# Pacific Proving Grounds North
# Mesa, Arizona

## Master Traffic Impact Analysis
## Seventh Revision

### September 2014

**Prepared for:**
HARVARD INVESTMENTS

**For Submittal to:**
CITY OF MESA

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**Prepared by:** Eric Maceyko, P.E., P.T.O.E.
Bryan Martin, E.I.T.

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EPS Group, Inc. • 2045-South Vineyard Avenue, Suite 101 • Mesa, AZ 85210
Tel (480) 503-2250 • Fax (480) 503-2258
www.epsgroupinc.com

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# *Executive Summary*

## *Introduction*

Harvard Investments is planning a residential and commercial development, identified as Pacific Proving Grounds North (PPGN), in east Mesa. The property is located approximately four (4) miles south of US-60, one mile east of the north-south portion of SR-202, and immediately north of the proposed SR-24.

This revised report updates the previous *Pacific Proving Grounds North Master Traffic Impact Analysis – Sixth Revision*, dated February 2012. Changes to this report include a reduction in the single-family residential density in DU2 – Phase 1. The reduced density results in a net reduction of 591 dwelling units. Therefore, a total 2,909 single-family residential dwelling units are included in the updated analysis.

During the preparation of the various traffic analyses for proposed developments in the vicinity of the proposed PPGN, the intersection of Ellsworth Road and Ray Road has changed substantially. Both the Master Transportation Plan prepared for Mesa Proving Grounds in September 2008 and the Transportation Analysis Memorandum prepared for the City of Mesa in January 2009, assumed a typical four-approach intersection for Ellsworth Road and Ray Road. These two (2) documents and their projected traffic volumes provided the basis for this analysis – specifically the ambient traffic volumes without the proposed PPGN. Therefore the intersection analyses at the Ellsworth / Ray intersection in this document assume a typical four-approach intersection. The current concept for the Ellsworth Road intersection consists of two (2) four-approach intersections in close proximity. The street diagrams in this report – except those portraying previous analyses and those depicting current analyses results – reflect the two-Ellsworth-Ray intersection concept.

The development will provide retail and office uses. To remain conservative, this analysis assumes only retail uses.

## *Results*

The proposed development is anticipated to generate the following weekday and Saturday traffic volumes.

| | Weekday | | | Saturday | |
|---|---|---|---|---|---|
| **Time Period** | **Day** | **AM** | **PM** | **Day** | **Peak** |
| **Residential** | 23,155 | 2,306 | 2,292 | 22,303 | 1,868 |
| **Retail** | 69,981 | 1,602 | 6,476 | 89,438 | 8,542 |
| **Office** | 0 | 0 | 0 | 0 | 0 |
| **Total** | 93,136 | 3,908 | 8,768 | 111,741 | 10,410 |

## *Recommendations with PPGN*

**Figure 1** indicates the recommended through lane number of the primary streets internal and adjacent to Pacific Proving Grounds North. Traffic volumes and recommended roadway classifications are based upon maximum build-out potential for Pacific Proving Grounds North. Therefore, the roadway classifications, lane numbers, and lane configurations are conservatively large.

The street classifications are:

- Ellsworth Road ..... 6-lane Arterial with Raised Median
- Ray Road ..... 6-lane Arterial with Raised Median
- Williams Field Road ..... 6-lane Arterial with Raised Median
- Crismon Road ..... 4-lane Arterial with Raised Median (except at Williams Field)
- Internal primary street ..... 2-lane Collector (except at Ellsworth and at Crismon)

The number of lanes on Crismon Road varies by location and should provide two or three through-lanes-per-direction as shown on **Figure 1**. At its intersection with Williams Field Road, this street should provide three (3) northbound and southbound through lanes. The three (3) through lanes should narrow to two (2) through lanes per direction north of the primary development street and south to the property line.

The number of lanes on the primary development street varies by location and should provide one or two through-lanes-per-direction as shown on **Figure 1**. At its intersection with Ellsworth Road, this street should provide two (2) westbound approach left-turn lanes, one westbound approach right-turn lane, and two (2) eastbound departure lanes. At its intersection with Crismon Road, this street should provide separate eastbound left-turn and shared through / right-turn lanes. Also, this street should provide two (2) westbound departure lanes to accommodate the two (2) northbound left-turn lanes. The two (2) westbound lanes should narrow from two (2) lanes to one lane per direction approximately 600 feet west of Crismon Road.

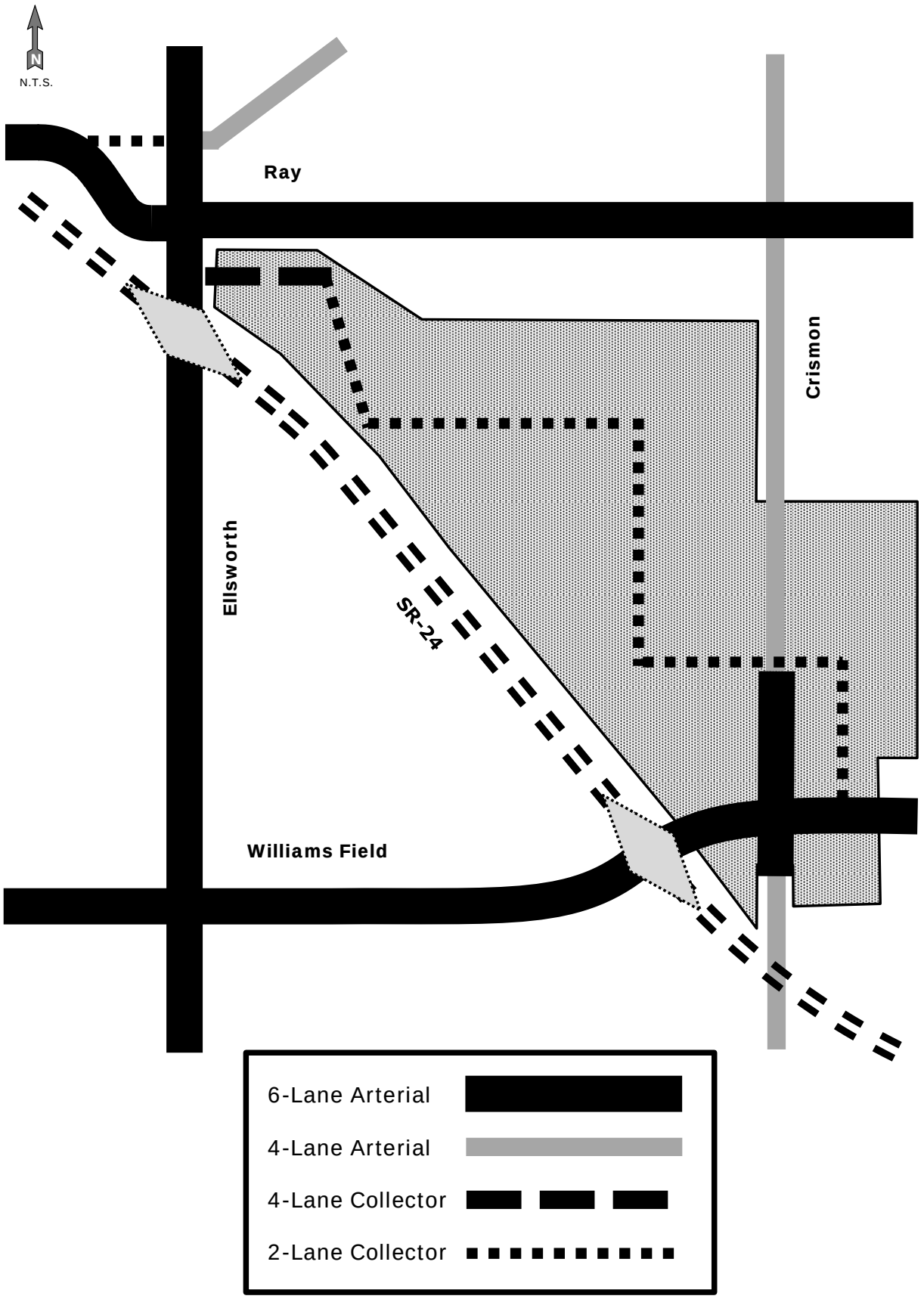



**Figure 1: Recommended Through Lane Number**

**Figure 2** depicts the recommended traffic control, lane configuration, and turn-lane lengths at the primary study intersections for 2020 with the proposed development. Access 10 should be limited to right-turn-in-right-turn-out access from and to Williams Field Road.

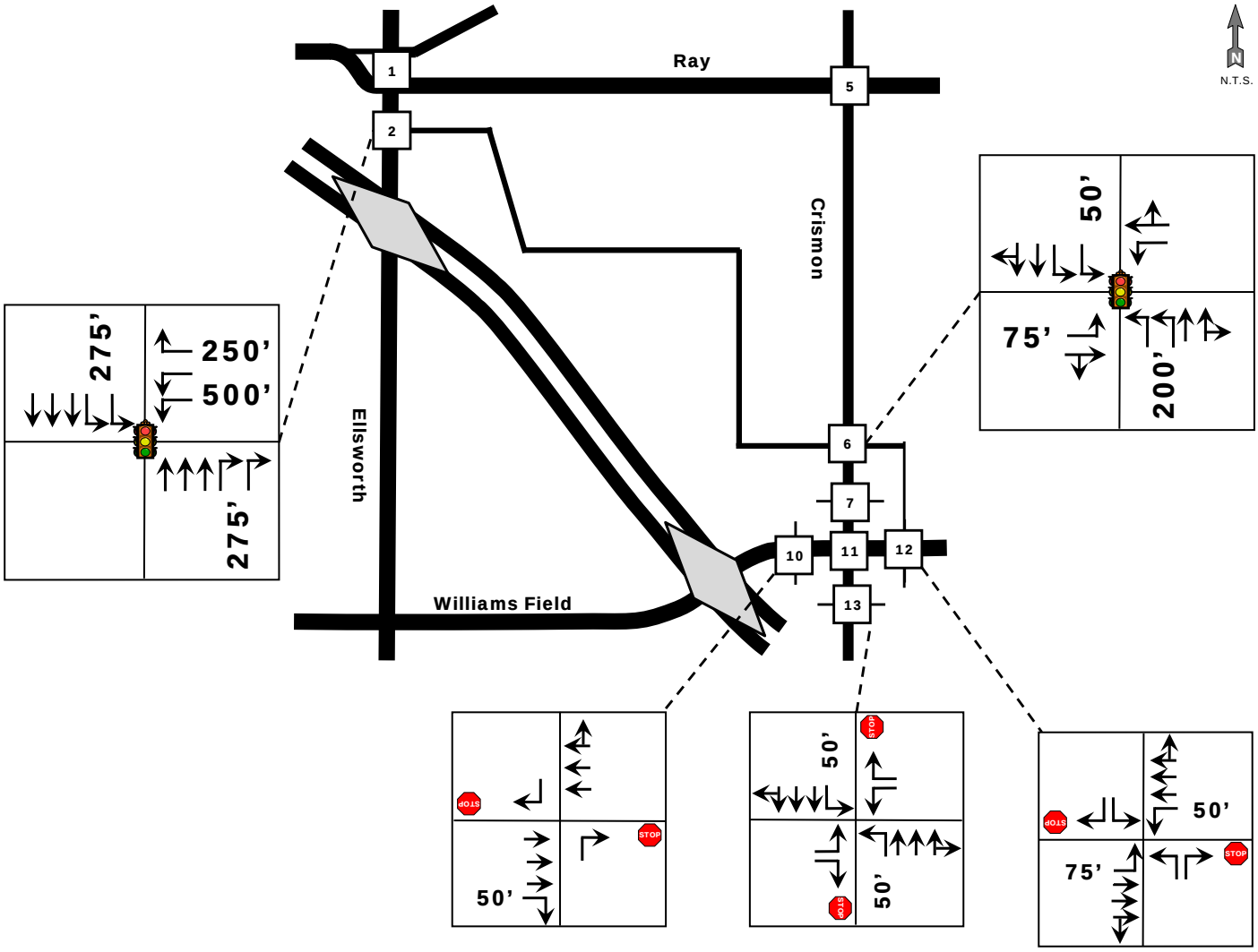



**Figure 2: Recommended Lane Configuration and Turn Lane Lengths**

## *Introduction*

The proposed Pacific Proving Grounds North development is located in east Mesa as indicated in **Figure 3**. It is approximately four (4) miles south of US-60, approximately one mile east of the north-south portion of SR-202, and immediately north of the proposed SR-24. It is located southeast of the Ellsworth Road and Ray Road intersection extending southeast to the northwest corner of the planned Crismon Road and Williams Field Road intersection.

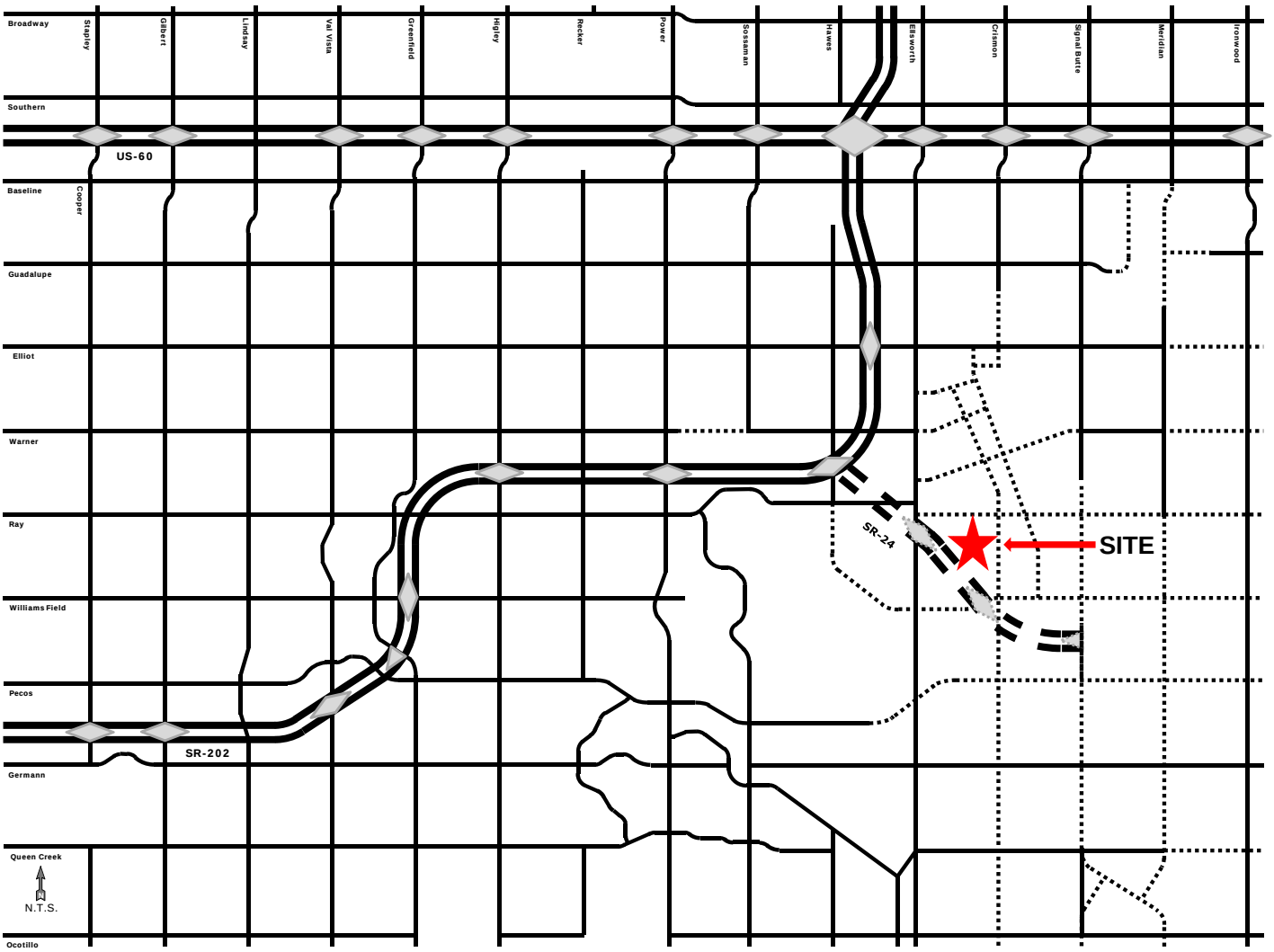



**Figure 3: Pacific Proving Grounds North Location**

## *Scope of Study*

There are six (6) purposes for this analysis:

- Obtain existing traffic counts
- Utilize previously prepared transportation models to estimate ambient 2020 traffic volumes
- Estimate new traffic generated by proposed development
- Assign and distribute new traffic to surrounding street system
- Evaluate operation of adjacent and site intersections with new development
- Determine need for traffic control and lane configuration at adjacent and site intersections

### *Proposed Development and Surrounding Land Use*

**Figure 4** provides the planned street system in the local vicinity.

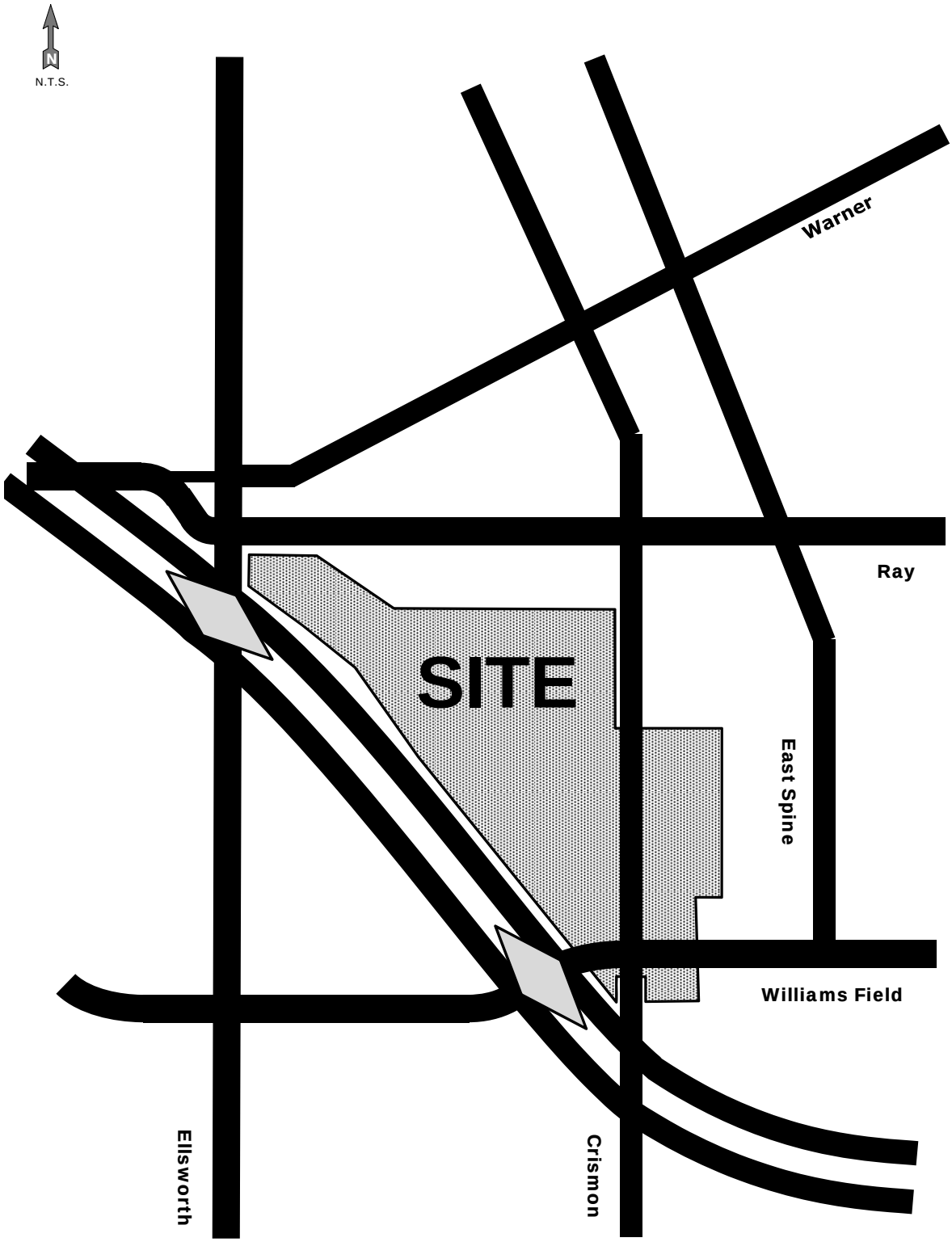
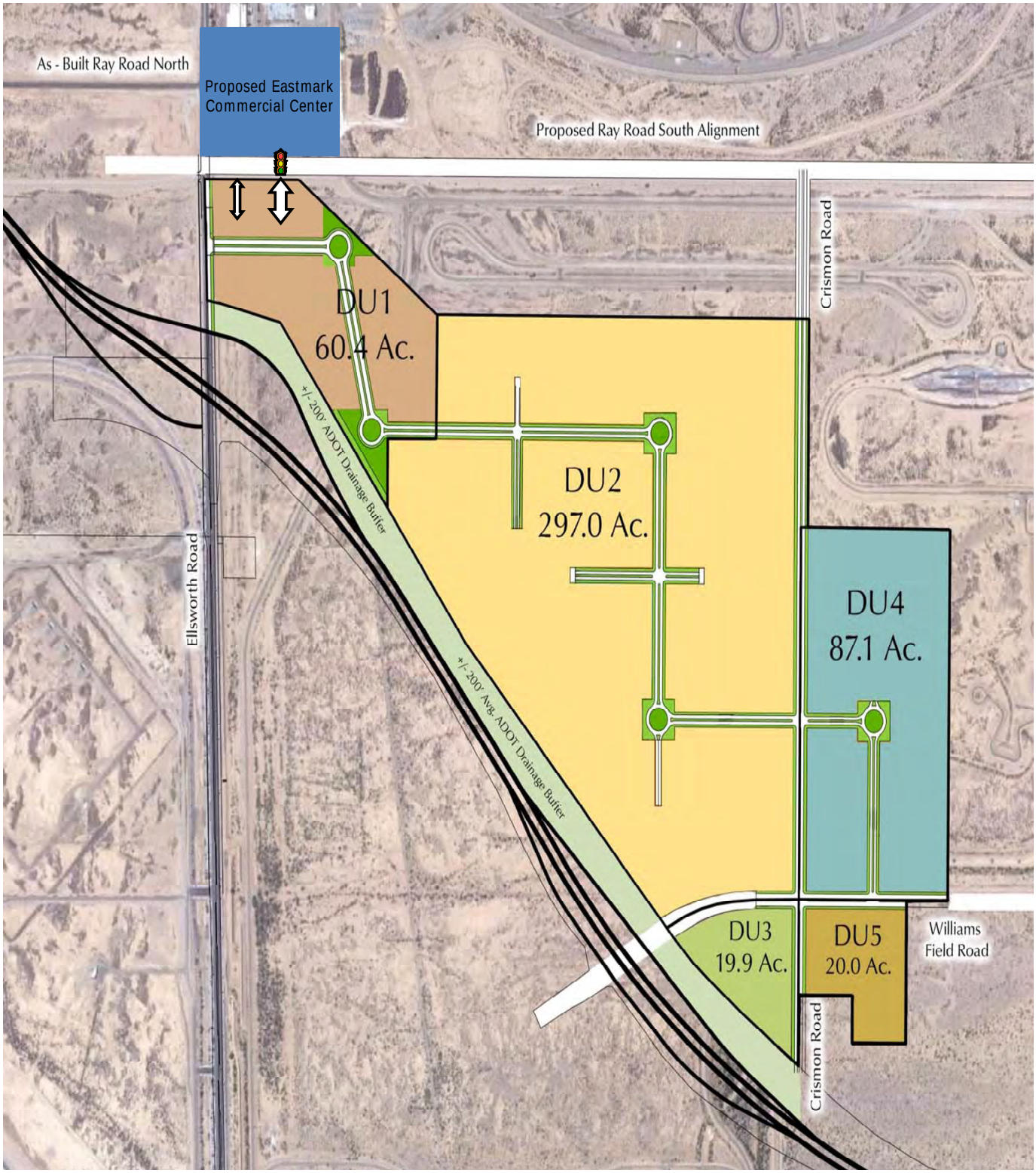



**Figure 4: Local Vicinity Map**

The proposed development consists of residential and commercial property of approximately 485 acres separated into five (5) development units. The development was initially proposed to include approximately 1,500 to 3,500 homes, and approximately 625,000 to 1,500,000 square feet of commercial businesses. **Figure 5** provides a conceptual development plan. The land surrounding the proposed development consists primarily of underutilized property anticipated for development in the next 10 to 30 years.




*Note: Approximate location of future Ray Road public flood control channel crossing and Ray Road access. Detailed study and cost sharing to be included with DU 1 TIA update. Traffic signal and location shown are proposed.*

**Figure 5: Conceptual Plan**

Development Unit 2 is currently being planned and will be constructed in two (2) separate phases. A definitive site plan has been prepared for the DU2 – Phase 1 portion as shown in **Figure 6.** This site plan includes a total of 646 dwelling units. This results in a reduction from the previously planned density of 591 dwelling units. The assumed density DU2 – Phase 2 and the other development units remain unchanged from the previous report.

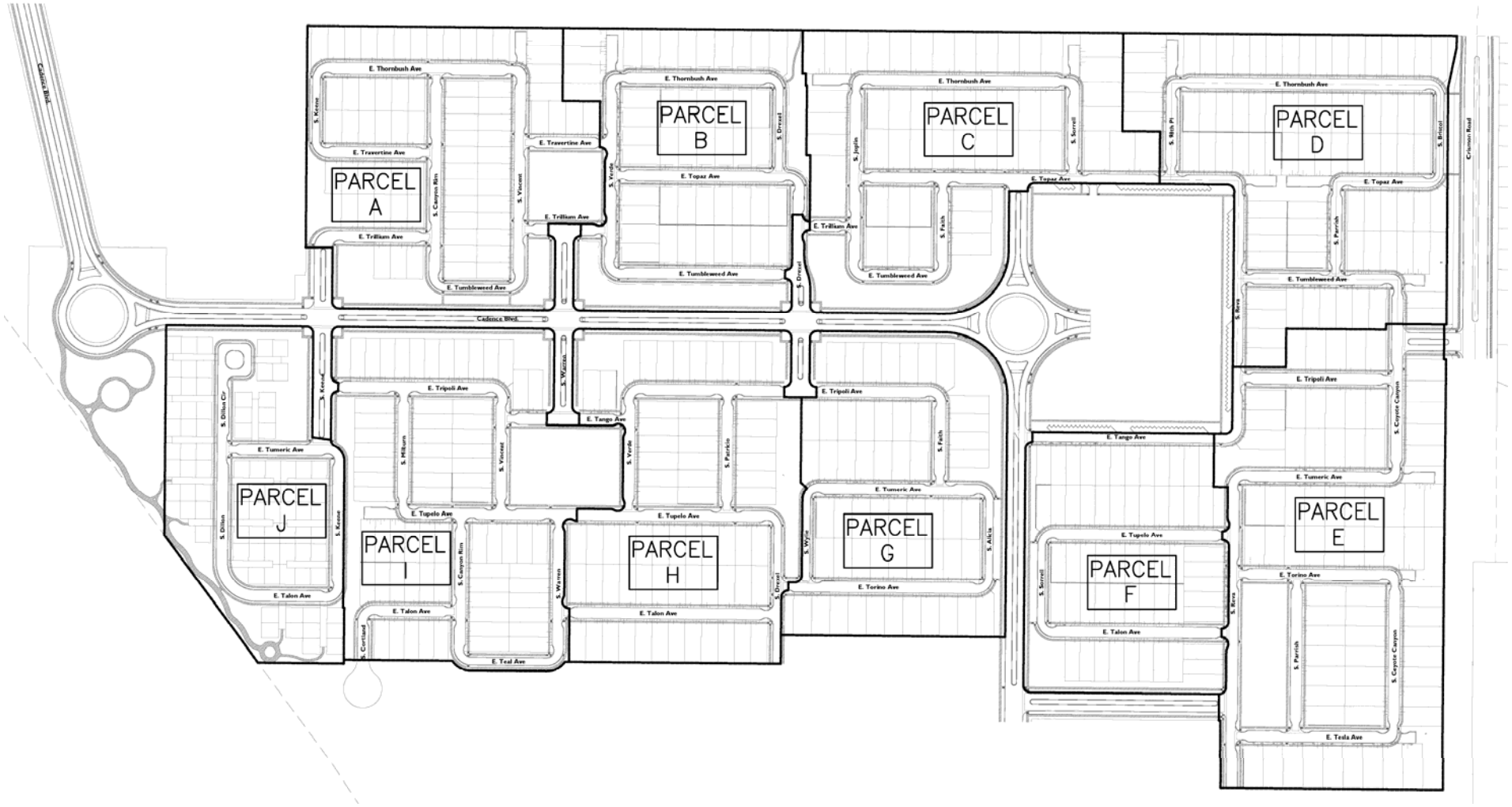



**Figure 6: Development Unit 2 – Phase 1 Site Plan**

The potential land uses with minimum and maximum sizes for each Development Unit are provided in **Table 1**. The minimum total number of residential units as summed by the five (5) development units is 1,250; however, the minimum allowable number of total residential units has been determined to be 1,500.

**Table 1: Potential Land Uses and Sizes by Development Unit**

| DEVELOPMENT UNIT | SIZE (acres) | RESIDENTIAL (dwelling units) MINIMUM | RESIDENTIAL (dwelling units) MAXIMUM | NON-RESIDENTIAL (square feet) MINIMUM | NON-RESIDENTIAL (square feet) MAXIMUM |
|---|---|---|---|---|---|
| 1 | 60.4 | 300 | 700 | 350,000 | 550,000 |
| 2 | 297.0 | 750 | 1,609 | 50,000 | 125,000 |
| 3 | 19.9 | 0 | 0 | 75,000 | 350,000 |
| 4 | 87.1 | 200 | 600 | 50,000 | 125,000 |
| 5 | 20.0 | 0 | 0 | 100,000 | 350,000 |
| TOTAL | 484.4 | 1,500 * | 2,909 | 625,000 | 1,500,000 |

The land use types and sizes utilized for purposes of this analysis are provided in **Table 2**.

**Table 2: Analyzed Land Uses and Sizes by Development Unit**

| | DU1 | DU2 | DU3 | DU4 | DU5 |
|---|---|---|---|---|---|
| Residential (dwelling units) | 700 | 1,609 | 0 | 600 | 0 |
| Office (1,000 square feet) | 60 | 30 | 30 | 25 | 70 |
| Commercial (1,000 square feet) | 240 | 120 | 120 | 100 | 280 |

Recognizing the preliminary planning stage of Pacific Proving Grounds North; the land use types, sizes, and locations will change as the development ensues. Traffic volumes and recommended roadway classifications are based upon maximum build-out potential for Pacific Proving Grounds North. Additional traffic studies should be accomplished as the development progresses and greater detail becomes available. Utilizing maximum potential land use types and sizes has resulted in conservative estimates of future traffic volumes, lane numbers, lane configurations, street classifications, and intersection operation. Future traffic studies with more accurate development characteristics may result in lower traffic volume estimates and therefore may reduce the necessary street requirements.

**Figure 7** provides the adjacent street system and primary internal street, and intersections that will serve the Pacific Proving Grounds North development.

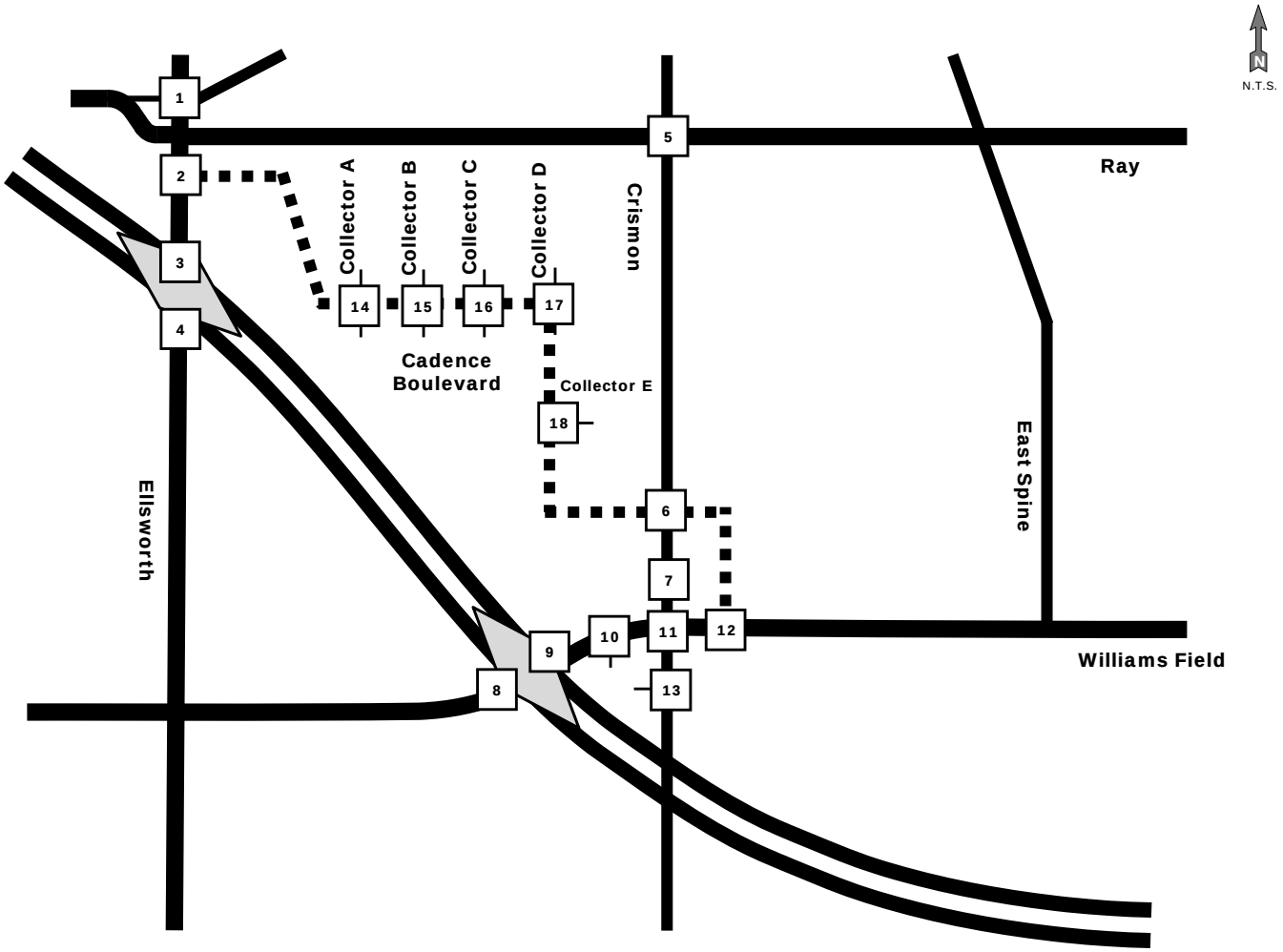



**Figure 7: Study Intersections**

The following intersections will be analyzed for future conditions with the proposed Pacific Proving Grounds North development:

Ellsworth Road and Ray Road
Ellsworth Road and Access 2
Crismon Road and Ray Road
Crismon Road and Access 6
Crismon Road and Access 7
Crismon Road and Access 13
Access 10 and Williams Field Road
Crismon Road and Williams Field Road
Access 12 and Williams Field Road
Collector A and Cadence Boulevard
Collector B and Cadence Boulevard
Collector C and Cadence Boulevard
Collector D and Cadence Boulevard
Cadence Boulevard and Collector E

### *Existing Traffic Counts*

Traffic Research and Analysis, through contract with EPS Group, obtained current traffic volumes on Wednesday, 25 May 2011 in fifteen-minute intervals for 24 hours at selected adjacent street segments as illustrated in **Figure 8**.

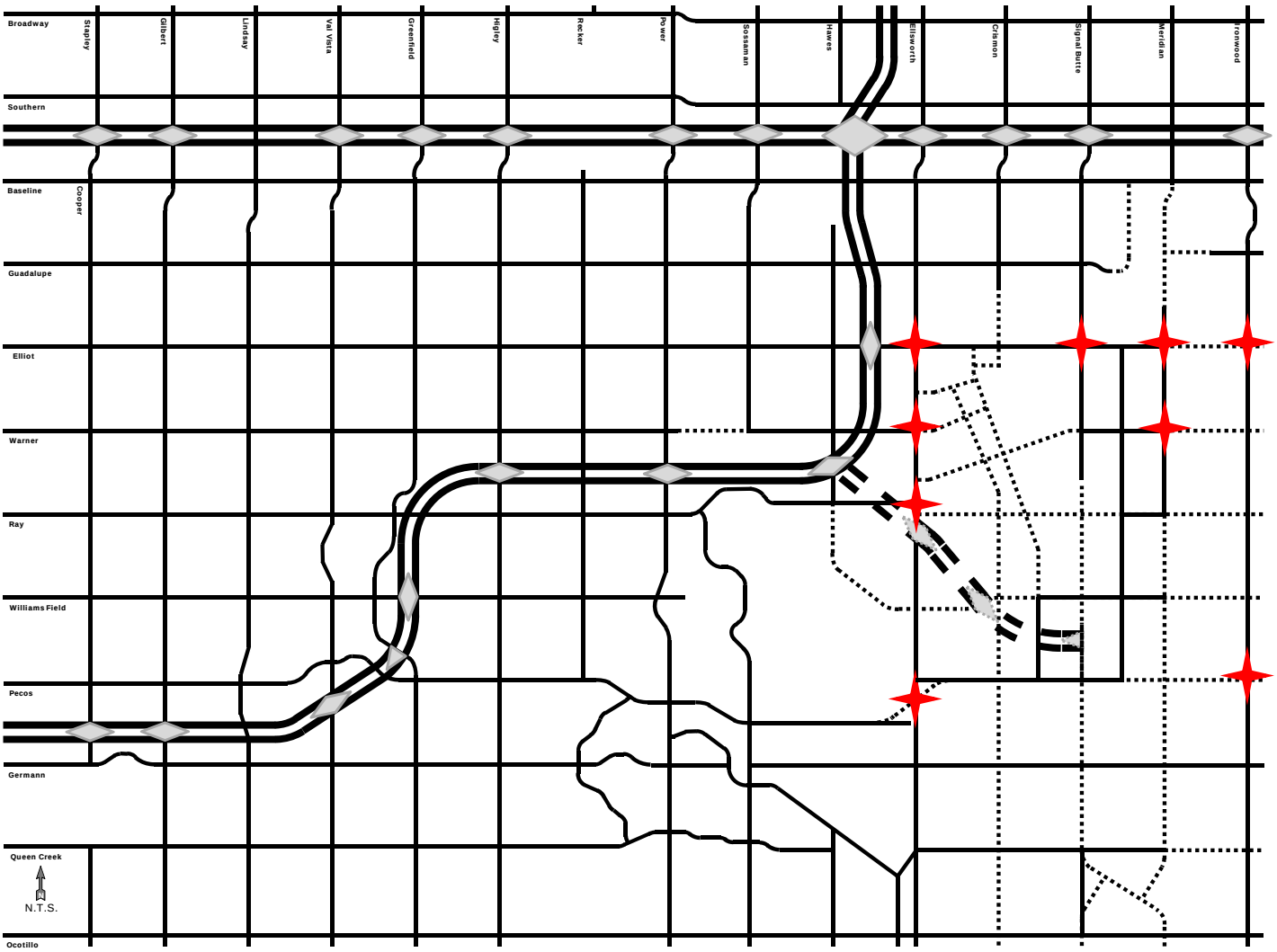



**Figure 8: Traffic Count Locations**

The existing traffic volumes are provided in **Appendix A** as graphs of the hourly counts by time of day. **Figure 9** depicts the total two-way daily traffic volumes. **Figure 10** provides the directional daily traffic volumes. **Figure 11** and **Figure 12** respectively provide the directional morning peak hourly traffic and peak hour times. **Figure 13** and **Figure 14** respectively provide the directional evening peak hourly traffic and peak hour times.

