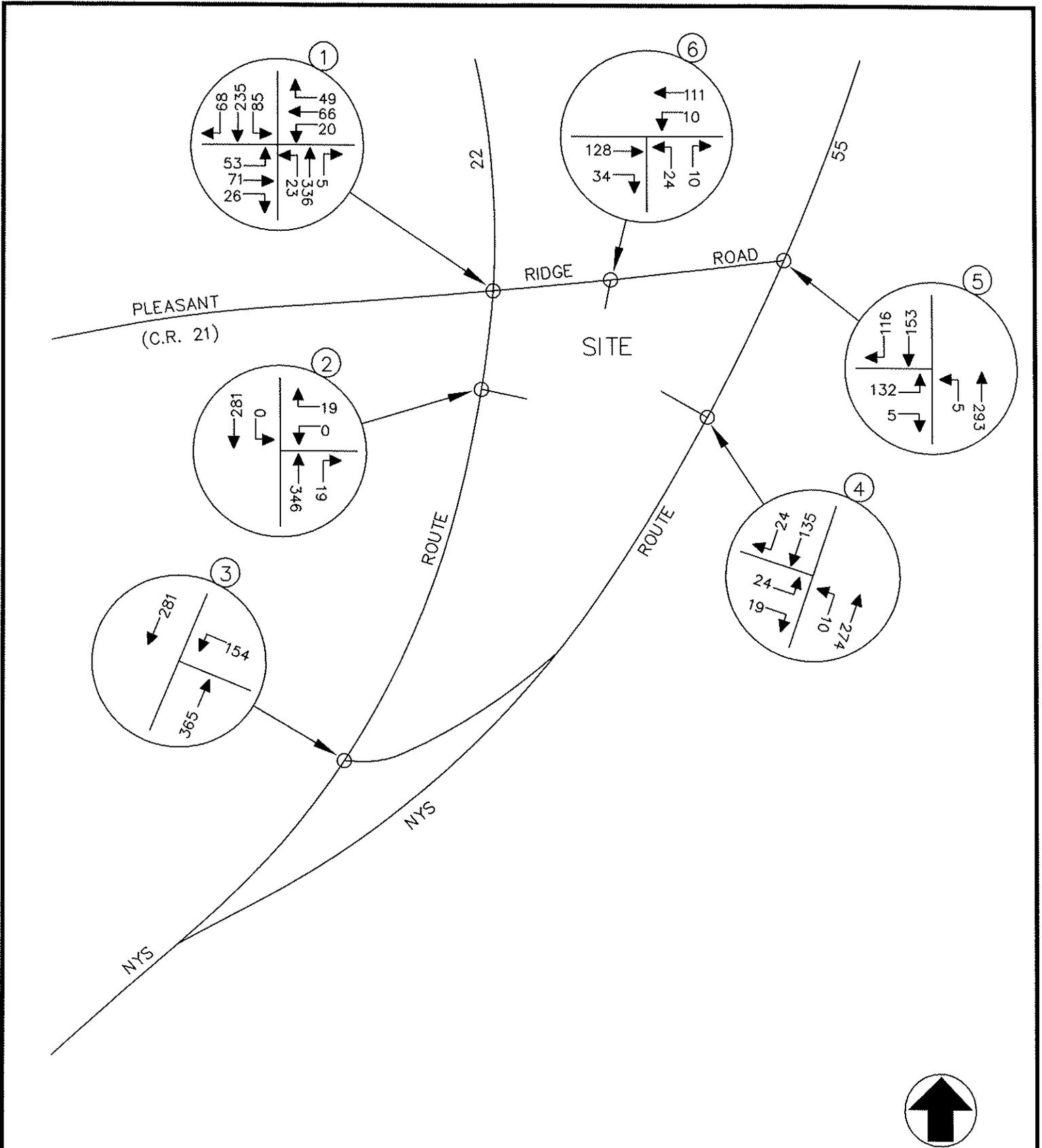
NOTE: LINE DIAGRAM NOT TO SCALE
 2014 BUILD TRAFFIC VOLUMES
 WEEKDAY PEAK AM HOUR

DOVER MOBIL
 DOVER, NEW YORK

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO. 14



NOTE: LINE DIAGRAM NOT TO SCALE
 2014 BUILD TRAFFIC VOLUMES
 WEEKDAY PEAK PM HOUR

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PROJECT NO. 1884 DATE: MARCH 2012

FIG. NO.15

APPENDIX "B"

TABLES

TABLE 1

**HOURLY TRIP GENERATION RATES (HTGR) AND ANTICIPATED
SITE GENERATED TRAFFIC VOLUMES**

| DOVER MOBIL DOVER, NY | ENTRY | | EXIT | |
|---|-------|--------|-------|--------|
| | HTGR* | VOLUME | HTGR* | VOLUME |
| DUNKIN DONUTS W/DRIVE THRU WINDOW (1,638 S.F.) | | | | |
| PEAK AM HOUR | 56.48 | 92 | 54.27 | 88 |
| PEAK PM HOUR | 29.85 | 48 | 29.85 | 48 |
| CONVENIENCE MARKET W/GASOLINE PUMPS (1,638 S.F.) | | | | |
| PEAK AM HOUR | 21.95 | 36 | 21.95 | 36 |
| PEAK PM HOUR | 29.85 | 48 | 29.85 | 48 |
| TOTALS | | | | |
| PEAK AM HOUR | - | 128 | - | 124 |
| PEAK PM HOUR | - | 96 | - | 96 |

NOTES:

- 1) TRIP GENERATION RATES FOR LAND USE 937 - COFFEE/DONUT SHOP W/DRIVE THRU WINDOW AND 853 - CONVENIENCE MARKET W/GASOLINE PUMPS THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) PUBLICATION ENTITLED "TRIP GENERATION", 8TH EDITION, JANUARY 2008.

TABLE NO. 2
LEVEL OF SERVICE SUMMARY TABLE

| | | | 2012 EXISTING | | 2014 NO-BUILD | | 2014 BUILD | |
|---|---|---------------------|---------------|---------|---------------|---------|------------|---------|
| | | | AM | PM | AM | PM | AM | PM |
| 1 | NYS ROUTE 22 & PLEASANT RIDGE ROAD (C.R. 21) | SIGNALIZED | | | | | | |
| | | EB | B[14.4] | B[14.8] | B[14.4] | B[14.8] | B[14.4] | B[14.9] |
| | | WB | B[14.6] | B[14.4] | B[14.7] | B[14.4] | B[15.1] | B[14.7] |
| | | NB | A[9.0] | B[10.8] | A[9.2] | B[11.0] | A[9.4] | B[11.3] |
| | | SB | B[11.0] | B[11.5] | B[11.1] | B[11.8] | B[12.6] | B[12.9] |
| | OVERALL | B[11.6] | B[12.1] | B[11.7] | B[12.3] | B[12.5] | B[12.9] | |
| 2 | NYS ROUTE 22 & SITE ACCESS DRIVEWAY | UNSIGNALIZED | | | | | | |
| | | WB | - | - | - | - | A[9.6] | B[10.7] |
| 3 | NYS ROUTE 22 & NYS ROUTE 55 | UNSIGNALIZED | | | | | | |
| | | WB | C[22.2] | C[16.6] | C[24.4] | C[17.8] | D[31.9] | C[19.8] |
| 4 | NYS ROUTE 55 & SITE ACCESS DRIVEWAY | UNSIGNALIZED | | | | | | |
| | | EB | - | - | - | - | B[12.3] | B[11.3] |
| | | NB | - | - | - | - | A[8.1] | A[7.6] |
| 5 | NYS ROUTE 55 & PLEASANT RIDGE ROAD (C.R. 21) | UNSIGNALIZED | | | | | | |
| | | EB | B[13.8] | B[14.7] | B[14.1] | C[15.1] | C[16.1] | C[16.9] |
| | | NB | A[8.3] | A[7.8] | A[8.4] | A[7.8] | A[8.5] | A[7.9] |
| 6 | PLEASANT RIDGE ROAD (C.R. 21) & SITE ACCESS DRIVEWAY | UNSIGNALIZED | | | | | | |
| | | WB | - | - | - | - | A[7.6] | A[7.6] |
| | | NB | - | - | - | - | B[10.4] | B[10.2] |

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH AS WELL AS FOR THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTION.