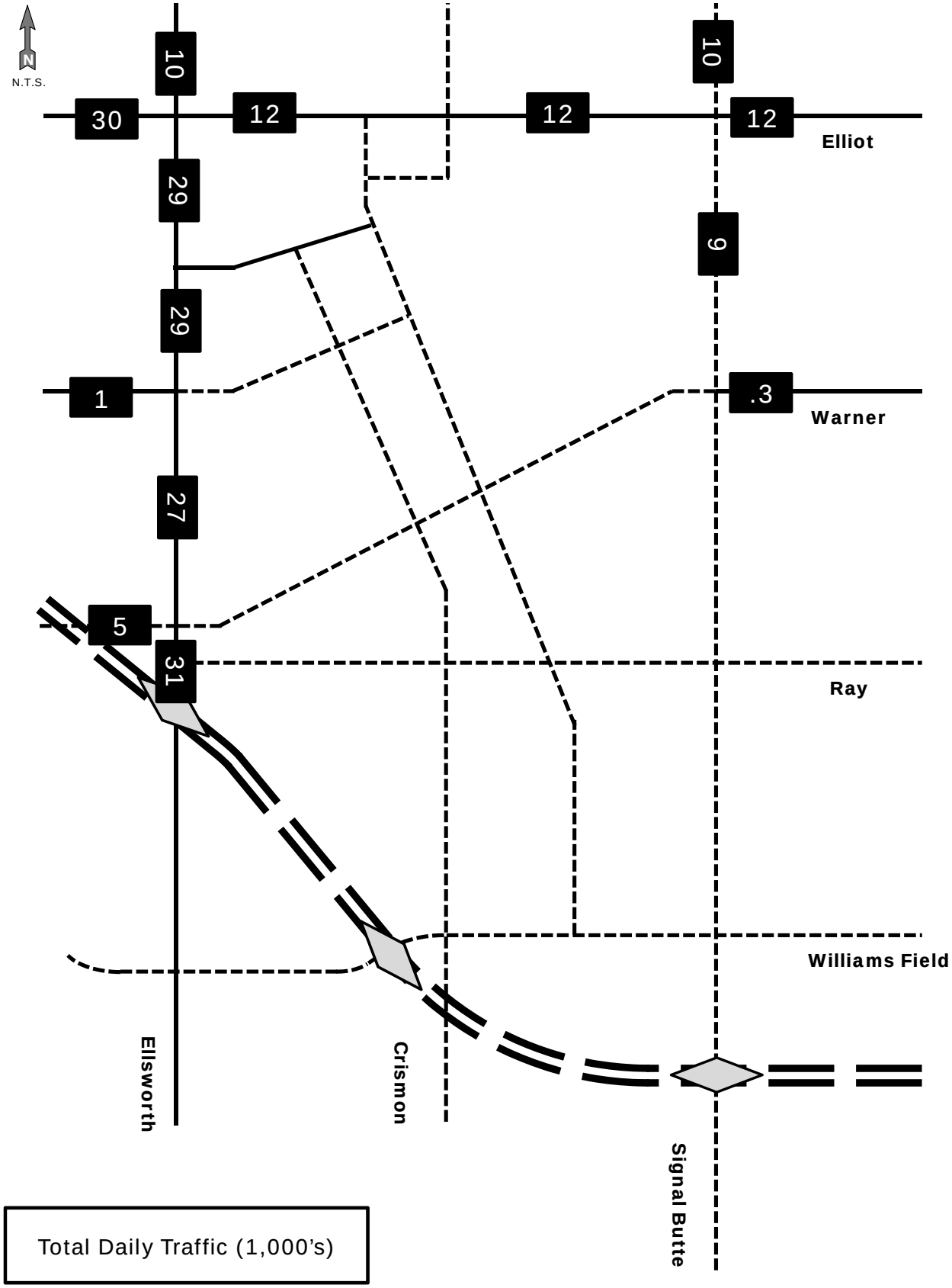



**Figure 9: Existing 2011 Traffic Counts – Total Day**

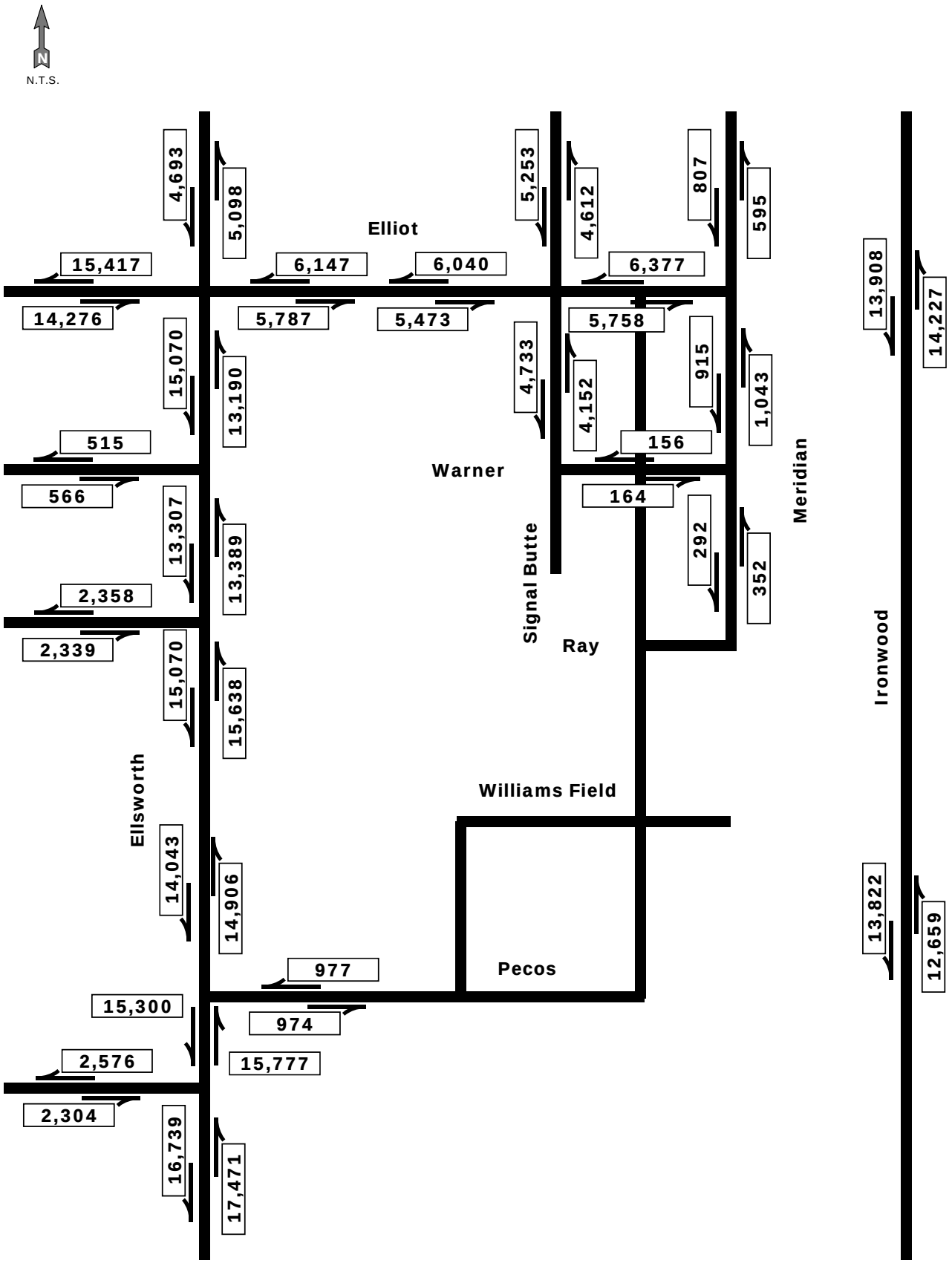



**Figure 10: Existing 2011 Traffic Counts – Directional Day**

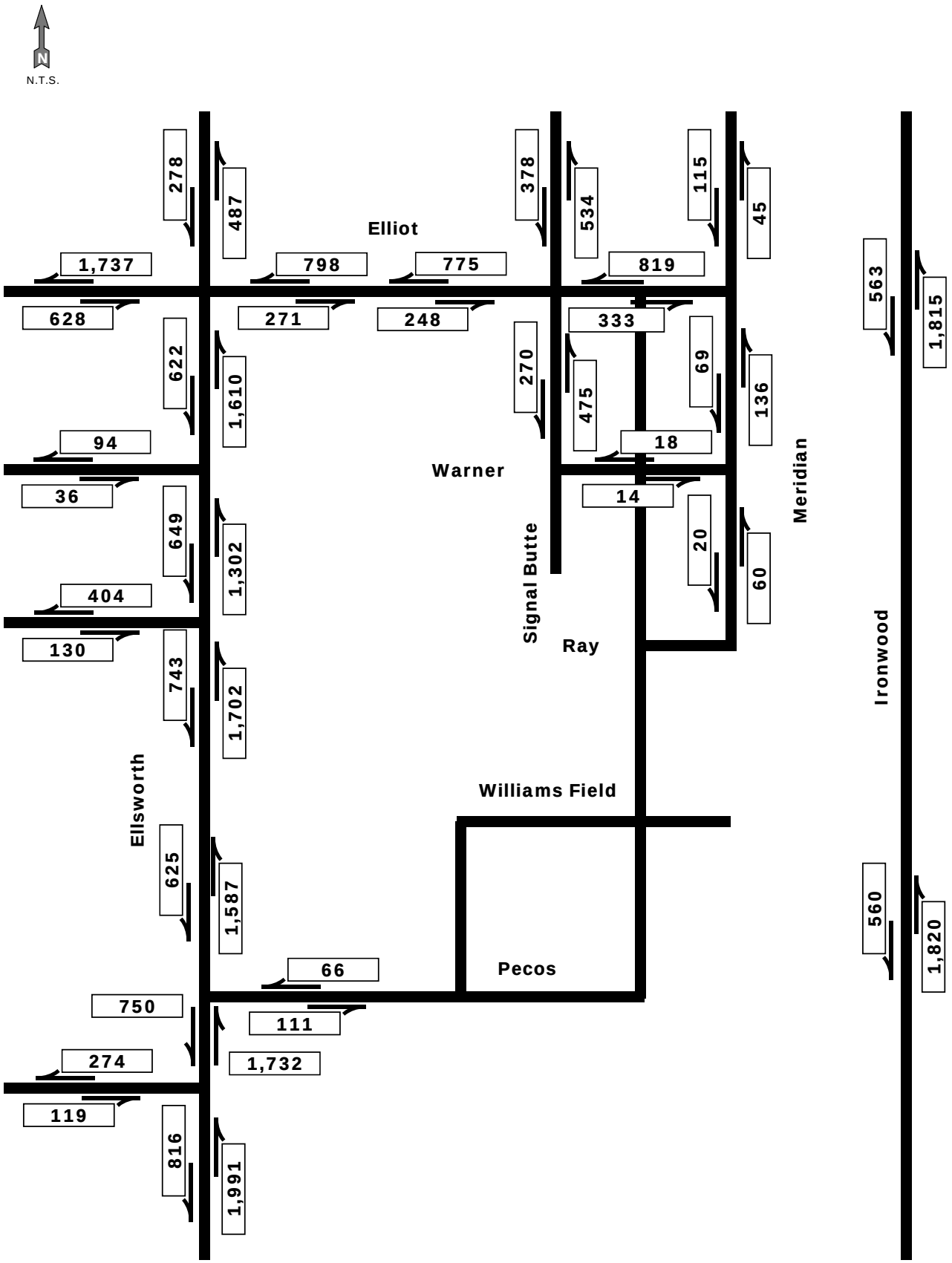



**Figure 11: Existing 2011 Traffic Counts – Directional AM Peak Hour**

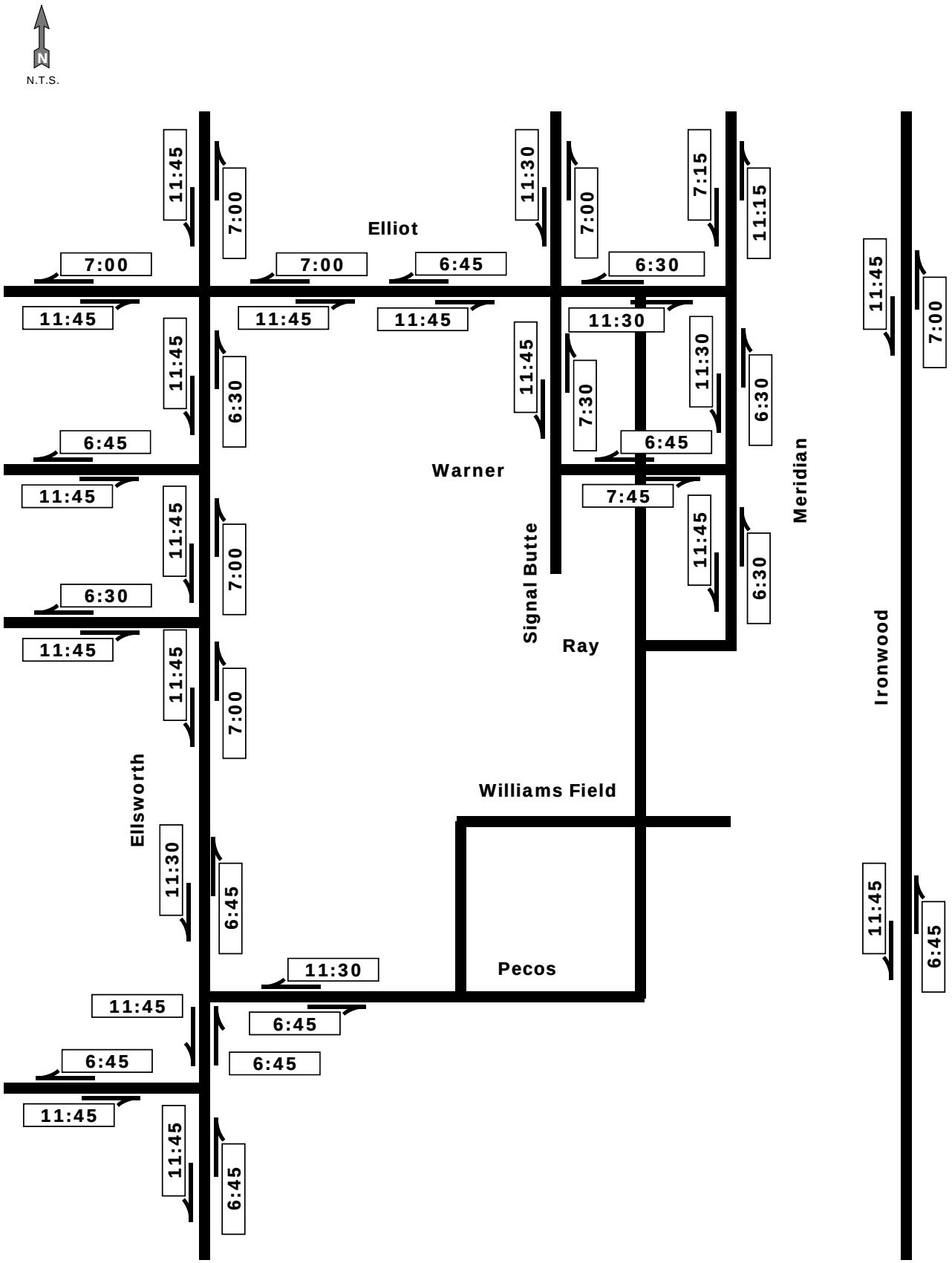



**Figure 12: Existing 2011 Traffic Count – AM Peak Hour Time**

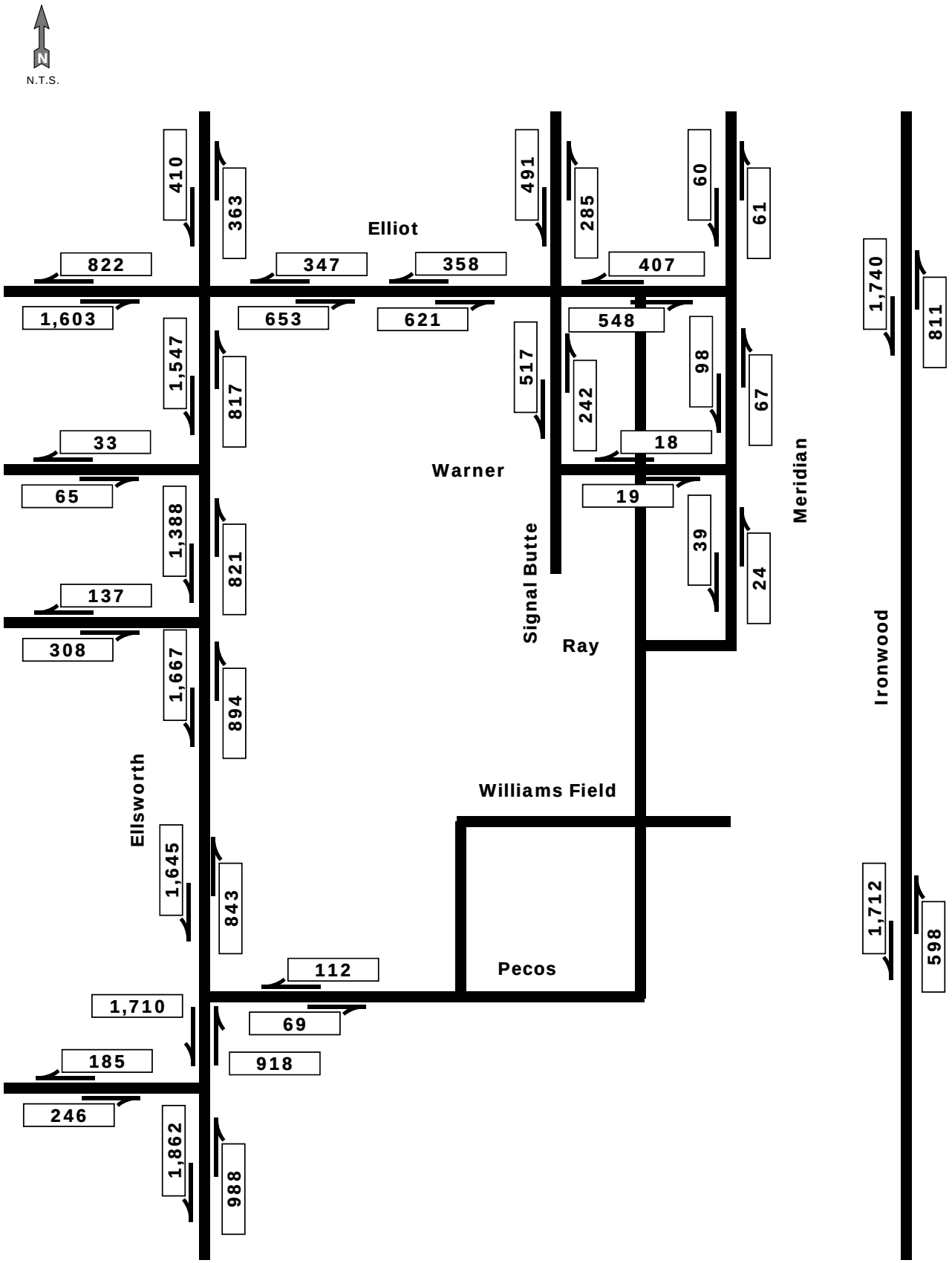



**Figure 13: Existing 2011 Traffic Counts – Directional PM Peak Hour**

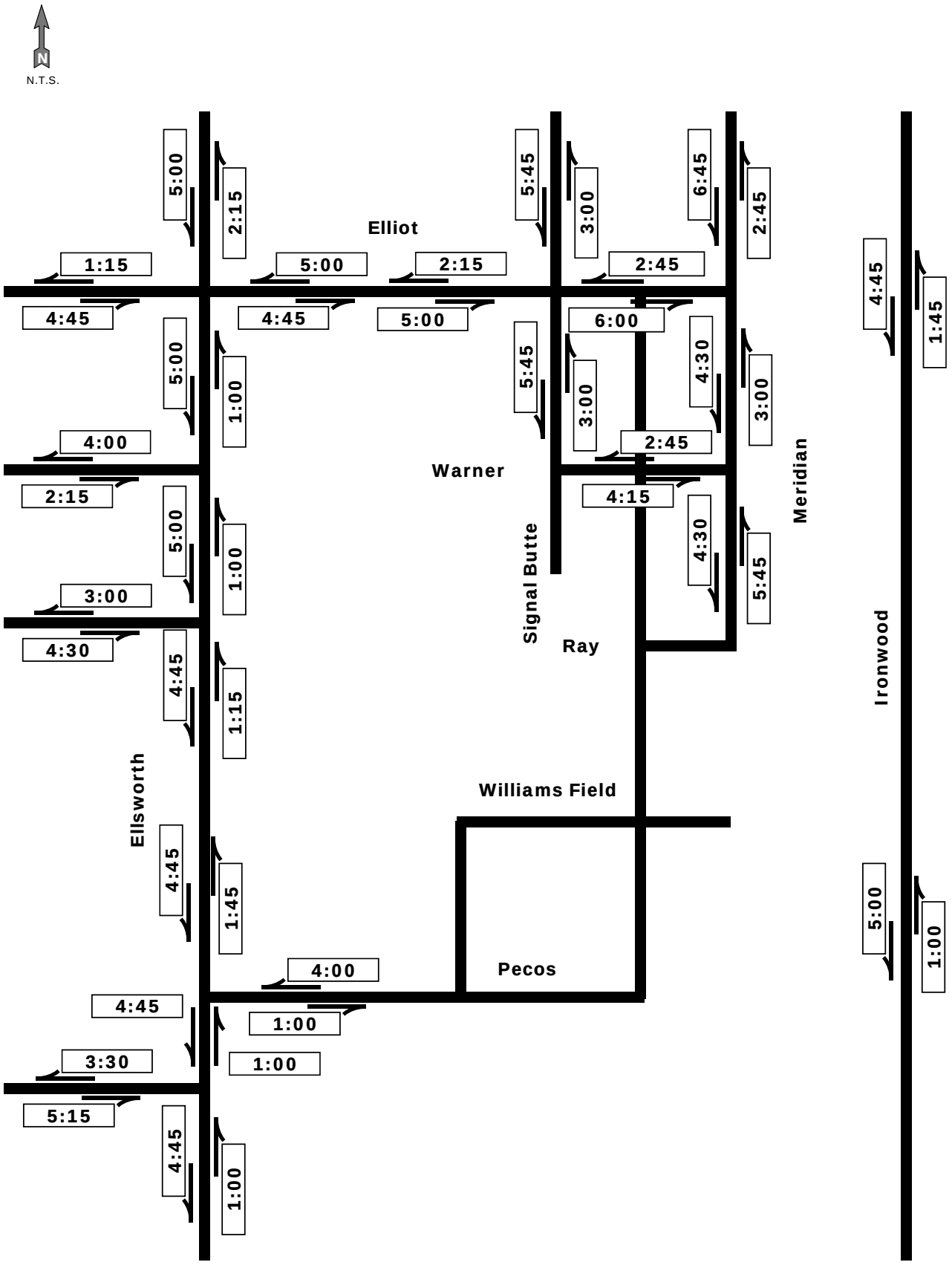



**Figure 14: Existing 2011 Traffic Count - PM Peak Hour Time**

These data indicate that the traffic patterns are dominantly commute traffic – with morning traffic greatest to the north and west, and evening traffic greatest to the east and south. These data imply that people reside southeast of the Pacific Proving Grounds North site and commute to employment northwest of the site.

### *Future Traffic Volumes*

The portion of Mesa in the vicinity of property of the Pacific Proving Grounds North (PPGN) has been extensively examined by three (3) transportation prediction models. These models have been utilized by the City of Mesa in its transportation planning for development of the Mesa Proving Grounds (MPG) and adjacent properties.

The first transportation model for property in this portion of Mesa was prepared for DMB Associates for the property identified as Mesa Proving Grounds (MPG) by DMJM and dated 23 September 2008. Pertinent excerpts of this document are provided as **Appendix B** to this report. The pertinent traffic volumes predicted for 2030 without development of the Proving Grounds are provided in **Figure 15**. The predicted 2030 traffic volumes for Ellsworth Road are substantially less than the existing 2011 traffic volumes – varying from approximately 20% to approximately 50% less.

The intersection of Ellsworth Road and Ray Road was analyzed as one full intersection. At the time these transportation planning models were developed, the Ellsworth / Ray intersection was anticipated to be one full intersection. Current plans identify this intersection as two (2) full intersections as indicated in **Figure 4**. The south intersection will be the dominant arterial and will include a reverse curve west of Ellsworth Road. The north intersection will include a connection to Ray Road west of Ellsworth Road, and become South Warner Road east of Ellsworth Road. The transportation planning model traffic volume results are provided as previously determined without modification.

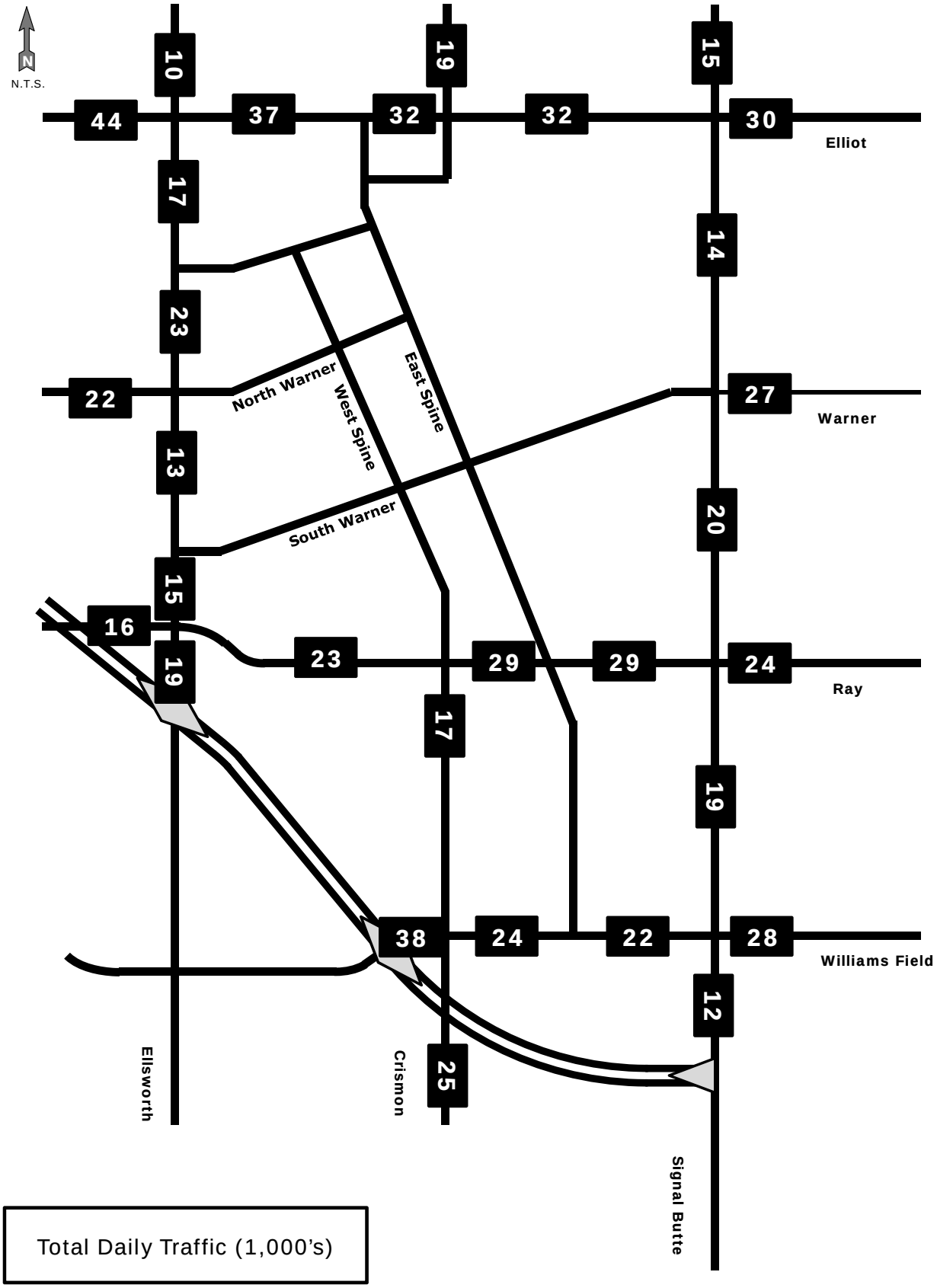



**Figure 15: 2030 Traffic Volumes without MPG or PPGN (DMJM)**

The pertinent traffic volumes predicted for 2030 with development of the Mesa Proving Grounds and without development of Pacific Proving Grounds North are provided in **Figure 16**.

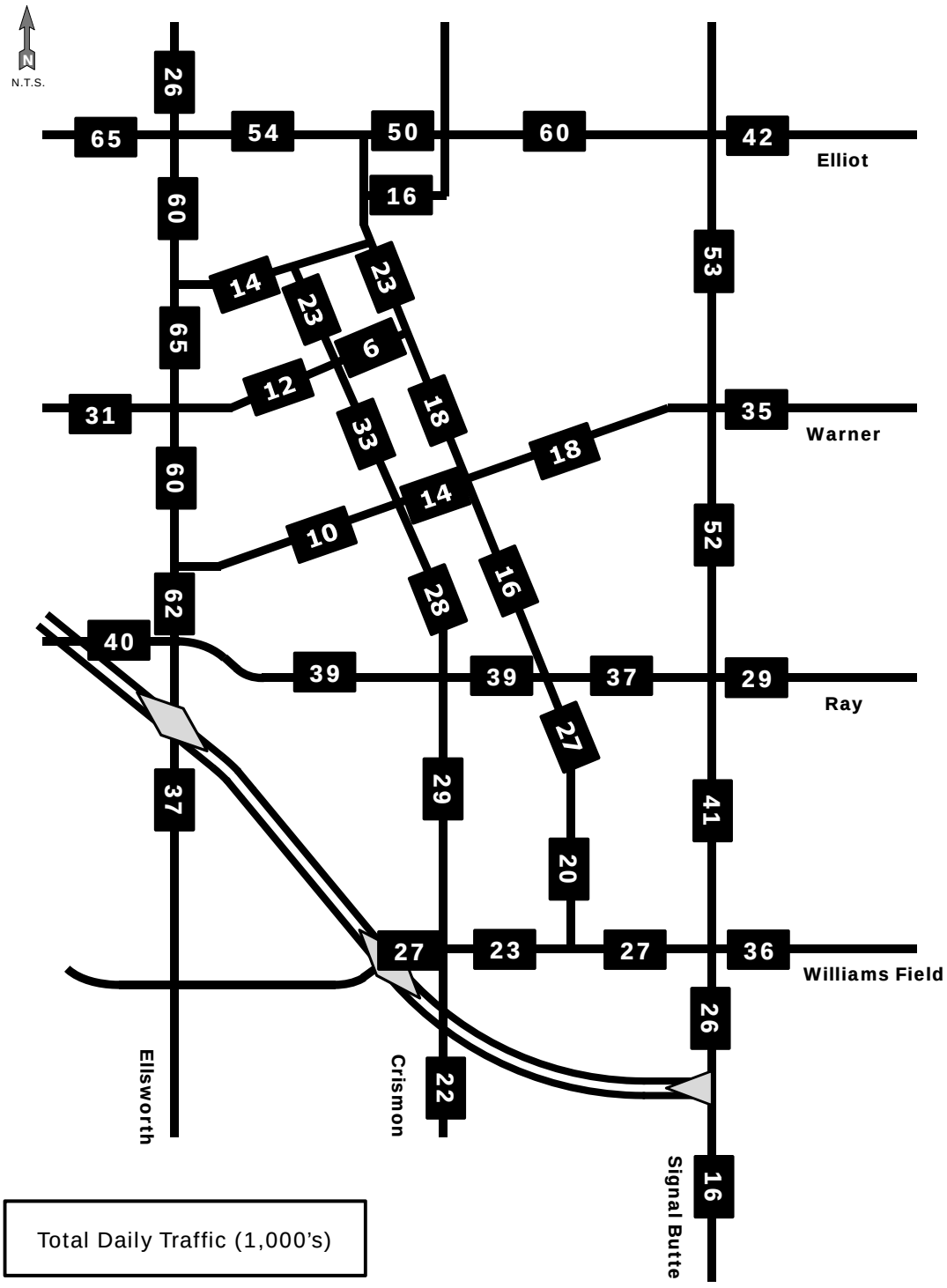



**Figure 16: 2030 Traffic Volumes with MPG without PPGN (DMJM)**

The second model predicting future traffic volumes was prepared for the City of Mesa for a larger portion of Mesa termed "Mesa Gateway" by HDR and dated 23 January 2009. **Appendix C** provides pertinent excerpts of this document. This analysis did not provide future anticipated traffic volumes.

The third future traffic volume prediction model was prepared for Maricopa County for Signal Butte Road from Ocotillo Road to the US-60. It was prepared by EPS Group and dated December 2009. **Appendix D** provides pertinent excerpts of this document. This document was limited to one north-south street and the immediately adjacent east-west street segments. The resultant traffic volumes are provided in **Figure 17**.

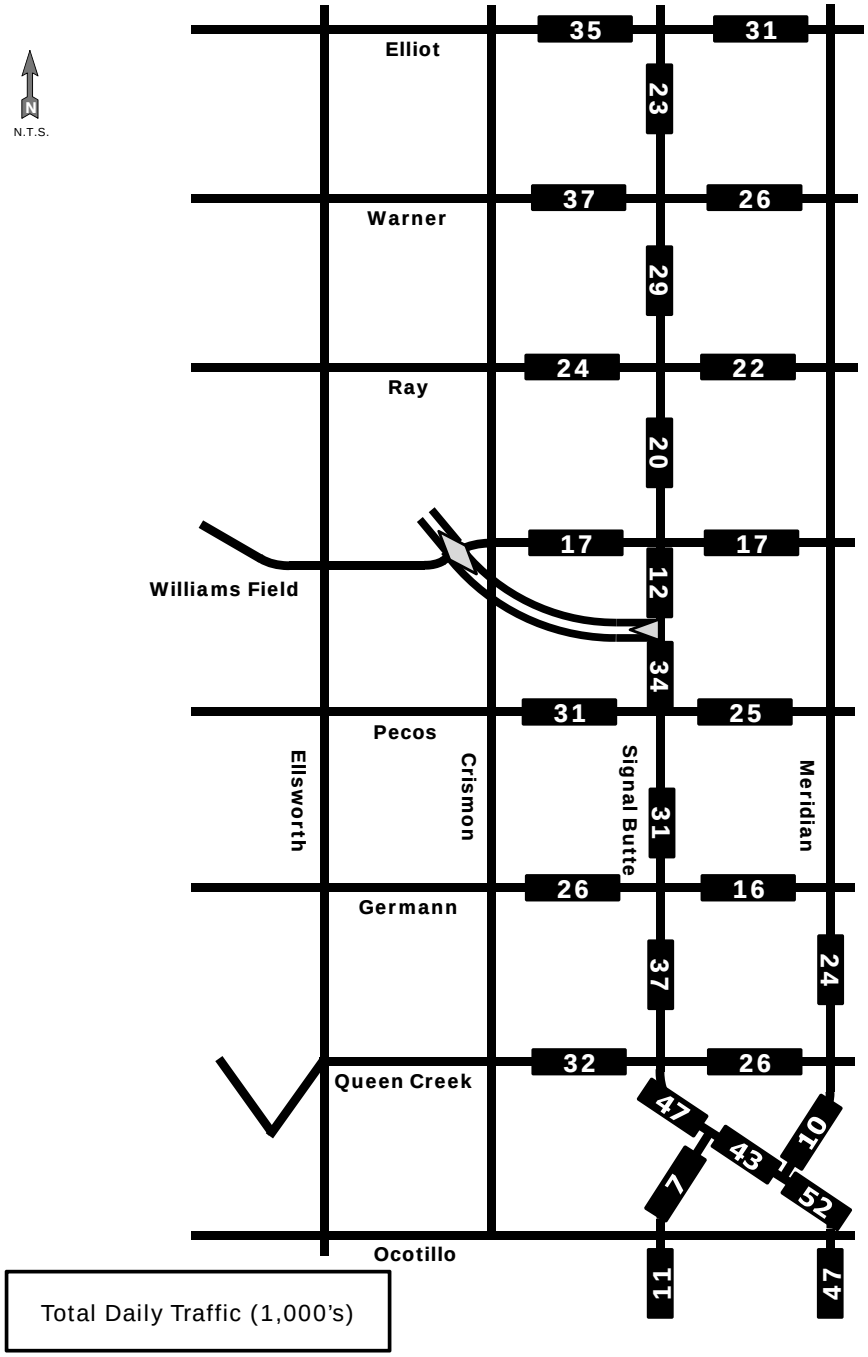



**Figure 17: Signal Butte Road 2030 Traffic Volumes without MPG and PPGN (EPS Group)**

The appropriate model to utilize for future ambient traffic volumes is the DMJM model with the Mesa Proving Grounds site and without the Pacific Proving Grounds North site as indicated in **Figure 16**. The provided volumes are total daily volumes for the year 2030. The horizon year for this analysis is 2020, and therefore the 2020 traffic volumes must be interpolated between the existing 2011 and predicted 2030 traffic volumes.

The only existing intersections in the study vicinity are the Ellsworth / Ray and Ellsworth / Elliot intersections. The existing 2011 and predicted 2030 traffic volumes at these two (2) intersections can be utilized to estimate the 2020 traffic volumes at all study intersections. **Table 3** provides the calculation of a ratio that can be utilized to convert predicted 2030 volumes to predicted 2020 volumes. The average value of the four (4) largest ratios of 2020 volumes to the 2030 volumes was 71.21%. This value was multiplied by the 2030 traffic volumes at the study intersections and approximated to the nearest 1,000 daily vehicles to predict the 2020 traffic volumes.

**Table 3: Anticipated Traffic Volume Increase 2011 to 2030**

| | | Existing 2011 | Predicted 2030 | Annual Increase | Interpolated 2020 | Ratio 2020 to 2030 |
|---|---|---|---|---|---|---|
| Ellsworth | North of Ray | 27,000 | 62,000 | 6.82% | 43,579 | 70.29% |
| Ellsworth | South of Ray | 31,000 | 62,000 | 5.26% | 45,684 | 73.68% |
| Ray | West of Ellsworth | 5,000 | 40,000 | 36.84% | 21,579 | 53.95% |
| | | | | | | |
| Ellsworth | North of Elliot | 10,000 | 26,000 | 8.42% | 17,579 | 67.61% |
| Ellsworth | South of Elliot | 29,000 | 60,000 | 5.63% | 43,684 | 72.81% |
| Elliot | West of Ellsworth | 30,000 | 65,000 | 6.14% | 46,579 | 71.66% |
| Elliot | East of Ellsworth | 12,000 | 54,000 | 18.42% | 31,895 | 59.06% |
| | | | | | | |
| | | Average without three lowest 2011 volumes | | | | **71.21%** |

**Table 4** provides the calculation of the anticipated 2020 traffic volumes at the Ellsworth / Ray, Crismon / Ray, and Crismon / Williams Field intersections.

**Table 4: Anticipated 2020 Traffic Volume at Study Intersections**

| | | Predicted 2030 | Predicted 2020 |
|---|---|---|---|
| Ellsworth | North of Ray | 62,000 | 44,000 |
| Ellsworth | South of Ray | 62,000 | 44,000 |
| Ray | West of Ellsworth | 40,000 | 28,000 |
| Ray | East of Ellsworth | 39,000 | 28,000 |
| | | | |
| Crismon | North of Ray | 28,000 | 20,000 |
| Crismon | South of Ray | 29,000 | 21,000 |
| Ray | West of Crismon | 39,000 | 28,000 |
| Ray | East of Crismon | 39,000 | 28,000 |
| | | | |
| Crismon | North of Williams Field | 29,000 | 21,000 |
| Crismon | South of Williams Field | 22,000 | 16,000 |
| Williams Field | West of Crismon | 27,000 | 19,000 |
| Williams Field | East of Crismon | 23,000 | 16,000 |

Future ambient 2020 directional peak hourly turning movement traffic volumes were determined with the following automated mathematical iteration process.

1. Multiply the total daily volume by 48% to 50% (to introduce variability in estimations).
2. Assume hourly factors of 10% to 12% in the peak travel direction and 5% to 7% in the non-peak travel direction to predict the total approach and total departure volumes. (The different percentages were paired to provide variety of hourly approach and departure volumes – particularly at locations where similar directional daily approach and departure volumes are predicted.)
3. Assume turning movement percentages for each intersection approach.
4. Calculate the turning movement volumes and the resulting total departure volumes.
5. Compare these calculated departure volumes to the predicted departure volumes.
6. Repeat the iterative process to minimize the sum-of-the-squares of the difference between the calculated and predicted total departure volumes.
7. A minimum volume of 100 vehicles-per-hour was utilized.

The intersection of Ellsworth Road and Ray Road was analyzed as one full intersection. This intersection may be constructed to a different configuration. Estimating 2020 ambient regional traffic volume for an uncertain intersection configuration is beyond the scope of this traffic impact analysis.

The results of this process for the three (3) adjacent study intersections are provided in **Figure 18**.

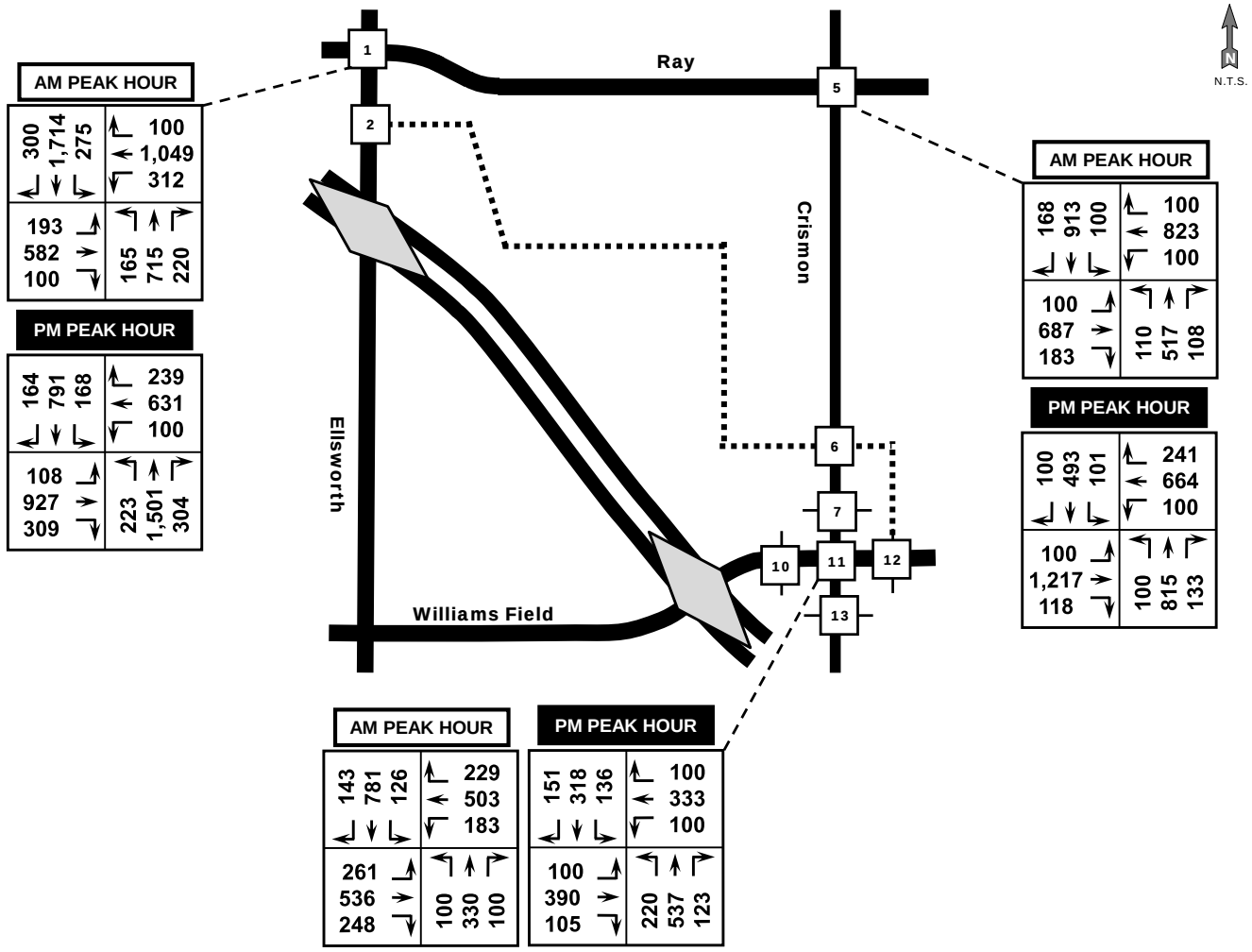



**Figure 18: 2020 Traffic Volumes with MPG without PPGN**

### *Proposed Site – Trip Generation*

The estimated trip generation for the proposed Pacific Proving Grounds North development was determined through the procedures and data contained within the Institute of Transportation Engineers (ITE) *Trip Generation*, 8th Edition, published in 2008. This document provides traffic volume data from existing developments throughout North America that can be utilized to estimate vehicle trips that might be generated from proposed developments. The traffic data are provided for 162 different categories. The estimated traffic volume is dependent upon independent variables defined by the type and size of each land use category.

There is considerable data for residential developments. For this study, ITE Land Use Code 210, Single Family Detached Housing, and ITE Land Use Code 270, Residential Planned Unit Development, were considered. Four (4) independent variables – dwelling unit, acre, vehicle, and person – are available for Single-Family Detached Housing to predict trips. Two (2) independent variables – dwelling unit and acre – are available for Residential Planned Unit Development to predict trips. The most appropriate independent variable for the proposed Pacific Proving Grounds North is either dwelling unit or acre – as prediction of the number of persons and vehicles would be invalid.