APPENDIX "C"

CAPACITY ANALYSIS

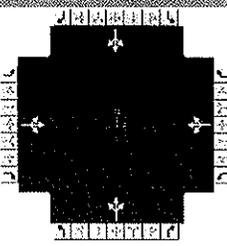
HCS 2010 Signalized Intersection Results Summary

General Information

| | | | |
|---------------------|--------------------------|-----------------|--------------|
| Agency | JCE | Analysis Date | Mar 19, 2012 |
| Analyst | R.H. | Time Period | PEAK AM HOUR |
| Jurisdiction | | Analysis Year | 2012 |
| Intersection | NYS ROUTE 22 & PLEAS | Analysis Period | 1> 7:45 |
| File Name | 1884AMEX1.xus | | |
| Project Description | EXISTING TRAFFIC VOLUMES | | |

Intersection Information

| | |
|-----------------|---------|
| Duration, h | 0.25 |
| Area Type | Other |
| PHF | 0.87 |
| Analysis Period | 1> 7:45 |



Demand Information

| Approach Movement | EB | | | WB | | | NB | | | SB | | |
|-------------------|----|----|----|----|----|----|----|-----|---|----|-----|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Demand (v), veh/h | 30 | 53 | 20 | 10 | 73 | 44 | 19 | 150 | 3 | 41 | 240 | 38 |

Signal Information

| | | | | | | | | | | | | | |
|---------------|-------|-----------------|-----|--------|------|------|-----|-----|-----|-----|-----|-----|-----|
| Cycle, s | 60.0 | Reference Phase | 2 | | | | | | | | | | |
| Offset, s | 0 | Reference Point | End | Green | 30.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Uncoordinated | No | Simult. Gap E/W | On | Yellow | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Force Mode | Fixed | Simult. Gap N/S | On | Red | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Timer Results

| | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|-----|------|-----|------|-----|------|-----|------|
| Assigned Phase | | 4 | | 8 | | 2 | | 6 |
| Case Number | | 8.0 | | 8.0 | | 8.0 | | 8.0 |
| Phase Duration, s | | 25.0 | | 25.0 | | 35.0 | | 35.0 |
| Change Period, (Y+R _c), s | | 5.0 | | 5.0 | | 5.0 | | 5.0 |
| Max Allow Headway (MAH), s | | 3.1 | | 3.1 | | 0.0 | | 0.0 |
| Queue Clearance Time (g _s), s | | 4.9 | | 5.7 | | | | |
| Green Extension Time (g _e), s | | 0.4 | | 0.4 | | 0.0 | | 0.0 |
| Phase Call Probability | | 1.00 | | 1.00 | | | | |
| Max Out Probability | | 0.00 | | 0.00 | | | | |

Movement Group Results

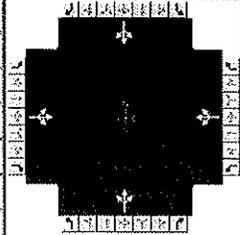
| Approach Movement | EB | | | WB | | | NB | | | SB | | |
|---|-------|---|----|-------|---|----|-------|---|----|-------|---|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Assigned Movement | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Adjusted Flow Rate (v), veh/h | 118 | | | 146 | | | 198 | | | 367 | | |
| Adjusted Saturation Flow Rate (s), veh/h/ln | 1352 | | | 1656 | | | 1606 | | | 1591 | | |
| Queue Service Time (g _s), s | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Cycle Queue Clearance Time (g _c), s | 2.9 | | | 3.7 | | | 3.7 | | | 7.8 | | |
| Capacity (c), veh/h | 528 | | | 617 | | | 869 | | | 863 | | |
| Volume-to-Capacity Ratio (X) | 0.224 | | | 0.237 | | | 0.227 | | | 0.425 | | |
| Available Capacity (c _a), veh/h | 528 | | | 617 | | | 869 | | | 863 | | |
| Back of Queue (Q), veh/ln (50th percentile) | 1.0 | | | 1.2 | | | 1.3 | | | 2.7 | | |
| Overflow Queue (Q ₃), veh/ln | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Queue Storage Ratio (RQ) (50th percentile) | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Uniform Delay (d ₁), s/veh | 14.3 | | | 14.6 | | | 8.4 | | | 9.4 | | |
| Incremental Delay (d ₂), s/veh | 0.1 | | | 0.1 | | | 0.6 | | | 1.5 | | |
| Initial Queue Delay (d ₃), s/veh | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Control Delay (d), s/veh | 14.4 | | | 14.6 | | | 9.0 | | | 11.0 | | |
| Level of Service (LOS) | B | | | B | | | A | | | B | | |
| Approach Delay, s/veh / LOS | 14.4 | B | | 14.6 | B | | 9.0 | A | | 11.0 | B | |
| Intersection Delay, s/veh / LOS | 11.6 | | | | | | B | | | | | |

MultiModal Results

| | EB | | WB | | NB | | SB | |
|----------------------------|-----|---|-----|---|-----|---|-----|---|
| Pedestrian LOS Score / LOS | 1.4 | A | 1.4 | A | 1.4 | A | 1.4 | A |
| Bicycle LOS Score / LOS | 0.7 | A | 0.7 | A | 0.8 | A | 1.1 | A |

HCS 2010 Signalized Intersection Results Summary

| General Information | | | | Intersection Information | | | |
|---------------------|--------------------------|---------------|--------------|--------------------------|----------|--|--|
| Agency | JCE | | | Duration, h | 0.25 | | |
| Analyst | R.H. | Analysis Date | Mar 19, 2012 | Area Type | Other | | |
| Jurisdiction | | Time Period | PEAK AM HOUR | PHF | 0.87 | | |
| Intersection | NYS ROUTE 22 & PLEASANT | Analysis Year | 2014 | Analysis Period | 1 > 7:45 | | |
| File Name | 1884AMNB1.xus | | | | | | |
| Project Description | NO-BUILD TRAFFIC VOLUMES | | | | | | |



| Demand Information | EB | | | WB | | | NB | | | SB | | |
|--------------------|----|----|----|----|----|----|----|-----|---|----|-----|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Approach Movement | | | | | | | | | | | | |
| Demand (v), veh/h | 31 | 54 | 20 | 10 | 74 | 45 | 19 | 163 | 3 | 42 | 248 | 39 |

| Signal Information | | | | Signal Phases | | | | | | | | |
|--------------------|-------|-----------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Cycle, s | 60.0 | Reference Phase | 2 | | | | | | | | | |
| Offset, s | 0 | Reference Point | End | | | | | | | | | |
| Uncoordinated | No | Simult. Gap E/W | On | | | | | | | | | |
| Force Mode | Fixed | Simult. Gap N/S | On | | | | | | | | | |
| Green | 30.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Yellow | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Red | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

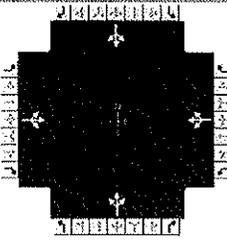
| Timer Results | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|-----|------|-----|------|-----|------|-----|------|
| Assigned Phase | | 4 | | 8 | | 2 | | 6 |
| Case Number | | 8.0 | | 8.0 | | 8.0 | | 8.0 |
| Phase Duration, s | | 25.0 | | 25.0 | | 35.0 | | 35.0 |
| Change Period, (Y+R _c), s | | 5.0 | | 5.0 | | 5.0 | | 5.0 |
| Max Allow Headway (MAH), s | | 3.1 | | 3.1 | | 0.0 | | 0.0 |
| Queue Clearance Time (q _s), s | | 4.9 | | 5.8 | | | | |
| Green Extension Time (g _e), s | | 0.4 | | 0.4 | | 0.0 | | 0.0 |
| Phase Call Probability | | 1.00 | | 1.00 | | | | |
| Max Out Probability | | 0.00 | | 0.00 | | | | |

| Movement Group Results | EB | | | WB | | | NB | | | SB | | |
|---|-------|---|----|-------|---|----|-------|---|----|-------|---|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Assigned Movement | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Adjusted Flow Rate (v), veh/h | 121 | | | 148 | | | 213 | | | 378 | | |
| Adjusted Saturation Flow Rate (s), veh/h/ln | 1346 | | | 1656 | | | 1622 | | | 1590 | | |
| Queue Service Time (g _s), s | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Cycle Queue Clearance Time (g _c), s | 2.9 | | | 3.8 | | | 4.1 | | | 8.1 | | |
| Capacity (c), veh/h | 526 | | | 617 | | | 877 | | | 863 | | |
| Volume-to-Capacity Ratio (X) | 0.229 | | | 0.240 | | | 0.242 | | | 0.438 | | |
| Available Capacity (c _a), veh/h | 526 | | | 617 | | | 877 | | | 863 | | |
| Back of Queue (Q), veh/ln (50th percentile) | 1.0 | | | 1.3 | | | 1.4 | | | 2.8 | | |
| Overflow Queue (Q ₃), veh/ln | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Queue Storage Ratio (RQ) (50th percentile) | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Uniform Delay (d ₁), s/veh | 14.3 | | | 14.6 | | | 8.5 | | | 9.5 | | |
| Incremental Delay (d ₂), s/veh | 0.1 | | | 0.1 | | | 0.7 | | | 1.6 | | |
| Initial Queue Delay (d ₃), s/veh | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Control Delay (d), s/veh | 14.4 | | | 14.7 | | | 9.2 | | | 11.1 | | |
| Level of Service (LOS) | B | | | B | | | A | | | B | | |
| Approach Delay, s/veh / LOS | 14.4 | B | | 14.7 | B | | 9.2 | A | | 11.1 | B | |
| Intersection Delay, s/veh / LOS | 11.7 | | | | | | B | | | | | |

| MultiModal Results | EB | | WB | | NB | | SB | |
|----------------------------|-----|---|-----|---|-----|---|-----|---|
| Pedestrian LOS Score / LOS | 1.4 | A | 1.4 | A | 1.4 | A | 1.4 | A |
| Bicycle LOS Score / LOS | 0.7 | A | 0.7 | A | 0.8 | A | 1.1 | A |

HCS 2010 Signalized Intersection Results Summary

| General Information | | | | Intersection Information | | | |
|---------------------|--------------------------|---------------|--------------|--------------------------|----------|--|--|
| Agency | JCE | | | Duration, h | 0.25 | | |
| Analyst | R.H. | Analysis Date | Mar 19, 2012 | Area Type | Other | | |
| Jurisdiction | | Time Period | PEAK PM HOUR | PHF | 0.90 | | |
| Intersection | NYS ROUTE 22 & PLEAS | Analysis Year | 2014 | Analysis Period | 1> 16:00 | | |
| File Name | 1884PMNB1.xus | | | | | | |
| Project Description | NO-BUILD TRAFFIC VOLUMES | | | | | | |



| Demand Information | EB | | | WB | | | NB | | | SB | | |
|--------------------|----|----|----|----|----|----|----|-----|---|----|-----|----|
| Approach Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Demand (v), veh/h | 53 | 66 | 26 | 10 | 61 | 40 | 23 | 317 | 5 | 56 | 235 | 68 |

| Signal Information | | | | | | | | | | | | | |
|--------------------|-------|-----------------|-----|--------|------|------|-----|-----|-----|-----|-----|-----|-----|
| Cycle, s | 60.0 | Reference Phase | 2 | Green | 30.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Offset, s | 0 | Reference Point | End | Yellow | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Uncoordinated | No | Simult. Gap E/W | On | Red | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Force Mode | Fixed | Simult. Gap N/S | On | | | | | | | | | | |

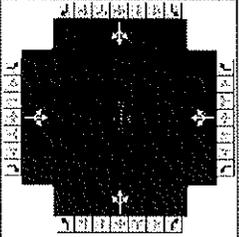
| Timer Results | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|-----|------|-----|------|-----|------|-----|------|
| Assigned Phase | | 4 | | 8 | | 2 | | 6 |
| Case Number | | 8.0 | | 8.0 | | 8.0 | | 8.0 |
| Phase Duration, s | | 25.0 | | 25.0 | | 35.0 | | 35.0 |
| Change Period, (Y+R _c), s | | 5.0 | | 5.0 | | 5.0 | | 5.0 |
| Max Allow Headway (MAH), s | | 3.2 | | 3.2 | | 0.0 | | 0.0 |
| Queue Clearance Time (g _s), s | | 6.3 | | 5.1 | | | | |
| Green Extension Time (g _e), s | | 0.4 | | 0.5 | | 0.0 | | 0.0 |
| Phase Call Probability | | 1.00 | | 1.00 | | | | |
| Max Out Probability | | 0.00 | | 0.00 | | | | |

| Movement Group Results | EB | | | WB | | | NB | | | SB | | |
|---|-------|---|------|-------|------|----|-------|---|----|-------|---|----|
| Approach Movement | L | T | R | L | T | R | L | T | R | L | T | R |
| Assigned Movement | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Adjusted Flow Rate (v), veh/h | 161 | | | 123 | | | 383 | | | 399 | | |
| Adjusted Saturation Flow Rate (s), veh/h/ln | 1253 | | | 1637 | | | 1687 | | | 1482 | | |
| Queue Service Time (g _s), s | 0.9 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Cycle Queue Clearance Time (g _c), s | 4.3 | | | 3.1 | | | 8.2 | | | 8.8 | | |
| Capacity (c), veh/h | 500 | | | 611 | | | 907 | | | 810 | | |
| Volume-to-Capacity Ratio (X) | 0.322 | | | 0.202 | | | 0.423 | | | 0.492 | | |
| Available Capacity (c _a), veh/h | 500 | | | 611 | | | 907 | | | 810 | | |
| Back of Queue (Q), veh/ln (50th percentile) | 1.4 | | | 1.0 | | | 2.8 | | | 3.0 | | |
| Overflow Queue (Q _o), veh/ln | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Queue Storage Ratio (RQ) (50th percentile) | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Uniform Delay (d ₁), s/veh | 14.7 | | | 14.4 | | | 9.5 | | | 9.7 | | |
| Incremental Delay (d ₂), s/veh | 0.1 | | | 0.1 | | | 1.4 | | | 2.1 | | |
| Initial Queue Delay (d ₃), s/veh | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Control Delay (d), s/veh | 14.8 | | | 14.4 | | | 11.0 | | | 11.8 | | |
| Level of Service (LOS) | B | | | B | | | B | | | B | | |
| Approach Delay, s/veh / LOS | 14.8 | B | 14.4 | B | 11.0 | B | 11.8 | B | | | | |
| Intersection Delay, s/veh / LOS | 12.3 | | | | | | B | | | | | |

| MultiModal Results | EB | | WB | | NB | | SB | |
|----------------------------|-----|---|-----|---|-----|---|-----|---|
| Pedestrian LOS Score / LOS | 1.4 | A | 1.4 | A | 1.4 | A | 1.4 | A |
| Bicycle LOS Score / LOS | 0.8 | A | 0.7 | A | 1.1 | A | 1.1 | A |