Pacific Proving Grounds North is proposed to include an estimated 2,909 dwelling units on approximately 445 acres. The characteristics of the data in *Trip Generation* that determine the average trip generation rates were examined. The data for Land Use Code 210 are dominated by developments of less than 500 dwelling units. For example, for the weekday total-day data using dwelling units as the independent variable, the average development size is 197 dwelling units – substantially and meaningfully less than 2,909 dwelling units. These data are invalid for Pacific Proving Grounds North.

**Table 5** provides comparative *Trip Generation* average trip rates for land use codes 210 and 270 for both all dwelling unit sizes and only those with more than 1,000 dwelling units. (The data for developments with more than 1,000 dwelling units must be estimated from the graphs as *Trip Generation* does not list all data values.)

**Table 5: Trip Generation Comparison for Land Use Codes 210 to 270**

| | | TRIP GENERATION CODE | | | |
|---|---|---|---|---|---|
| | | 210 | | 270 | |
| PERIOD | | ALL DATA | MORE THAN 1,000 DU | ALL DATA | MORE THAN 1,000 DU |
| DAY | RANGE OF RATES | 4.31 to 21.85 | 6.36 to 10.77 | 5.79 to 14.38 | 6.09 to 9.38 |
| | AVERAGE RATE | 9.57 | 8.34 | 7.50 | 7.26 |
| AM | RANGE OF RATES | 0.33 to 2.27 | 0.55 to 1.10 | 0.20 to 0.77 | 0.42 to 0.67 |
| PEAK | AVERAGE RATE | 0.75 | 0.86 | 0.51 | 0.50 |
| PM | RANGE OF RATES | 0.42 to 2.98 | 0.74 to 1.47 | 0.43 to 1.13 | 0.37 to 0.81 |
| PEAK | AVERAGE RATE | 1.01 | 1.07 | 0.62 | 0.54 |

For Single-Family Detached Housing, the average size is approximately 70 acres and approximately 200 dwelling units. For Residential Planned Unit Development, the average size is 33 acres and approximately 700 to 1,000 dwelling units. These statistics suggest that the land use code of Residential Planned Unit Development with dwelling units is the closest average development size to the proposed Pacific Proving Grounds North. Additionally, for the Residential Planned Unit Development data, 15% to 30% of the studies are from existing developments of approximately 2,000 or more dwelling units. Whereas, for the Single-Family Detached Housing data, less than 1% of the studies are from existing developments of approximately 2,000 or more dwelling units.

Therefore, the land use code of Residential Planned Unit Development with the independent variable of dwelling units was utilized for the residential component of this analysis. The trip generation for the entire Pacific Proving Grounds North residential development was calculated. The portion of the total within each development unit was determined as provided in **Table 6**. These percentages were then applied to each of the development units to determine the amount of traffic generated by each development unit.

**Table 6: PPGN Dwelling Units by Development Unit**

| | DWELLING UNITS | PERCENTAGE OF TOTAL |
|---|---|---|
| DEVELOPMENT UNIT 1 | 700 | 24% |
| DEVELOPMENT UNIT 2 | 1,609 | 55% |
| DEVELOPMENT UNIT 3 | 0 | 0% |
| DEVELOPMENT UNIT 4 | 600 | 21% |
| DEVELOPMENT UNIT 5 | 0 | 0% |
| TOTAL | 2,909 | 100% |

**Appendix E** provides the complete results of these calculations. **Table 7** summarizes the total trip generation for the residential component of Pacific Proving Grounds North.

**Table 7: PPGN Residential Trip Generation**

| | Weekday | | | Saturday | | |
|---|---|---|---|---|---|---|
| **Time Period** | **Enter** | **Exit** | **Total** | **Enter** | **Exit** | **Total** |
| **Day** | 11,578 | 11,577 | 23,155 | 11,152 | 11,151 | 22,303 |
| **AM Peak Hour** | 522 | 1,784 | 2,306 | - | - | - |
| **PM Peak Hour** | 1,477 | 815 | 2,292 | 922 | 946 | 1,868 |

There is considerable data in *Trip Generation* for retail developments. The exact nature of the retail development is unknown. Therefore the most general category, ITE Land Use Code 820, Shopping Center, was utilized for this analysis. The independent variable available for this land use category to predict trips is 1,000 square feet of gross floor area.

To provide consistency, the peak hour of adjacent street time periods were selected rather than the peak hour of generator. The peak hour of generator for residential and for retail properties occur at different times, while the peak hour of adjacent street occurs at the same time for all land uses.

**Appendix E** also provides the complete results of the retail trip generation calculations. The primary commercial development use is anticipated to be retail. Retail uses generate substantially greater traffic volume than office uses – particularly during the evening peak hour which is typically the highest traffic volumes of the day. To provide the most conservative trip generation and the most valid estimate of future transportation needs, the commercial development was assumed to be entirely retail. Additionally, to provide the most conservative trip generation, the maximum allowable commercial area was assumed. **Table 8** summarizes the data for the maximum anticipated 1,500,000-square-feet retail component of Pacific Proving Grounds North. Furthermore to ensure conservative estimates, 100% of the retail traffic and 100% of the residential traffic was assumed to occur. In reality some of the retail traffic productions and attractions will also be residential traffic productions and attractions. This traffic typically constitutes 15% to 40% of the total site traffic.

**Table 8: PPGN Retail Trip Generation**

| | Weekday | | | Saturday | | |
|---|---|---|---|---|---|---|
| **Time Period** | **Enter** | **Exit** | **Total** | **Enter** | **Exit** | **Total** |
| **Day** | 34,993 | 34,988 | 69,981 | 44,720 | 44,718 | 89,438 |
| **AM Peak Hour** | 978 | 624 | 1,602 | - | - | - |
| **PM Peak Hour** | 3,173 | 3,303 | 6,476 | 4,441 | 4,101 | 8,542 |

To provide consistency, the peak hour of adjacent street time periods were selected rather than the peak hour of generator. The peak hour of generator for residential and for office properties occur at different times, while the peak hour of adjacent street occurs at the same time for all land uses.

There is also considerable data in *Trip Generation* for office developments. The exact nature of the office development is unknown. Therefore the most general category, ITE Land Use Code 710, General Office Building, is the most appropriate. **Appendix E** provides the calculation format for office use with the most appropriate independent variable of 1,000 square feet of gross floor area. However, the office use was assumed to be zero and therefore the traffic volumes are determined to also be zero. **Table 9** is provided to indicate the office trip generation of zero for the Pacific Proving Grounds North office component. As the planning for the development continues specific commercial uses will be determined. The office trip generation will increase as retail trip generation will decrease.

**Table 9: PPGN Office Trip Generation**

| | Weekday | | | Saturday | | |
|---|---|---|---|---|---|---|
| **Time Period** | **Enter** | **Exit** | **Total** | **Enter** | **Exit** | **Total** |
| **Day** | 0 | 0 | 0 | 0 | 0 | 0 |
| **AM Peak Hour** | 0 | 0 | 0 | - | - | - |
| **PM Peak Hour** | 0 | 0 | 0 | 0 | 0 | 0 |

The sum of the residential, retail, and office trip generation for Pacific Proving Grounds North is provided in **Table 10**.

**Table 10: PPGN Total Trip Generation**

| | Weekday | | | Saturday | |
|---|---|---|---|---|---|
| **Time Period** | **Day** | **AM** | **PM** | **Day** | **Peak** |
| **Residential** | 23,155 | 2,306 | 2,292 | 22,303 | 1,868 |
| **Retail** | 69,981 | 1,602 | 6,476 | 89,438 | 8,542 |
| **Office** | 0 | 0 | 0 | 0 | 0 |
| **Total** | 93,136 | 3,908 | 8,768 | 111,741 | 10,410 |

### *Proposed Site – Trip Distribution*

The final determination related to the Pacific Proving Grounds North traffic is the direction the generated traffic utilizes to enter and exit the site. The site was examined to predict its traffic routes. The primary routes are to the Ellsworth Road access and the Crismon Road access. The majority of the residential traffic was assigned to Ellsworth Road. All of the Development Unit 1 commercial traffic was assigned to Ellsworth Road. The remainder of the commercial traffic was assigned primarily to Crismon Road and secondarily to Williams Field Road.

The intersection of Ellsworth Road and Ray Road was analyzed as one full intersection. The current concept for the Ellsworth / Ray intersection consists of two (2) four-approach intersections in close proximity, as indicated in **Figure 4**. While Pacific Proving Grounds North traffic can be readily assigned to the two (2) Ellsworth / Ray intersections, the regional 2020 ambient turning movement traffic volume determination for this recently developed intersection configuration is beyond the scope of this traffic analysis. As planning for the properties in the PPGN vicinity – particularly the properties directly served by the two (2) Ellsworth / Ray intersections – the non-site Ellsworth / Ray intersection traffic volume estimates will become more accurate.

**Figure 19** through **Figure 22** respectively provide the Pacific Proving Grounds North site morning and evening peak hour turning movement volumes at the study intersections. **Figure 23** through **Figure 26** provide the total of the 2020 with site peak hour traffic volumes at the study intersections. **Figure 27** provides the Pacific Proving Grounds North site day segment traffic volumes at selected locations near the primary accesses. **Figure 28** and **Figure 29** provide the ambient 2020 and 2020 with site day traffic volumes, respectively, at selected segments near the primary accesses.

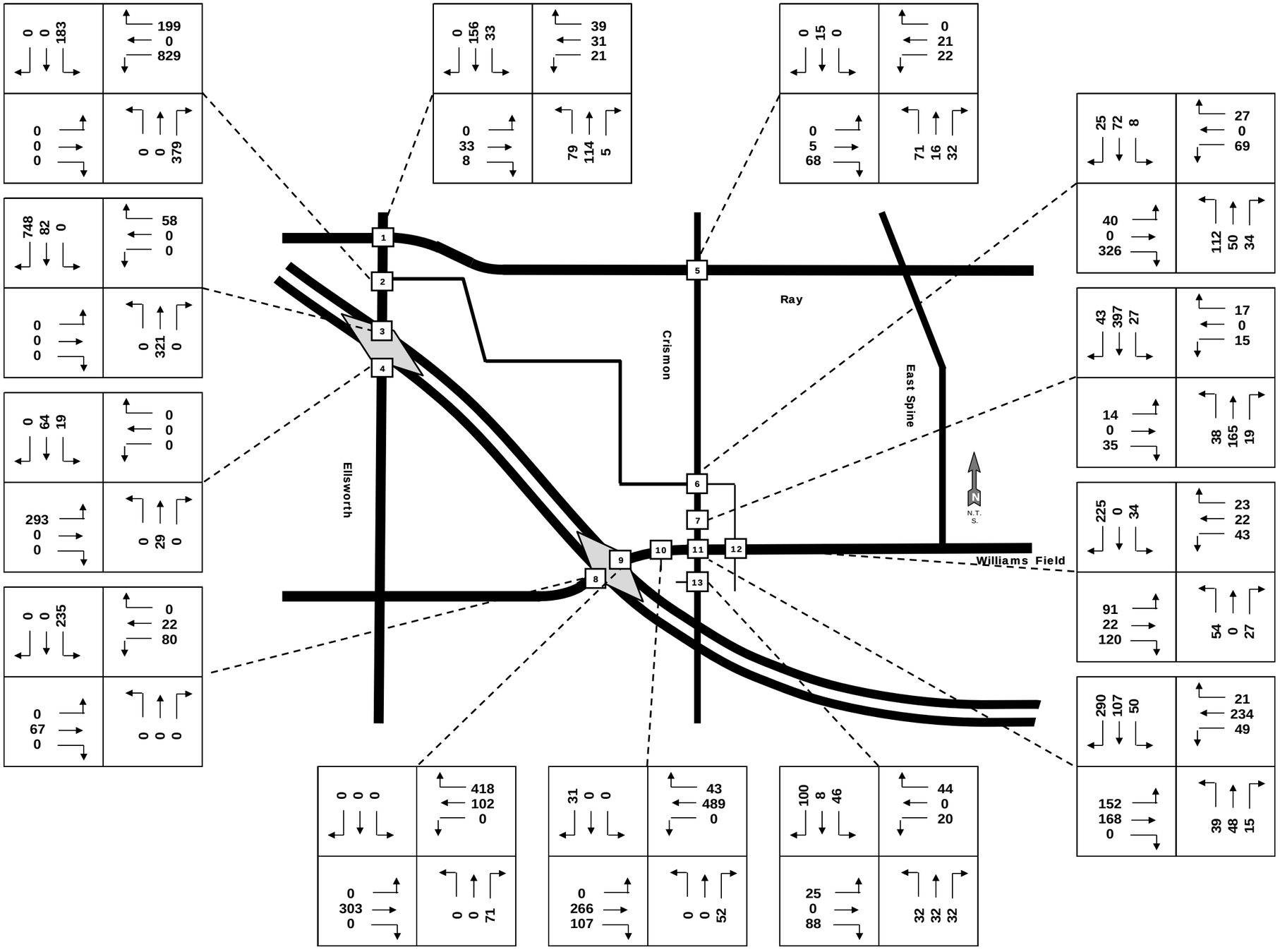



**Figure 19: PPGN Traffic Volumes – AM Peak Hour**

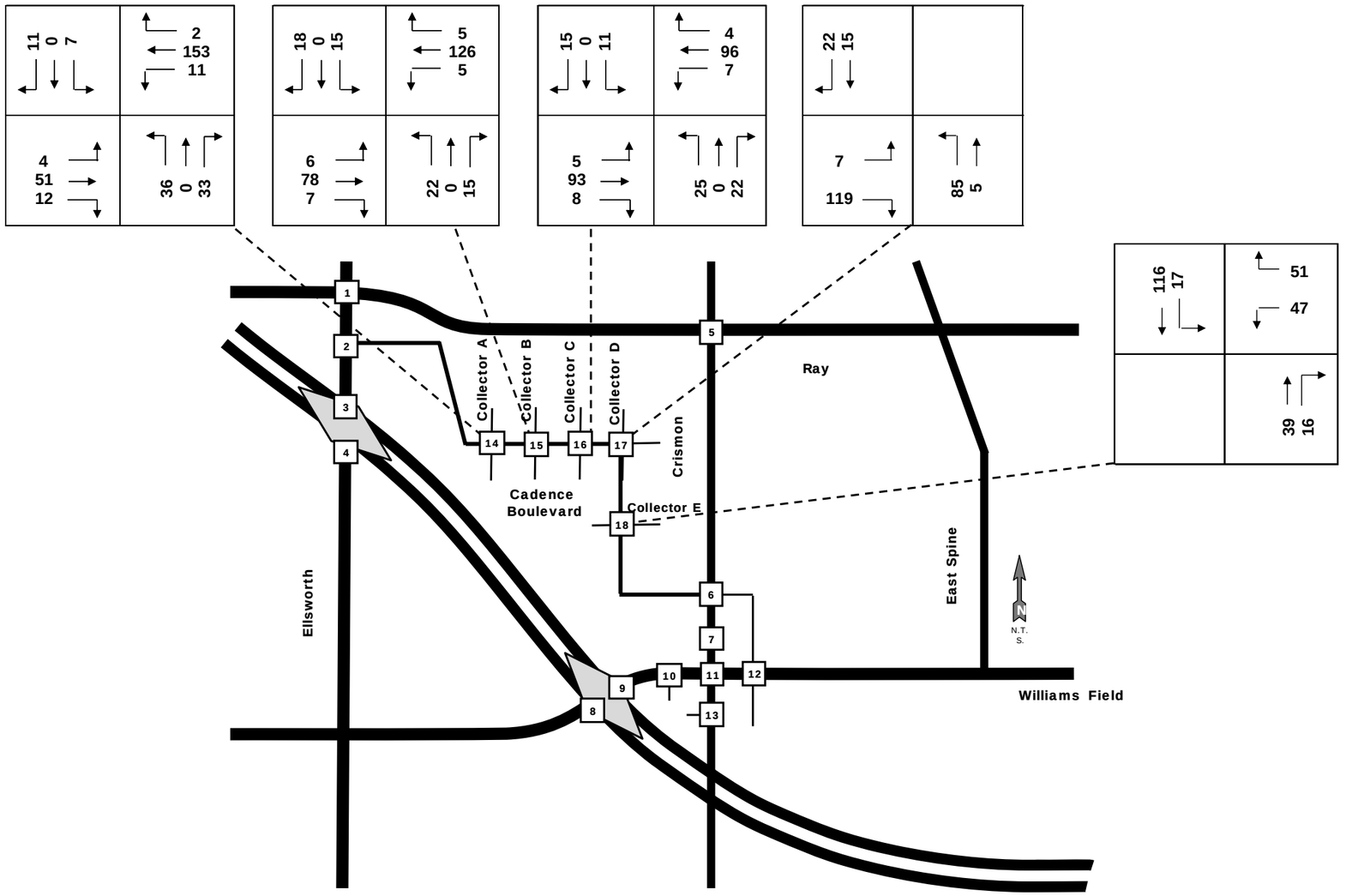



**Figure 20: PPGN Traffic Volumes (Inset) – AM Peak Hour**

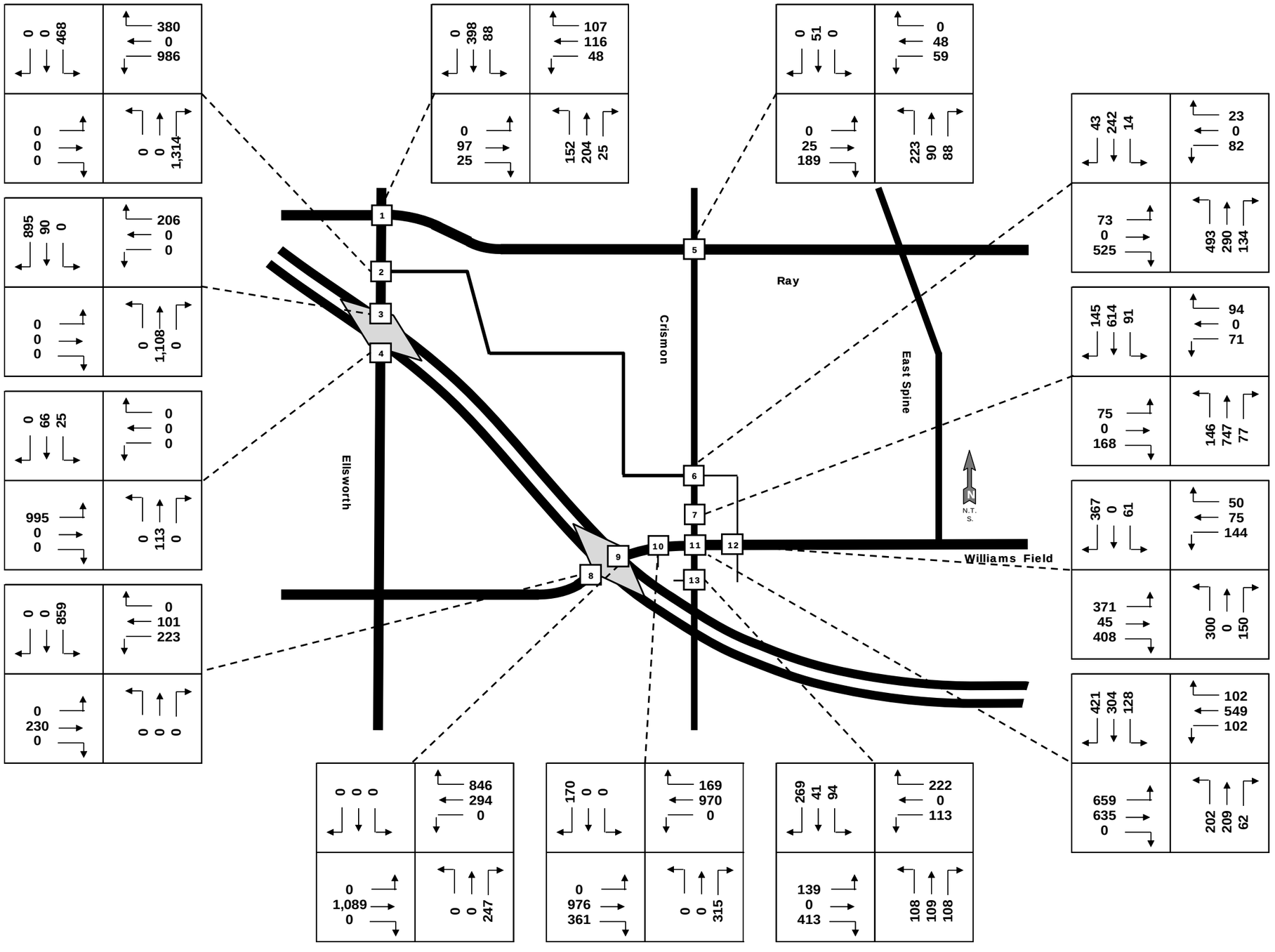



**Figure 21: PPGN Traffic Volumes – PM Peak Hour**

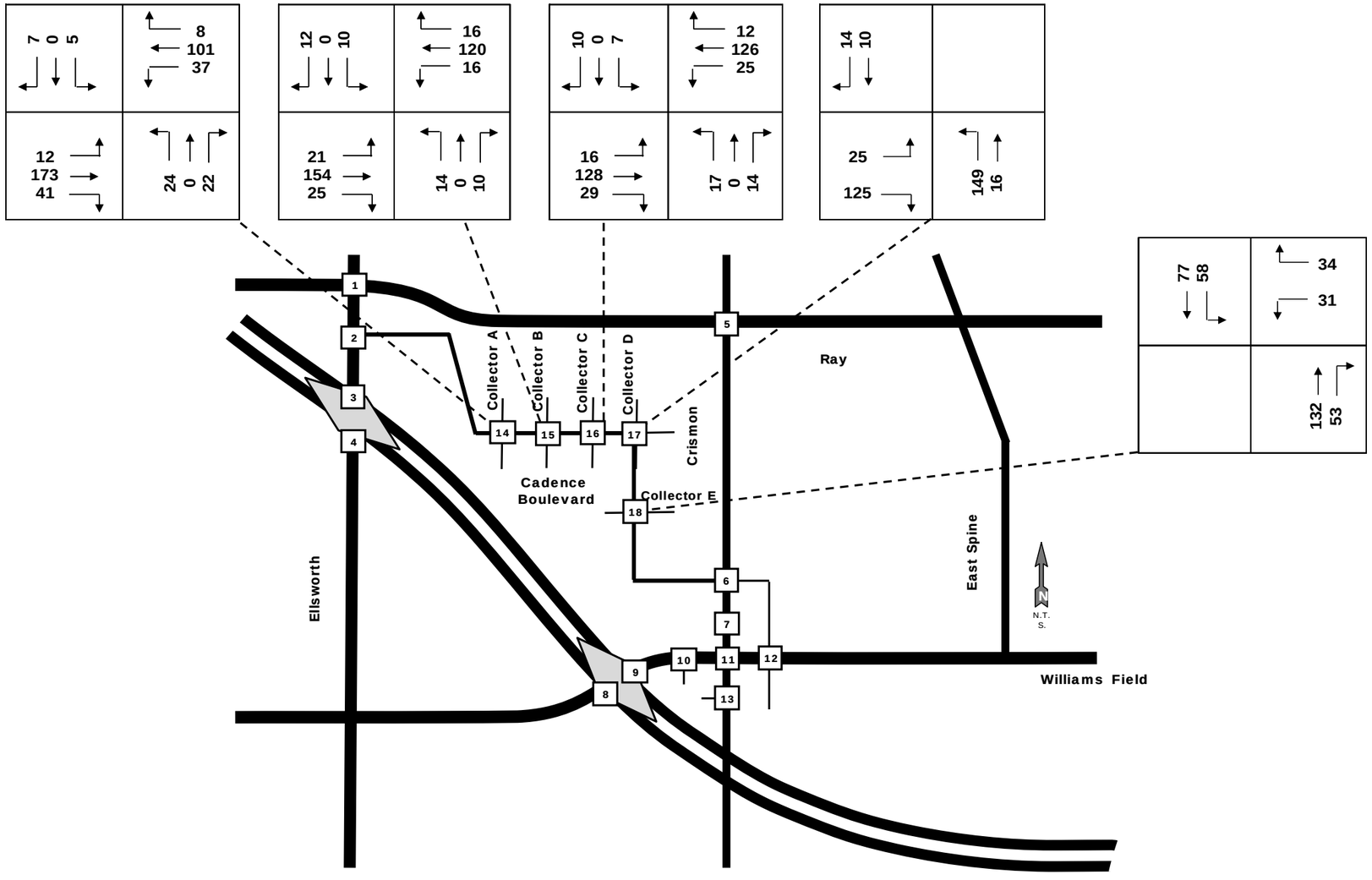



**Figure 22: PPGN Traffic Volumes (Inset) – PM Peak Hour**

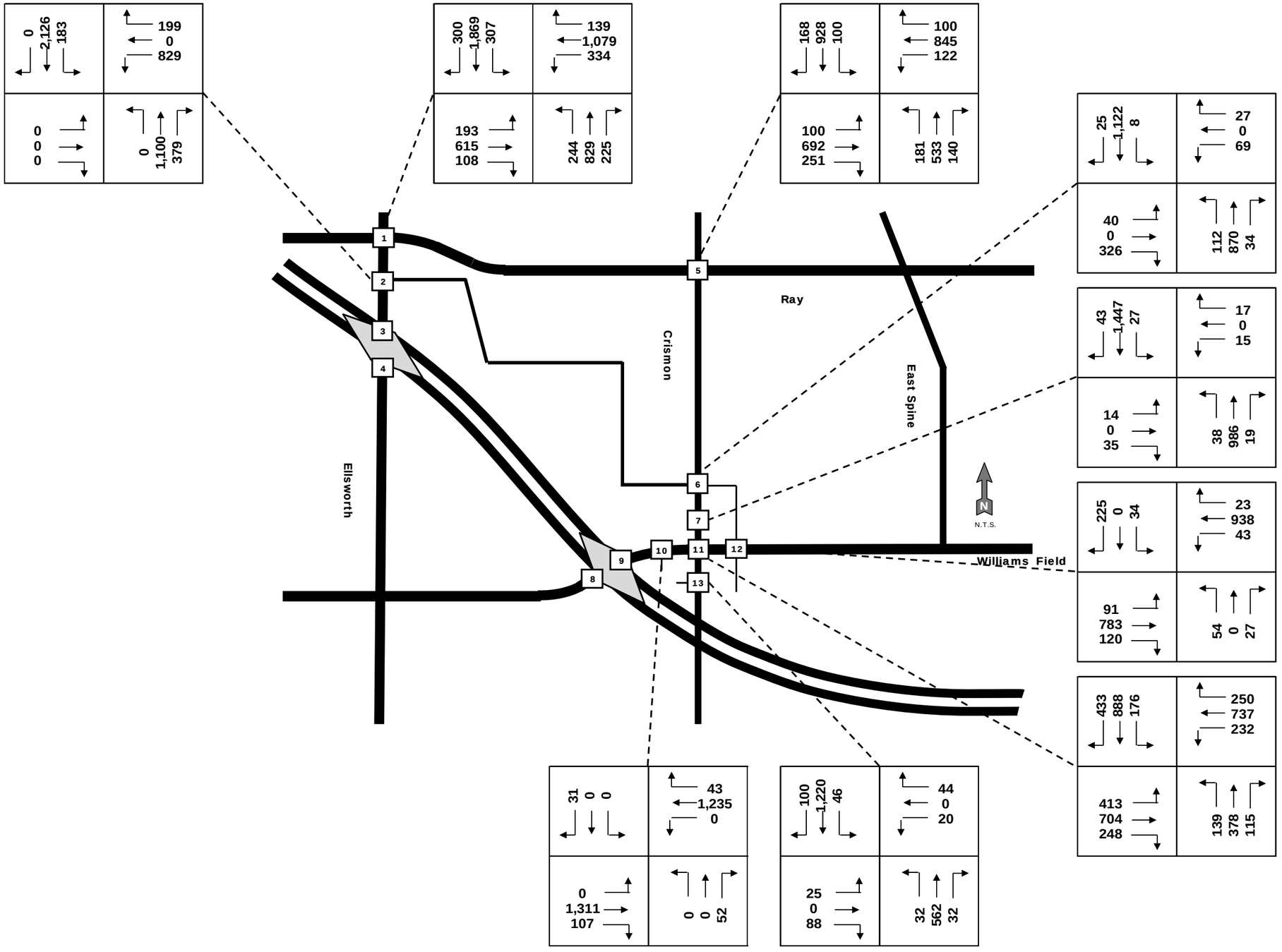



**Figure 23: 2020 with PPGN Traffic Volumes – AM Peak Hour**

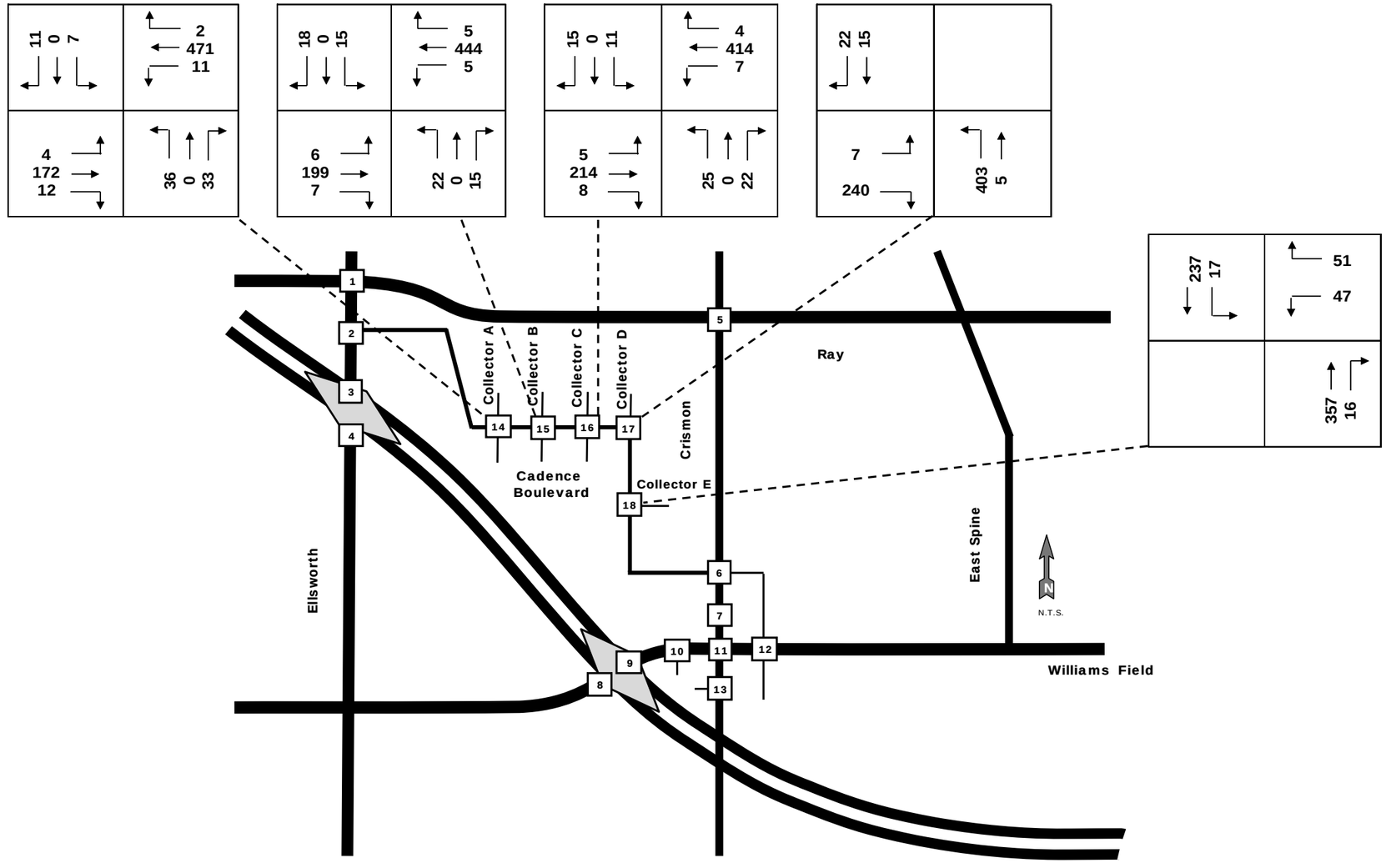



**Figure 24: 2020 with PPGN Traffic Volumes (Inset) – AM Peak Hour**

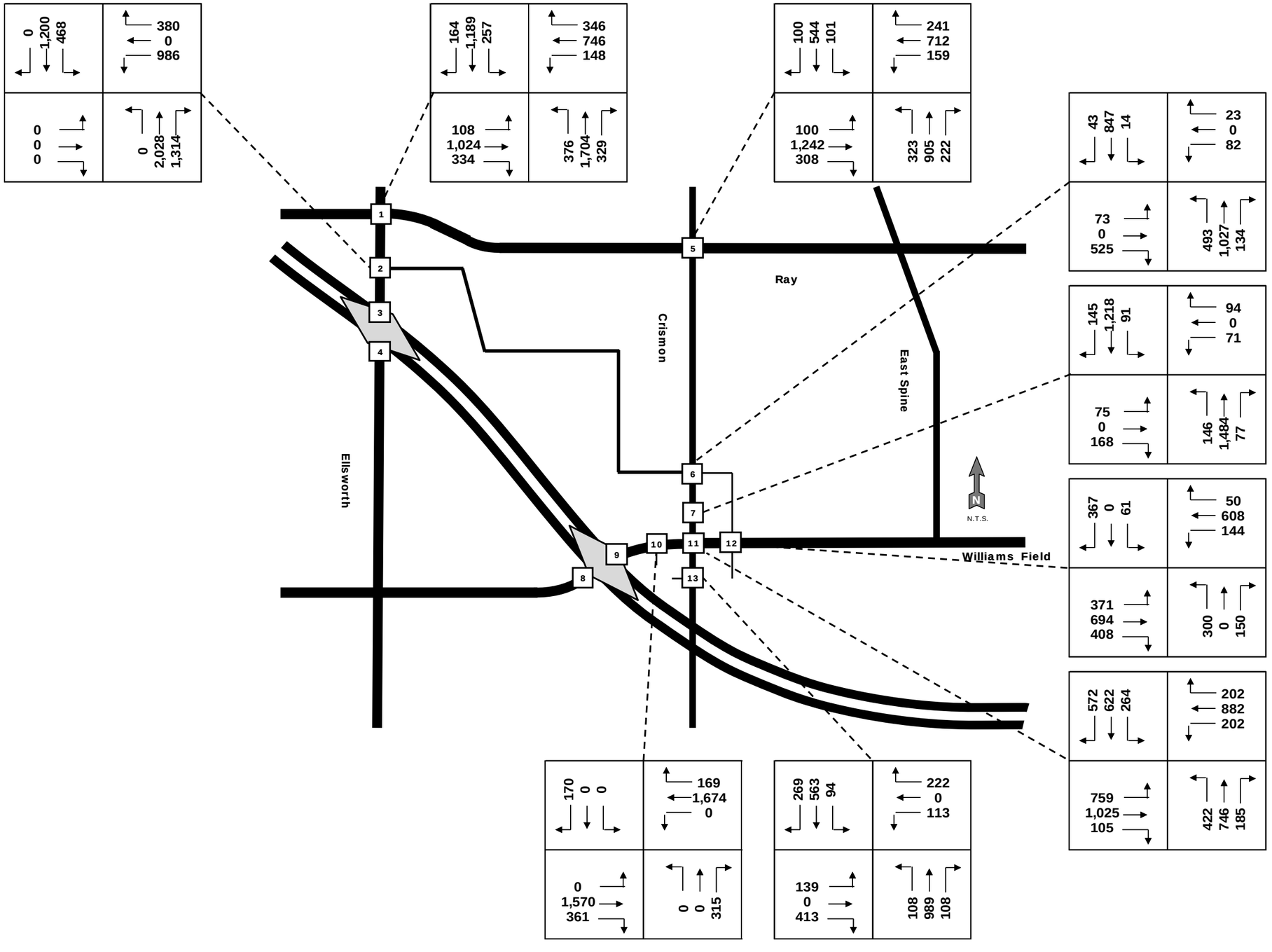



**Figure 25: 2020 with PPGN Traffic Volumes – PM Peak Hour**

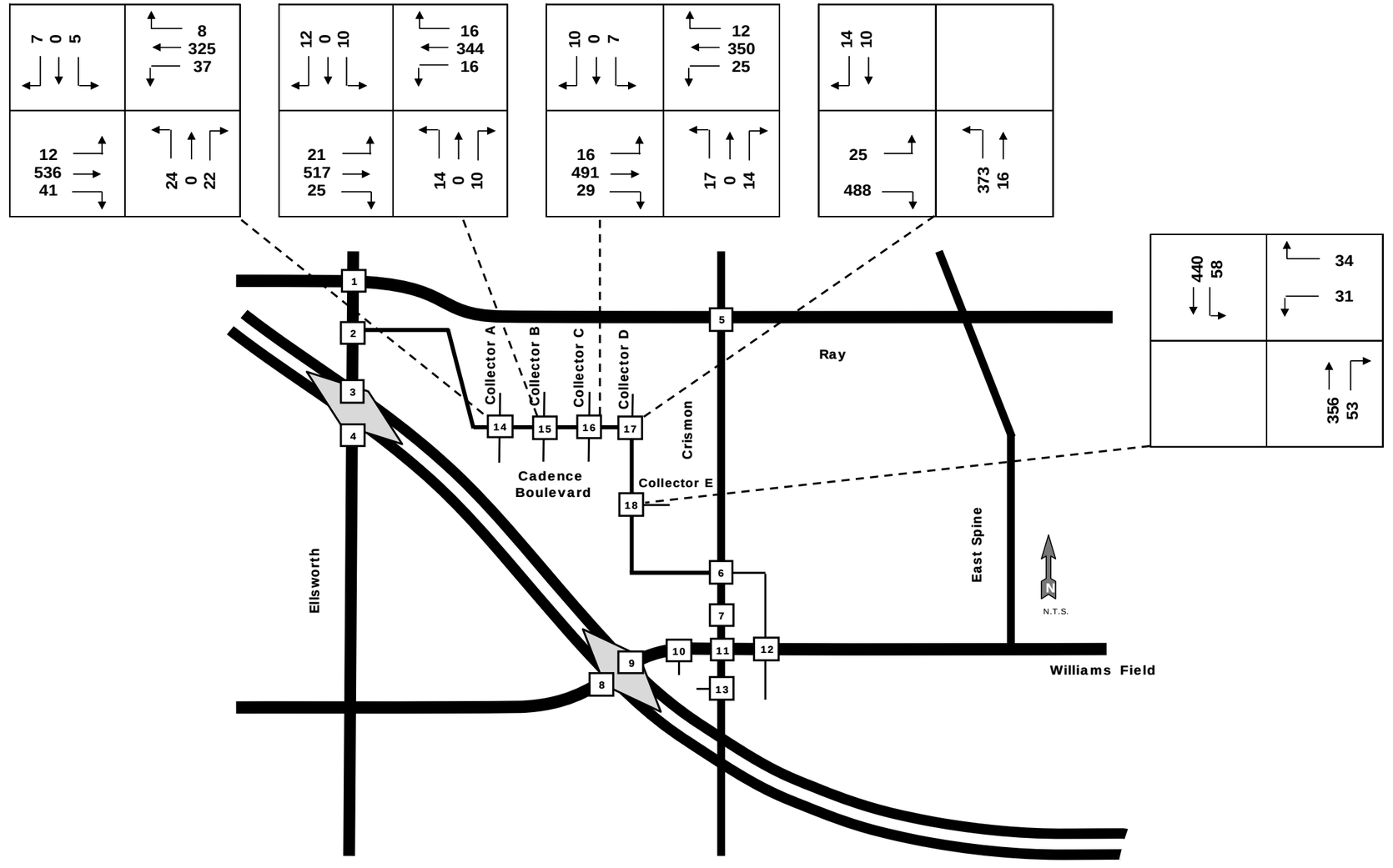



**Figure 26: 2020 with PPGN Traffic Volumes (Inset) – PM Peak Hour**

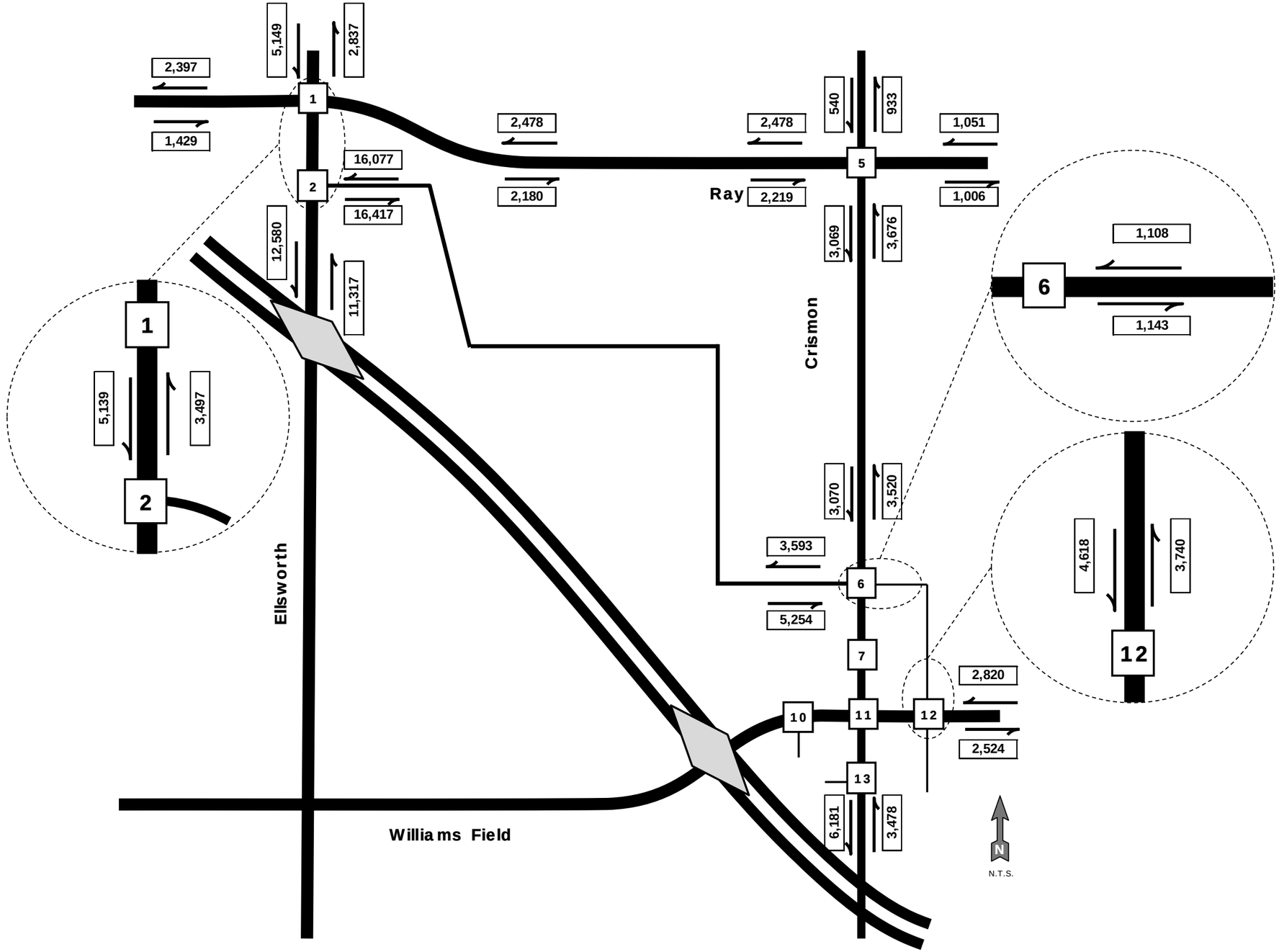



**Figure 27: PPGN Traffic Volumes – Day**

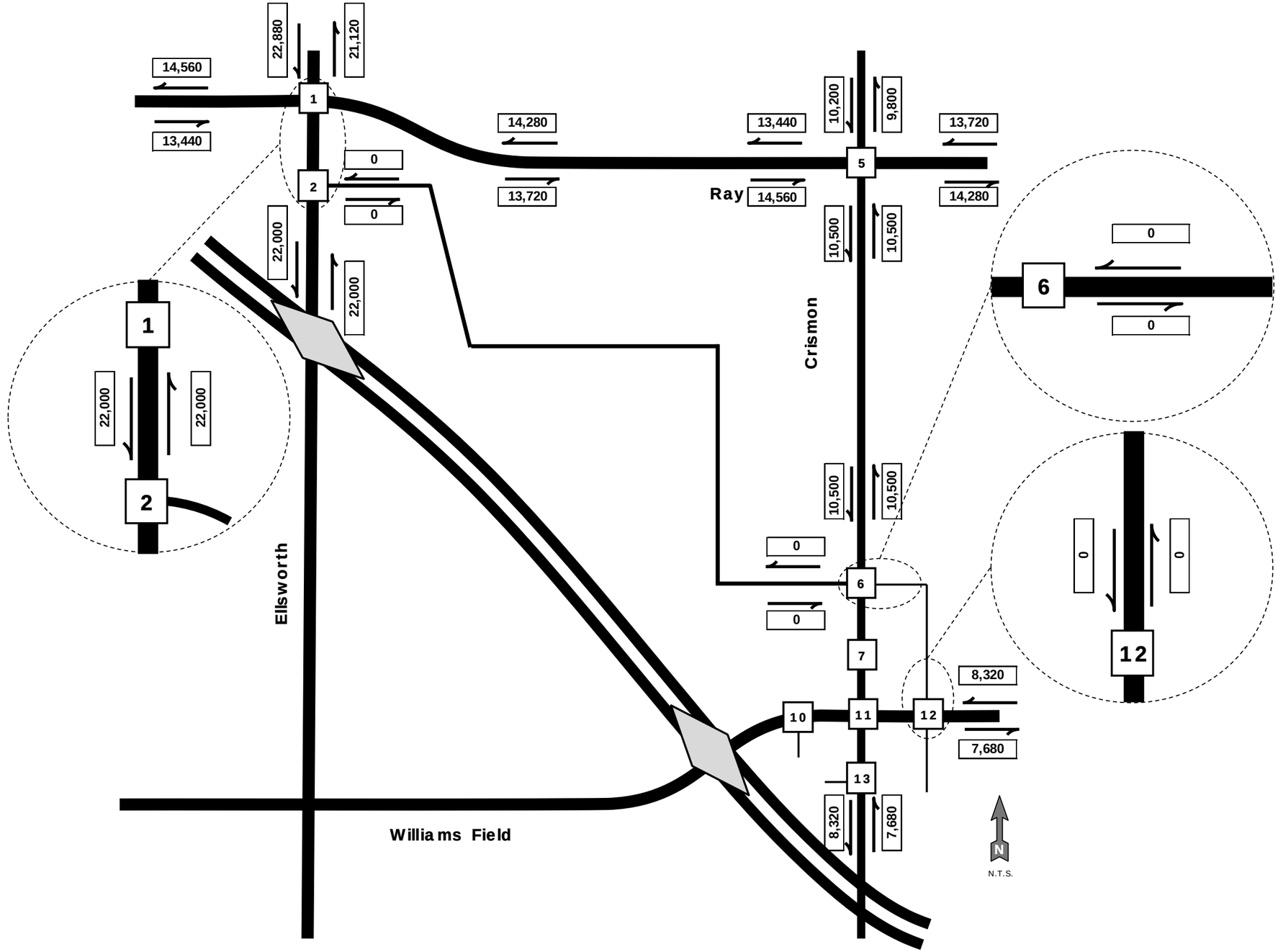



**Figure 28: Ambient 2020 Traffic Volumes – Day**

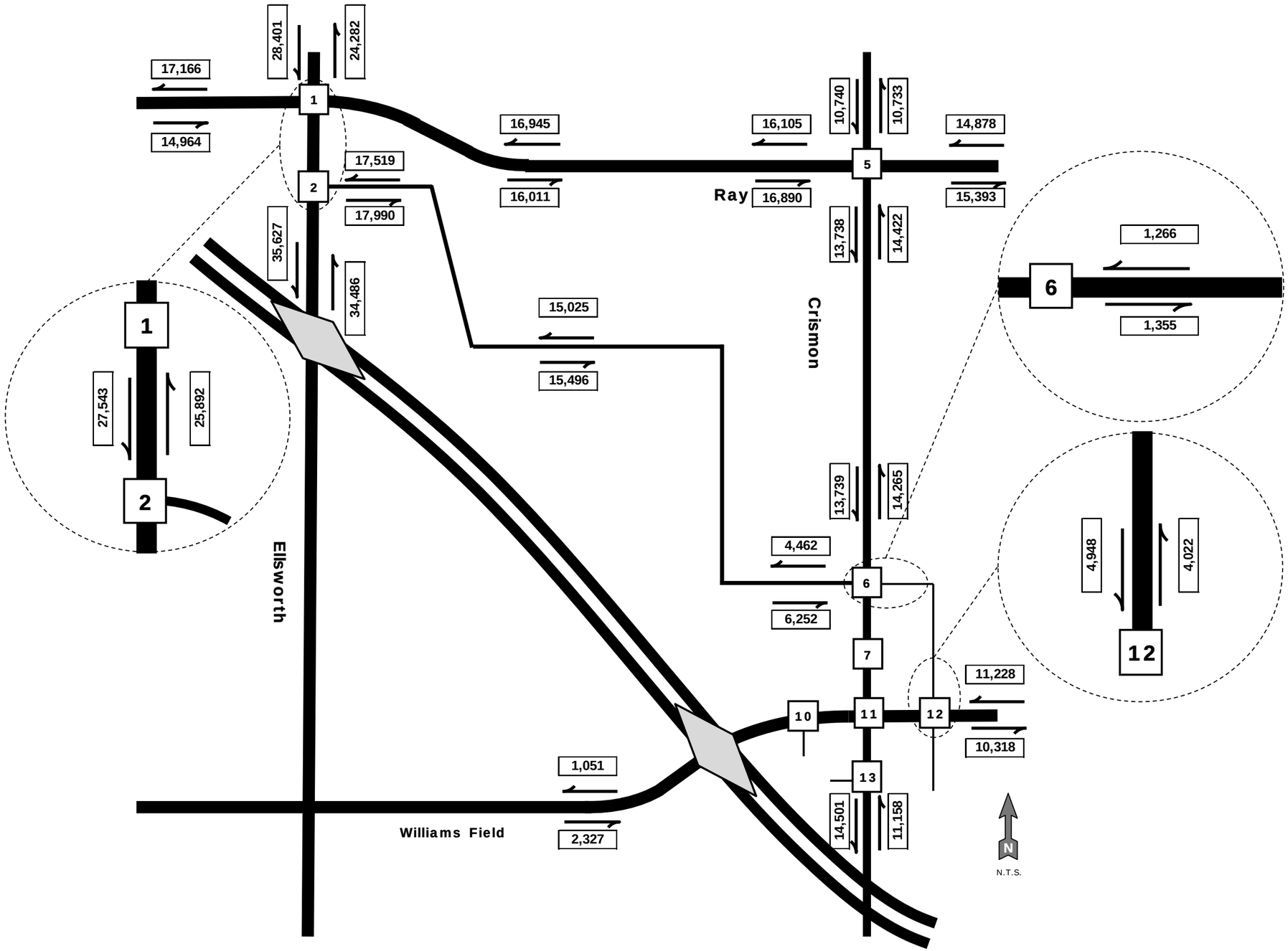



**Figure 29: 2020 with PPGN Traffic Volumes – Day**

Typical street capacity is 8,000 vehicles-per-lane-per-day. The primary street through the Pacific Proving Grounds North development has an anticipated maximum one-way volume of 16,417 vehicles-per-day at its intersection with Ellsworth Road. At this location, the street must be two-through-lanes-per-direction with left-turn lanes at internal access intersections. Within Development Unit 2, the anticipated maximum one-way volume is 5,907 vehicles-per-day, which can be accommodated by one-through-lane-per-direction.

### *Level-of-Service Analysis with PPGN*

The ability of a transportation system to transmit the transportation demand is characterized as its level-of-service (LOS). Level-of-service is a rating system from "A", representing the best operation, to "F", representing the worst operation. The City of Mesa accepts level-of-service "E" as the minimum operation for future years. The appropriate reference for level-of-service operation is the *Highway Capacity Manual*, published by the Transportation Research Board.

This manual considers the average delay-per-vehicle as the measure to determine the level-of-service for both signalized and unsignalized intersections. For signalized intersections and for multi-way stop intersections, the delay and level-of-service are calculated for the intersection, each approach, and each turning movement. For two-way stop controlled intersections, the level-of-service is defined for each minor movement, and is not defined for the major street approaches or for the entire intersection. **Figure 30** provides a diagram and **Table 11** lists the level-of-service criteria for both signalized and unsignalized intersections as stated in the *Highway Capacity Manual*.

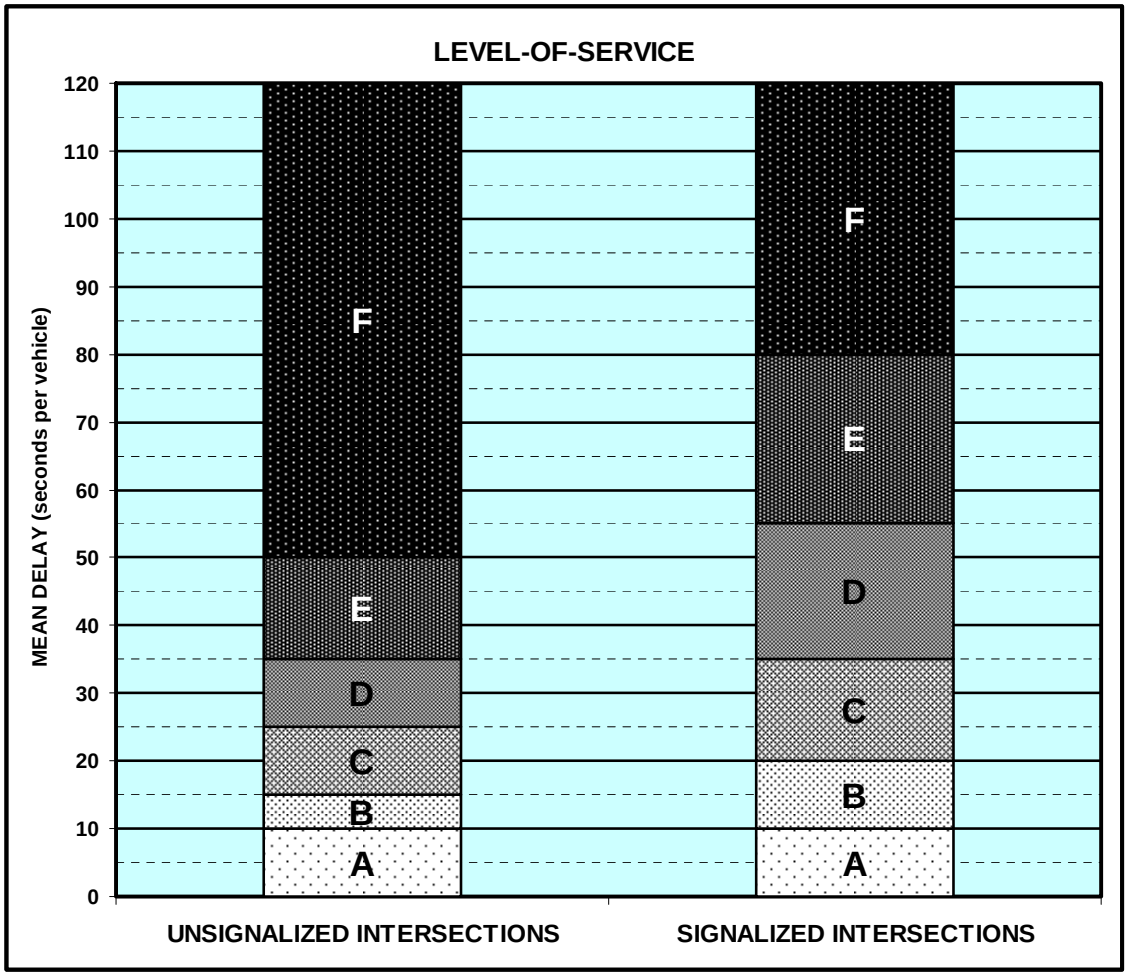



**Figure 30: Level-of-Service Criteria for Intersections**

**Table 11: Level-of-Service Criteria for Intersections**

| LEVEL-OF-SERVICE | AVERAGE DELAY (seconds per vehicle) | |
|---|---|---|
| | UNSIGNALIZED | SIGNALIZED |
| A | ≤ 10 | ≤ 10 |
| B | > 10 to 15 | > 10 to 20 |
| C | > 15 to 25 | > 20 to 35 |
| D | > 25 to 35 | > 35 to 55 |
| E | > 35 to 50 | > 55 to 80 |
| F | > 50 | > 80 |

The results of these analyses are provided as **Appendix F**. **Figure 31** through **Figure 34** respectively provide the morning and evening peak hour 2020 with Pacific Proving Grounds North level-of-service. The Ellsworth / Ray intersection was analyzed as one full intersection. Its configuration may be different in the future. Analysis of an uncertain intersection configuration is beyond the scope of this traffic impact analysis.

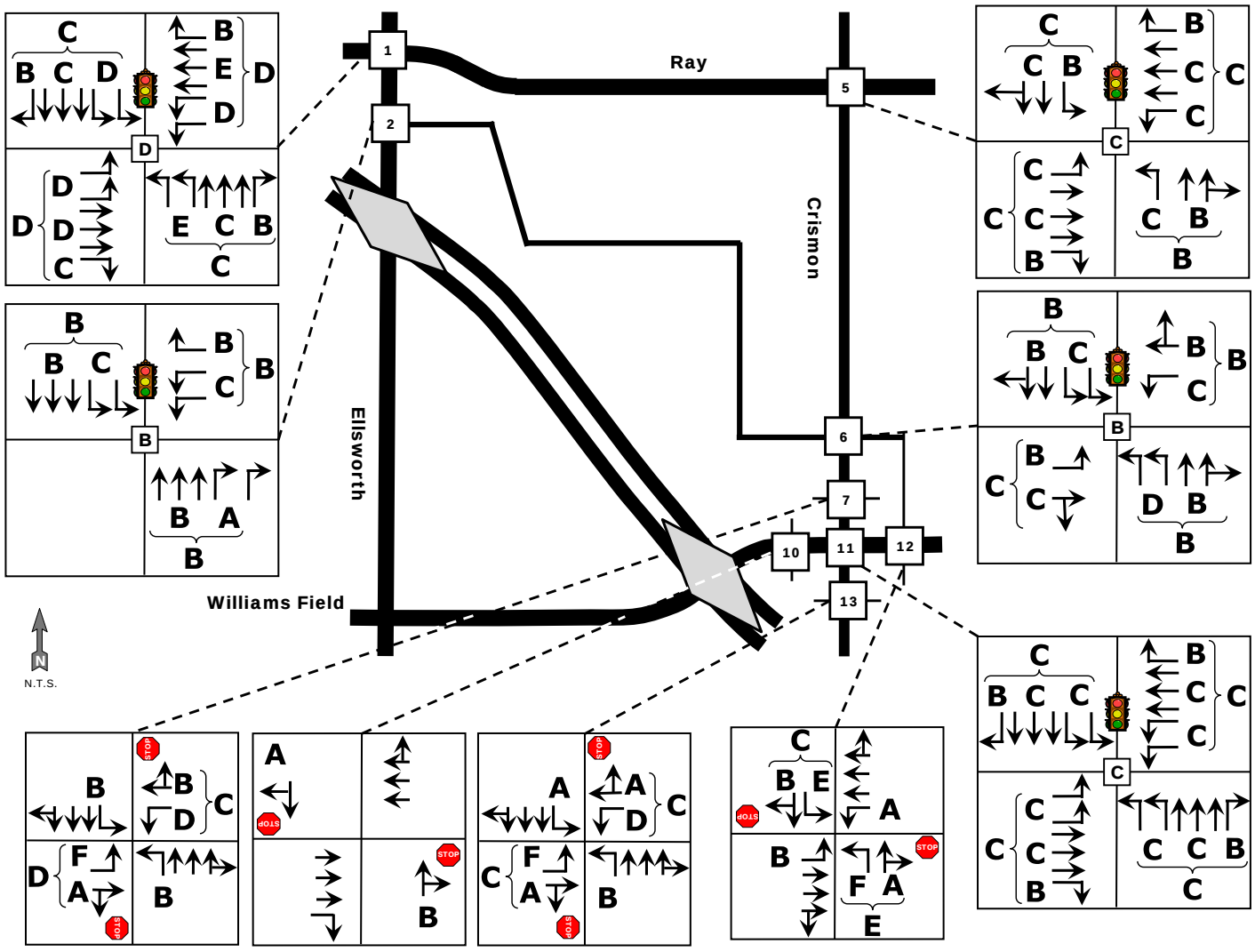



**Figure 31: 2020 with PPGN Level-of-Service – AM Peak Hour**

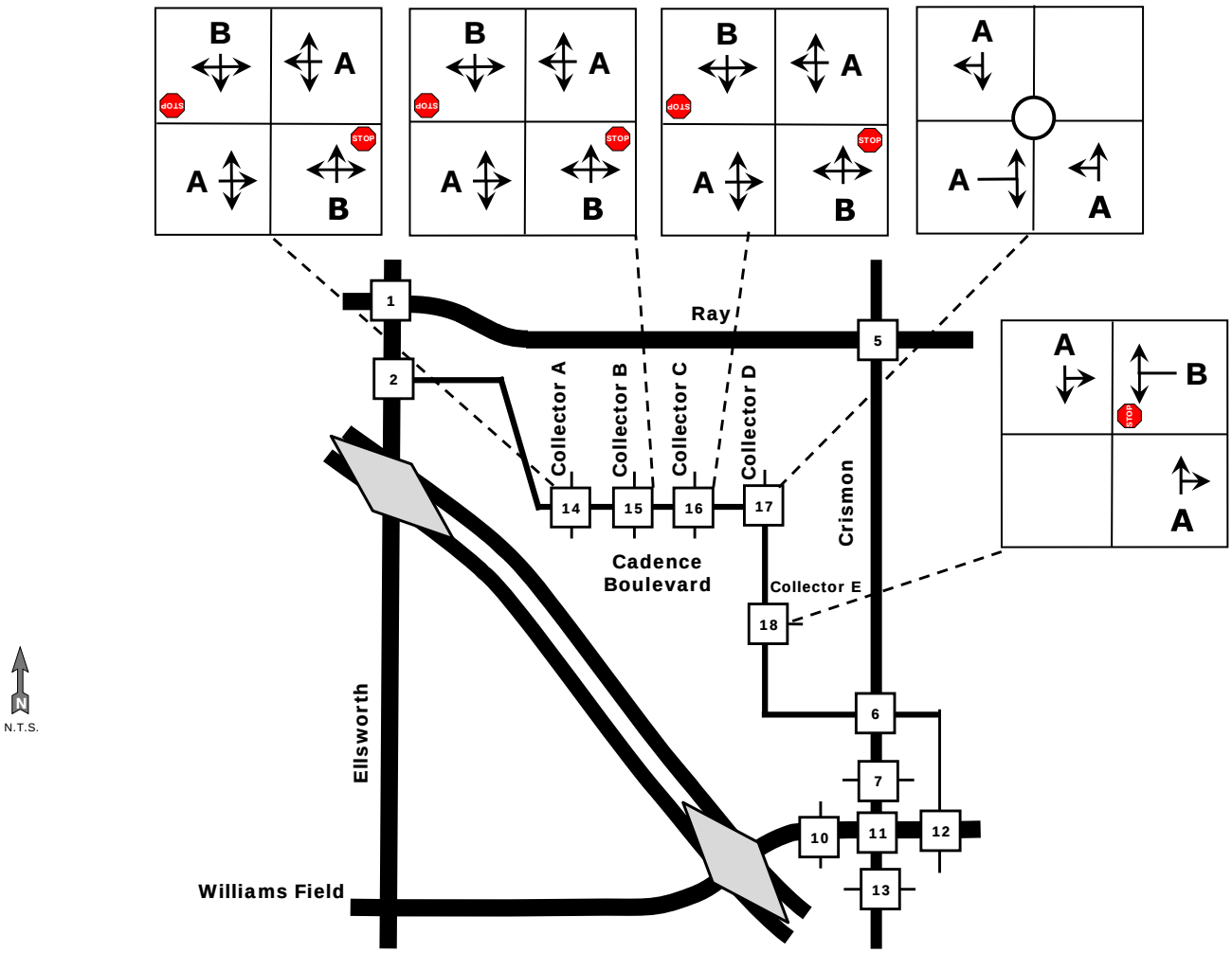



**Figure 32: 2020 with PPGN Level-of-Service (Inset) – AM Peak Hour**

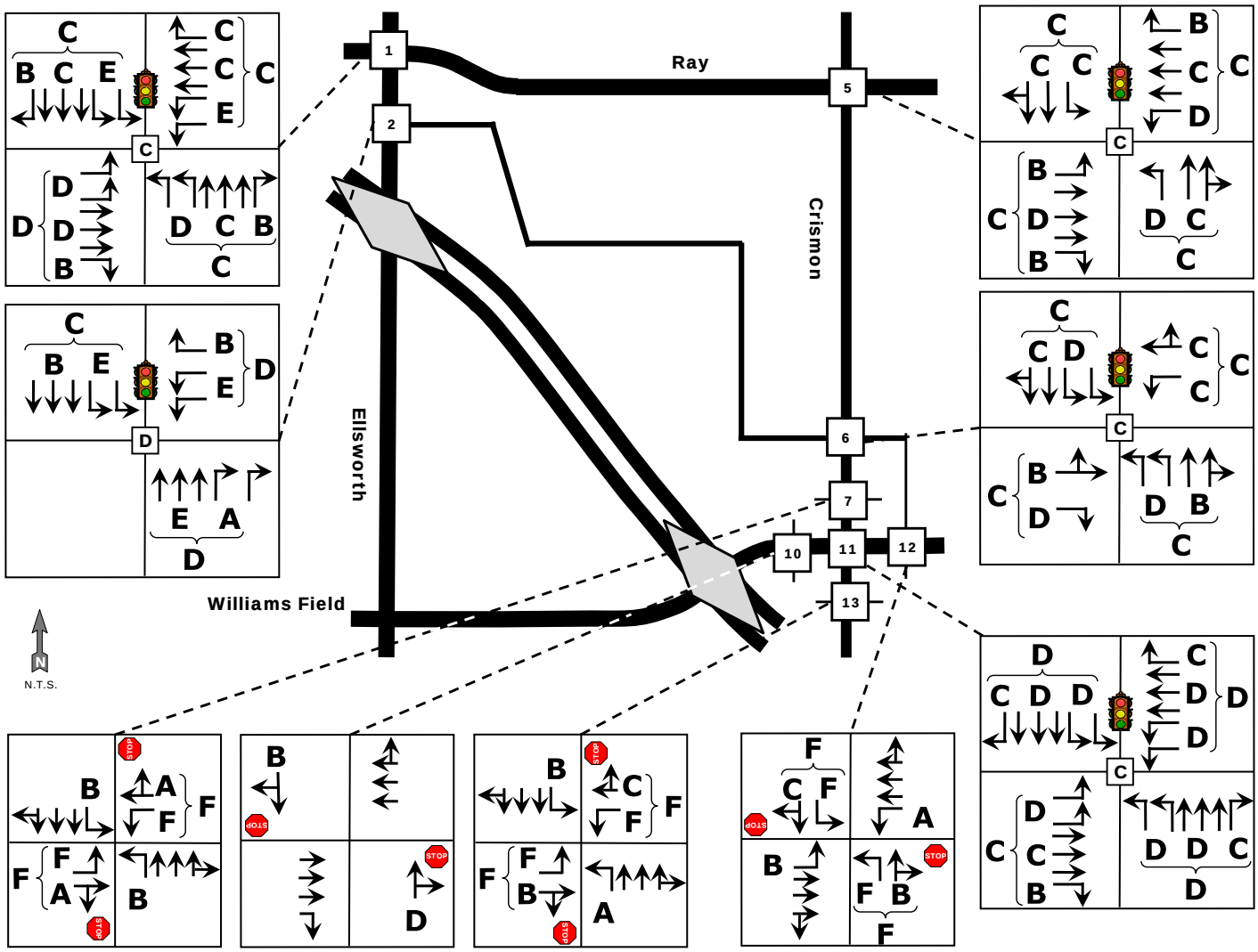



**Figure 33: 2020 with PPGN Level-of-Service – PM Peak Hour**

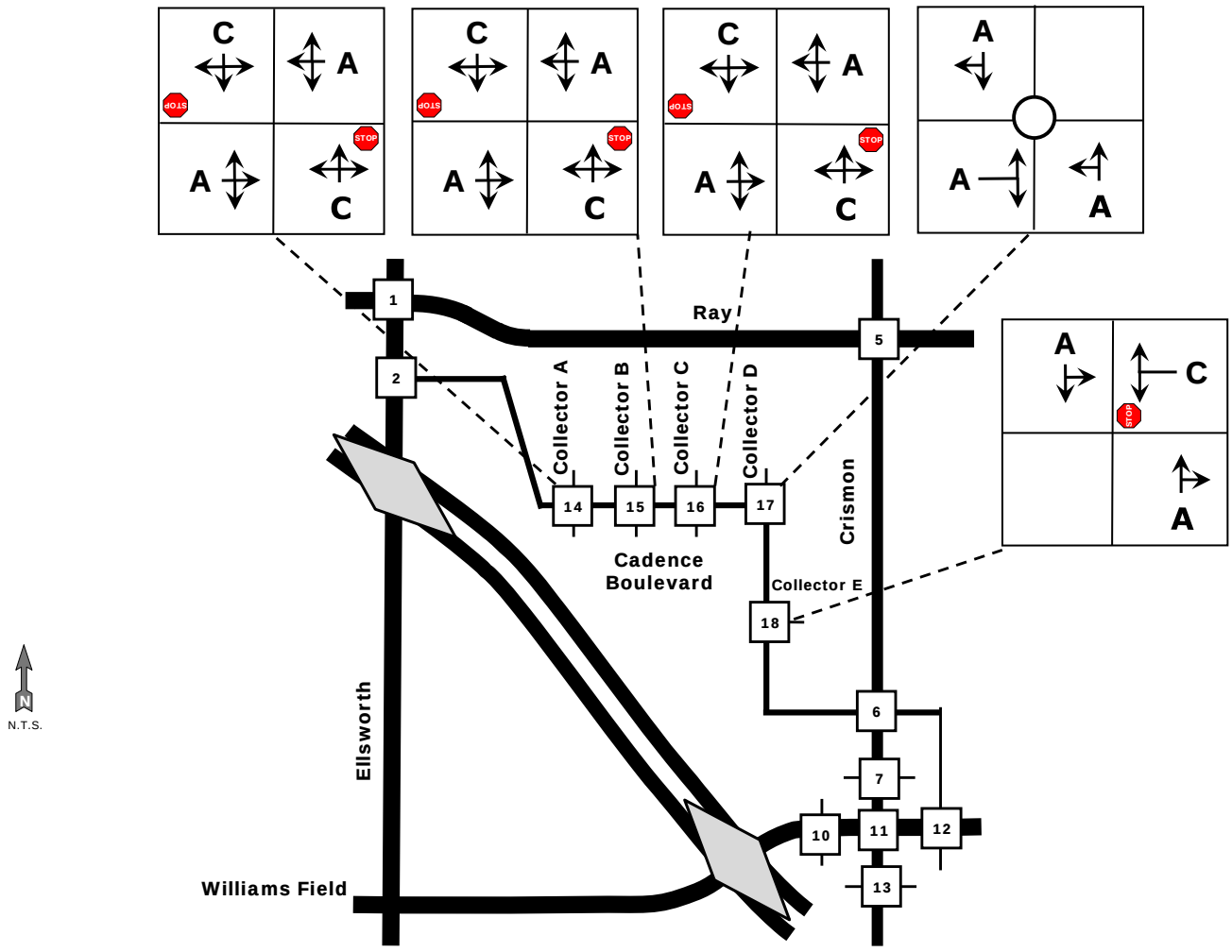



**Figure 34: 2020 with PPGN Level-of-Service (Inset) – PM Peak Hour**

The level-of-service analysis reveals that each access is anticipated to operate at acceptable levels-of-service with the exception of the minor street left-turn movements. Minor street left-turn movements are typically rated as level-of-service “F”. No mitigation measures are appropriate or recommended.