HCS 2010 Signalized Intersection Results Summary

| General Information | | | | Intersection Information | | | |
|---------------------|-----------------------|---------------|--------------|--------------------------|---------|--|--|
| Agency | JCE | | | Duration, h | 0.25 | | |
| Analyst | R.H. | Analysis Date | Mar 19, 2012 | Area Type | Other | | |
| Jurisdiction | | Time Period | PEAK AM HOUR | PHF | 0.87 | | |
| Intersection | NYS ROUTE 22 & PLEAS | Analysis Year | 2014 | Analysis Period | 1> 7:45 | | |
| File Name | 1884AMB1.xus | | | | | | |
| Project Description | BUILD TRAFFIC VOLUMES | | | | | | |



| Demand Information | EB | | | WB | | | NB | | | SB | | |
|--------------------|----|----|----|----|----|----|----|-----|---|----|-----|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Approach Movement | | | | | | | | | | | | |
| Demand (v), veh/h | 31 | 60 | 20 | 23 | 81 | 57 | 19 | 188 | 3 | 80 | 248 | 39 |

| Signal Information | | | | Signal Timing Diagram | | | | | | | | |
|--------------------|-------|-----------------|-----|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Cycle, s | 60.0 | Reference Phase | 2 | | | | | | | | | |
| Offset, s | 0 | Reference Point | End | | | | | | | | | |
| Uncoordinated | No | Simult. Gap E/W | On | | | | | | | | | |
| Force Mode | Fixed | Simult. Gap N/S | On | | | | | | | | | |
| Green | 30.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Yellow | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Red | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

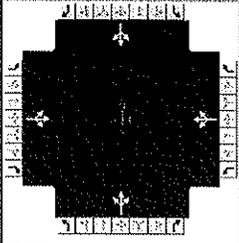
| Timer Results | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|-----|------|-----|------|-----|------|-----|------|
| Assigned Phase | | 4 | | 8 | | 2 | | 6 |
| Case Number | | 8.0 | | 8.0 | | 8.0 | | 8.0 |
| Phase Duration, s | | 25.0 | | 25.0 | | 35.0 | | 35.0 |
| Change Period, (Y+R _c), s | | 5.0 | | 5.0 | | 5.0 | | 5.0 |
| Max Allow Headway (MAH), s | | 3.2 | | 3.2 | | 0.0 | | 0.0 |
| Queue Clearance Time (g _s), s | | 5.1 | | 6.8 | | | | |
| Green Extension Time (g _e), s | | 0.5 | | 0.5 | | 0.0 | | 0.0 |
| Phase Call Probability | | 1.00 | | 1.00 | | | | |
| Max Out Probability | | 0.00 | | 0.00 | | | | |

| Movement Group Results | EB | | | WB | | | NB | | | SB | | |
|---|-------|---|----|-------|---|----|-------|---|----|-------|---|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Assigned Movement | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Adjusted Flow Rate (v), veh/h | 128 | | | 185 | | | 241 | | | 422 | | |
| Adjusted Saturation Flow Rate (s), veh/h/ln | 1362 | | | 1560 | | | 1645 | | | 1408 | | |
| Queue Service Time (g _s), s | 0.0 | | | 0.0 | | | 0.0 | | | 3.6 | | |
| Cycle Queue Clearance Time (g _c), s | 3.1 | | | 4.8 | | | 4.7 | | | 10.6 | | |
| Capacity (c), veh/h | 531 | | | 588 | | | 888 | | | 777 | | |
| Volume-to-Capacity Ratio (X) | 0.240 | | | 0.314 | | | 0.272 | | | 0.543 | | |
| Available Capacity (c _a), veh/h | 531 | | | 588 | | | 888 | | | 777 | | |
| Back of Queue (Q), veh/ln (50th percentile) | 1.1 | | | 1.6 | | | 1.6 | | | 3.4 | | |
| Overflow Queue (Q ₃), veh/ln | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Queue Storage Ratio (RQ) (50th percentile) | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Uniform Delay (d ₁), s/veh | 14.4 | | | 14.9 | | | 8.7 | | | 9.9 | | |
| Incremental Delay (d ₂), s/veh | 0.1 | | | 0.1 | | | 0.8 | | | 2.7 | | |
| Initial Queue Delay (d ₃), s/veh | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Control Delay (d), s/veh | 14.4 | | | 15.1 | | | 9.4 | | | 12.6 | | |
| Level of Service (LOS) | B | | | B | | | A | | | B | | |
| Approach Delay, s/veh / LOS | 14.4 | B | | 15.1 | B | | 9.4 | A | | 12.6 | B | |
| Intersection Delay, s/veh / LOS | 12.5 | | | | | | B | | | | | |

| MultiModal Results | EB | | WB | | NB | | SB | |
|----------------------------|-----|---|-----|---|-----|---|-----|---|
| Pedestrian LOS Score / LOS | 1.4 | A | 1.4 | A | 1.4 | A | 1.4 | A |
| Bicycle LOS Score / LOS | 0.7 | A | 0.8 | A | 0.9 | A | 1.2 | A |

HCS 2010 Signalized Intersection Results Summary

| General Information | | | | Intersection Information | | | |
|---------------------|-------------------------|---------------|---------------|--------------------------|-----------------|----------|--|
| Agency | JCE | | | Duration, h | 0.25 | | |
| Analyst | R.H. | Analysis Date | Mar 19, 2012 | Area Type | Other | | |
| Jurisdiction | | Time Period | PEAK PM HOUR | PHF | 0.90 | | |
| Intersection | NYS ROUTE 22 & PLEASANT | | Analysis Year | 2014 | Analysis Period | 1> 16:00 | |
| File Name | 1884PMB1.xus | | | | | | |
| Project Description | BUILD TRAFFIC VOLUMES | | | | | | |



| Demand Information | EB | | | WB | | | NB | | | SB | | |
|--------------------|----|----|----|----|----|----|----|-----|---|----|-----|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Approach Movement | | | | | | | | | | | | |
| Demand (v), veh/h | 53 | 71 | 26 | 20 | 66 | 49 | 23 | 336 | 5 | 85 | 235 | 68 |

| Signal Information | | | | Signal Phases | | | | | | | | | | | |
|--------------------|-------|-----------------|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| Cycle, s | 60.0 | Reference Phase | 2 | | | | | | | | | | | | |
| Offset, s | 0 | Reference Point | End | | | | | | | | | | | | |
| Uncoordinated | No | Simult. Gap E/W | On | | | | | | | | | | | | |
| Force Mode | Fixed | Simult. Gap N/S | On | | | | | | | | | | | | |
| Green | 30.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Yellow | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Red | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |

| Timer Results | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|-----|------|-----|------|-----|------|-----|------|
| Assigned Phase | | 4 | | 8 | | 2 | | 6 |
| Case Number | | 8.0 | | 8.0 | | 8.0 | | 8.0 |
| Phase Duration, s | | 25.0 | | 25.0 | | 35.0 | | 35.0 |
| Change Period, (Y+R _c), s | | 5.0 | | 5.0 | | 5.0 | | 5.0 |
| Max Allow Headway (MAH), s | | 3.2 | | 3.2 | | 0.0 | | 0.0 |
| Queue Clearance Time (g _s), s | | 6.3 | | 5.8 | | | | |
| Green Extension Time (g _e), s | | 0.5 | | 0.5 | | 0.0 | | 0.0 |
| Phase Call Probability | | 1.00 | | 1.00 | | | | |
| Max Out Probability | | 0.00 | | 0.00 | | | | |