**Figure 35** and **Figure 36** provide schematics of the Ellsworth Road / Primary Access and the Crismon Road / Secondary Access intersections. **Figure 37** provides a schematic of the roadway network with approximate spacing. The spacing shown is approximate and subject to change.

Crismon Road should provide three through-lanes-per-direction at its intersection with Williams Field Road. The three (3) through lanes should narrow to two (2) through lanes per direction north of the primary development street and south to the property line.

The secondary access should narrow from two (2) lanes to one lane per direction approximately 600 feet west of Crismon Road. The intersection of Crismon Road and the secondary access requires two (2) northbound left-turn lanes to maintain an acceptable level-of-service utilizing the estimated traffic volumes. The corresponding southbound left-turn does not require two (2) southbound left-turn lanes. It may be appropriate to operate this intersection with one left-turn lane for both northbound and southbound approaches, and provide the second left-turn lane in the future only if it becomes necessary.

Accesses 7, 12, and 13 should be located 660 feet from the Crismon / Williams Field intersection. This location would accommodate traffic signals and signal progression should they be necessary in the future.

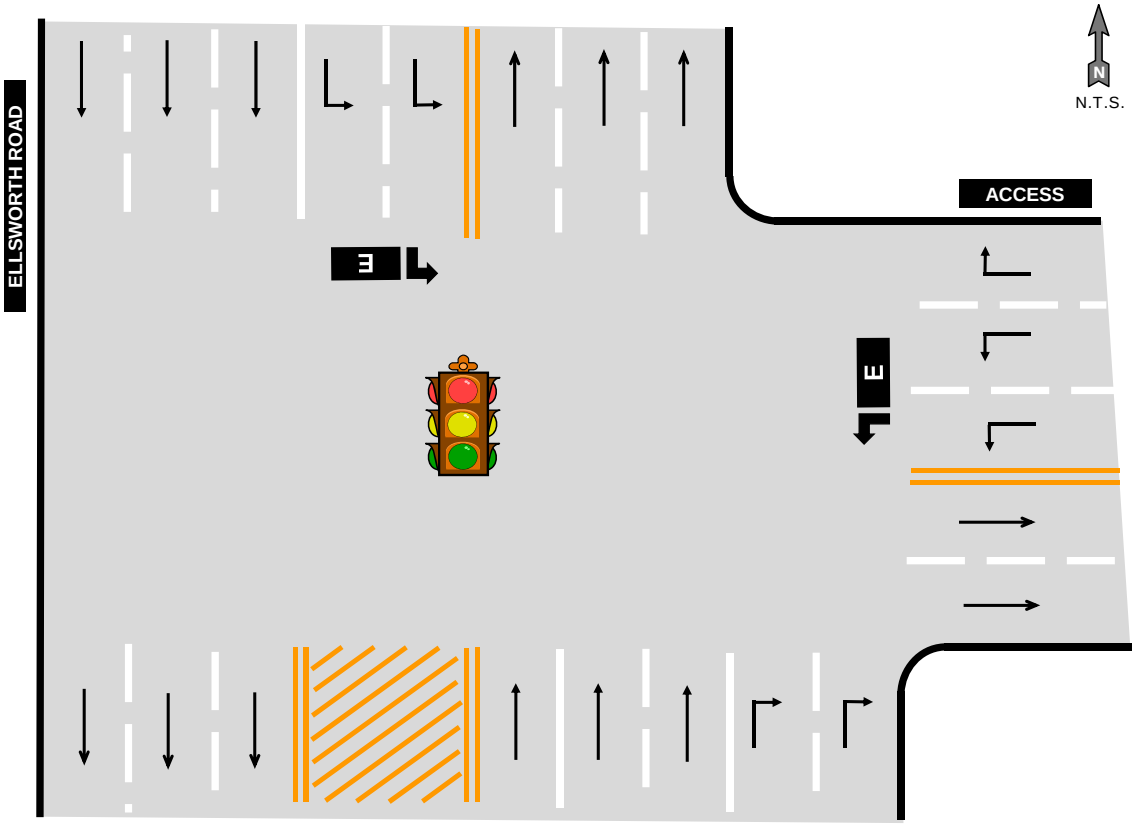



**Figure 35: Ellsworth / Primary Access Lane Configurations**

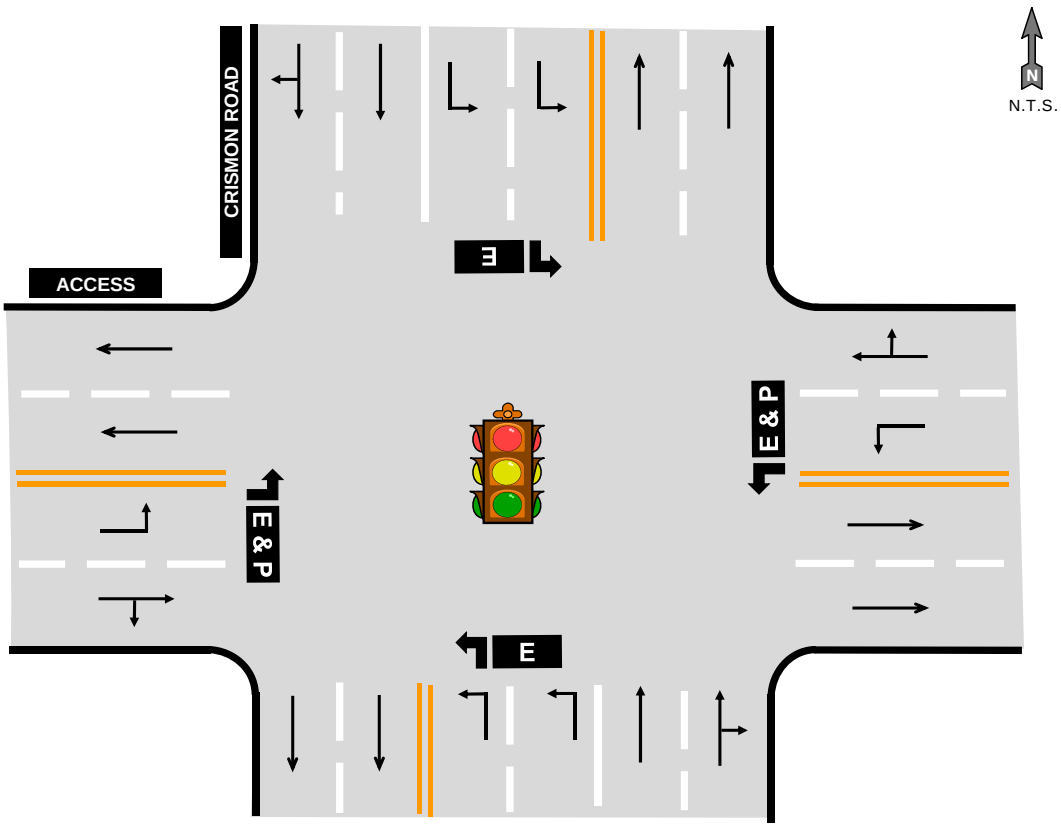
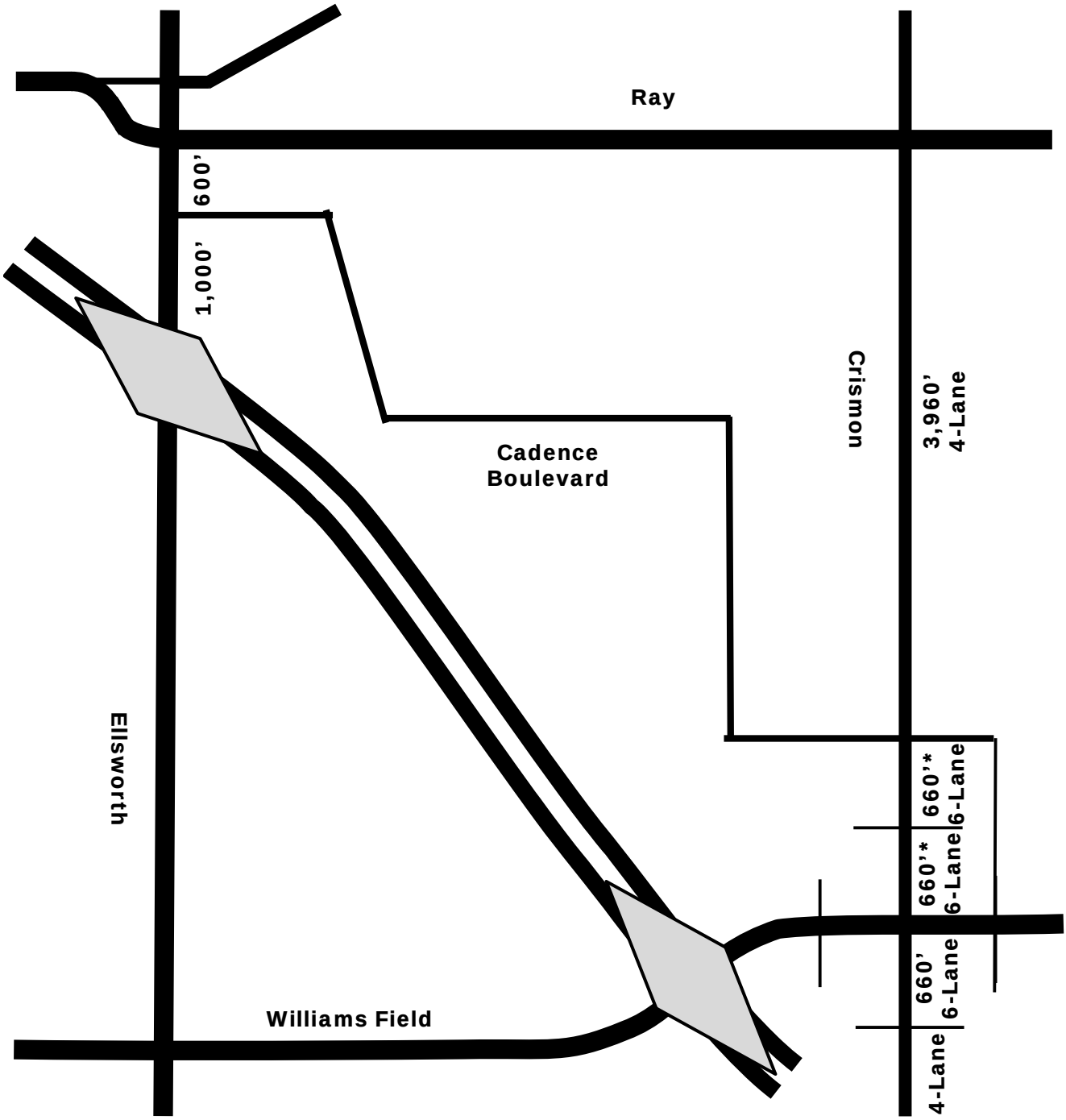



**Figure 36: Crismon / Secondary Access Lane Configurations**




*** Dimension shown is minimum spacing. Actual dimension to be determined with future plans. Crismon Road will provide 6-lanes from Williams Field to Cadence Boulevard.**

**Figure 37: Roadway Network Spacing Diagram**

### *Turn Lane Analysis with PPGN*

Full left-turn-ingress and left-turn-egress was provided at all arterial road accesses – except Access 10 at Williams Field Road. Left-turn movements should not occur at this access because of its proximity to both the Williams Field Road interchange with SR-24 and the Crismon / Williams Field intersection. Consequently minimal distance is available for left-turn storage lanes, and excessive congestion would result.

Left-turn lanes were provided at all arterial access intersections where left-turns are permitted. Dual left-turn lanes were provided at signalized intersections when the left-turn volume exceeded 300 vehicles-per-hour – which occurred at the Ellsworth Road access and the Crismon Road access. Separate right-turn lanes were provided at Access 2 and 10 as these accesses experienced large right-turn volumes.

Both right-turn and left-turn lane lengths were determined from the Synchro analysis. The calculated lengths were approximated to the nearest 25 feet, and a minimum length of 50 feet was utilized. The only exception was the northbound-to-eastbound dual-right-turn lanes at the Ellsworth Road access. Due to an anticipated future driveway onto Ellsworth Road south of the Primary Access, the northbound right-turn lanes are recommended to remain continuous from the SR-24 / Ellsworth interchange to the Primary Access. The length of the modified dual right-turn lanes is estimated to be approximately 250 feet. **Table 12** provides the results of the turn-lane length analysis.

**Table 12: Turn Lane Length Determination**

| | PEAK HOUR TURN VOLUME | | TURN | TURN LANE |
|---|---|---|---|---|
| | AM | PM | LANES | LENGTH |
| **2 - Ellsworth & Primary Access** | | | | |
| Northbound Right | 379 | 1,314 | 2 | 275 |
| Southbound Left | 183 | 468 | 1 | 275 |
| Westbound Right | 199 | 380 | 1 | 250 |
| Westbound Left | 829 | 986 | 2 | 500 |
| **6 - Crismon & Secondary Access** | | | | |
| Northbound Left | 112 | 493 | 2 | 200 |
| Southbound Left | 8 | 14 | 2 | 50 |
| Eastbound Left | 40 | 73 | 1 | 75 |
| **10 - Access 10 & Williams Field** | | | | |
| Eastbound Right | 27 | 91 | 1 | 50 |
| **12 - Access 12 & Williams Field** | | | | |
| Eastbound Left | 91 | 371 | 1 | 75 |
| Westbound Left | 43 | 144 | 1 | 50 |
| **13 - Crismon & Access 13** | | | | |
| Northbound Left | 32 | 108 | 1 | 50 |
| Southbound Left | 46 | 94 | 1 | 50 |

A left-turn ingress only lane is planned on Cadence Boulevard between Collector D and Collector E. This intersection was evaluated to determine the feasibility of providing the left-turn lane. It was conservatively assumed that the maximum amount of left-turning traffic would be equivalent to the traffic volumes at Collector E, or 58 vehicles per hour during the evening peak hour. The traffic analysis yielded an anticipated queue of less than one vehicle. Therefore, a minimum 25 feet of vehicle storage should be provided to accommodate one vehicle. **Figure 38** provides a diagram of the left-turn ingress.

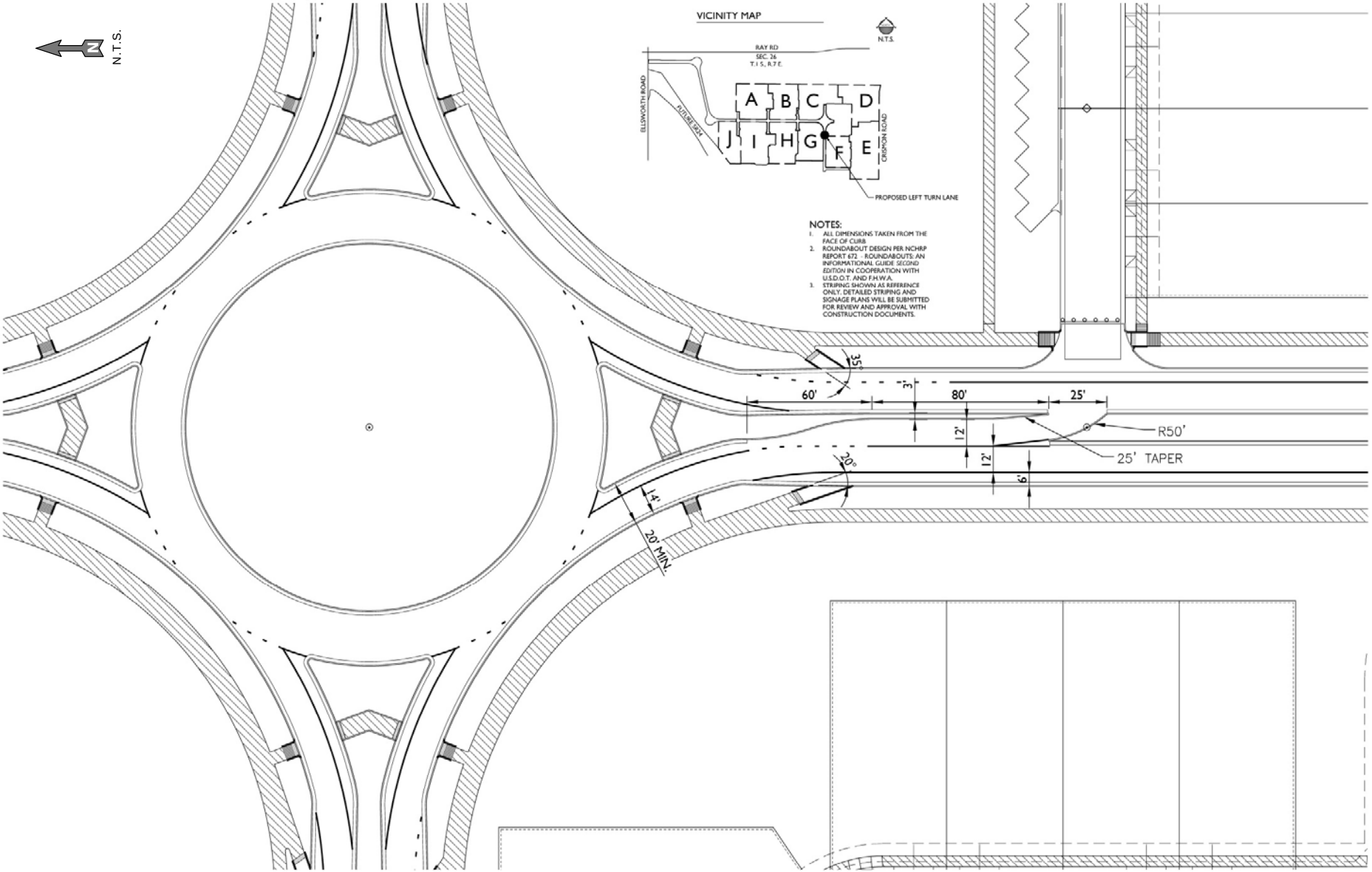



**Figure 38: Left-Turn Ingress Diagram**

### *Conclusions and Recommendations with PPGN*

**Figure 39** indicates the recommended through lane number of the primary streets internal and adjacent to Pacific Proving Grounds North. Traffic volumes and recommended roadway classifications are based upon maximum build-out potential for Pacific Proving Grounds North. Therefore, the roadway classifications, lane numbers, and lane configurations are conservatively large.

The street classifications are:

Ellsworth Road.....6-lane Arterial with Raised Median
Ray Road.....6-lane Arterial with Raised Median
Williams Field Road.....6-lane Arterial with Raised Median
Crismon Road.....4-lane Arterial with Raised Median (except at Williams Field)
Internal primary street.....2-lane Collector (except at Ellsworth and at Crismon)

The number of lanes on Crismon Road varies by location and should provide two or three through-lanes-per-direction as shown on **Figure 1**. At its intersection with Williams Field Road, this street should provide three (3) northbound and southbound through lanes. The three (3) through lanes should narrow to two (2) through lanes per direction north of the primary development street and south to the property line.

The primary development street varies by location and should provide one or two through-lanes-per-direction as shown on **Figure 39.** At its intersection with Ellsworth Road, this street should provide two (2) westbound approach left-turn lanes, one westbound approach right-turn lane, and two (2) eastbound departure lanes. At its intersection with Crismon Road, this street should provide separate eastbound left-turn and shared through / right-turn lanes. Also, this street should provide two (2) westbound departure lanes to accommodate the two (2) northbound left-turn lanes. The two (2) westbound lanes should narrow from two (2) lanes to one lane per direction approximately 600 feet west of Crismon Road.

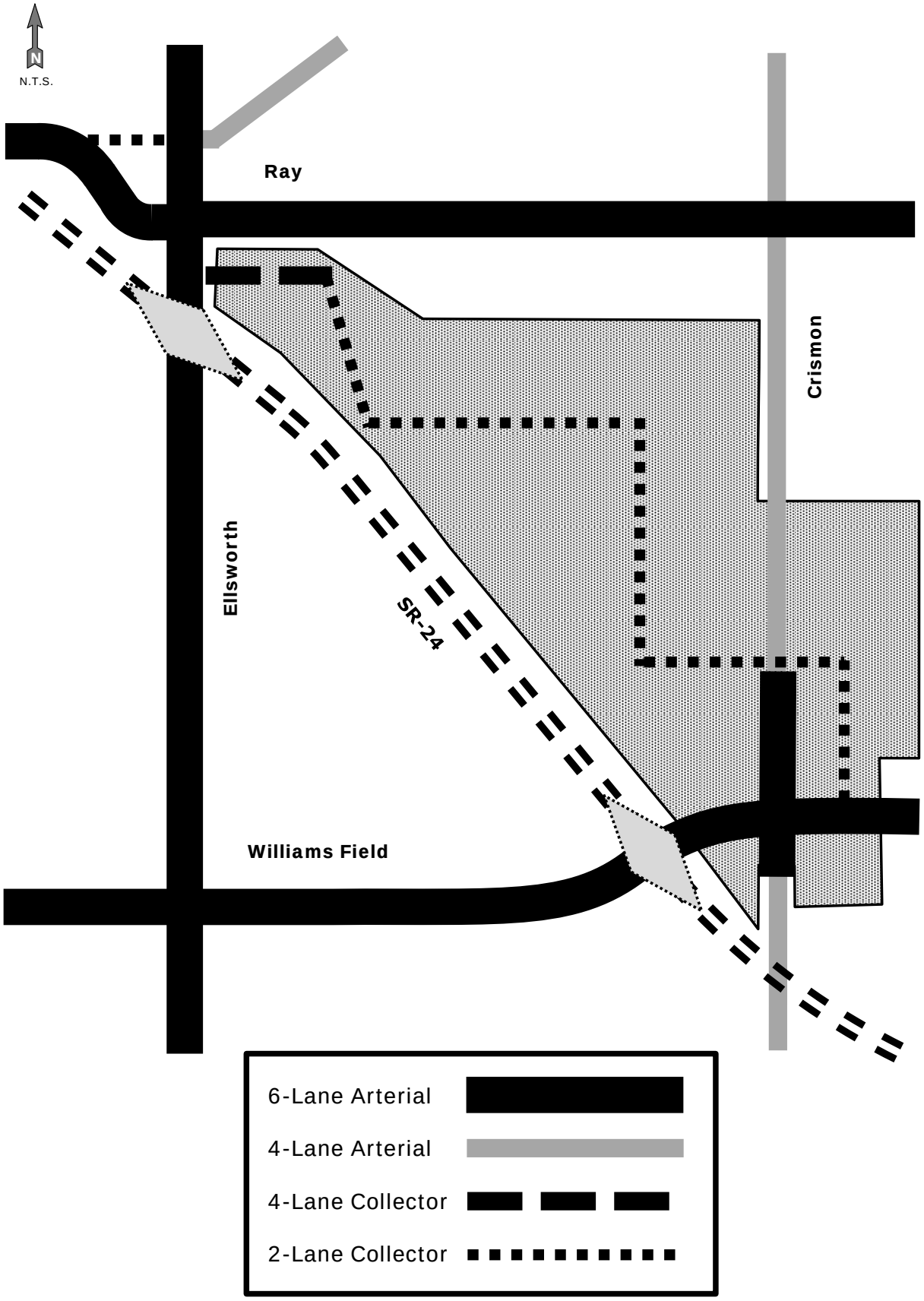



**Figure 39: Recommended Through Lane Number**

**Figure 40** depicts the recommended traffic control, lane configuration, and turn-lane lengths at the primary study intersections for 2020 with the proposed development. Access 10 should be limited to right-turn-in-right-turn-out access from and to Williams Field Road.

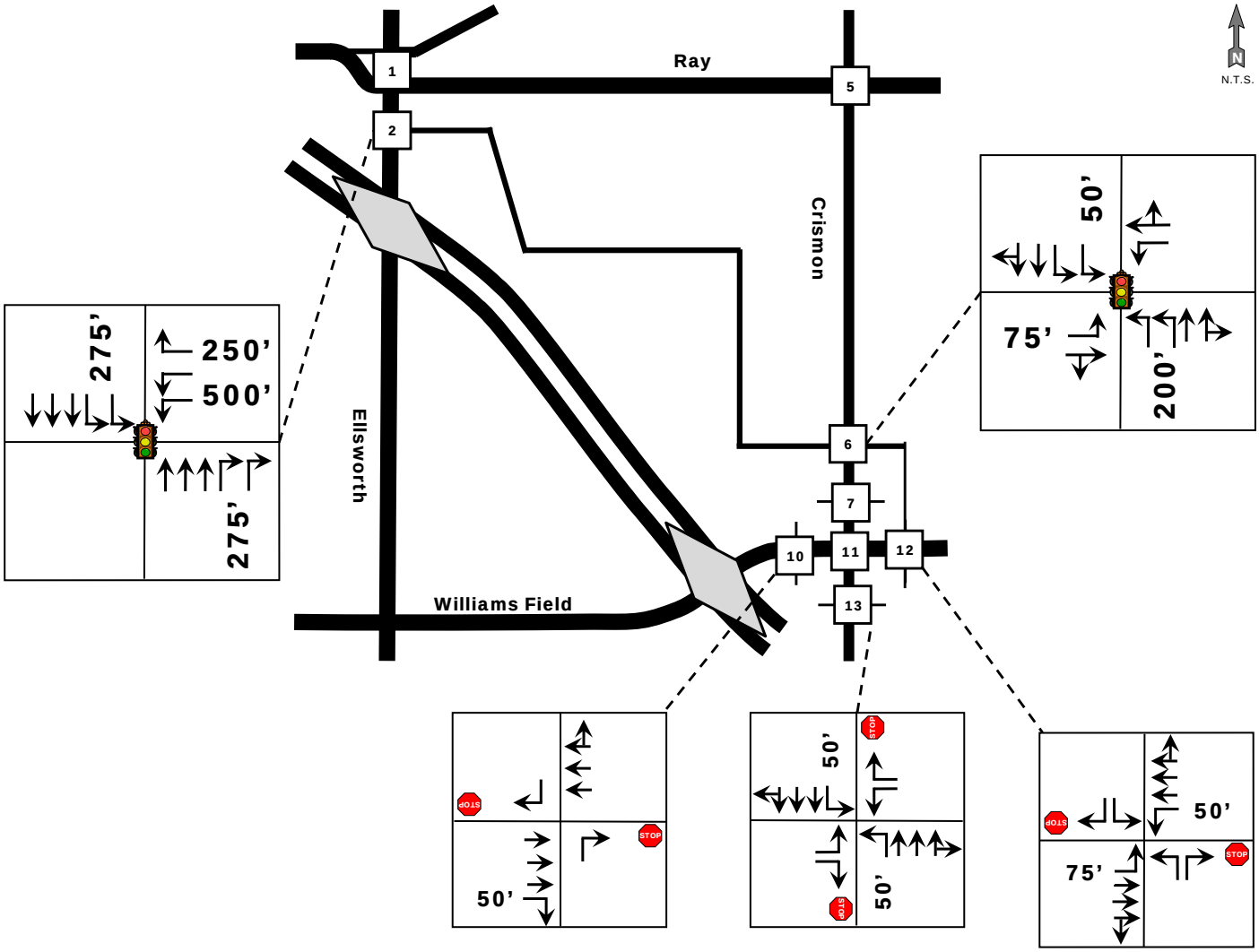
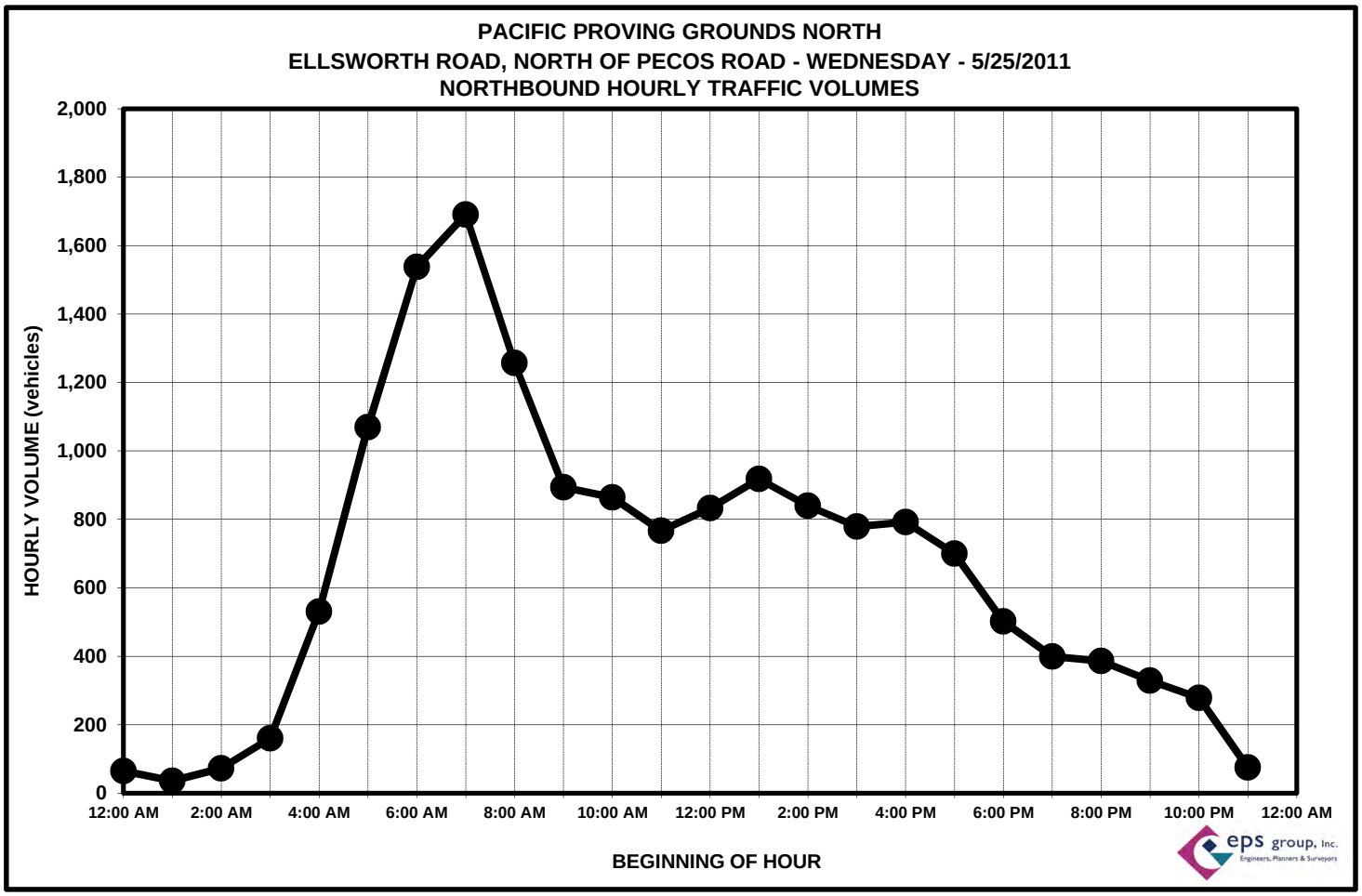
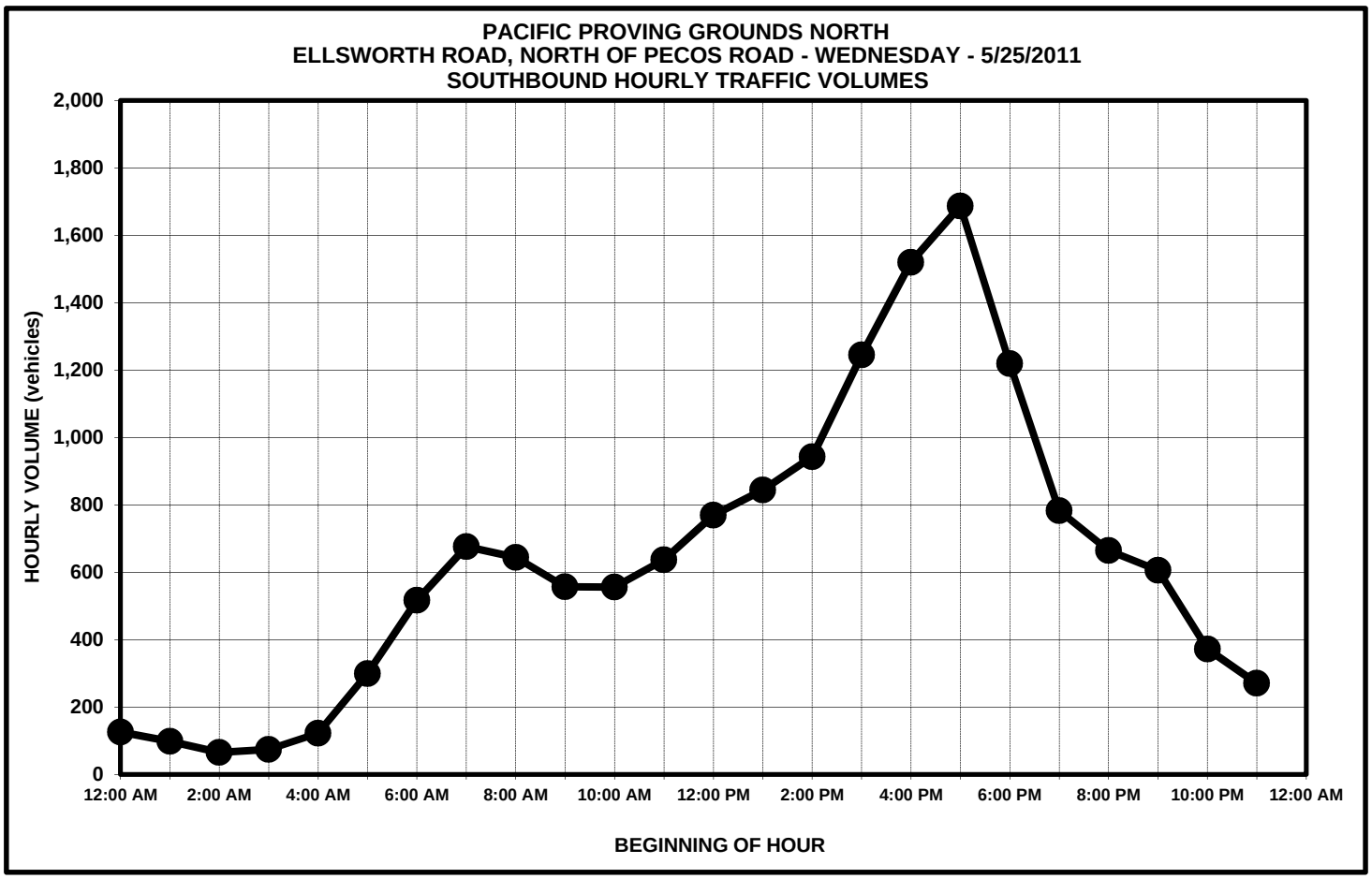



**Figure 40: Recommended Lane Configuration and Turn Lane Lengths**

# *APPENDIX A*
# *2011 SEGMENT TRAFFIC COUNTS*


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF PECOS ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
4:00 PM
6:00 PM
8:00 PM
10:00 PM
12:00 AM
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF PECOS ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
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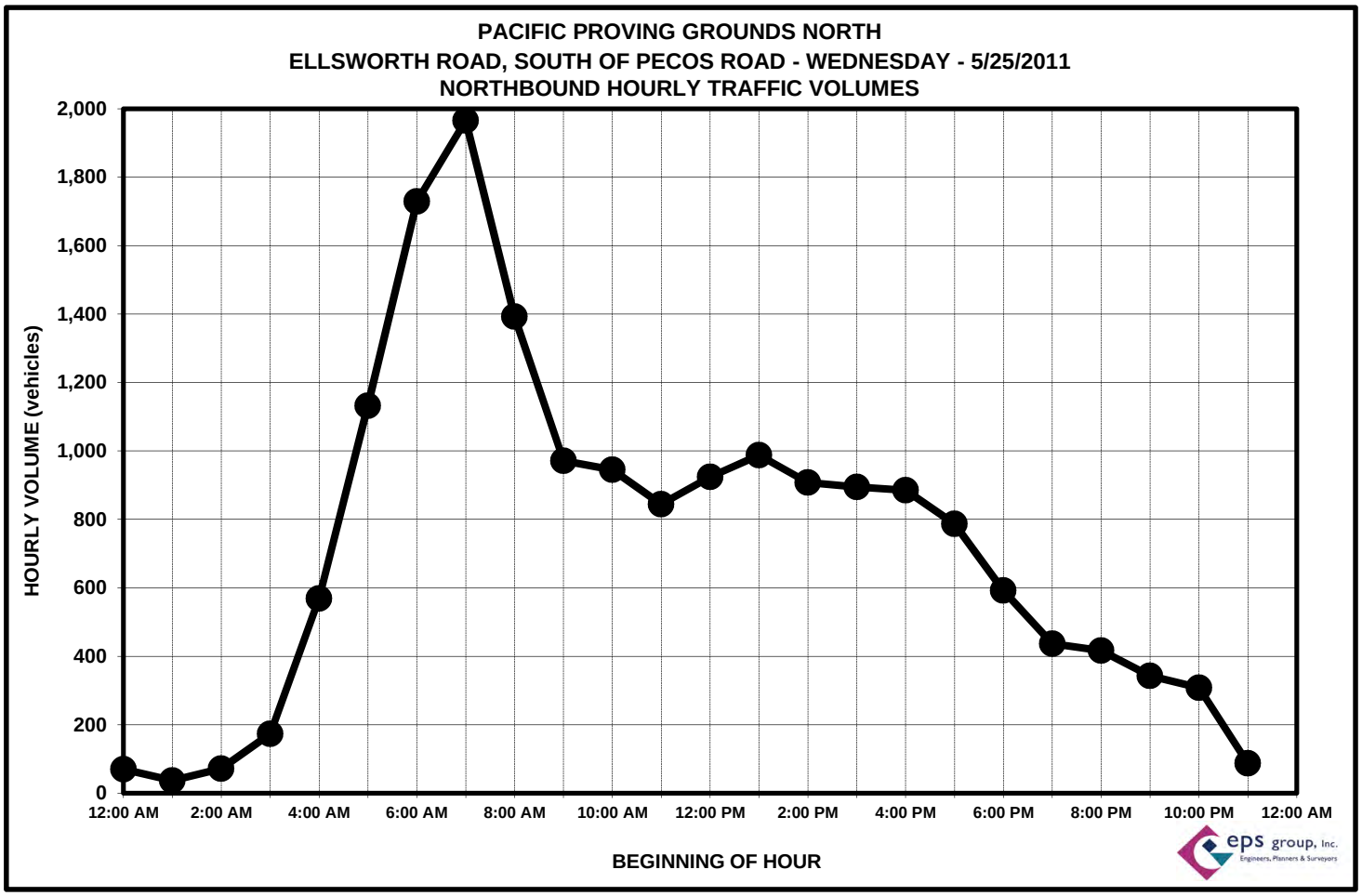
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, SOUTH OF PECOS ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
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BEGINNING OF HOUR
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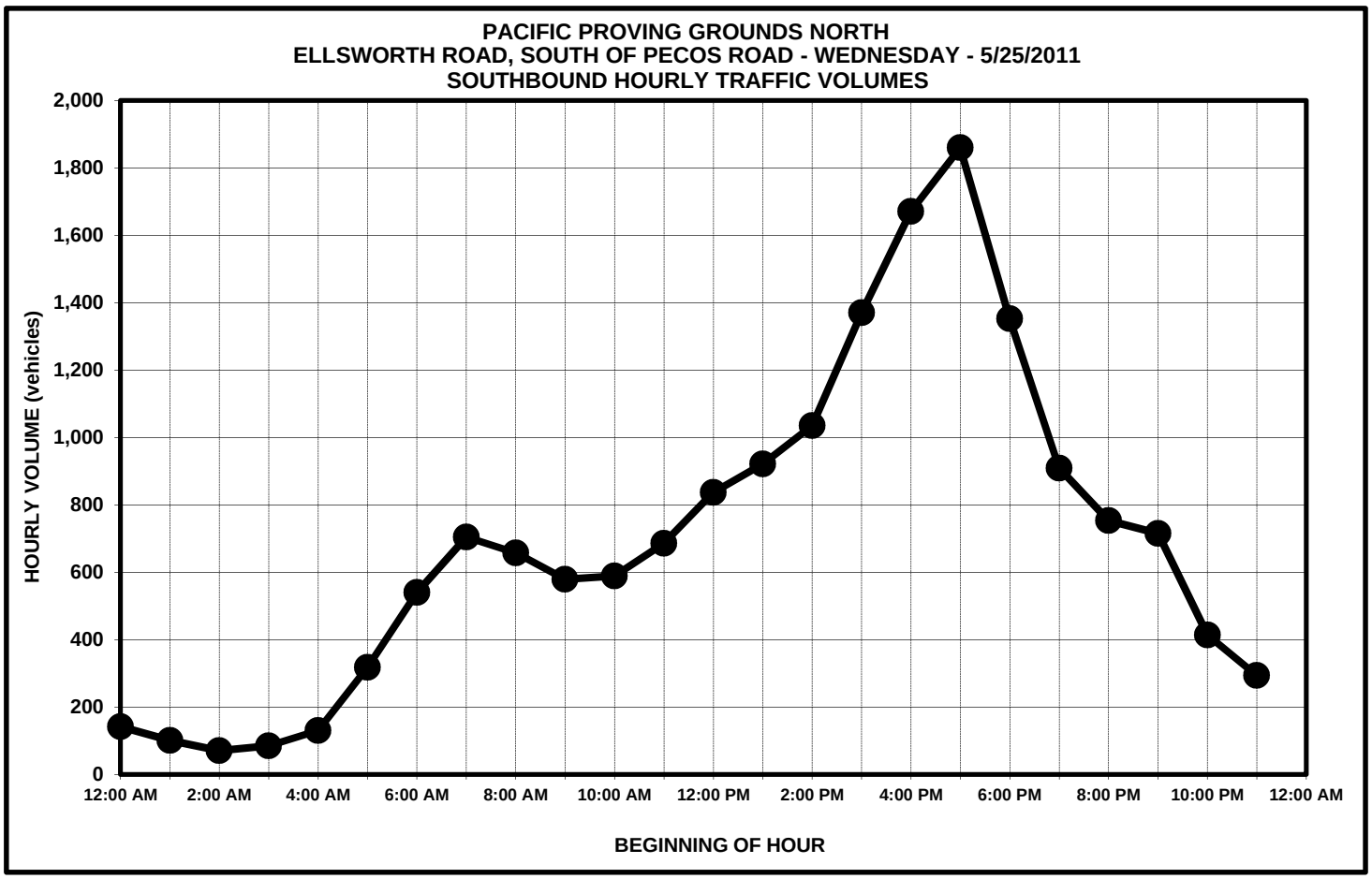
PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, SOUTH OF PECOS ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
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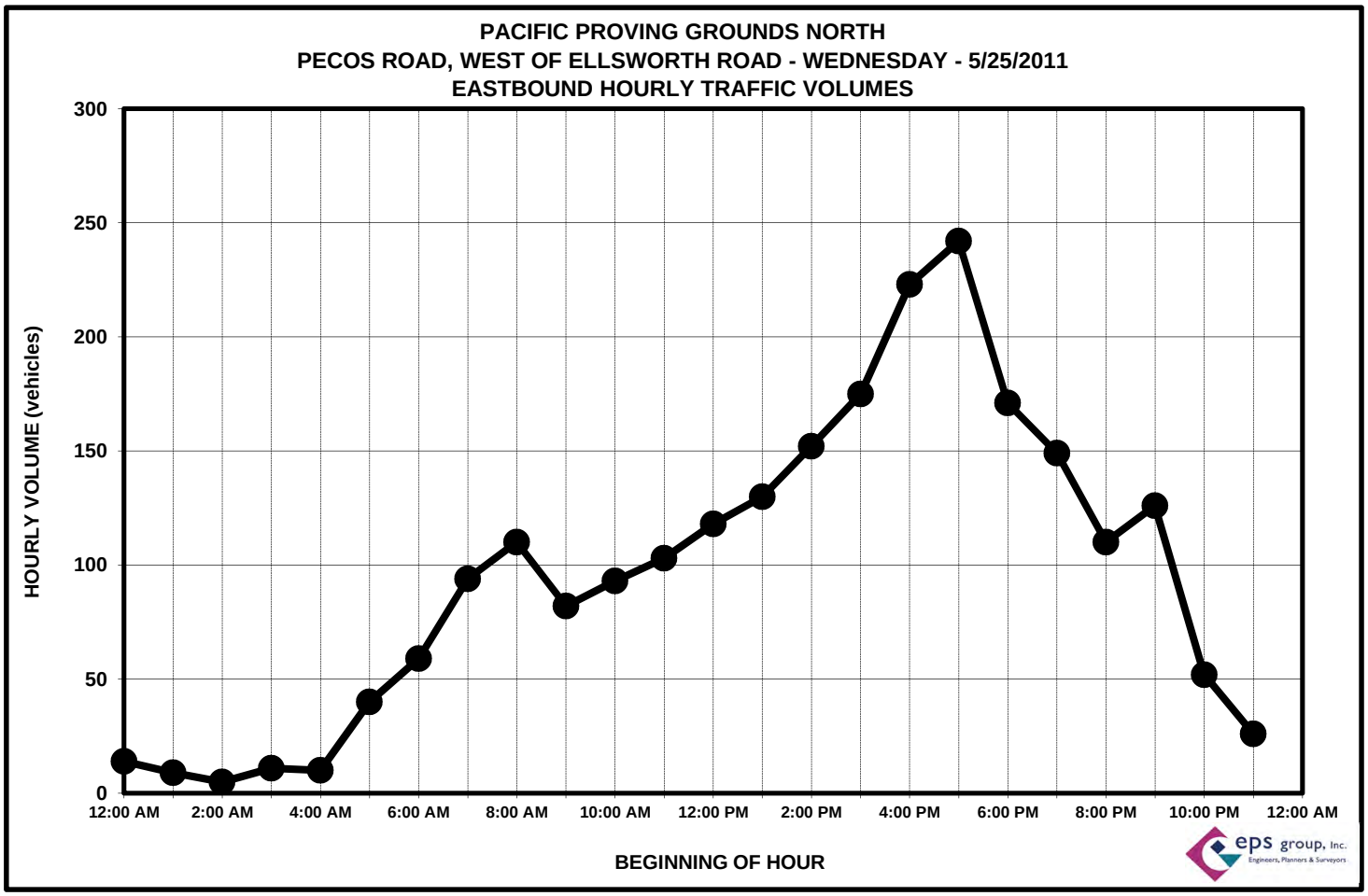
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
PECOS ROAD, WEST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
300
250
200
150
100
50
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
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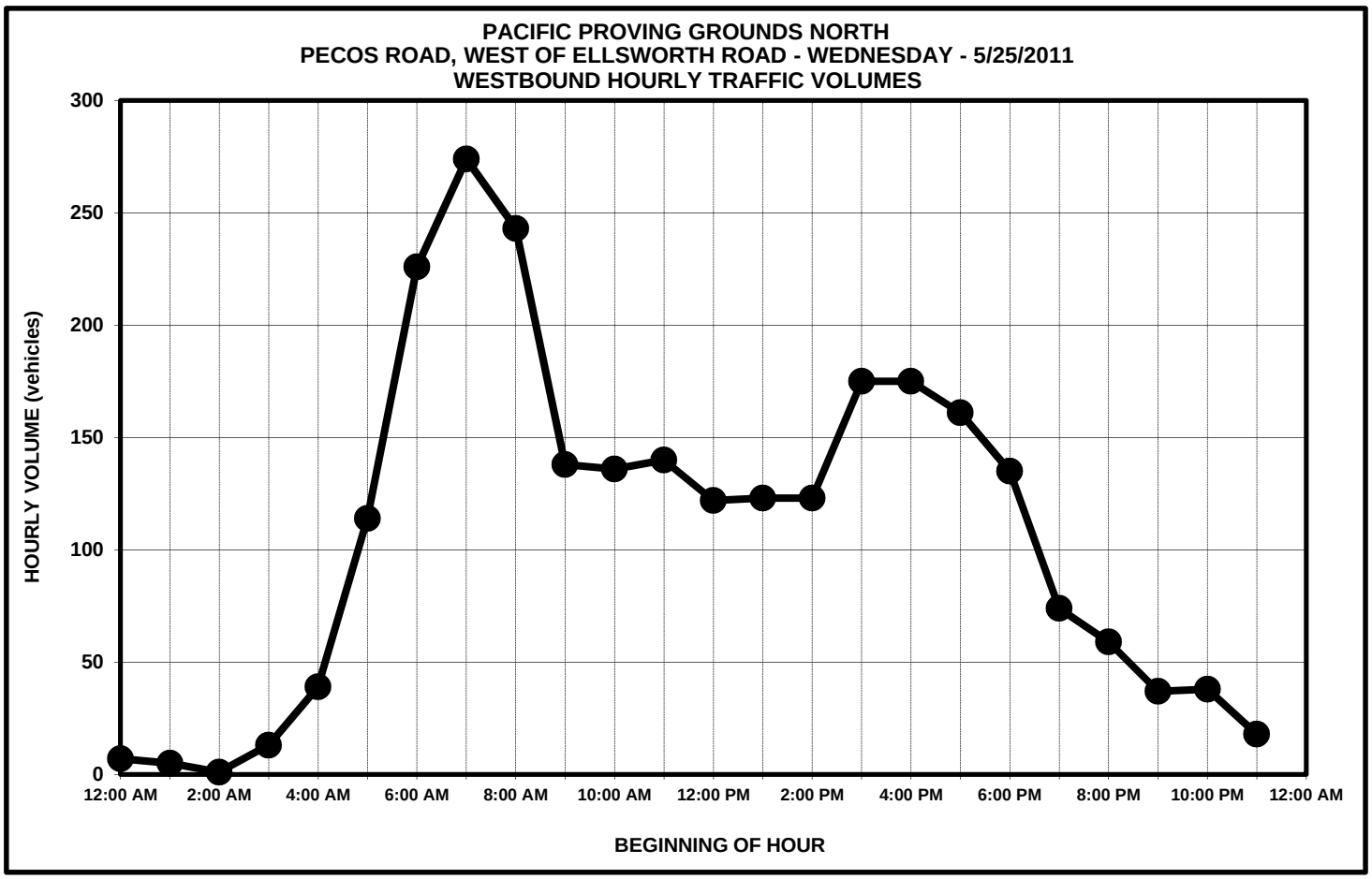
12:00 AM
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
PECOS ROAD, WEST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
300
250
200
150
100
50
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
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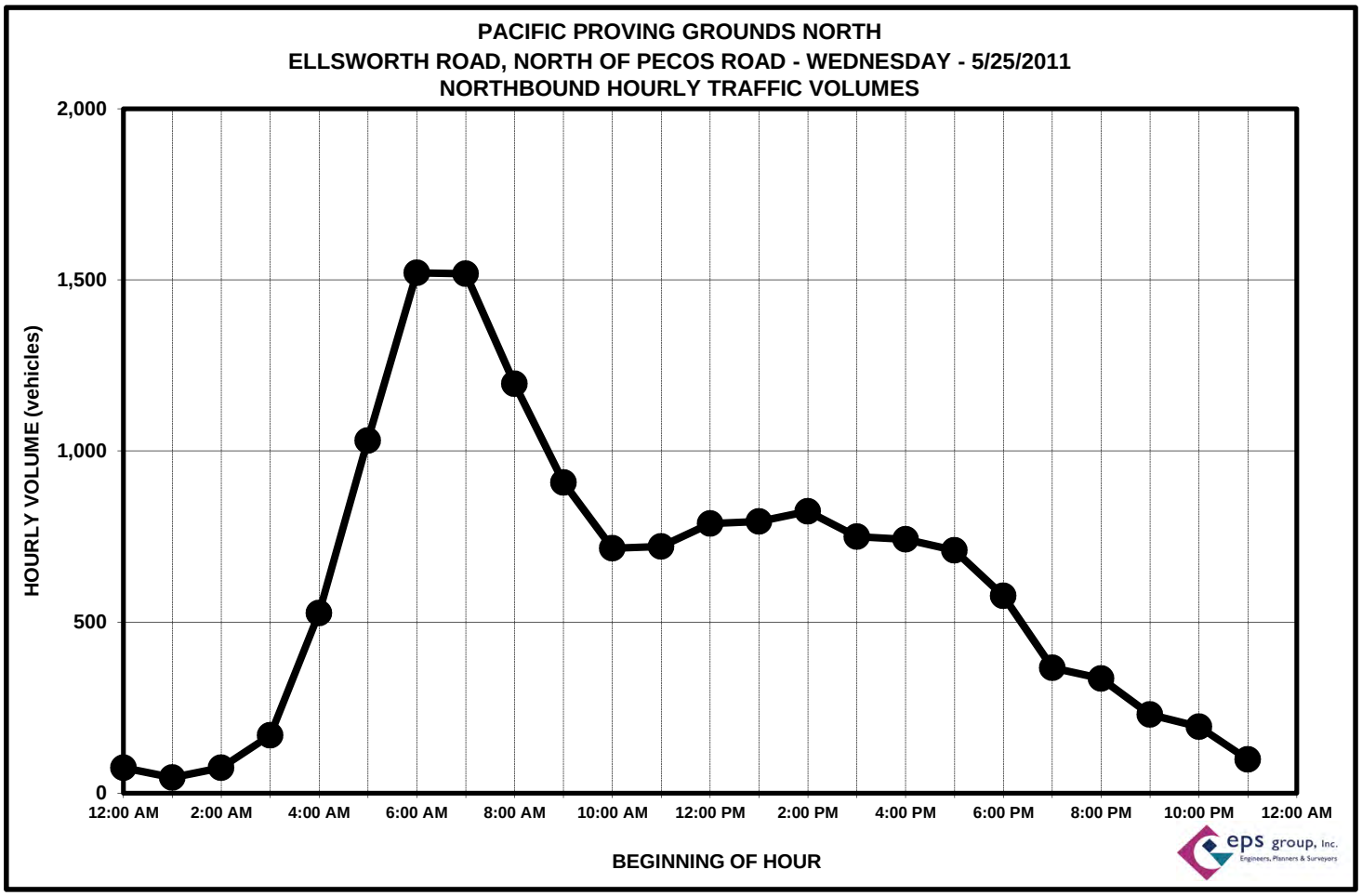
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF PECOS ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,500
1,000
500
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
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BEGINNING OF HOUR
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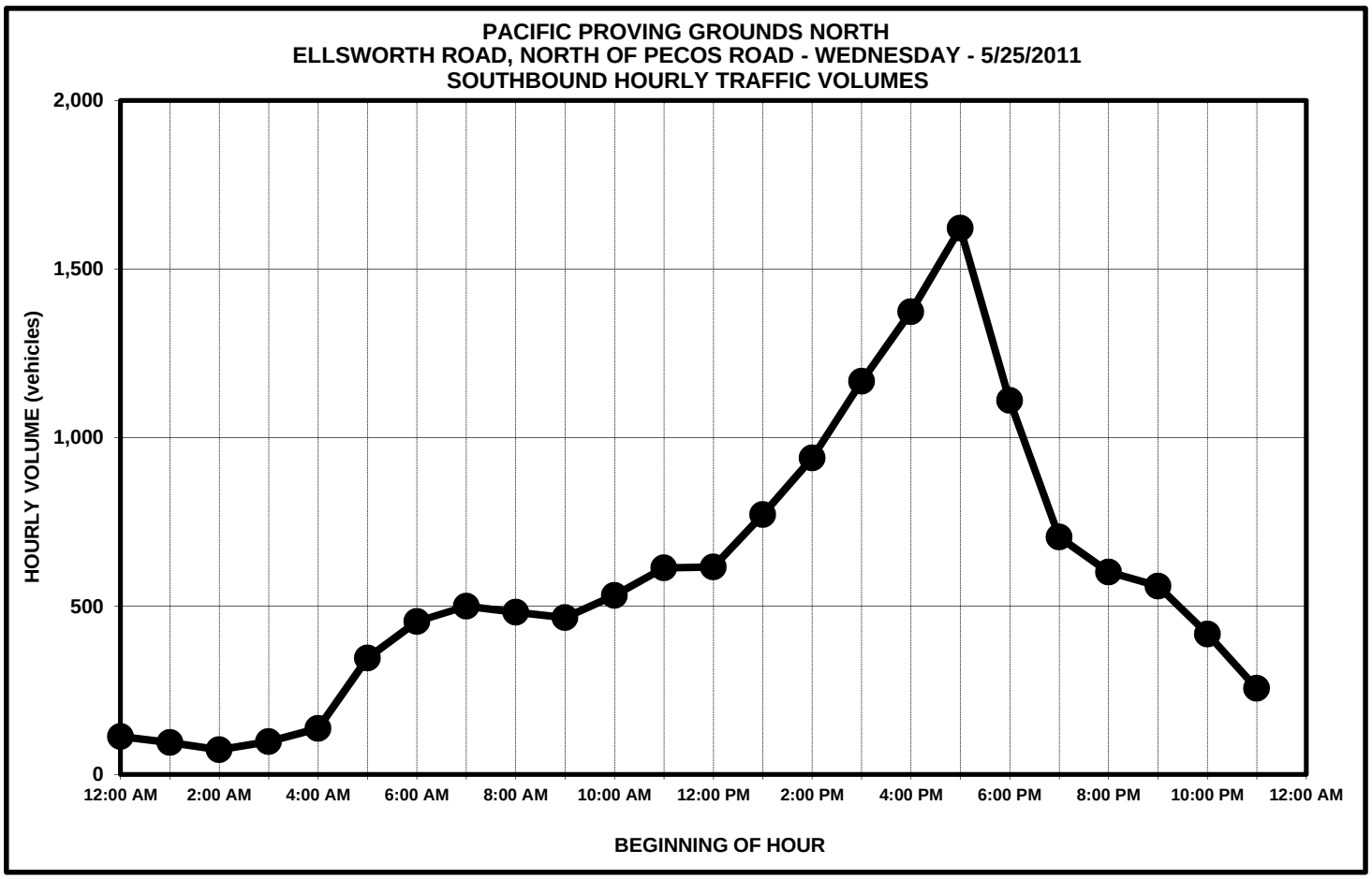
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF PECOS ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,500
1,000
500
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
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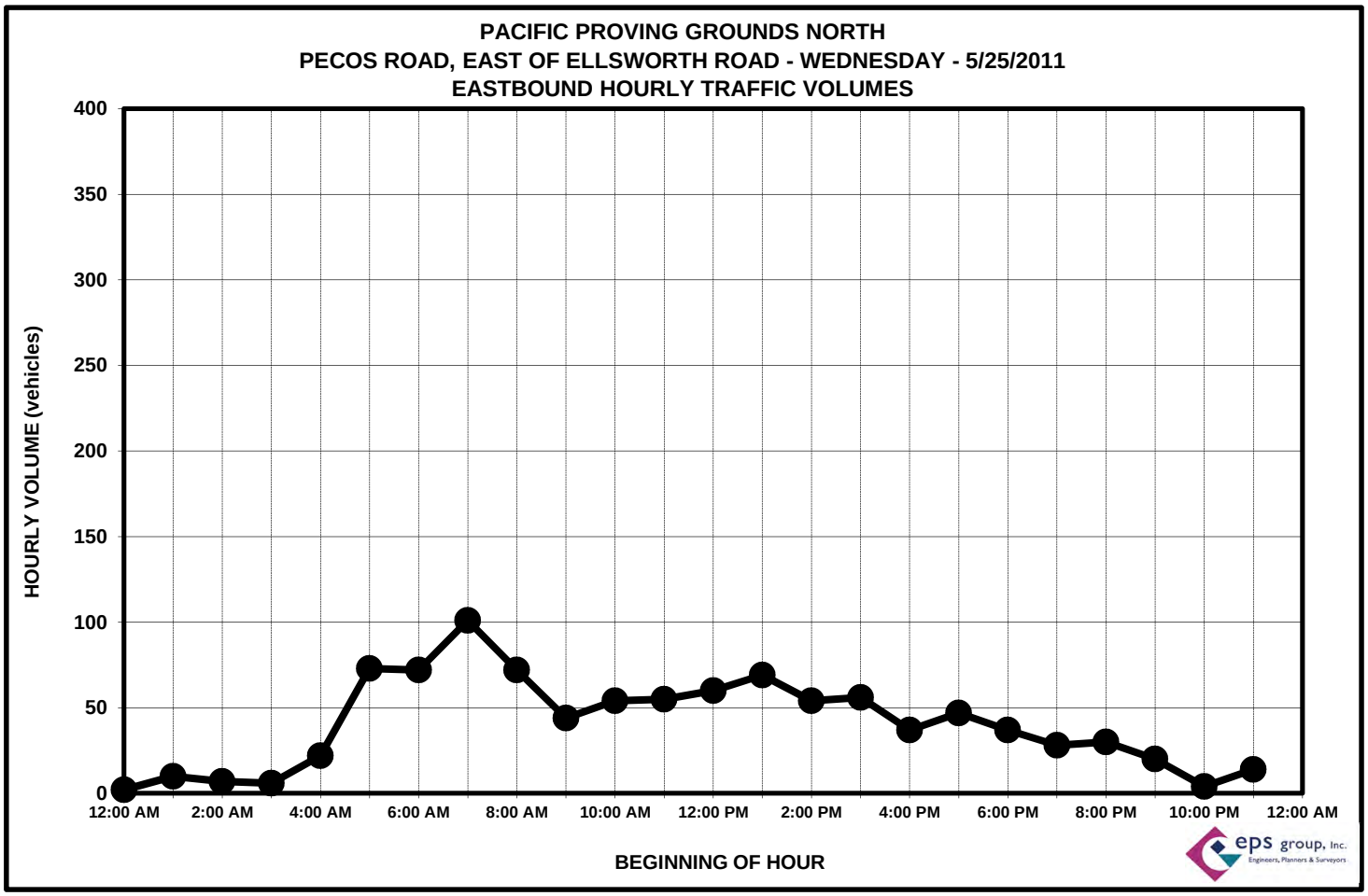
12:00 AM
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
PECOS ROAD, EAST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
400
350
300
250
200
150
100
50
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
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12:00 AM
BEGINNING OF HOUR
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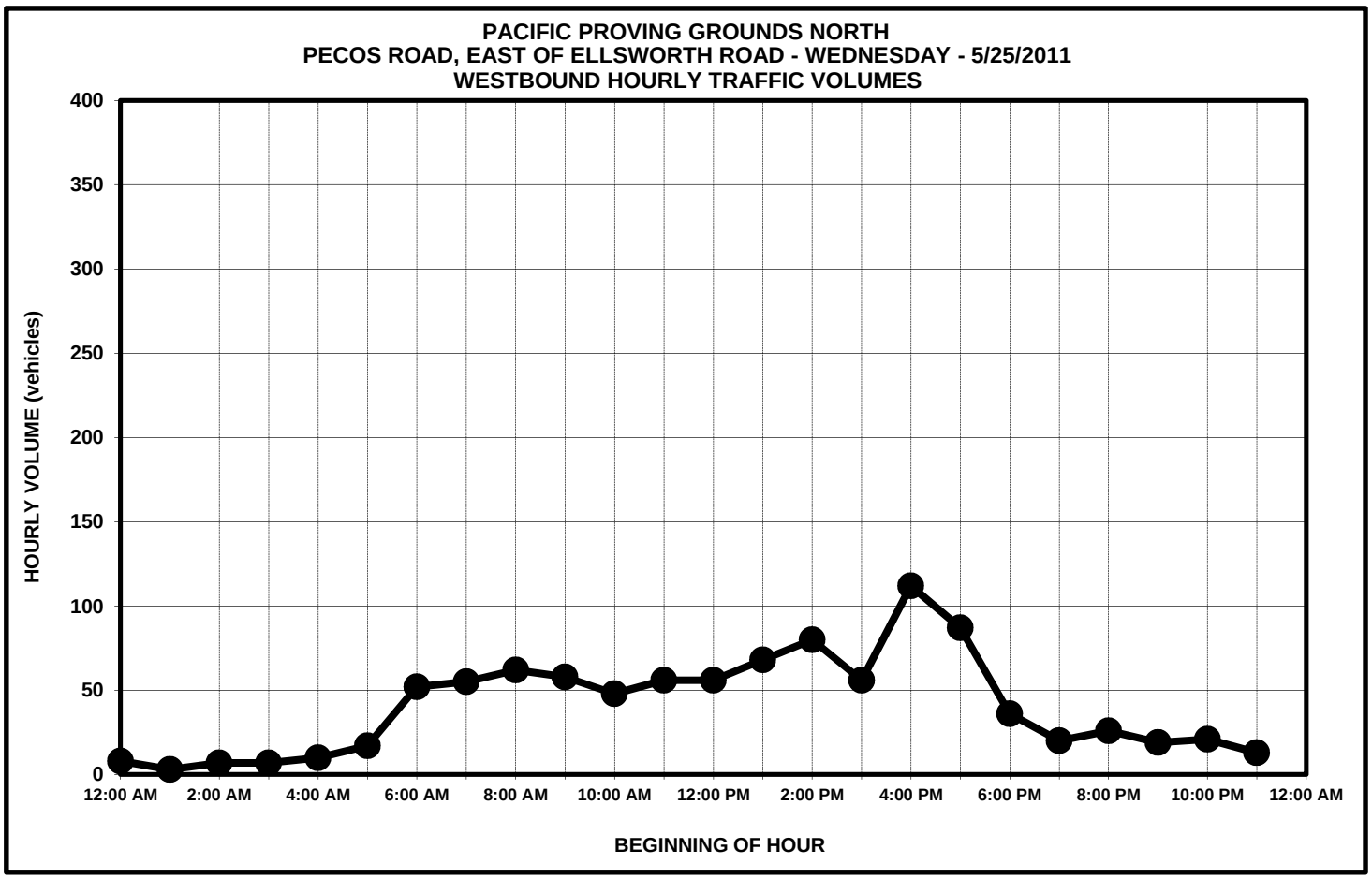
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
PECOS ROAD, EAST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
400
350
300
250
200
150
100
50
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12:00 AM
2:00 AM
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12:00 PM
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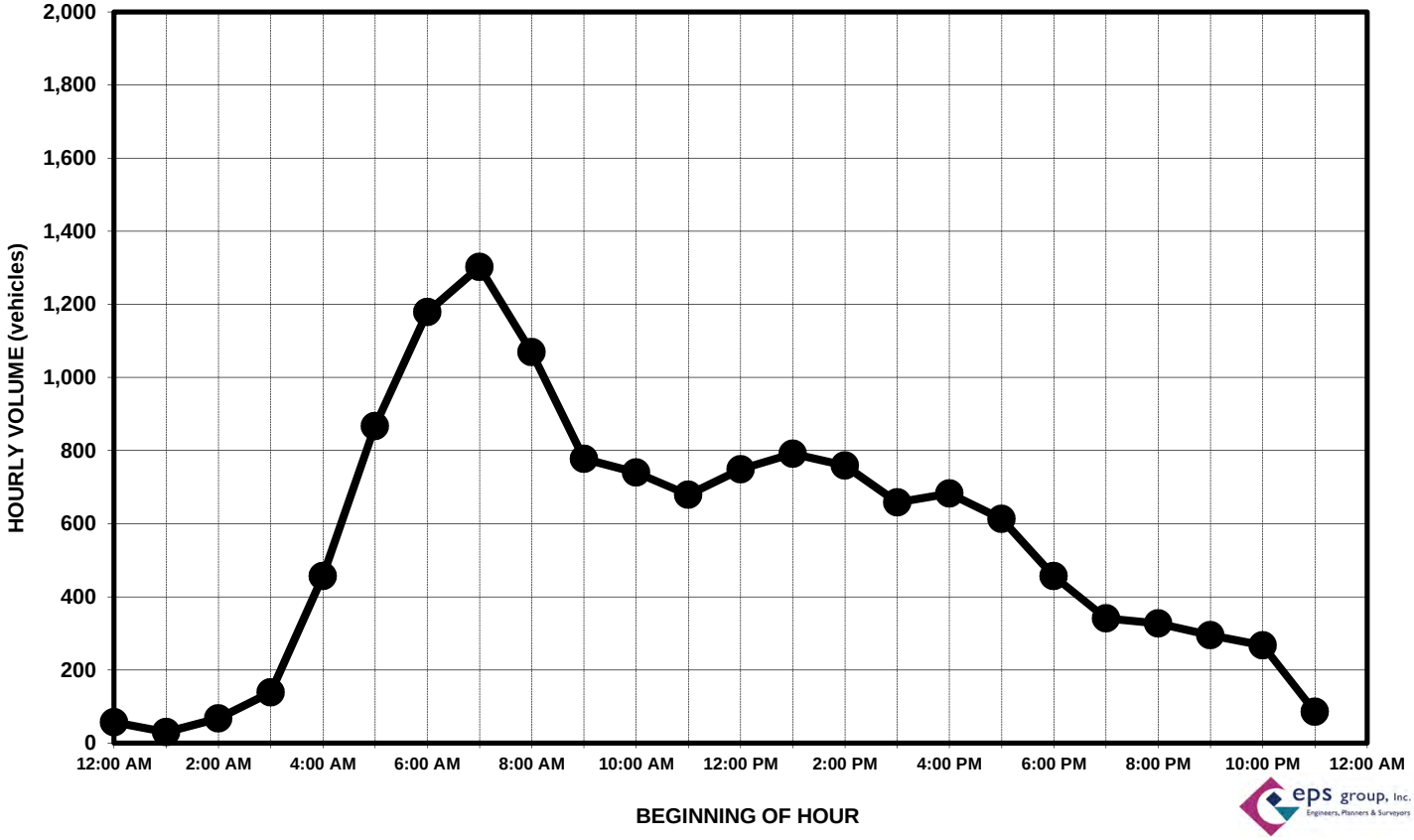
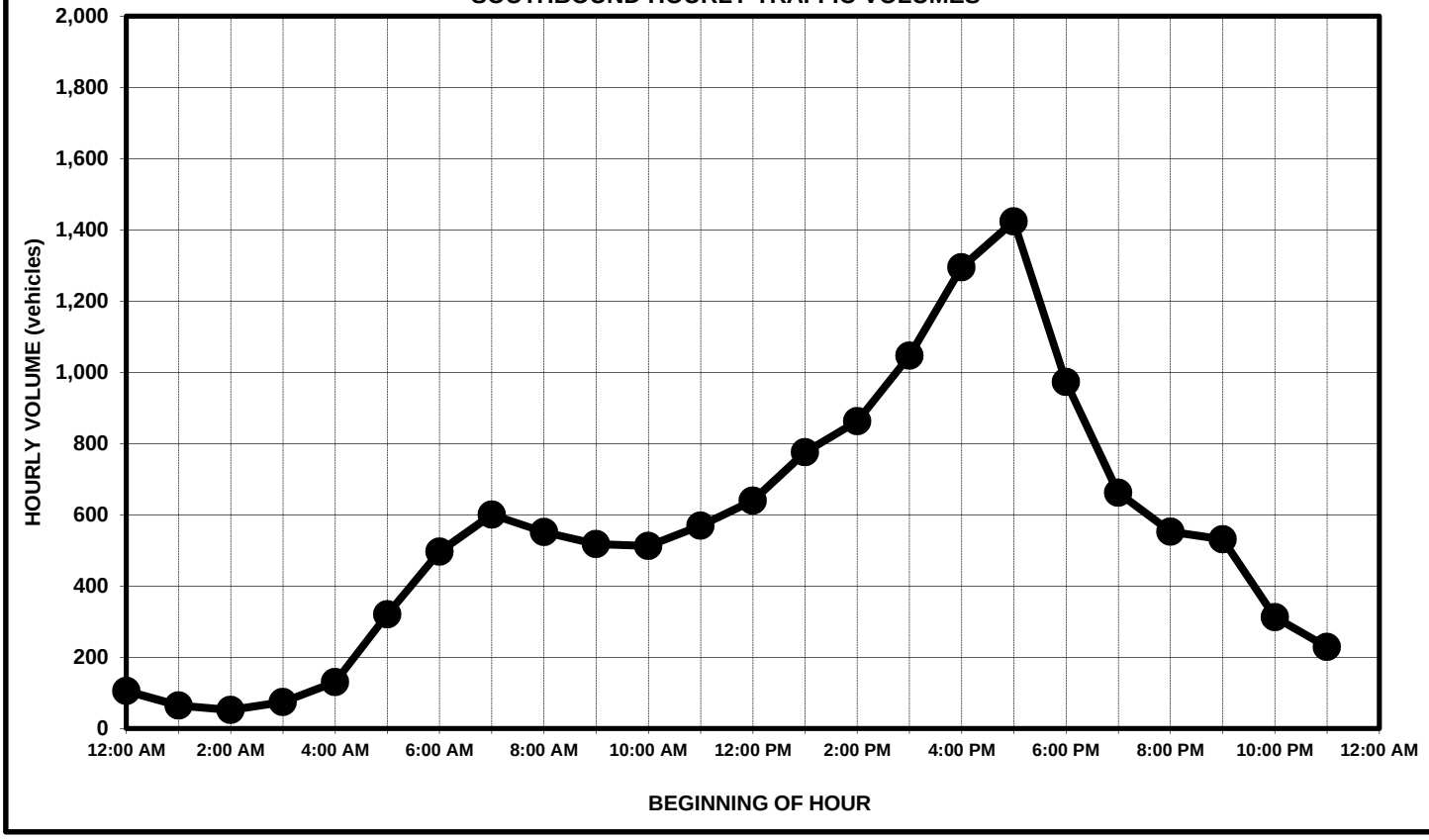
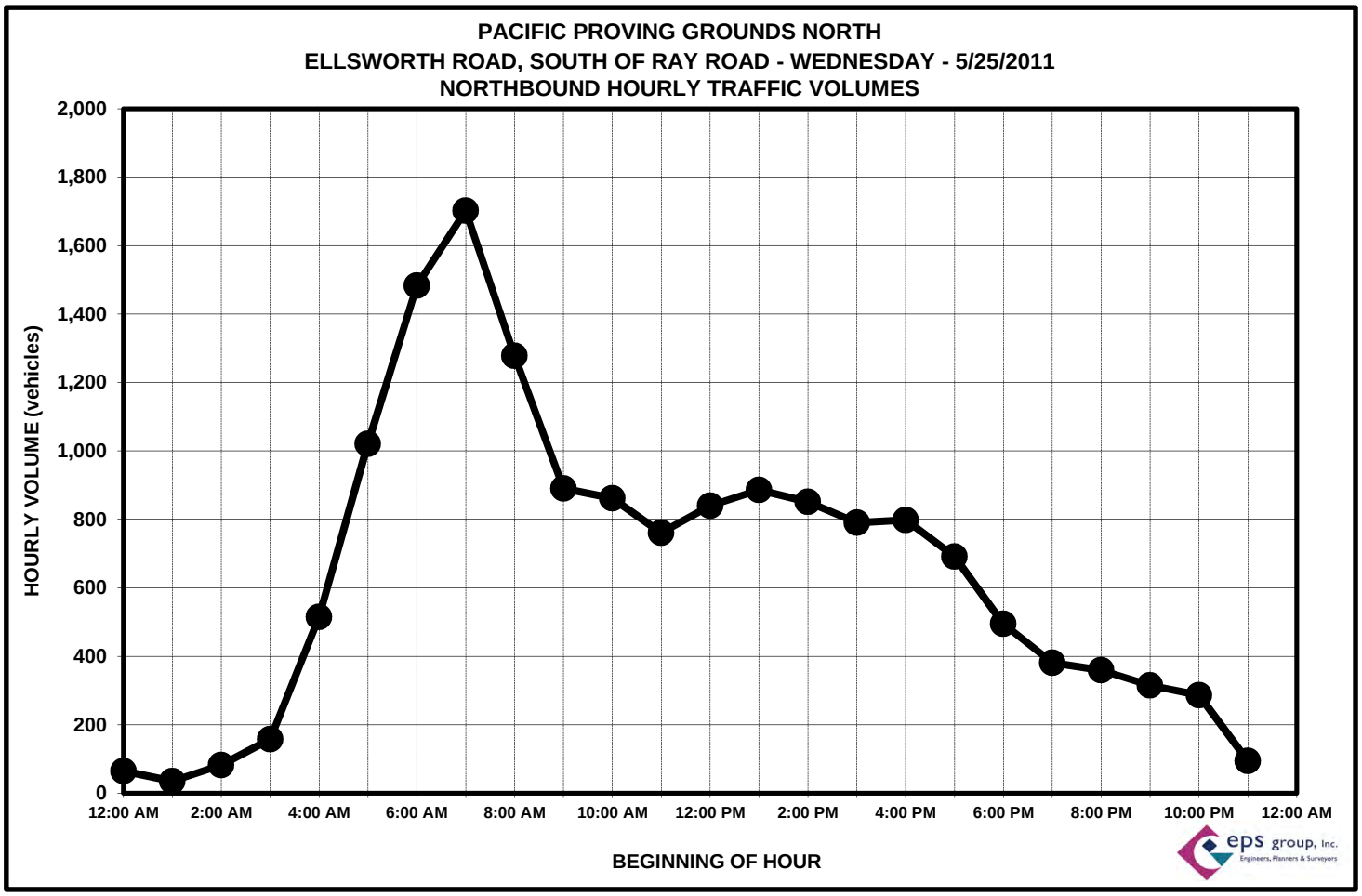
6:00 PM
8:00 PM
10:00 PM
12:00 AM
BEGINNING OF HOUR

PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF RAY ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES




PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF RAY ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES




PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, SOUTH OF RAY ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
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BEGINNING OF HOUR
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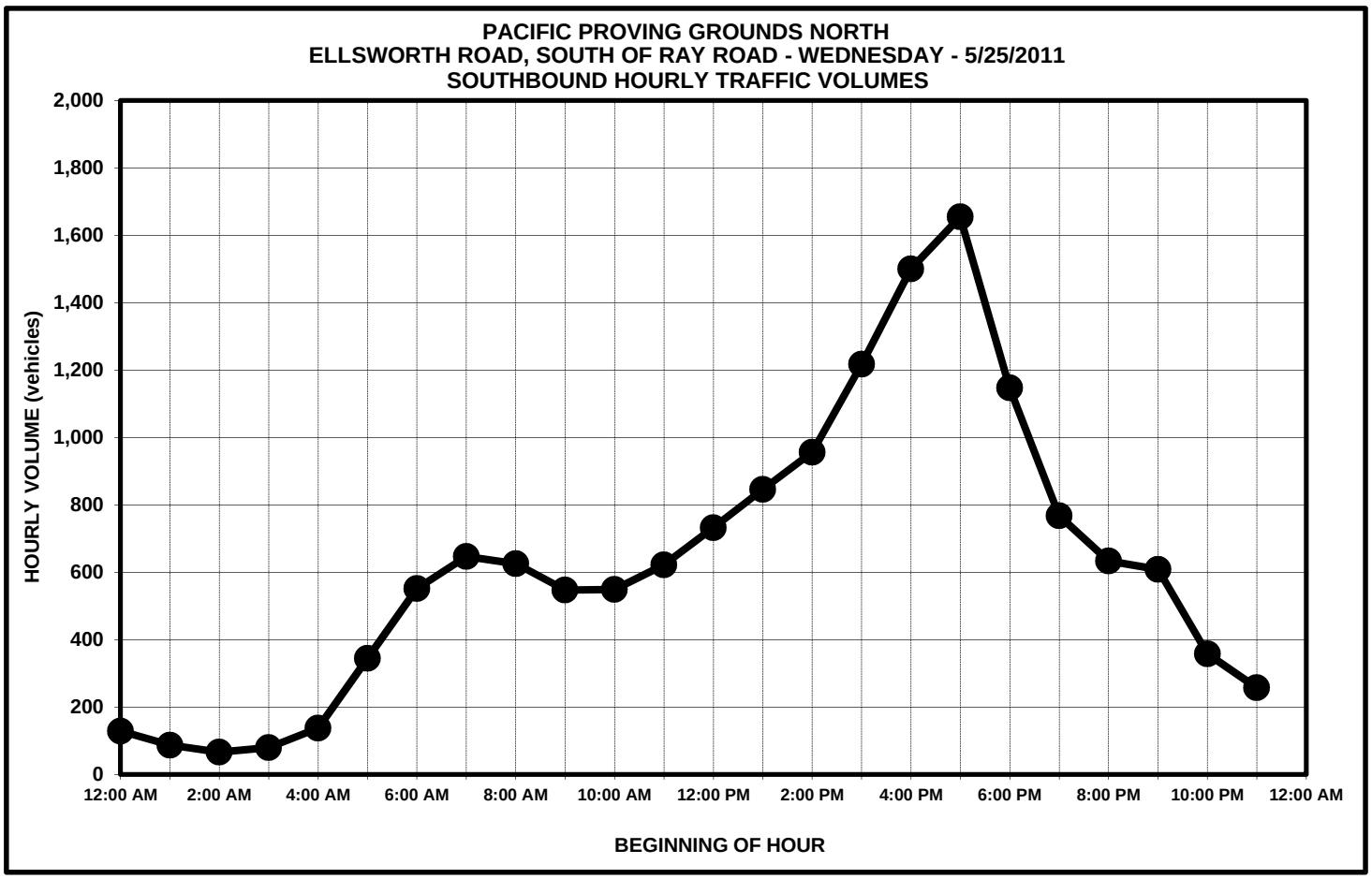
PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, SOUTH OF RAY ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
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6:00 PM
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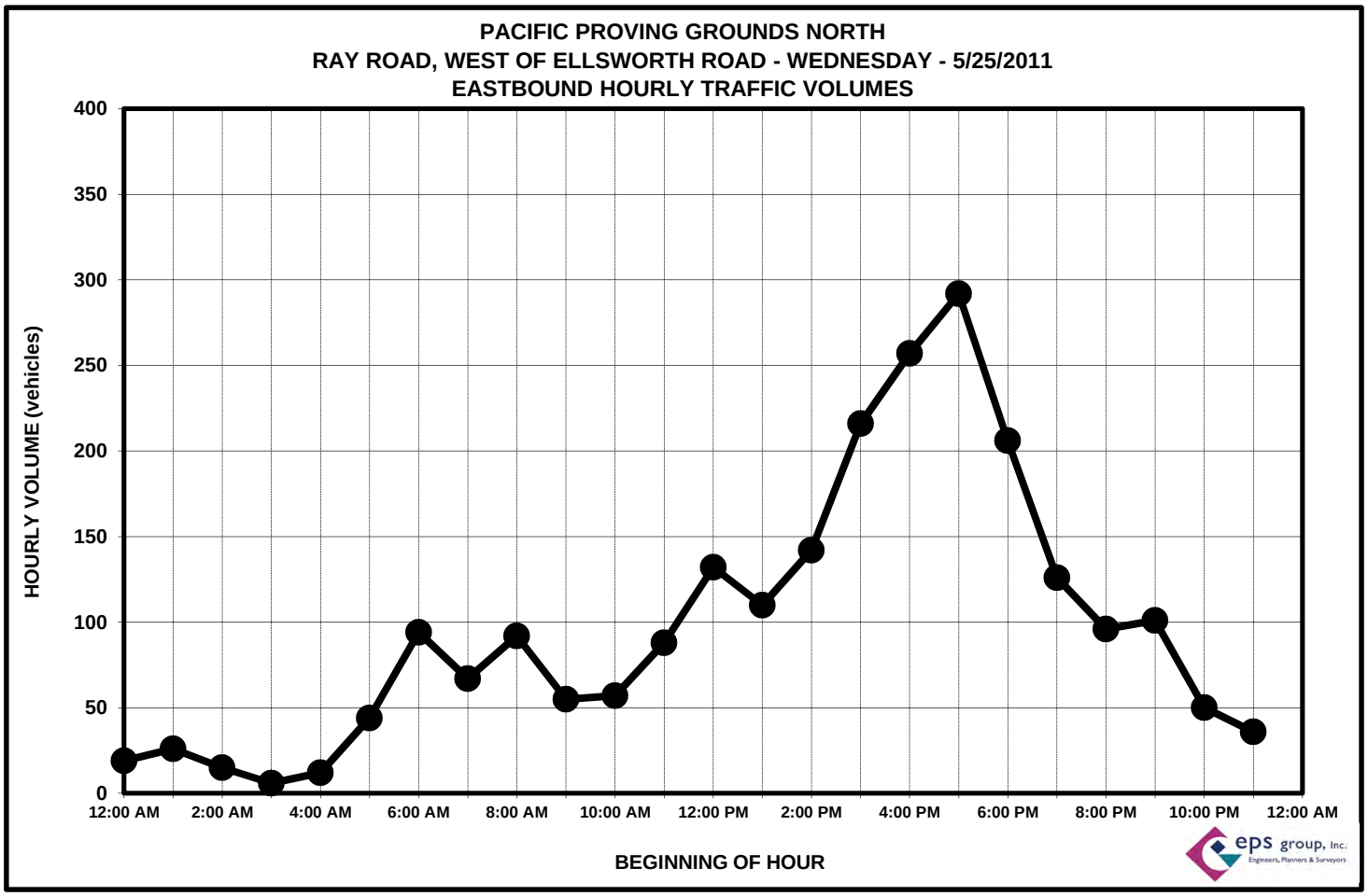
12:00 AM
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
RAY ROAD, WEST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
400
350
300
250
200
150
100
50
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
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BEGINNING OF HOUR
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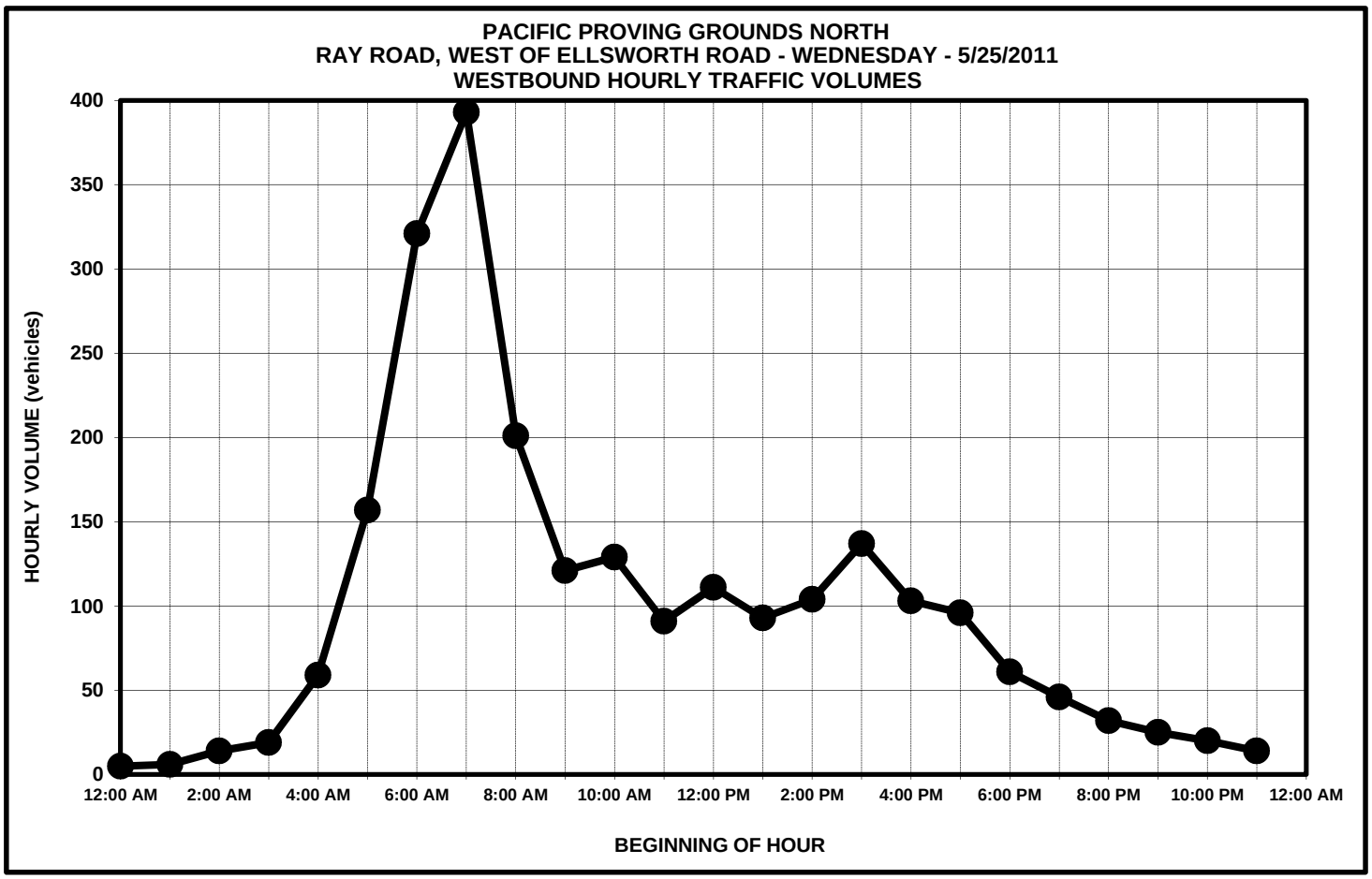
PACIFIC PROVING GROUNDS NORTH
RAY ROAD, WEST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
400
350
300
250
200
150
100
50
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
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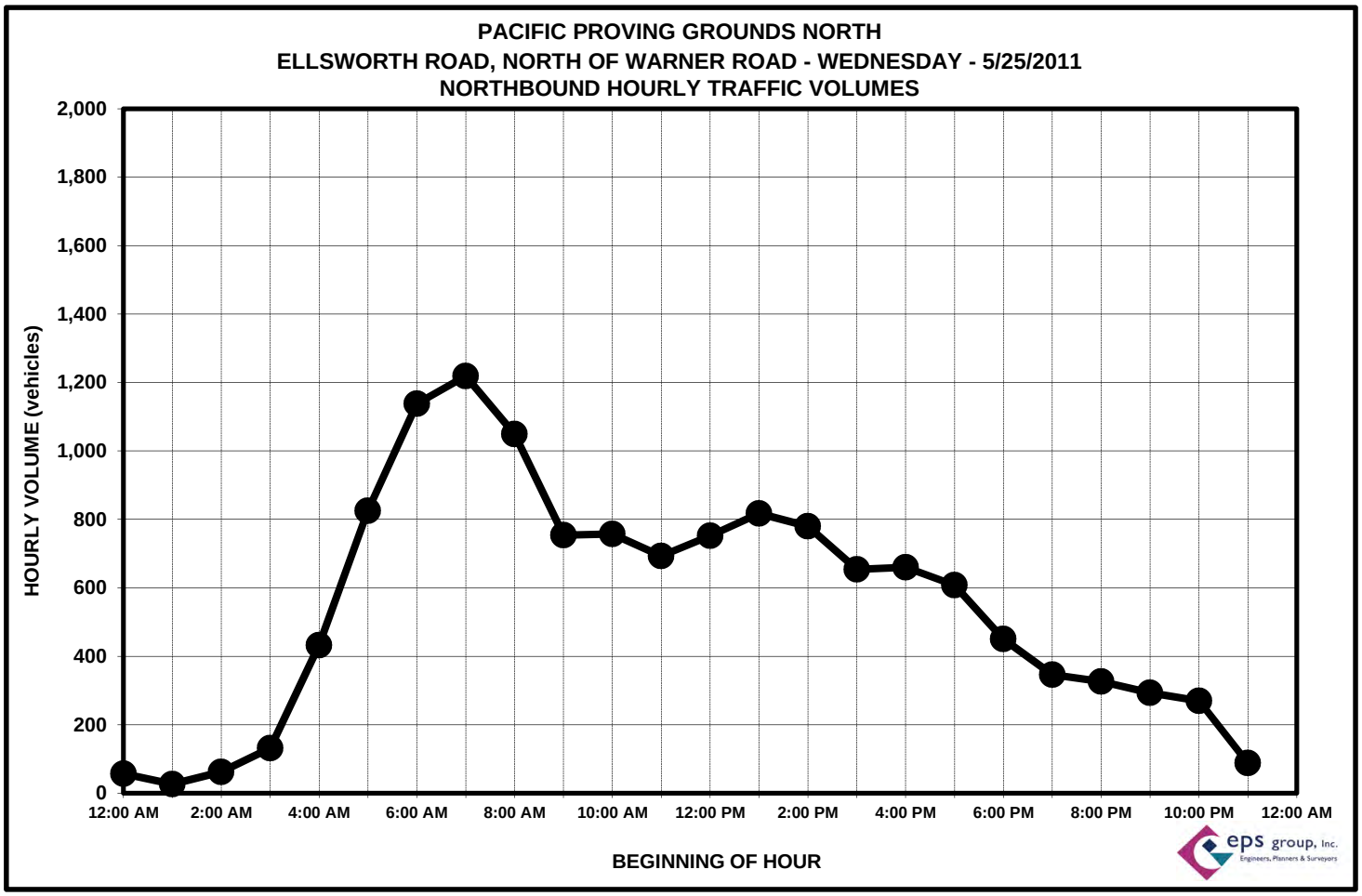
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF WARNER ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
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BEGINNING OF HOUR
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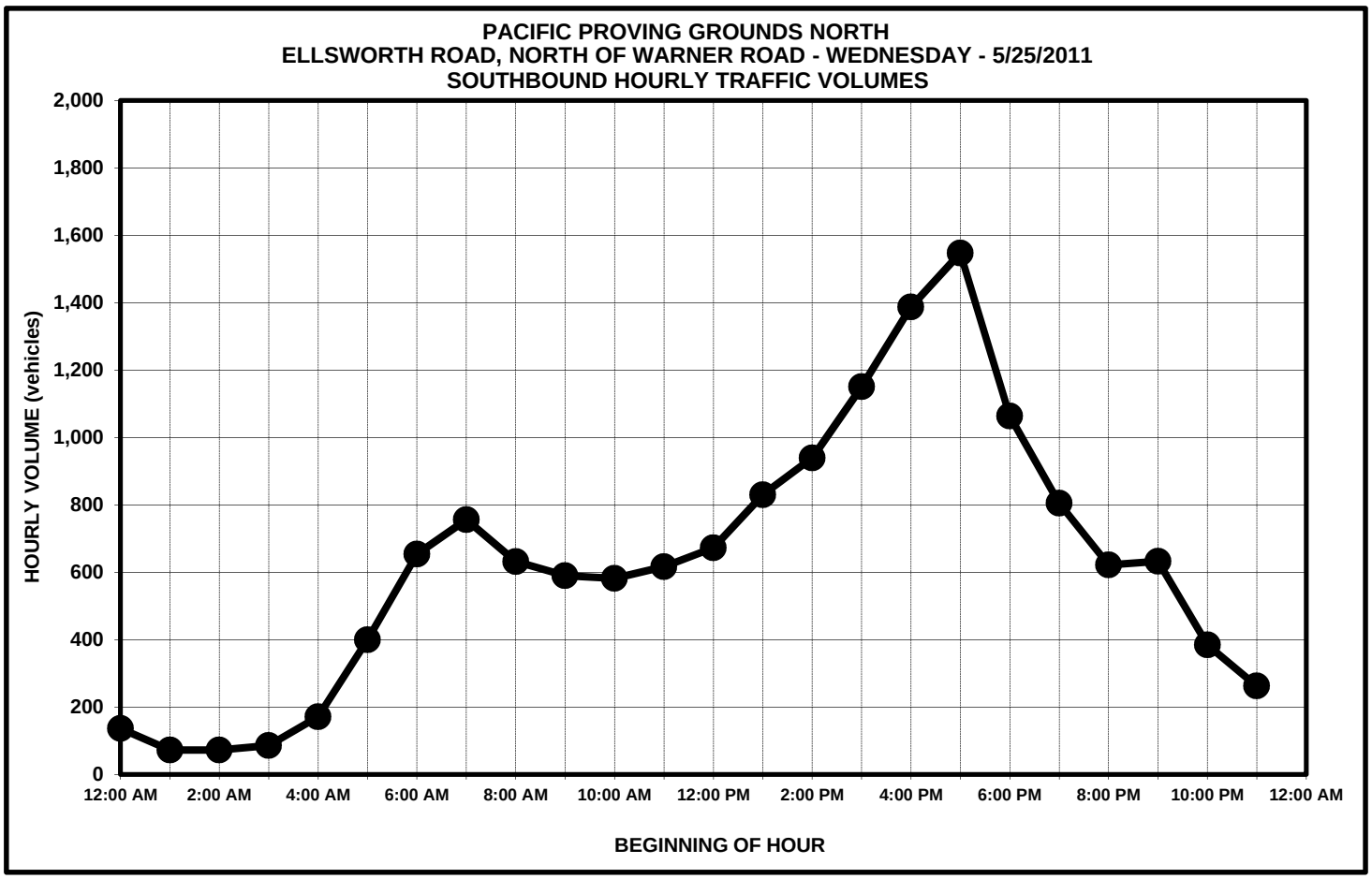
PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF WARNER ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
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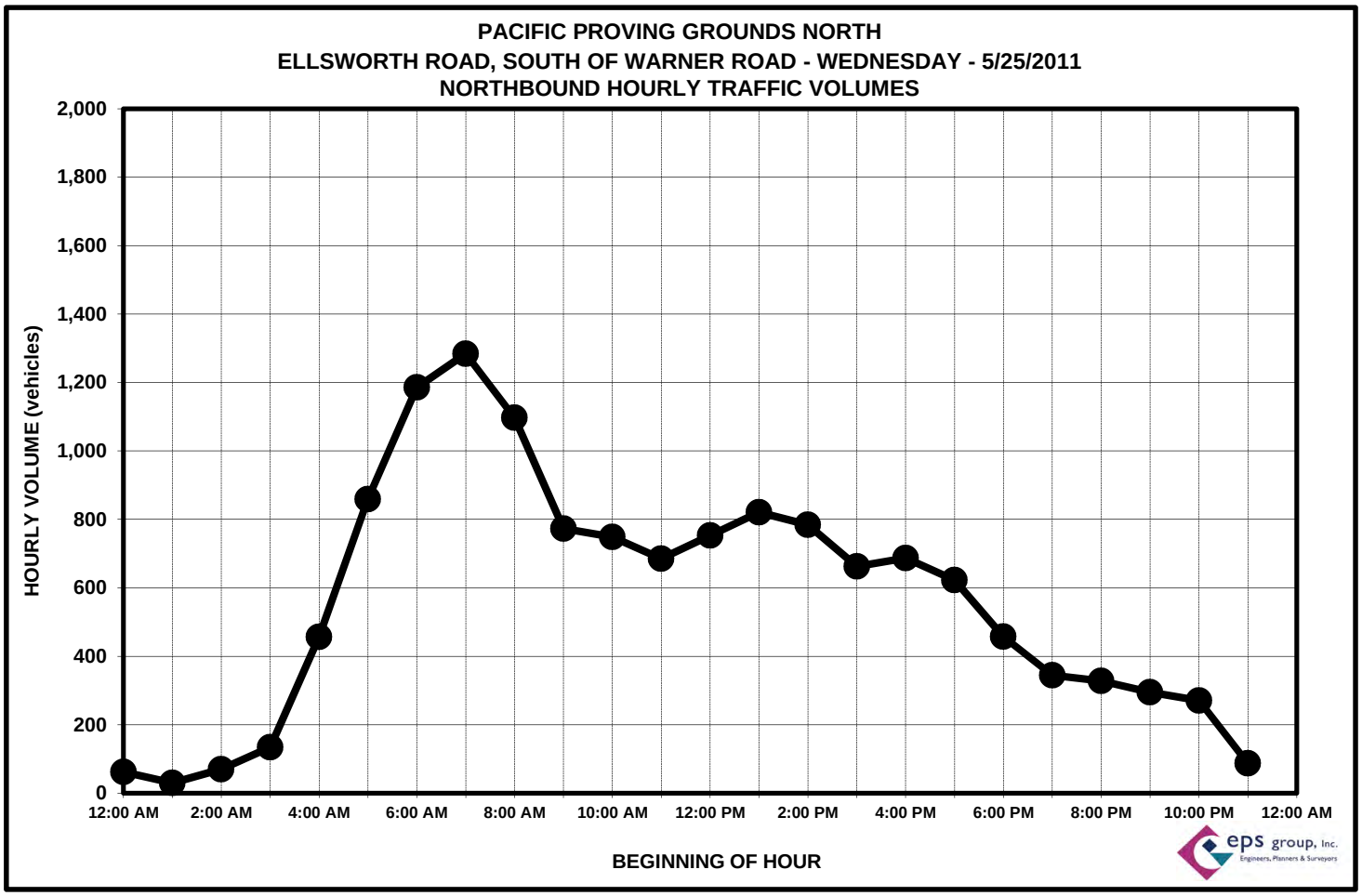
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, SOUTH OF WARNER ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
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BEGINNING OF HOUR
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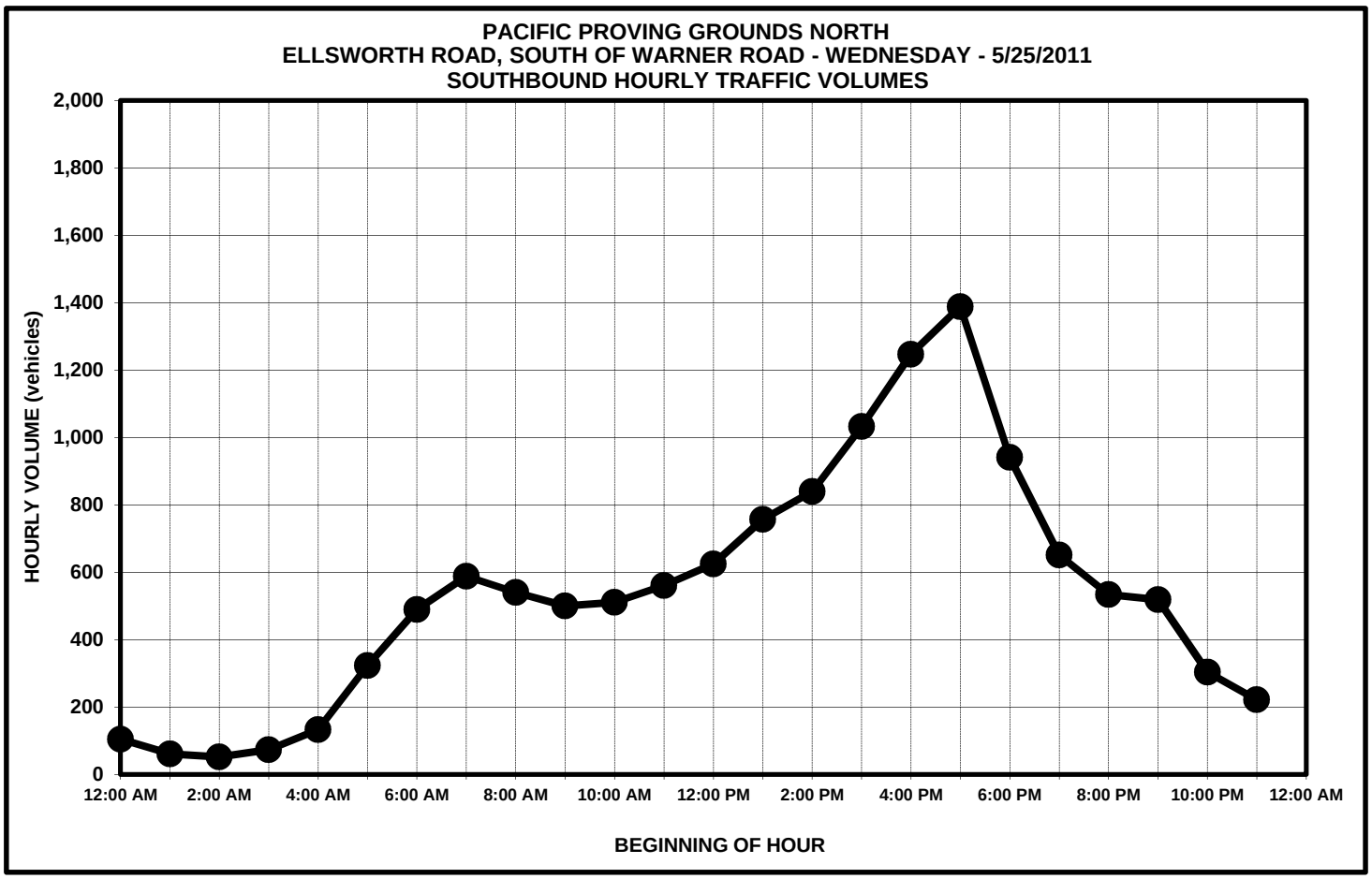
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, SOUTH OF WARNER ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
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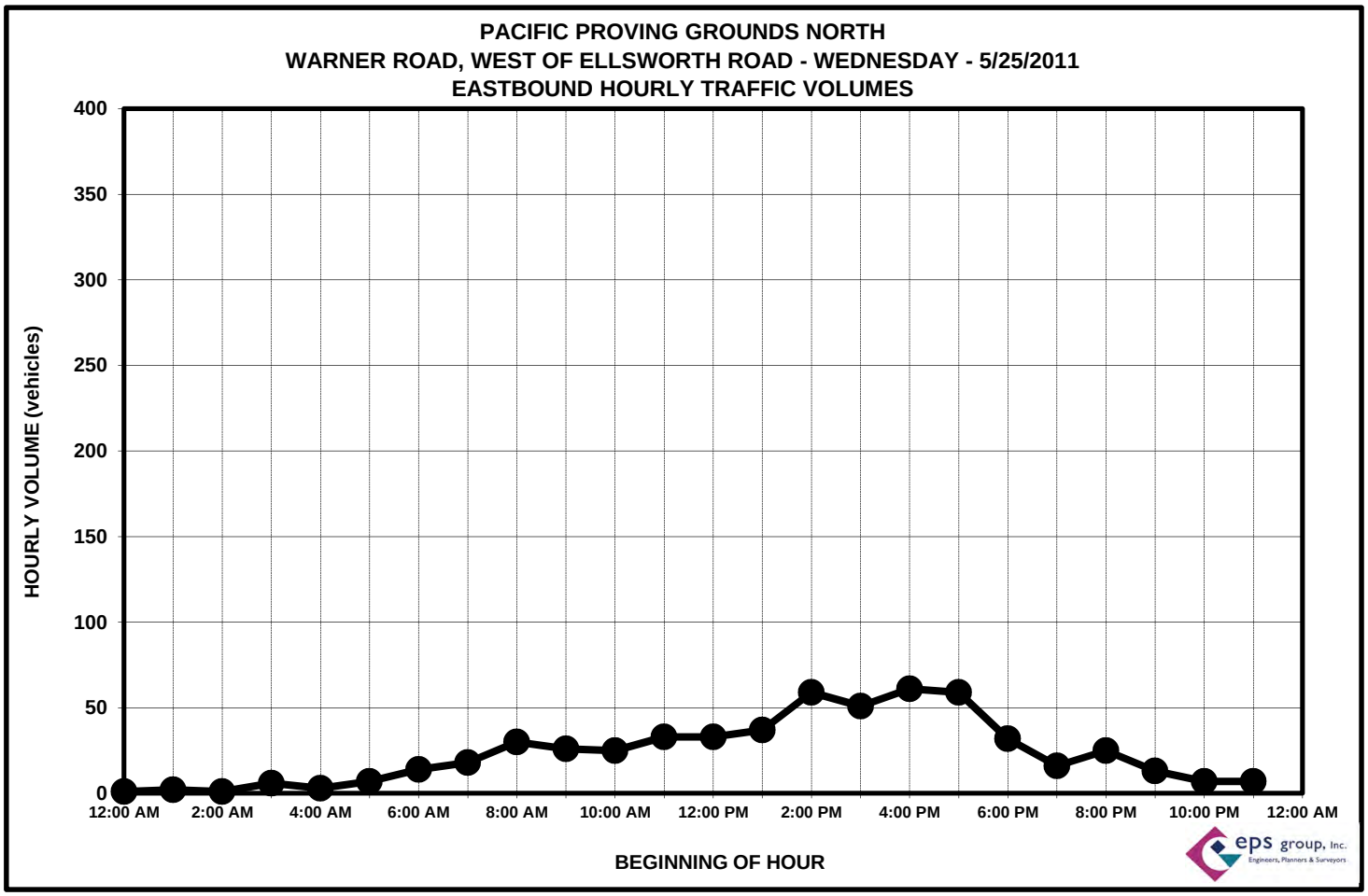
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
WARNER ROAD, WEST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
400
350
300
250
200
150
100
50
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
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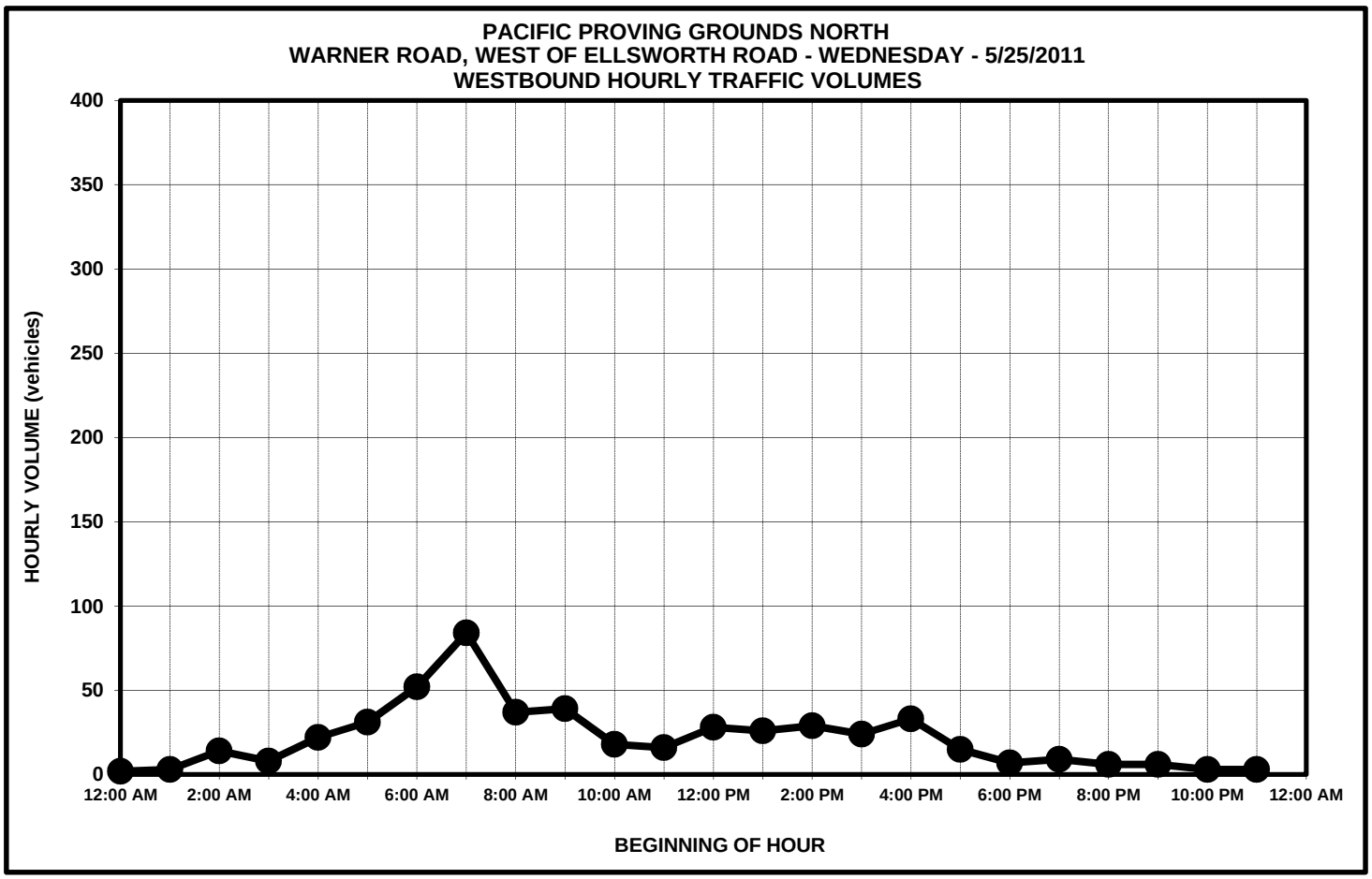
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
WARNER ROAD, WEST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
400
350
300
250
200
150
100
50
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
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6:00 PM
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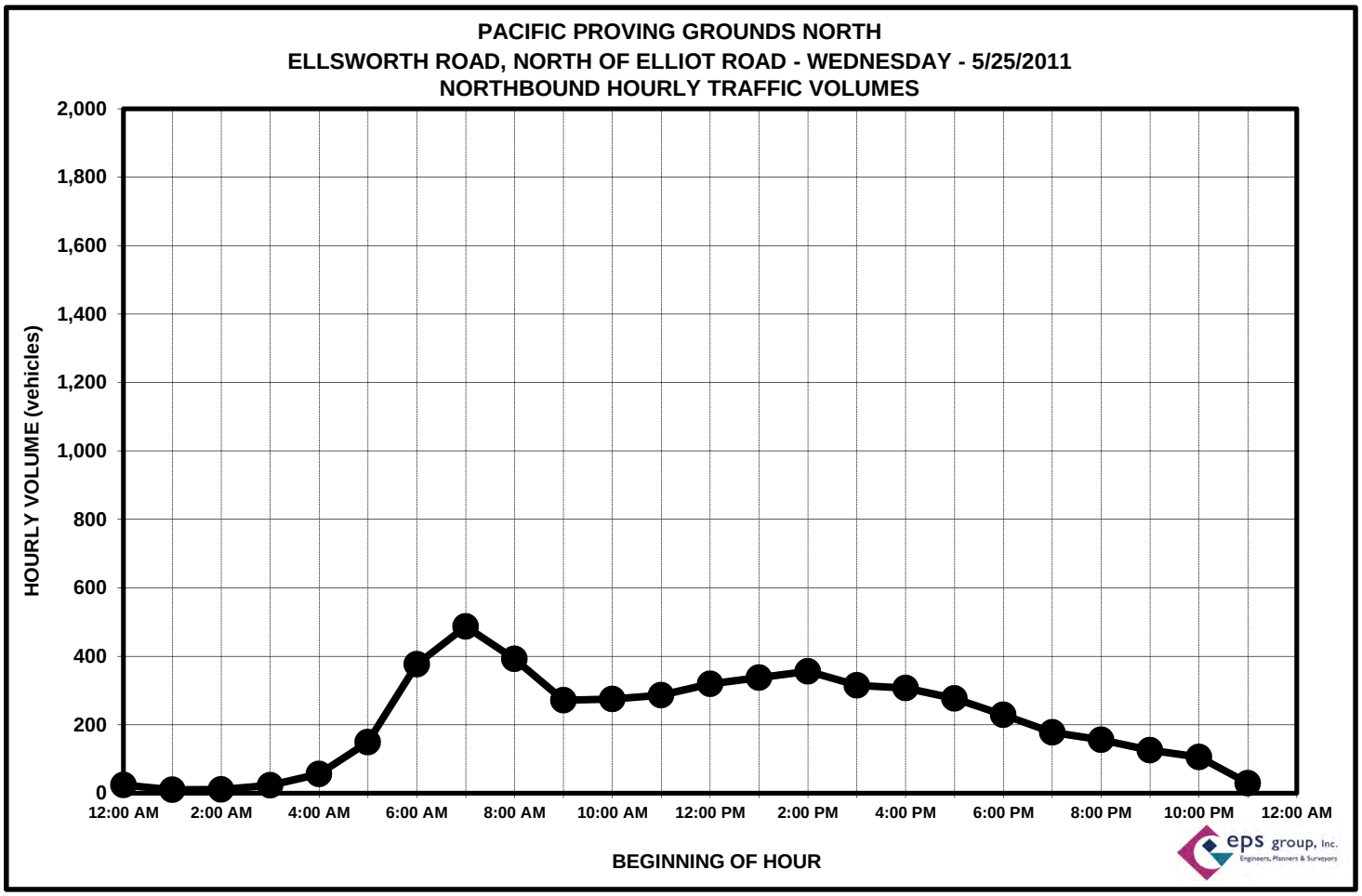
12:00 AM
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
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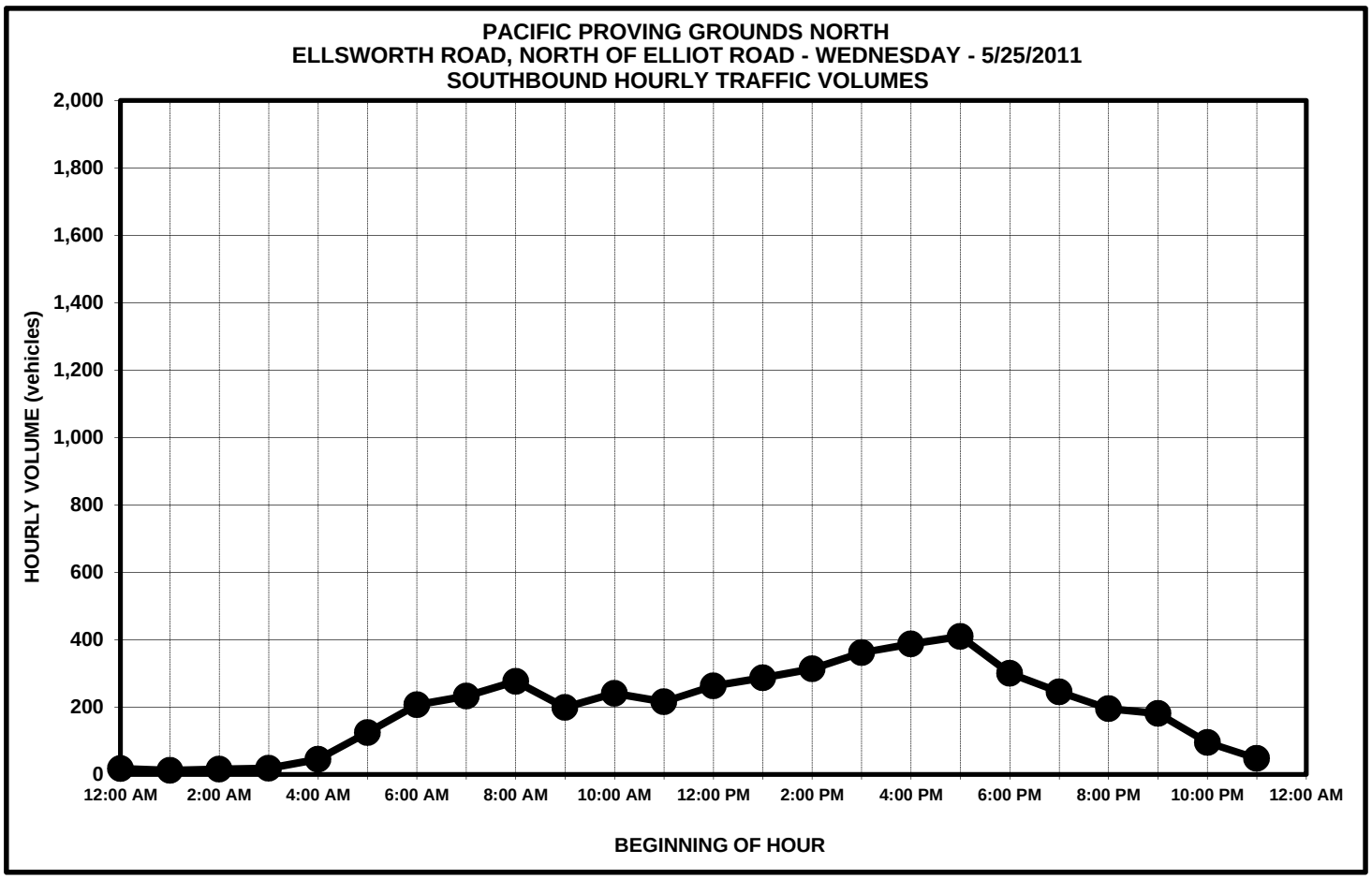
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, NORTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
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200
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12:00 AM
2:00 AM
4:00 AM
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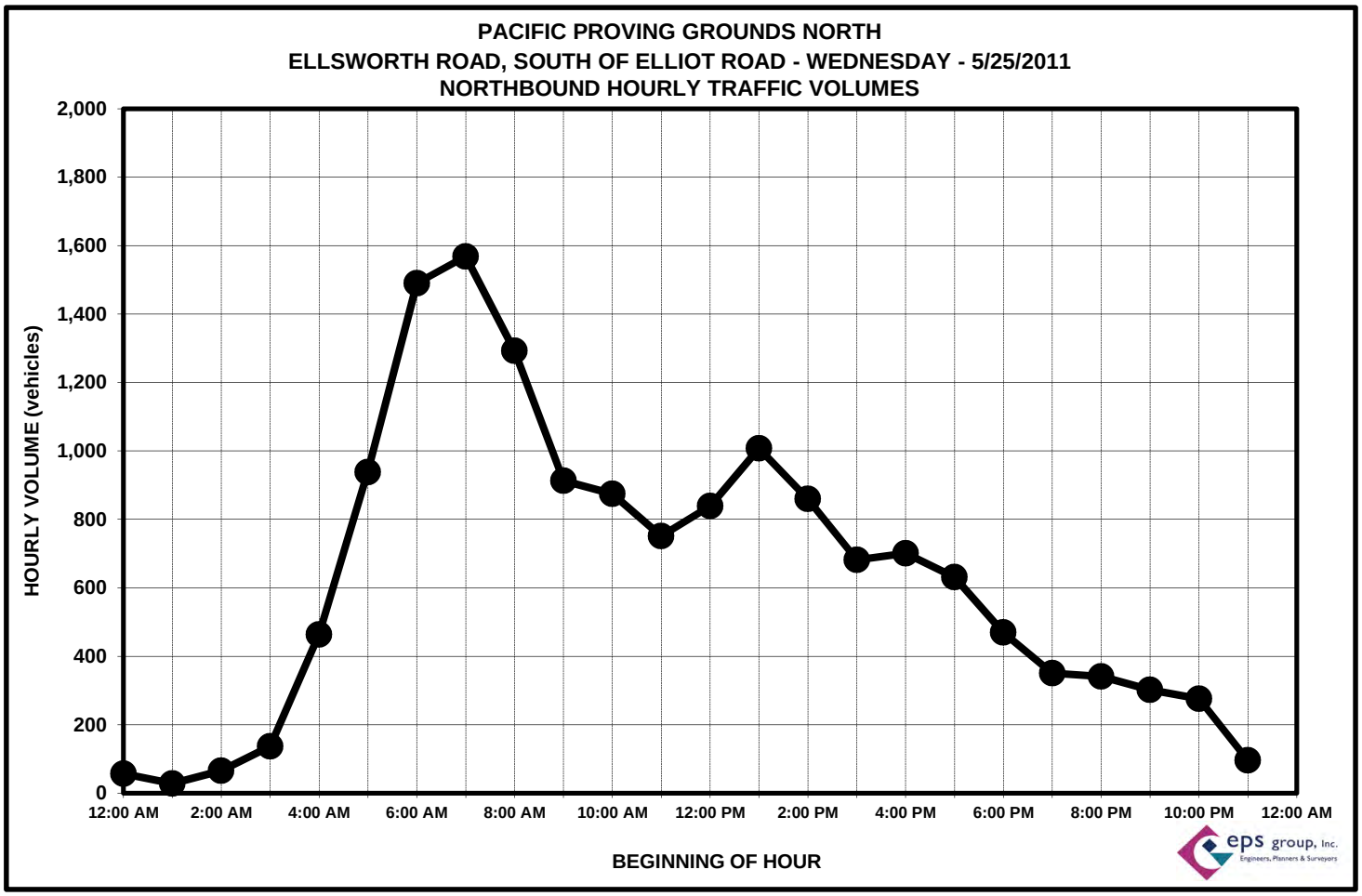
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, SOUTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
12:00 AM
2:00 AM
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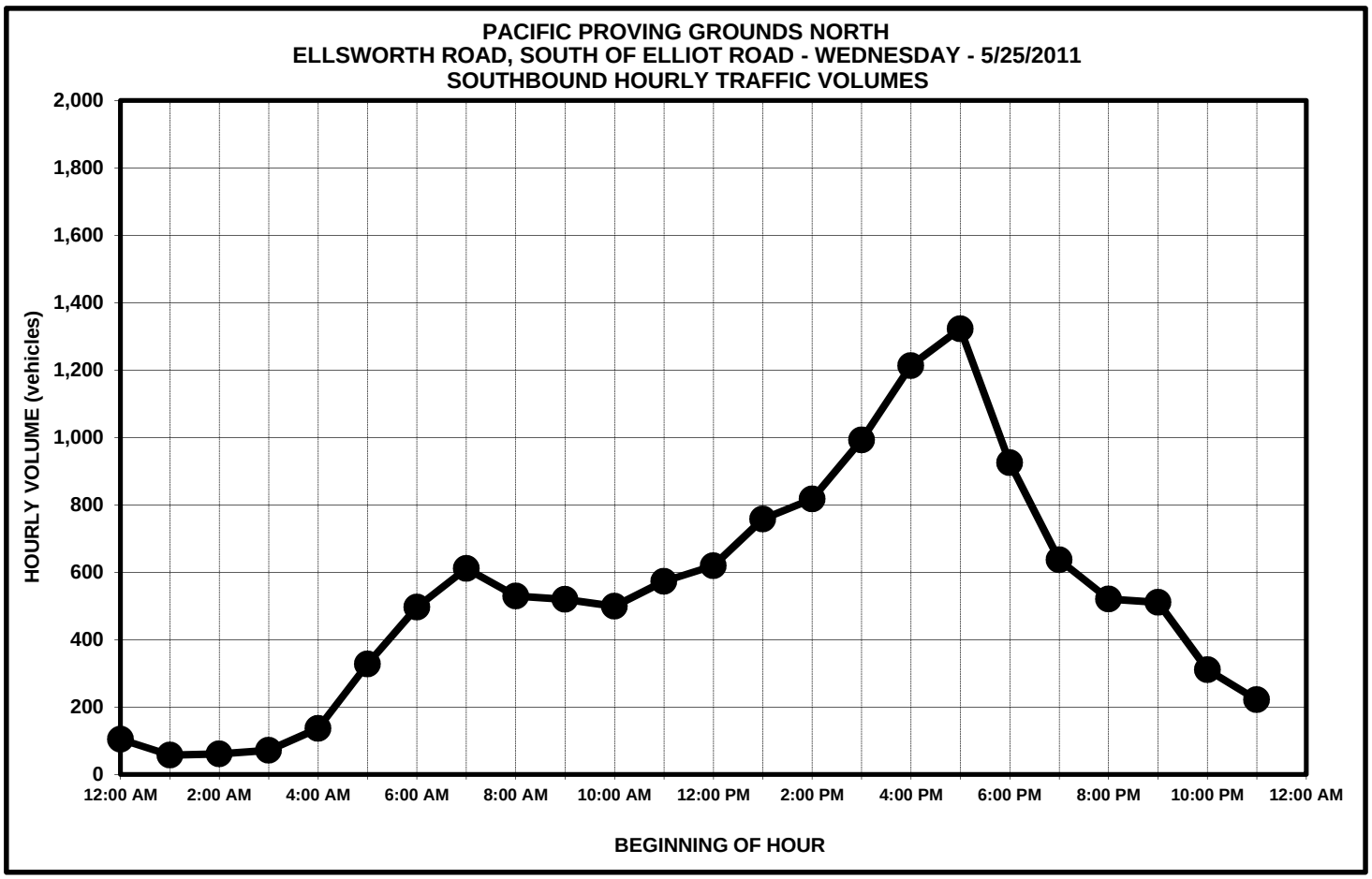
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLSWORTH ROAD, SOUTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
1,800
1,600
1,400
1,200
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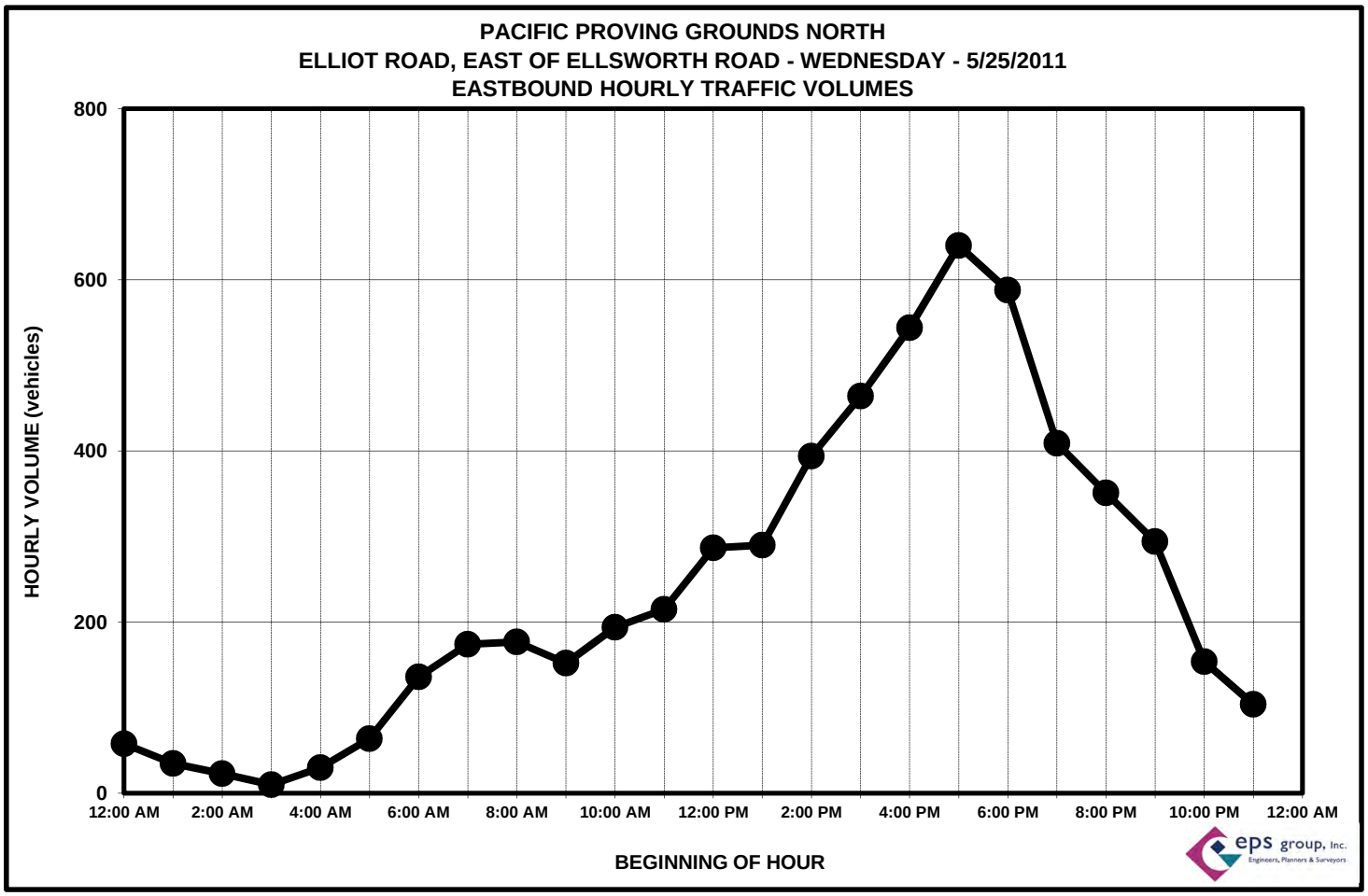
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLIOT ROAD, EAST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
800
600
400
200
0
12:00 AM
2:00 AM
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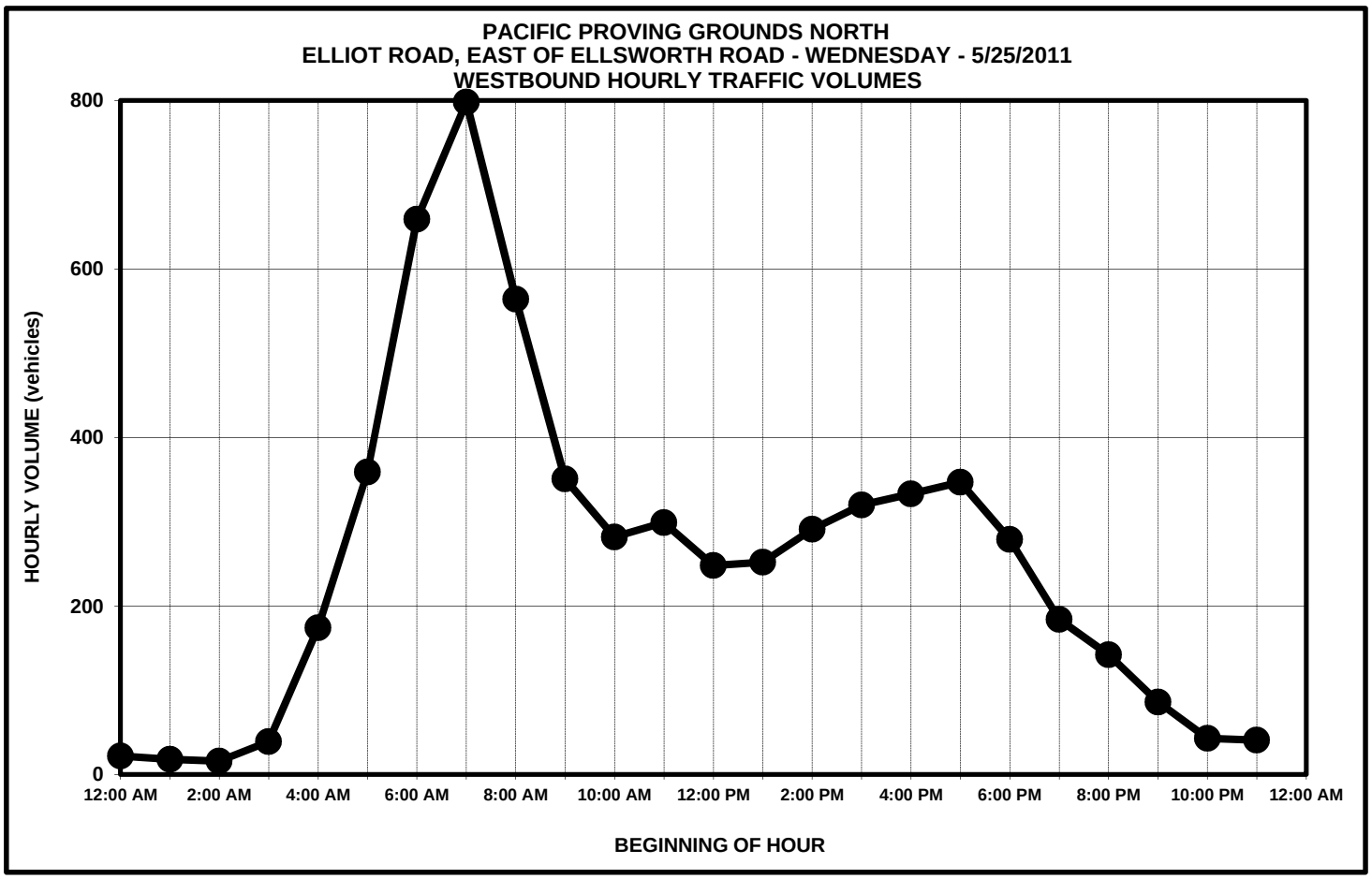
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLIOT ROAD, EAST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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12:00 AM
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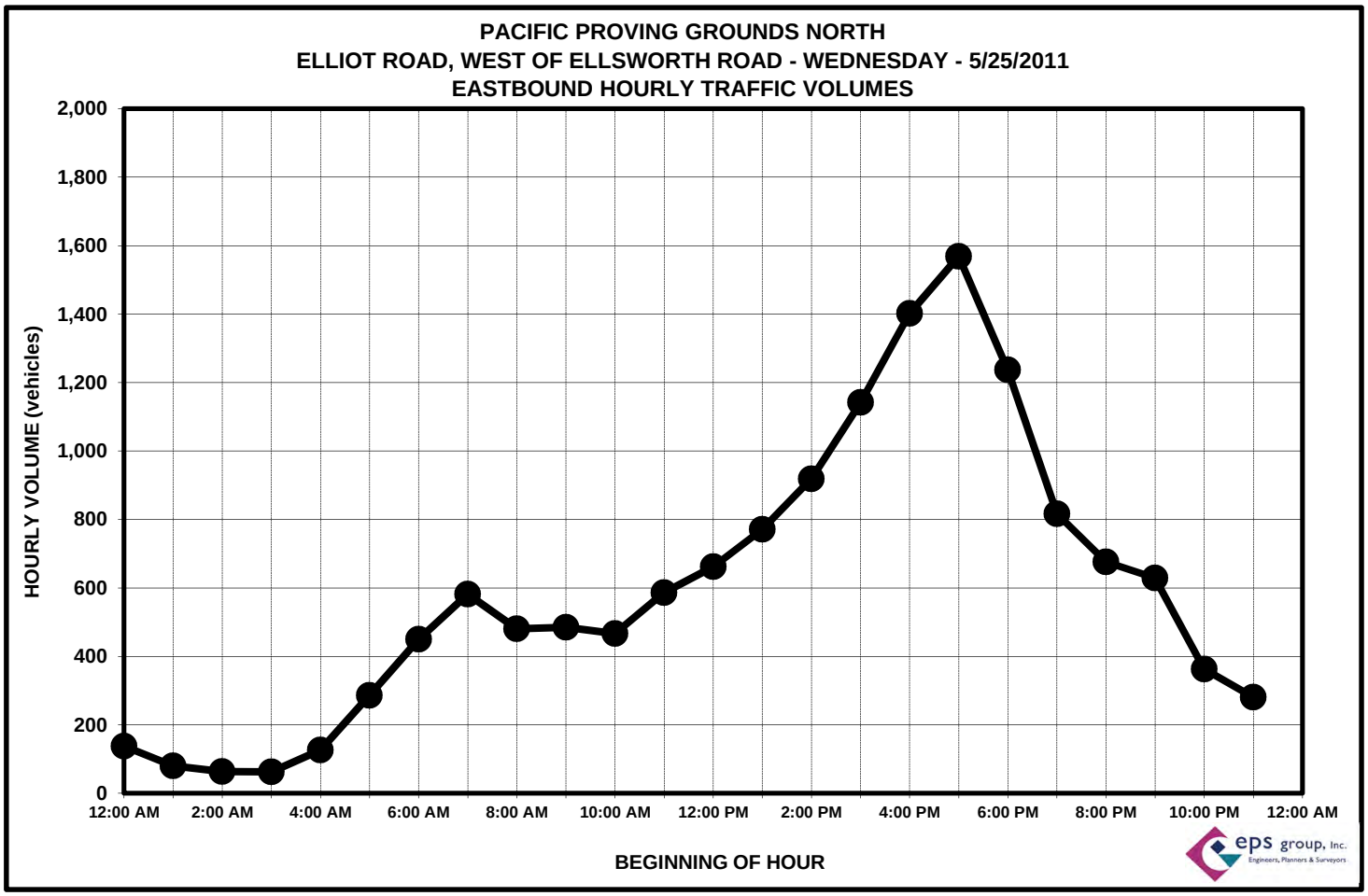
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLIOT ROAD, WEST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
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1,400
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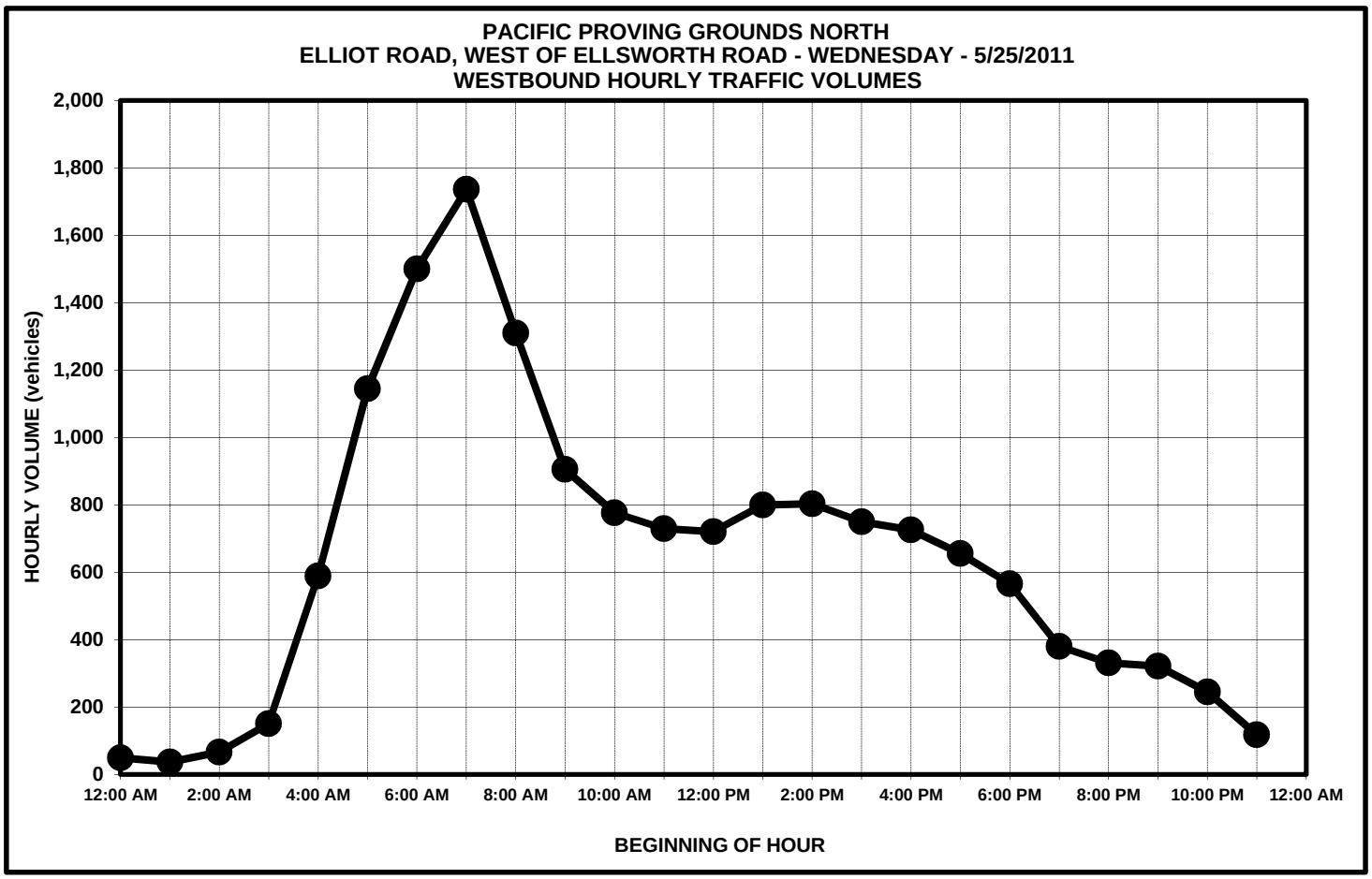
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLIOT ROAD, WEST OF ELLSWORTH ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
2,000
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1,600
1,400
1,200
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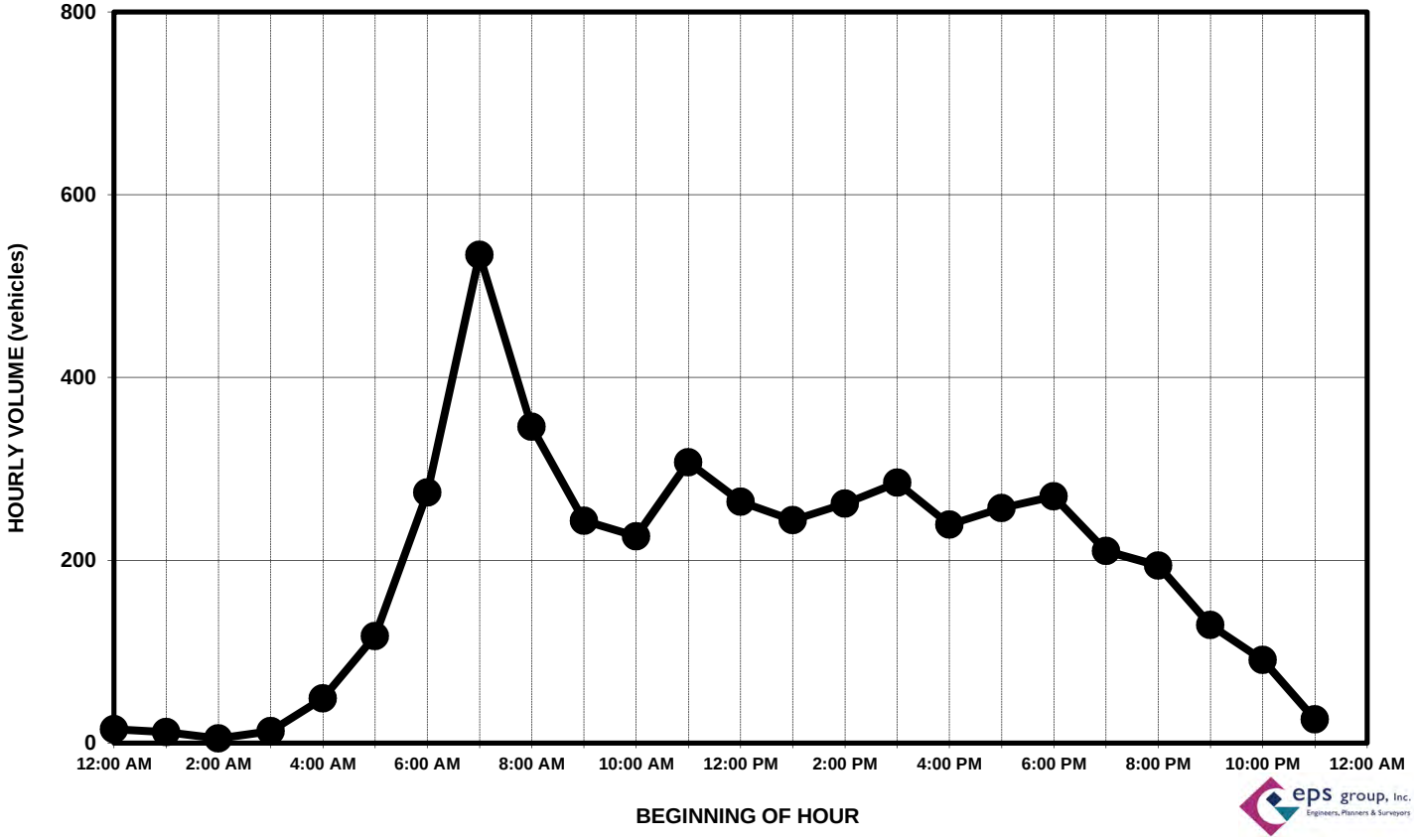
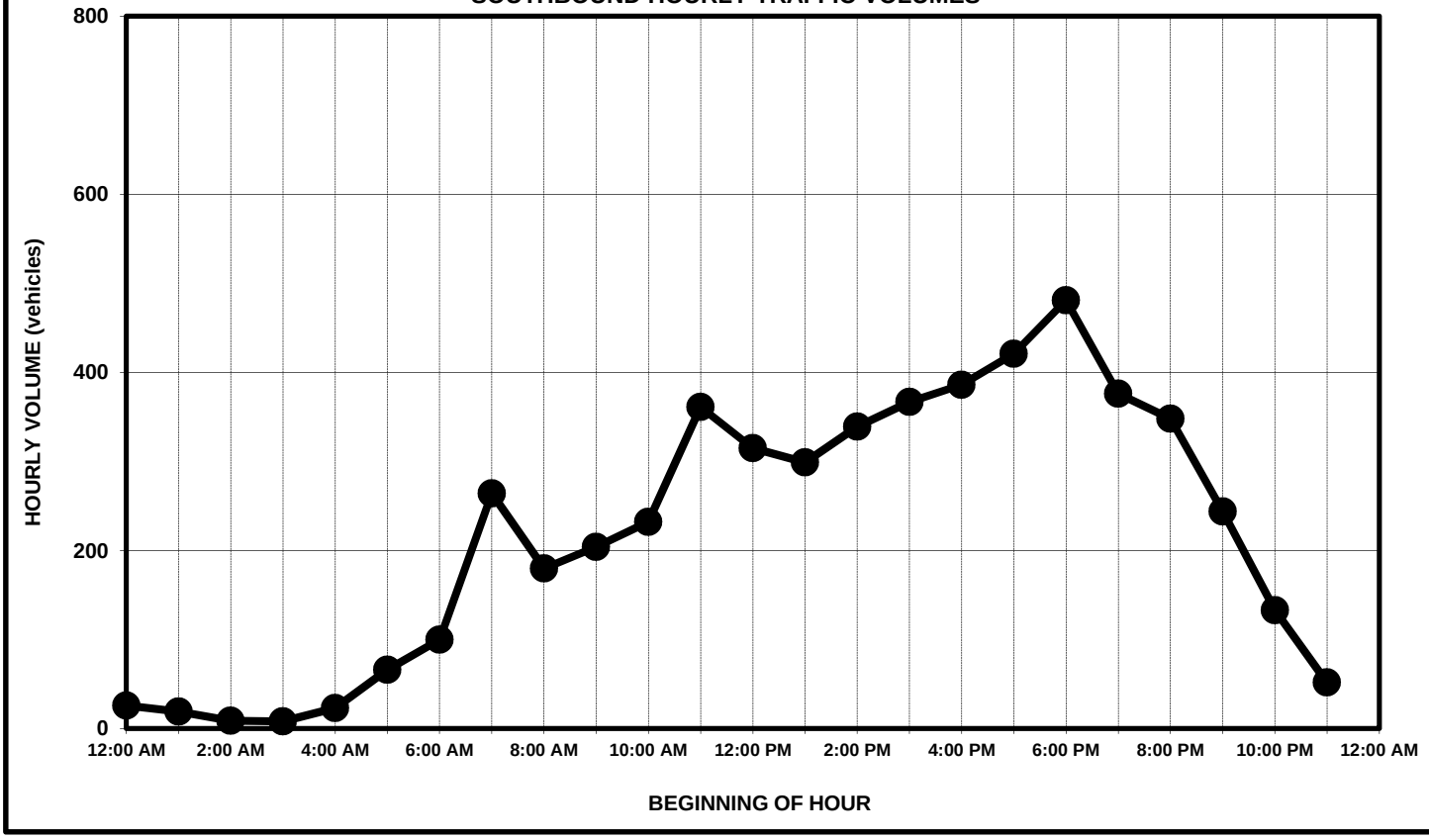
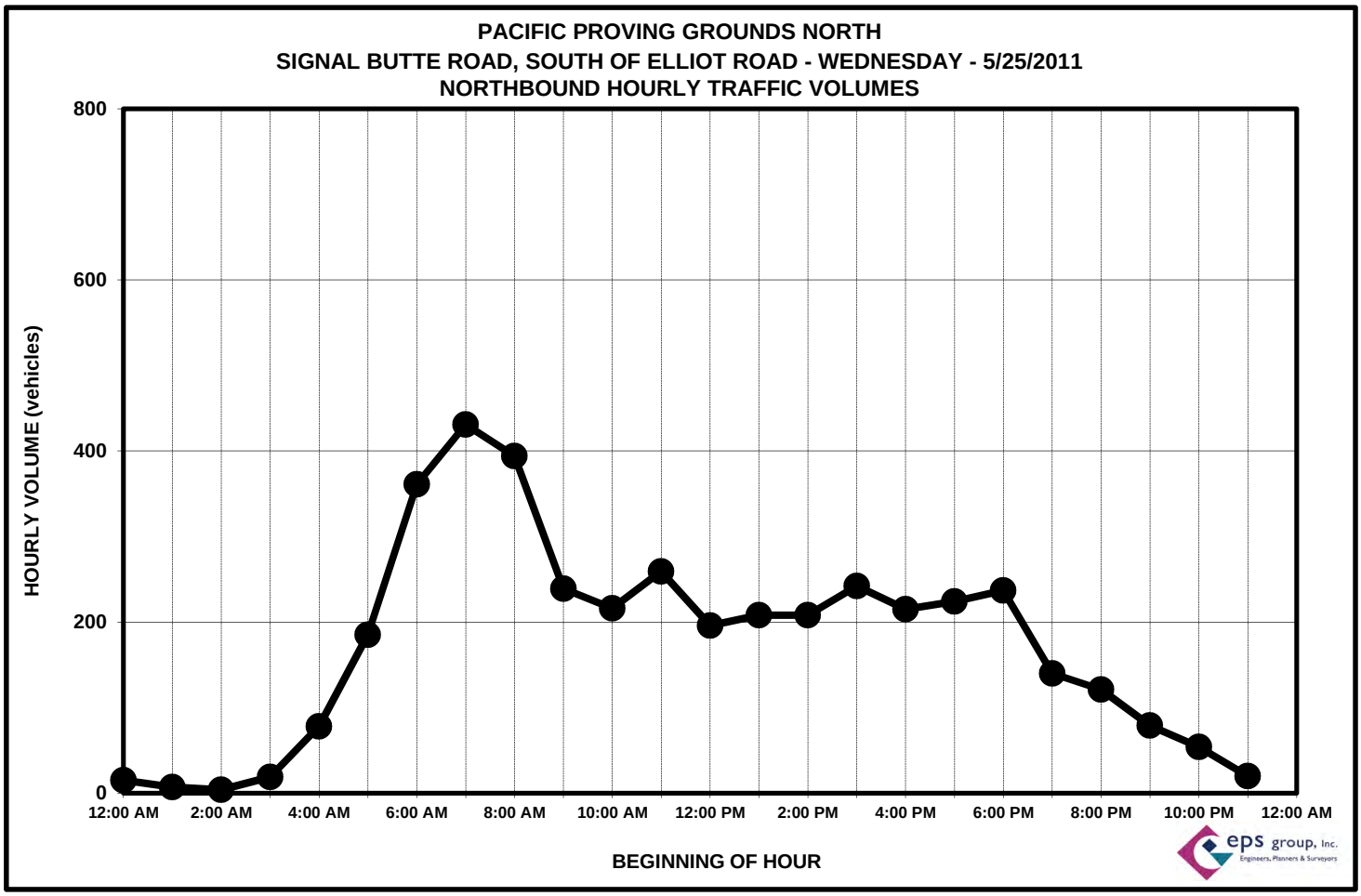
BEGINNING OF HOUR