| Movement Group Results | EB | | | WB | | | NB | | | SB | | |
|---|-------|---|----|-------|---|----|-------|---|----|-------|---|----|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Approach Movement | | | | | | | | | | | | |
| Assigned Movement | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Adjusted Flow Rate (v), veh/h | 167 | | | 150 | | | 404 | | | 431 | | |
| Adjusted Saturation Flow Rate (s), veh/h/ln | 1269 | | | 1543 | | | 1689 | | | 1383 | | |
| Queue Service Time (g _s), s | 0.5 | | | 0.0 | | | 0.0 | | | 1.4 | | |
| Cycle Queue Clearance Time (g _c), s | 4.3 | | | 3.8 | | | 8.8 | | | 10.2 | | |
| Capacity (c), veh/h | 504 | | | 583 | | | 908 | | | 765 | | |
| Volume-to-Capacity Ratio (X) | 0.330 | | | 0.257 | | | 0.445 | | | 0.564 | | |
| Available Capacity (c _a), veh/h | 504 | | | 583 | | | 908 | | | 765 | | |
| Back of Queue (Q), veh/ln (50th percentile) | 1.4 | | | 1.3 | | | 3.0 | | | 3.5 | | |
| Overflow Queue (Q ₃), veh/ln | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Queue Storage Ratio (RQ) (50th percentile) | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Uniform Delay (d ₁), s/veh | 14.7 | | | 14.6 | | | 9.7 | | | 9.9 | | |
| Incremental Delay (d ₂), s/veh | 0.1 | | | 0.1 | | | 1.6 | | | 3.0 | | |
| Initial Queue Delay (d ₃), s/veh | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Control Delay (d), s/veh | 14.9 | | | 14.7 | | | 11.3 | | | 12.9 | | |
| Level of Service (LOS) | B | | | B | | | B | | | B | | |
| Approach Delay, s/veh / LOS | 14.9 | B | | 14.7 | B | | 11.3 | B | | 12.9 | B | |
| Intersection Delay, s/veh / LOS | 12.9 | | | | | | B | | | | | |

| MultiModal Results | EB | | WB | | NB | | SB | |
|----------------------------|-----|---|-----|---|-----|---|-----|---|
| Pedestrian LOS Score / LOS | 1.4 | A | 1.4 | A | 1.4 | A | 1.4 | A |
| Bicycle LOS Score / LOS | 0.8 | A | 0.7 | A | 1.2 | A | 1.2 | A |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK AM HOUR
 Intersection: NYS ROUTE 22 & SITE ACCESS DRI
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 BUILD TRAFFIC VOLUMES
 Project ID: 1884AMB2
 East/West Street: SITE ACCESS DRIVEWAY
 North/South Street: NYS ROUTE 22
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Northbound | | | | Southbound | | |
|---------------|----------------------|------------|--------|--------|-------------|------------|--------|--|
| | | 1 L | 2 T | 3 R | 4 L | 5 T | 6 R | |

| | | | | | | | |
|------------------------|--|-----------|------|--|---|------|----|
| Volume | | 185 | 26 | | | 291 | |
| Peak-Hour Factor, PHF | | 0.87 | 0.87 | | | 0.87 | |
| Hourly Flow Rate, HFR | | 212 | 29 | | | 334 | |
| Percent Heavy Vehicles | | -- | -- | | | -- | -- |
| Median Type/Storage | | Undivided | | | / | | |
| RT Channelized? | | | | | | | |
| Lanes | | 1 | 0 | | | 1 | |
| Configuration | | | TR | | | T | |
| Upstream Signal? | | No | | | | No | |

| Minor Street: | Approach Movement | Westbound | | | Eastbound | | |
|---------------|----------------------|-----------|--------|--------|--------------|---------|---------|
| | | 7 L | 8 T | 9 R | 10 L | 11 T | 12 R |

| | | | | | | | |
|----------------------------------|--|---|--|------|---|---|---|
| Volume | | | | 25 | | | |
| Peak Hour Factor, PHF | | | | 0.87 | | | |
| Hourly Flow Rate, HFR | | | | 28 | | | |
| Percent Heavy Vehicles | | | | 5 | | | |
| Percent Grade (%) | | 0 | | | | 0 | |
| Flared Approach: Exists?/Storage | | | | | / | | / |
| Lanes | | | | 1 | | | |
| Configuration | | | | R | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | NB 1 | SB 4 | Westbound | | | Eastbound | | |
|----------------------|---------|---------|-----------|---|---|-----------|----|----|
| | | | 7 | 8 | 9 | 10 | 11 | 12 |

| | | | | | | | | |
|------------------|--|--|--|-----|------|--|--|--|
| Lane Config | | | | | R | | | |
| v (vph) | | | | | 28 | | | |
| C(m) (vph) | | | | | 806 | | | |
| v/c | | | | | 0.03 | | | |
| 95% queue length | | | | | 0.11 | | | |
| Control Delay | | | | | 9.6 | | | |
| LOS | | | | | A | | | |
| Approach Delay | | | | 9.6 | | | | |
| Approach LOS | | | | A | | | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK PM HOUR
 Intersection: NYS ROUTE 22 & SITE ACCESS DRI
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 BUILD TRAFFIC VOLUMES
 Project ID: 1884PMB2
 East/West Street: SITE ACCESS DRIVEWAY
 North/South Street: NYS ROUTE 22
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Northbound | | | | Southbound | | |
|--|----------------------|------------|---------|--------|--------|------------|--------|--|
| | | 1 L | 2 T | 3 R | 4 L | 5 T | 6 R | |
| Volume | | 346 | 19 | | | 281 | | |
| Peak-Hour Factor, PHF | | 0.90 | 0.90 | | | 0.90 | | |
| Hourly Flow Rate, HFR | | 384 | 21 | | | 312 | | |
| Percent Heavy Vehicles | | -- | -- | | | -- | -- | |
| Median Type/Storage RT Channelized? | | Undivided | | / | | | | |
| Lanes Configuration | | 1 | 0 TR | | | 1 T | | |
| Upstream Signal? | | No | | | | No | | |

| Minor Street: | Approach Movement | Westbound | | | Eastbound | | |
|----------------------------------|----------------------|-----------|--------|--------|-----------|---------|---------|
| | | 7 L | 8 T | 9 R | 10 L | 11 T | 12 R |
| Volume | | | | 19 | | | |
| Peak Hour Factor, PHF | | | | 0.90 | | | |
| Hourly Flow Rate, HFR | | | | 21 | | | |
| Percent Heavy Vehicles | | | | 5 | | | |
| Percent Grade (%) | | 0 | | | | 0 | |
| Flared Approach: Exists?/Storage | | | | / | | / | |
| Lanes Configuration | | | 1 R | | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | NB 1 | SB 4 | Westbound | | | Eastbound | | |
|----------------------|---------|---------|-----------|------|------|-----------|----|----|
| | | | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | | | | | R | | | |
| v (vph) | | | | | 21 | | | |
| C(m) (vph) | | | | | 649 | | | |
| v/c | | | | | 0.03 | | | |
| 95% queue length | | | | | 0.10 | | | |
| Control Delay | | | | | 10.7 | | | |
| LOS | | | | | B | | | |
| Approach Delay | | | | 10.7 | | | | |
| Approach LOS | | | | B | | | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK AM HOUR
 Intersection: NYS ROUTE 22 & NYS ROUTE 55
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 EXISTING TRAFFIC VOLUMES
 Project ID: 1884AMEX3
 East/West Street: NYS ROUTE 55
 North/South Street: NYS ROUTE 22
 Intersection Orientation: NS
 Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Northbound | | | | Southbound | |
|---------------|-------------------|------------|--------|--------|--------|------------|--------|
| | | 1 L | 2 T | 3 R | 4 L | 5 T | 6 R |

| | | | | | | | |
|------------------------|--|-----------|----|---|--|------|----|
| Volume | | 172 | | | | 270 | |
| Peak-Hour Factor, PHF | | 0.87 | | | | 0.87 | |
| Hourly Flow Rate, HFR | | 197 | | | | 310 | |
| Percent Heavy Vehicles | | -- | -- | | | -- | -- |
| Median Type/Storage | | Undivided | | / | | | |
| RT Channelized? | | | | | | | |
| Lanes | | 1 | | | | 1 | |
| Configuration | | T | | | | T | |
| Upstream Signal? | | No | | | | No | |

| Minor Street: | Approach Movement | Westbound | | | Eastbound | | |
|---------------|-------------------|-----------|--------|--------|-----------|---------|---------|
| | | 7 L | 8 T | 9 R | 10 L | 11 T | 12 R |

| | | | | | | | |
|----------------------------------|--|------|----|---|--|---|---|
| Volume | | 295 | | | | | |
| Peak Hour Factor, PHF | | 0.87 | | | | | |
| Hourly Flow Rate, HFR | | 339 | | | | | |
| Percent Heavy Vehicles | | 2 | | | | | |
| Percent Grade (%) | | | -1 | | | 0 | |
| Flared Approach: Exists?/Storage | | | | / | | | / |
| Lanes | | 1 | | | | | |
| Configuration | | L | | | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | NB | SB | Westbound | | | Eastbound | | |
|-------------------|----|----|-----------|---|---|-----------|----|----|
| | | | 7 L | 8 | 9 | 10 | 11 | 12 |

| | | | | | | | | |
|------------------|--|--|--|------|------|--|--|--|
| Lane Config | | | | | | | | |
| v (vph) | | | | 339 | | | | |
| C(m) (vph) | | | | 540 | | | | |
| v/c | | | | 0.63 | | | | |
| 95% queue length | | | | 4.32 | | | | |
| Control Delay | | | | 22.2 | | | | |
| LOS | | | | C | | | | |
| Approach Delay | | | | | 22.2 | | | |
| Approach LOS | | | | | C | | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK PM HOUR
 Intersection: NYS ROUTE 22 & NYS ROUTE 55
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 EXISTING TRAFFIC VOLUMES
 Project ID: 1884PMEX3
 East/West Street: NYS ROUTE 55
 North/South Street: NYS ROUTE 22
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Northbound | | | | Southbound | | |
|---------------|----------------------|------------|--------|--------|--------|------------|--------|--|
| | | 1 L | 2 T | 3 R | 4 L | 5 T | 6 R | |

| | | | | | | | | |
|------------------------|--|-----------|--|--|--|------|--|--|
| Volume | | 333 | | | | 255 | | |
| Peak-Hour Factor, PHF | | 0.90 | | | | 0.90 | | |
| Hourly Flow Rate, HFR | | 370 | | | | 283 | | |
| Percent Heavy Vehicles | | -- | | | | -- | | |
| Median Type/Storage | | Undivided | | | | / | | |
| RT Channelized? | | | | | | | | |
| Lanes | | 1 | | | | 1 | | |
| Configuration | | T | | | | T | | |
| Upstream Signal? | | No | | | | No | | |

| Minor Street: | Approach Movement | Westbound | | | Eastbound | | |
|---------------|----------------------|-----------|--------|--------|-----------|---------|---------|
| | | 7 L | 8 T | 9 R | 10 L | 11 T | 12 R |

| | | | | | | | |
|----------------------------------|--|------|--|--|---|--|--|
| Volume | | 125 | | | | | |
| Peak Hour Factor, PHF | | 0.90 | | | | | |
| Hourly Flow Rate, HFR | | 138 | | | | | |
| Percent Heavy Vehicles | | 2 | | | | | |
| Percent Grade (%) | | -1 | | | 0 | | |
| Flared Approach: Exists?/Storage | | | | | / | | |
| Lanes | | 1 | | | | | |
| Configuration | | L | | | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | NB 1 | SB 4 | Westbound | | | Eastbound | | |
|----------------------|---------|---------|-----------|---|---|-----------|----|----|
| | | | 7 L | 8 | 9 | 10 | 11 | 12 |

| | | | | | | | |
|------------------|--|------|--|--|------|--|--|
| Lane Config | | L | | | | | |
| v (vph) | | 138 | | | | | |
| C(m) (vph) | | 448 | | | | | |
| v/c | | 0.31 | | | | | |
| 95% queue length | | 1.29 | | | | | |
| Control Delay | | 16.6 | | | | | |
| LOS | | C | | | | | |
| Approach Delay | | | | | 16.6 | | |
| Approach LOS | | | | | C | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK AM HOUR
 Intersection: NYS ROUTE 22 & NYS ROUTE 55
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 NO-BUILD TRAFFIC VOLUMES
 Project ID: 1884AMNB3
 East/West Street: NYS ROUTE 55
 North/South Street: NYS ROUTE 22
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Northbound | | | | Southbound | | |
|--|----------------------|------------|--------|--------|--------|------------|--------|--|
| | | 1 L | 2 T | 3 R | 4 L | 5 T | 6 R | |
| Volume | | 185 | | | | 278 | | |
| Peak-Hour Factor, PHF | | 0.87 | | | | 0.87 | | |
| Hourly Flow Rate, HFR | | 212 | | | | 319 | | |
| Percent Heavy Vehicles | | -- | | | | -- | | |
| Median Type/Storage RT Channelized? | | Undivided | | | | / | | |
| Lanes | | 1 | | | | 1 | | |
| Configuration | | T | | | | T | | |
| Upstream Signal? | | No | | | | No | | |

| Minor Street: | Approach Movement | Westbound | | | Eastbound | | |
|----------------------------------|----------------------|-----------|--------|--------|-----------|---------|---------|
| | | 7 L | 8 T | 9 R | 10 L | 11 T | 12 R |
| Volume | | 303 | | | | | |
| Peak Hour Factor, PHF | | 0.87 | | | | | |
| Hourly Flow Rate, HFR | | 348 | | | | | |
| Percent Heavy Vehicles | | 2 | | | | | |
| Percent Grade (%) | | -1 | | | 0 | | |
| Flared Approach: Exists?/Storage | | | | | / | | |
| Lanes | | 1 | | | | | |
| Configuration | | L | | | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | NB | | Westbound | | | Eastbound | | |
|----------------------|------|---|-----------|---|---|-----------|----|----|
| | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | | | L | | | | | |
| v (vph) | 348 | | | | | | | |
| C(m) (vph) | 524 | | | | | | | |
| v/c | 0.66 | | | | | | | |
| 95% queue length | 4.86 | | | | | | | |
| Control Delay | 24.4 | | | | | | | |
| LOS | C | | | | | | | |
| Approach Delay | | | 24.4 | | | | | |
| Approach LOS | | | C | | | | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK PM HOUR
 Intersection: NYS ROUTE 22 & NYS ROUTE 55
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 NO-BUILD TRAFFIC VOLUMES
 Project ID: 1884PMNB3
 East/West Street: NYS ROUTE 55
 North/South Street: NYS ROUTE 22
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach | Northbound | | | | Southbound | | |
|---------------|----------|------------|---|---|---|------------|---|--|
| | Movement | 1 | 2 | 3 | 4 | 5 | 6 | |
| | | L | T | R | L | T | R | |

| | | | | | | | |
|------------------------|-----------|------|--|----|---|------|----|
| Volume | | 346 | | | | 271 | |
| Peak-Hour Factor, PHF | | 0.90 | | | | 0.90 | |
| Hourly Flow Rate, HFR | | 384 | | | | 301 | |
| Percent Heavy Vehicles | | -- | | -- | | -- | -- |
| Median Type/Storage | Undivided | | | | / | | |
| RT Channelized? | | | | | | | |
| Lanes | | 1 | | | | 1 | |
| Configuration | | T | | | | T | |
| Upstream Signal? | | No | | | | No | |

| Minor Street: | Approach | Westbound | | | | Eastbound | | |
|---------------|----------|-----------|---|---|----|-----------|----|--|
| | Movement | 7 | 8 | 9 | 10 | 11 | 12 | |
| | | L | T | R | L | T | R | |

| | | | | | | | |
|----------------------------------|--|------|----|--|---|---|---|
| Volume | | 135 | | | | | |
| Peak Hour Factor, PHF | | 0.90 | | | | | |
| Hourly Flow Rate, HFR | | 150 | | | | | |
| Percent Heavy Vehicles | | 2 | | | | | |
| Percent Grade (%) | | | -1 | | | 0 | |
| Flared Approach: Exists?/Storage | | | | | / | | / |
| Lanes | | 1 | | | | | |
| Configuration | | L | | | | | |

Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|-------------|----|----|-----------|---|---|-----------|----|----|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | | | L | | | | | |

| | | | | | | | |
|------------------|--|------|--|------|--|--|--|
| v (vph) | | 150 | | | | | |
| C(m) (vph) | | 430 | | | | | |
| v/c | | 0.35 | | | | | |
| 95% queue length | | 1.54 | | | | | |
| Control Delay | | 17.8 | | | | | |
| LOS | | C | | | | | |
| Approach Delay | | | | 17.8 | | | |
| Approach LOS | | | | C | | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK AM HOUR
 Intersection: NYS ROUTE 22 & NYS ROUTE 55
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 BUILD TRAFFIC VOLUMES
 Project ID: 1884AMB3
 East/West Street: NYS ROUTE 55
 North/South Street: NYS ROUTE 22
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Northbound | | | | Southbound | | |
|------------------------|----------------------|------------|--------|--------|-------------|------------|--------|--|
| | | 1 L | 2 T | 3 R | 4 L | 5 T | 6 R | |
| Volume | | 211 | | | | 291 | | |
| Peak-Hour Factor, PHF | | 0.87 | | | | 0.87 | | |
| Hourly Flow Rate, HFR | | 242 | | | | 334 | | |
| Percent Heavy Vehicles | | -- | | | | -- | | |
| Median Type/Storage | | Undivided | | | | / | | |
| RT Channelized? | | | | | | | | |
| Lanes | | 1 | | | | 1 | | |
| Configuration | | T | | | | T | | |
| Upstream Signal? | | No | | | | No | | |

| Minor Street: | Approach Movement | Westbound | | | | Eastbound | | |
|----------------------------------|----------------------|-----------|--------|--------|--------------|-----------|---------|--|
| | | 7 L | 8 T | 9 R | 10 L | 11 T | 12 R | |
| Volume | | 328 | | | | | | |
| Peak Hour Factor, PHF | | 0.87 | | | | | | |
| Hourly Flow Rate, HFR | | 377 | | | | | | |
| Percent Heavy Vehicles | | 2 | | | | | | |
| Percent Grade (%) | | -1 | | | | 0 | | |
| Flared Approach: Exists?/Storage | | | | | | / | | |
| Lanes | | 1 | | | | | | |
| Configuration | | L | | | | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | NB 1 | SB 4 | Westbound | | | | Eastbound | | |
|----------------------|---------|---------|-------------|---|---|--------|-----------|----|--|
| | | | 7 L | 8 | 9 | 10 | 11 | 12 | |
| Lane Config | | | | | | | | | |
| v (vph) | | | 377 | | | | | | |
| C(m) (vph) | | | 495 | | | | | | |
| v/c | | | 0.76 | | | | | | |
| 95% queue length | | | 6.62 | | | | | | |
| Control Delay | | | 31.9 | | | | | | |
| LOS | | | D | | | | | | |
| Approach Delay | | | 31.9 | | | | | | |
| Approach LOS | | | D | | | | | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK PM HOUR
 Intersection: NYS ROUTE 22 & NYS ROUTE 55
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 BUILD TRAFFIC VOLUMES
 Project ID: 1884PMB3
 East/West Street: NYS ROUTE 55
 North/South Street: NYS ROUTE 22
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Northbound | | | | Southbound | |
|------------------------|-------------------|------------|--------|--------|----------|------------|--------|
| | | 1 L | 2 T | 3 R | 4 L | 5 T | 6 R |
| Volume | | 365 | | | | 281 | |
| Peak-Hour Factor, PHF | | 0.90 | | | | 0.90 | |
| Hourly Flow Rate, HFR | | 405 | | | | 312 | |
| Percent Heavy Vehicles | | -- | | -- | | -- | |
| Median Type/Storage | | Undivided | | | | / | |
| RT Channelized? | | | | | | | |
| Lanes | | 1 | | | | 1 | |
| Configuration | | T | | | | T | |
| Upstream Signal? | | No | | | | No | |

| Minor Street: | Approach Movement | Westbound | | | | Eastbound | |
|----------------------------------|-------------------|-----------|--------|--------|-----------|-----------|---------|
| | | 7 L | 8 T | 9 R | 10 L | 11 T | 12 R |
| Volume | | 154 | | | | | |
| Peak Hour Factor, PHF | | 0.90 | | | | | |
| Hourly Flow Rate, HFR | | 171 | | | | | |
| Percent Heavy Vehicles | | 2 | | | | | |
| Percent Grade (%) | | -1 | | | | 0 | |
| Flared Approach: Exists?/Storage | | | | | | / | |
| Lanes | | 1 | | | | | |
| Configuration | | L | | | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | NB | SB | Westbound | | | Eastbound | | |
|-------------------|------|----|-----------|---|---|-----------|----|----|
| | | | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | 1 | 4 | L | | | | | |
| v (vph) | 171 | | | | | | | |
| C(m) (vph) | 412 | | | | | | | |
| v/c | 0.42 | | | | | | | |
| 95% queue length | 2.00 | | | | | | | |
| Control Delay | 19.8 | | | | | | | |
| LOS | C | | | | | | | |
| Approach Delay | 19.8 | | | | | | | |
| Approach LOS | C | | | | | | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK PM HOUR
 Intersection: NYS RTE 55 & PLEASANT RIDGE RD
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 NO-BUILD TRAFFIC VOLUMES
 Project ID: 1884PMNB5
 East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
 North/South Street: NYS ROUTE 55
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Northbound | | | | Southbound | | |
|---------------|-------------------|------------|---|---|---|------------|---|--|
| | | 1 | 2 | 3 | 4 | 5 | 6 | |
| | L | T | R | L | T | R | | |

| | | | | | | |
|------------------------|-----------|------|----|--|------|------|
| Volume | 5 | 269 | | | 129 | 106 |
| Peak-Hour Factor, PHF | 0.90 | 0.90 | | | 0.90 | 0.90 |
| Hourly Flow Rate, HFR | 5 | 298 | | | 143 | 117 |
| Percent Heavy Vehicles | 5 | -- | -- | | -- | -- |
| Median Type/Storage | Undivided | | / | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | LT | | | | TR | |
| Upstream Signal? | No | | | | No | |

| Minor Street: | Approach Movement | Westbound | | | Eastbound | | |
|---------------|-------------------|-----------|---|---|-----------|----|----|
| | | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R | |

| | | | | | | |
|----------------------------------|--|---|--|------|----|------|
| Volume | | | | 122 | | 5 |
| Peak Hour Factor, PHF | | | | 0.90 | | 0.90 |
| Hourly Flow Rate, HFR | | | | 135 | | 5 |
| Percent Heavy Vehicles | | | | 5 | | 5 |
| Percent Grade (%) | | 0 | | | 2 | |
| Flared Approach: Exists?/Storage | | | | / | | No / |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

Delay, Queue Length, and Level of Service

| Approach Movement | NB | SB | Westbound | | | Eastbound | | |
|-------------------|----|----|-----------|---|---|-----------|----|----|
| | | | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | | LR |

| | | | | | | | |
|------------------|------|--|--|--|--|--|------|
| v (vph) | 5 | | | | | | 140 |
| C(m) (vph) | 1287 | | | | | | 494 |
| v/c | 0.00 | | | | | | 0.28 |
| 95% queue length | 0.01 | | | | | | 1.16 |
| Control Delay | 7.8 | | | | | | 15.1 |
| LOS | A | | | | | | C |
| Approach Delay | | | | | | | 15.1 |
| Approach LOS | | | | | | | C |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK AM HOUR
 Intersection: PLEASANT RIDGE ROAD & SITE
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 BUILD TRAFFIC VOLUMES
 Project ID: 1884AMB6
 East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
 North/South Street: SITE ACCESS DRIVEWAY
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Eastbound | | | | Westbound | | |
|---------------|-------------------|-----------|---|---|---|-----------|---|--|
| | | 1 | 2 | 3 | 4 | 5 | 6 | |
| | L | T | R | L | T | R | | |

| | | | | | | | |
|------------------------|--|-----------|------|------|------|----|--|
| Volume | | 99 | 45 | 13 | 130 | | |
| Peak-Hour Factor, PHF | | 0.87 | 0.87 | 0.87 | 0.87 | | |
| Hourly Flow Rate, HFR | | 113 | 51 | 14 | 149 | | |
| Percent Heavy Vehicles | | -- | -- | 5 | -- | -- | |
| Median Type/Storage | | Undivided | | / | | | |
| RT Channelized? | | | | | | | |
| Lanes | | 1 | 0 | | 0 | 1 | |
| Configuration | | | TR | | LT | | |
| Upstream Signal? | | No | | | No | | |

| Minor Street: | Approach Movement | Northbound | | | | Southbound | | |
|---------------|-------------------|------------|---|---|----|------------|----|--|
| | | 7 | 8 | 9 | 10 | 11 | 12 | |
| | L | T | R | L | T | R | | |

| | | | | | | | |
|----------------------------------|--|------|------|---|---|---|--|
| Volume | | 31 | 12 | | | | |
| Peak Hour Factor, PHF | | 0.87 | 0.87 | | | | |
| Hourly Flow Rate, HFR | | 35 | 13 | | | | |
| Percent Heavy Vehicles | | 5 | 5 | | | | |
| Percent Grade (%) | | 0 | | | 0 | | |
| Flared Approach: Exists?/Storage | | No | | / | | / | |
| Lanes | | 0 | 0 | | | | |
| Configuration | | LR | | | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | EB | WB | Northbound | | | Southbound | | |
|-------------------|----|----|------------|----|---|------------|----|----|
| | | | 4 | 7 | 8 | 9 | 10 | 11 |
| Lane Config | 1 | LT | | LR | | | | |

| | | | | | | | |
|------------------|--|------|------|--|--|--|--|
| v (vph) | | 14 | 48 | | | | |
| C(m) (vph) | | 1396 | 716 | | | | |
| v/c | | 0.01 | 0.07 | | | | |
| 95% queue length | | 0.03 | 0.22 | | | | |
| Control Delay | | 7.6 | 10.4 | | | | |
| LOS | | A | B | | | | |
| Approach Delay | | | 10.4 | | | | |
| Approach LOS | | | B | | | | |

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H.
 Agency/Co.: JCE
 Date Performed: MARCH 2012
 Analysis Time Period: PEAK PM HOUR
 Intersection: PLEASANT RIDGE ROAD & SITE
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2014 BUILD TRAFFIC VOLUMES
 Project ID: 1884PMB6
 East/West Street: PLEASANT RIDGE ROAD (C.R. 21)
 North/South Street: SITE ACCESS DRIVEWAY
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

| Major Street: | Approach Movement | Eastbound | | | | Westbound | | |
|---------------|----------------------|-----------|--------|--------|-------------|-----------|--------|--|
| | | 1 L | 2 T | 3 R | 4 L | 5 T | 6 R | |

| | | | | | | | |
|------------------------|--|-----------|------|--|------|------|----|
| Volume | | 128 | 34 | | 10 | 111 | |
| Peak-Hour Factor, PHF | | 0.90 | 0.90 | | 0.90 | 0.90 | |
| Hourly Flow Rate, HFR | | 142 | 37 | | 11 | 123 | |
| Percent Heavy Vehicles | | -- | -- | | 5 | -- | -- |
| Median Type/Storage | | Undivided | | | / | | |
| RT Channelized? | | | | | | | |
| Lanes | | 1 | 0 | | 0 | 1 | |
| Configuration | | | TR | | | LT | |
| Upstream Signal? | | No | | | | No | |

| Minor Street: | Approach Movement | Northbound | | | | Southbound | | |
|---------------|----------------------|------------|--------|--------|--------------|------------|---------|--|
| | | 7 L | 8 T | 9 R | 10 L | 11 T | 12 R | |

| | | | | | | | |
|----------------------------------|--|------|----|------|---|---|---|
| Volume | | 24 | | 10 | | | |
| Peak Hour Factor, PHF | | 0.90 | | 0.90 | | | |
| Hourly Flow Rate, HFR | | 26 | | 11 | | | |
| Percent Heavy Vehicles | | 5 | | 5 | | | |
| Percent Grade (%) | | | 0 | | | 0 | |
| Flared Approach: Exists?/Storage | | | | No | / | | / |
| Lanes | | 0 | | 0 | | | |
| Configuration | | | LR | | | | |

Delay, Queue Length, and Level of Service

| Approach Movement | EB 1 | WB 4 | Northbound | | | Southbound | | |
|----------------------|---------|---------|------------|---|---|------------|----|----|
| | | | 7 | 8 | 9 | 10 | 11 | 12 |

| | | | | | | | |
|------------------|--|------|--|------|--|--|--|
| Lane Config | | LT | | LR | | | |
| v (vph) | | 11 | | 37 | | | |
| C(m) (vph) | | 1379 | | 725 | | | |
| v/c | | 0.01 | | 0.05 | | | |
| 95% queue length | | 0.02 | | 0.16 | | | |
| Control Delay | | 7.6 | | 10.2 | | | |
| LOS | | A | | B | | | |
| Approach Delay | | | | 10.2 | | | |
| Approach LOS | | | | B | | | |

APPENDIX "D"
STANDARDS

APPENDIX "D"
STANDARDS

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (v/c) ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group.

LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate.

LOS D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long.

LOS E describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long.

A lane group can incur a delay less than 80 s/veh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

The Level of Service Criteria for signalized intersections are given in Exhibit 18-4 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 18-4

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

For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

LEVEL OF SERVICE CRITERIA

FOR TWO-WAY STOP-CONTROLLED (TWSC) UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) for a two-way stop-controlled (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. LOS is not defined for the intersection as a whole or for major-street approaches.

The Level of Service Criteria for TWSC unsignalized intersections are given in Exhibit 19-1 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 19-1

| Control Delay (s/veh) | LOS by Volume-to-Capacity Ratio | |
|-----------------------|---------------------------------|----------|
| | v/c ≤1.0 | v/c >1.0 |
| 0-10 | A | F |
| >10-15 | B | F |
| >15-25 | C | F |
| >25-35 | D | F |
| >35-50 | E | F |
| >50 | F | F |

The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

As Exhibit 19-1 notes, LOS F is assigned to the movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

The Level of Service Criteria for unsignalized intersections are somewhat different from the criteria for signalized intersections.

LEVEL OF SERVICE CRITERIA

FOR ALL-WAY STOP-CONTROLLED (AWSC) UNSIGNALIZED INTERSECTIONS

The Levels of Service (LOS) for all-way stop-controlled (AWSC) intersections are given in Exhibit 20-2. As the exhibit notes, LOS F is assigned if the volume-to-capacity (v/c) ratio of a lane exceeds 1.0, regardless of the control delay. For assessment of LOS at the approach and intersection levels, LOS is based solely on control delay.

The Level of Service Criteria for AWSC unsignalized intersections are given in Exhibit 20-2 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 20-2

| Control Delay (s/veh) | LOS by Volume-to-Capacity Ratio | |
|------------------------------|--|---------------------|
| | v/c ≤ 1.0 | v/c > 1.0 |
| 0-10 | A | F |
| >10-15 | B | F |
| >15-25 | C | F |
| >25-35 | D | F |
| >35-50 | E | F |
| >50 | F | F |

For approaches and intersectionwide assessment, LOS is defined solely by control delay.