PACIFIC PROVING GROUNDS NORTH
SIGNAL BUTTE ROAD, NORTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES




PACIFIC PROVING GROUNDS NORTH
SIGNAL BUTTE ROAD, NORTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES




PACIFIC PROVING GROUNDS NORTH
SIGNAL BUTTE ROAD, SOUTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
800
600
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200
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12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
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12:00 PM
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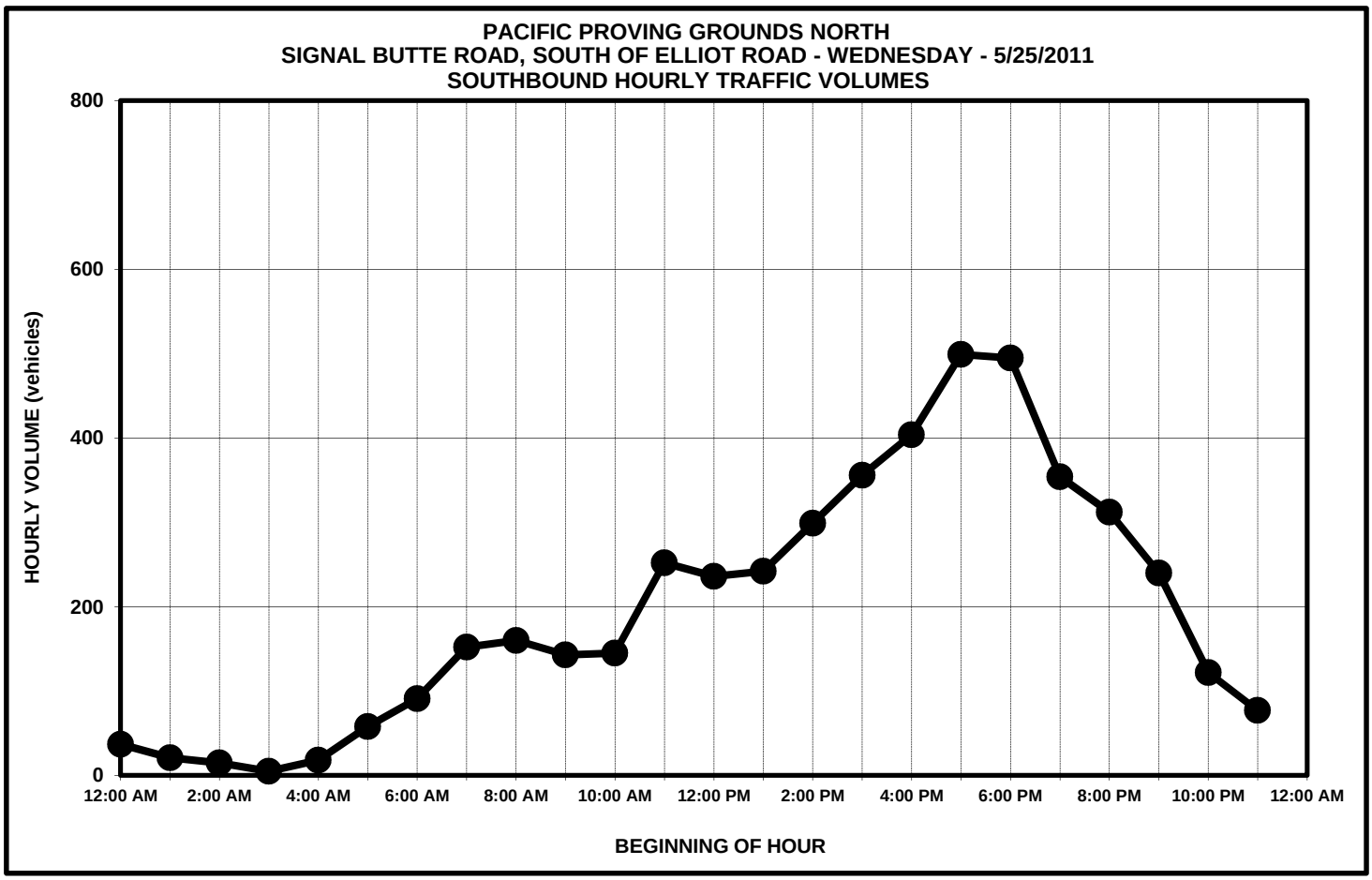
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
SIGNAL BUTTE ROAD, SOUTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
800
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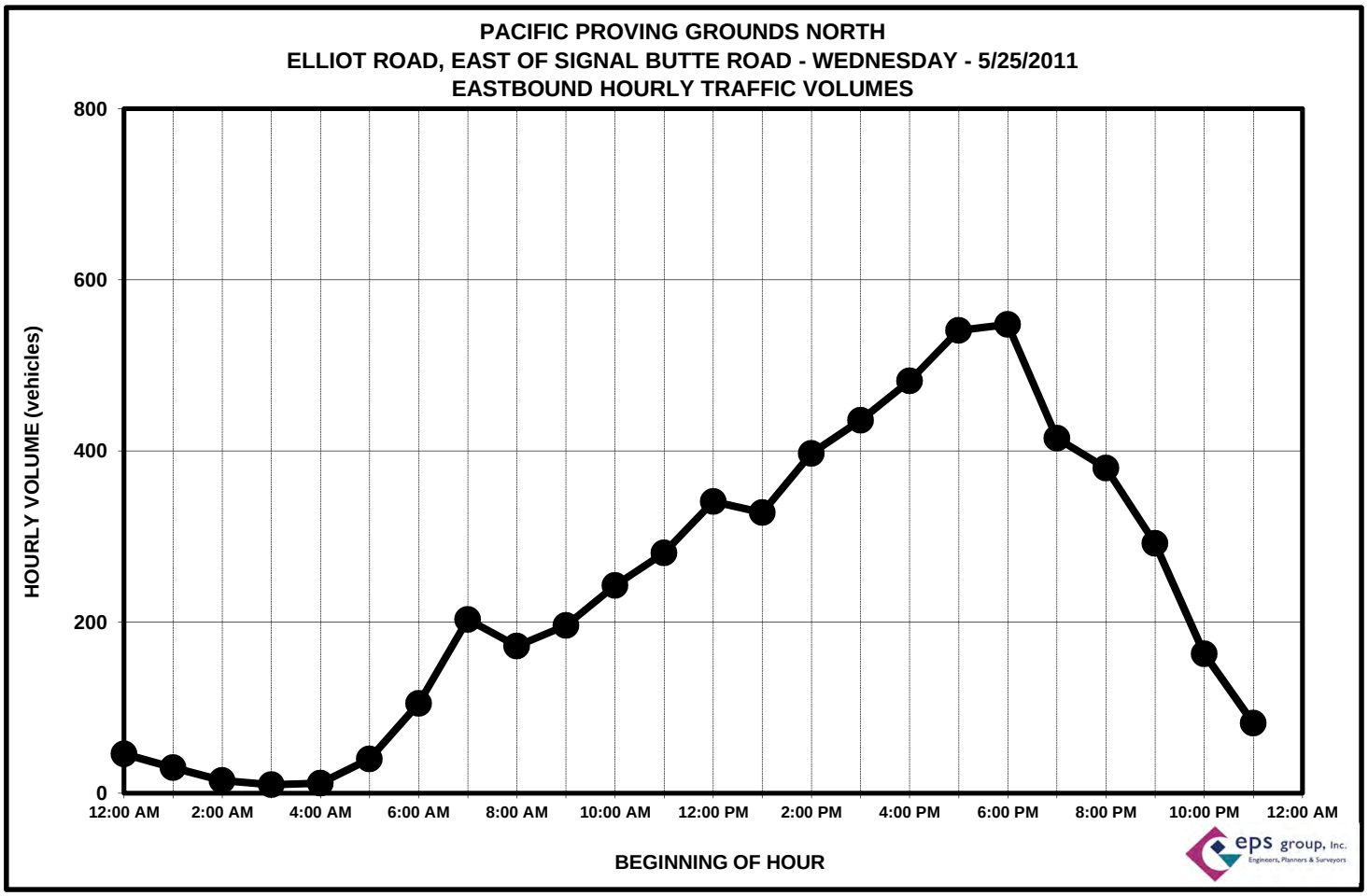
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLIOT ROAD, EAST OF SIGNAL BUTTE ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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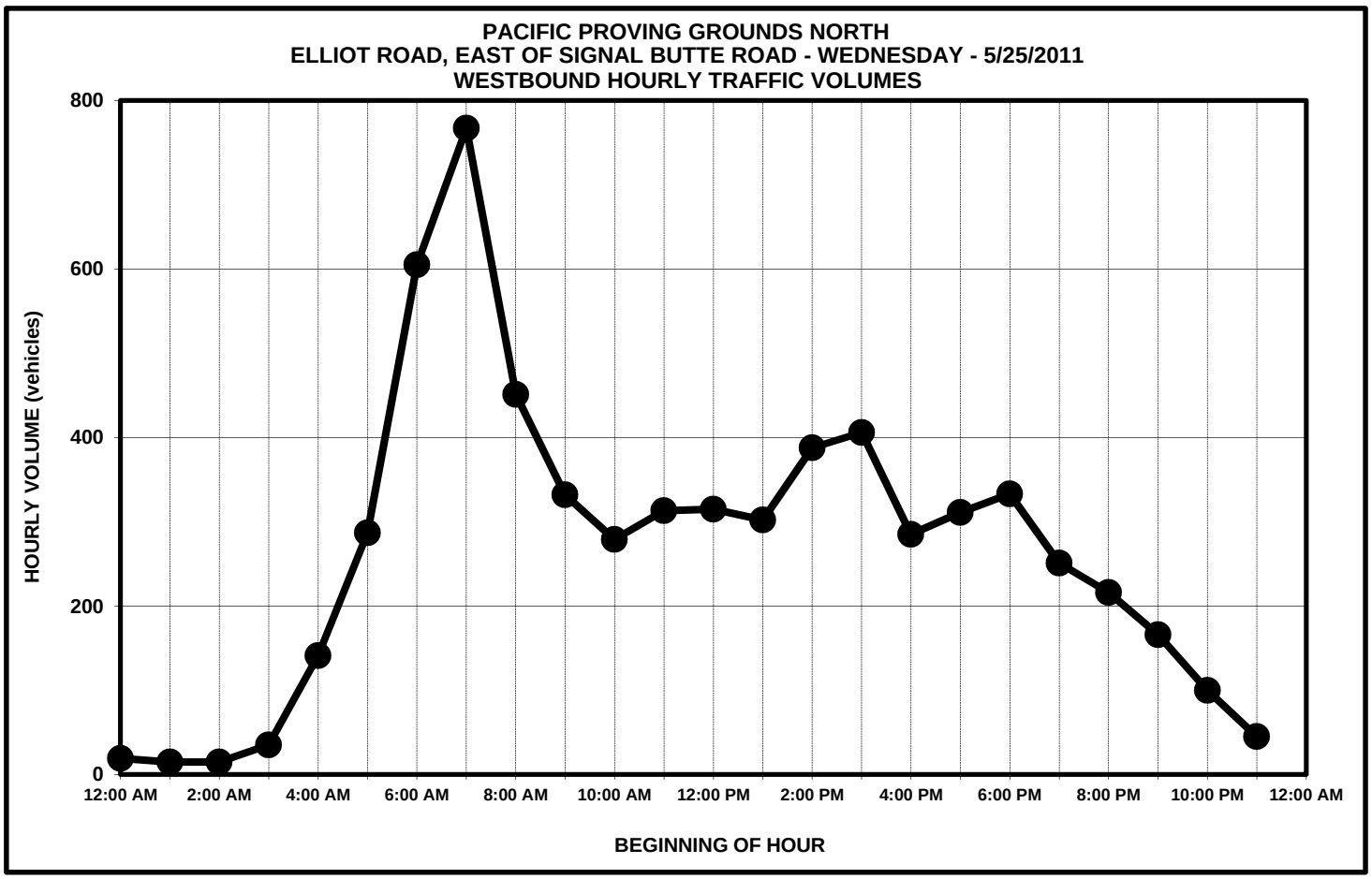
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLIOT ROAD, EAST OF SIGNAL BUTTE ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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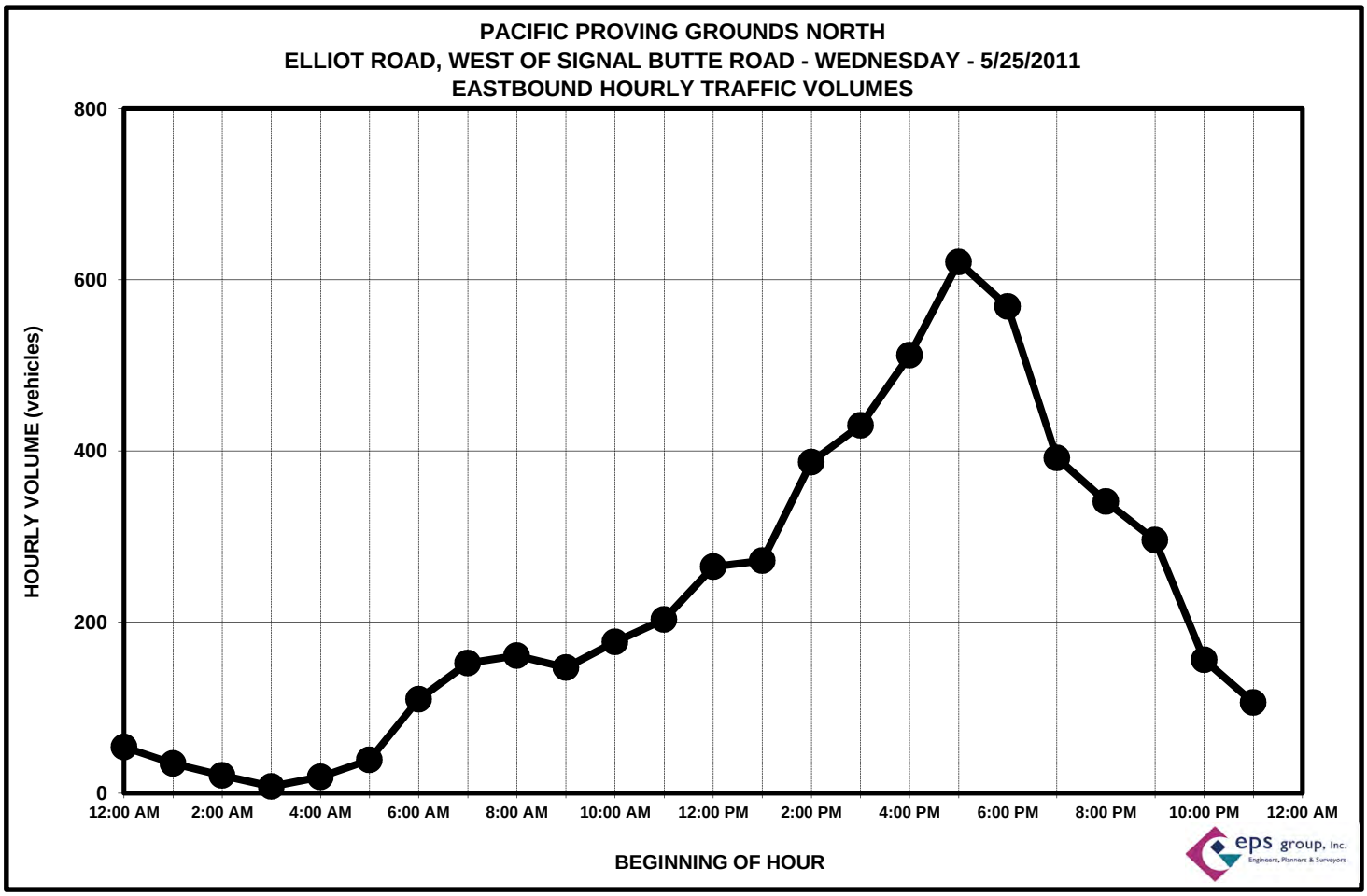
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
ELLIOT ROAD, WEST OF SIGNAL BUTTE ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
800
600
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12:00 AM
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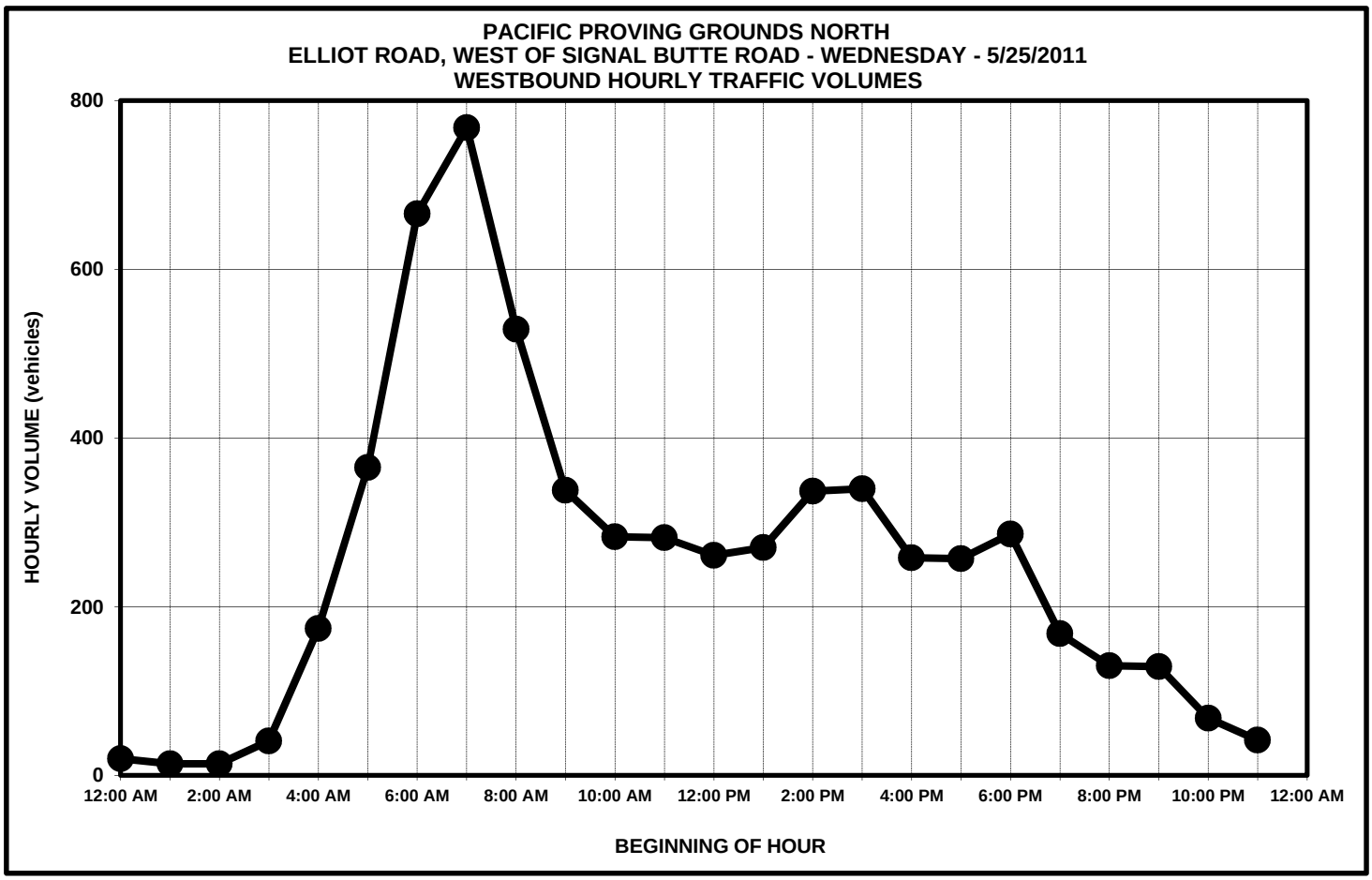
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
ELLIOT ROAD, WEST OF SIGNAL BUTTE ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
800
600
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12:00 AM
2:00 AM
4:00 AM
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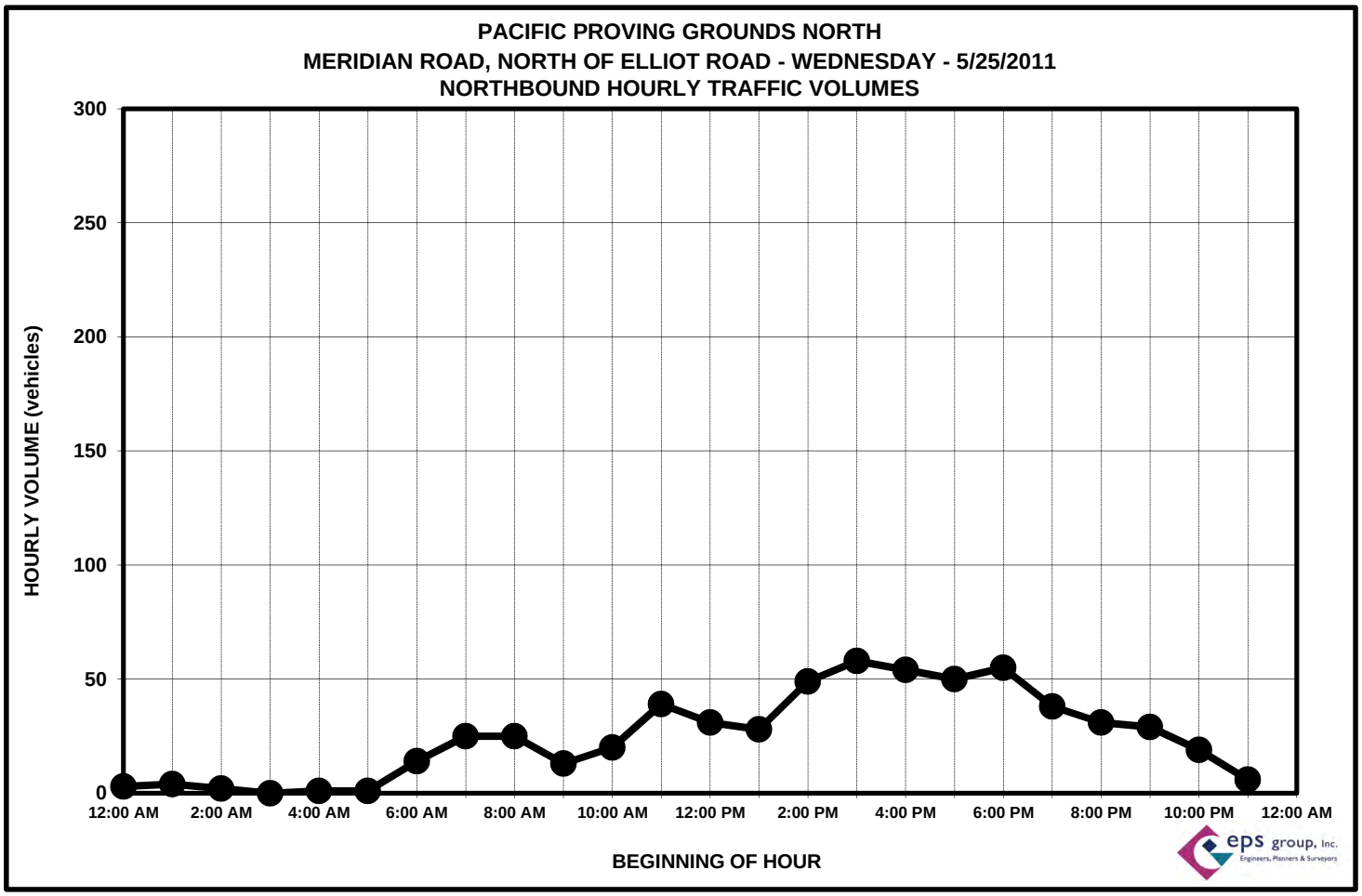
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
MERIDIAN ROAD, NORTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
300
250
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150
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12:00 AM
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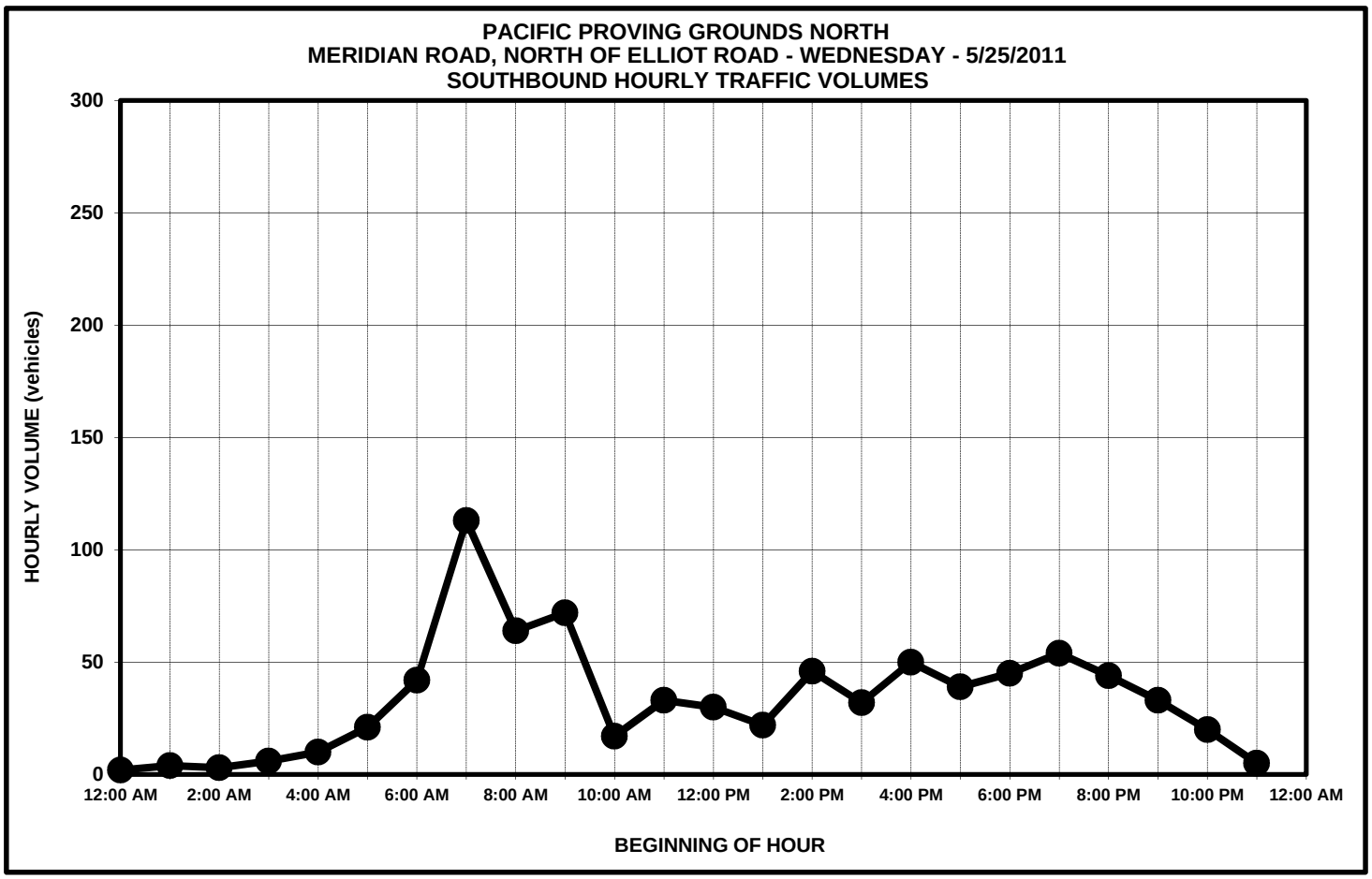
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
MERIDIAN ROAD, NORTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
300
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12:00 AM
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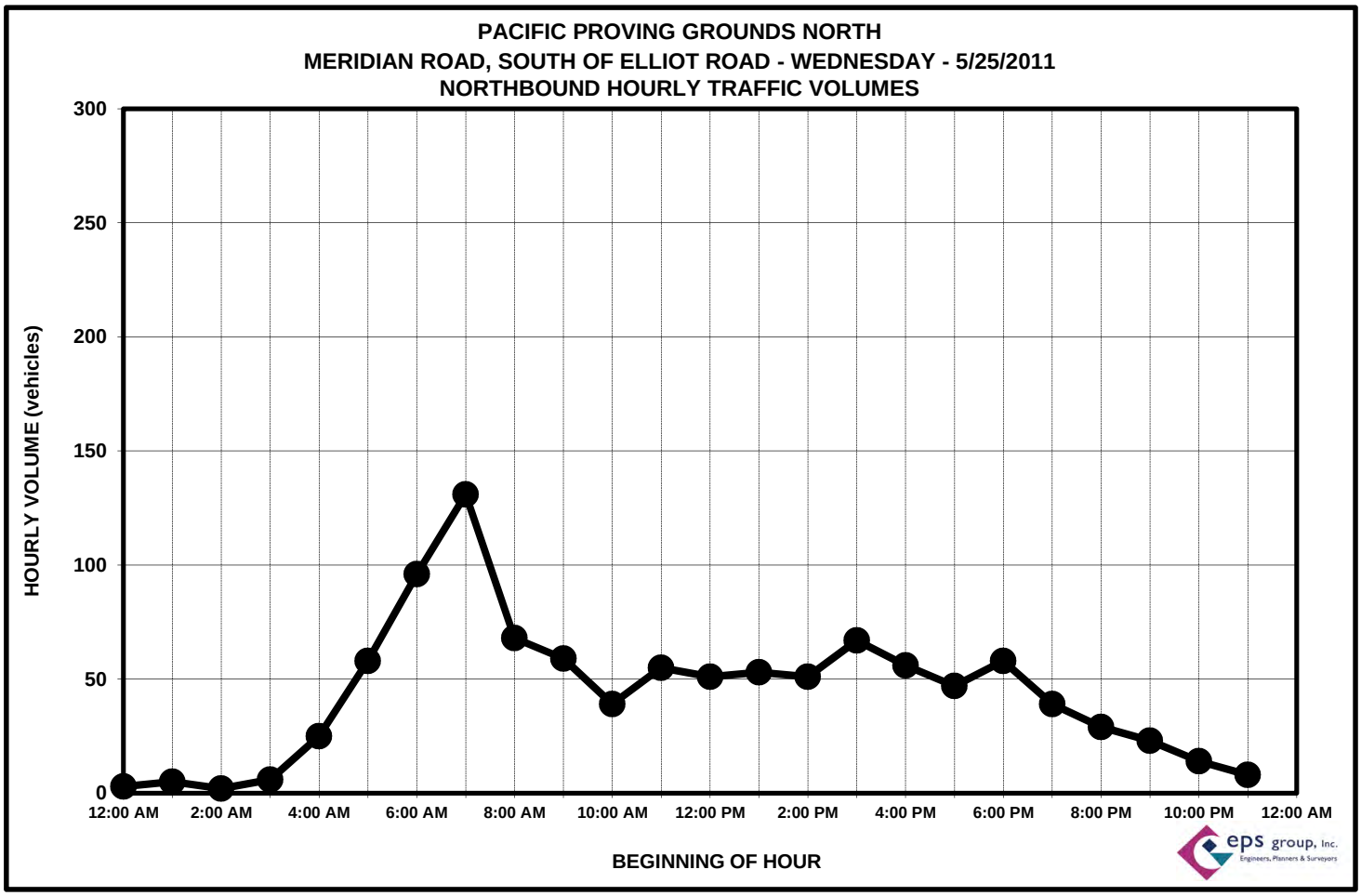
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
MERIDIAN ROAD, SOUTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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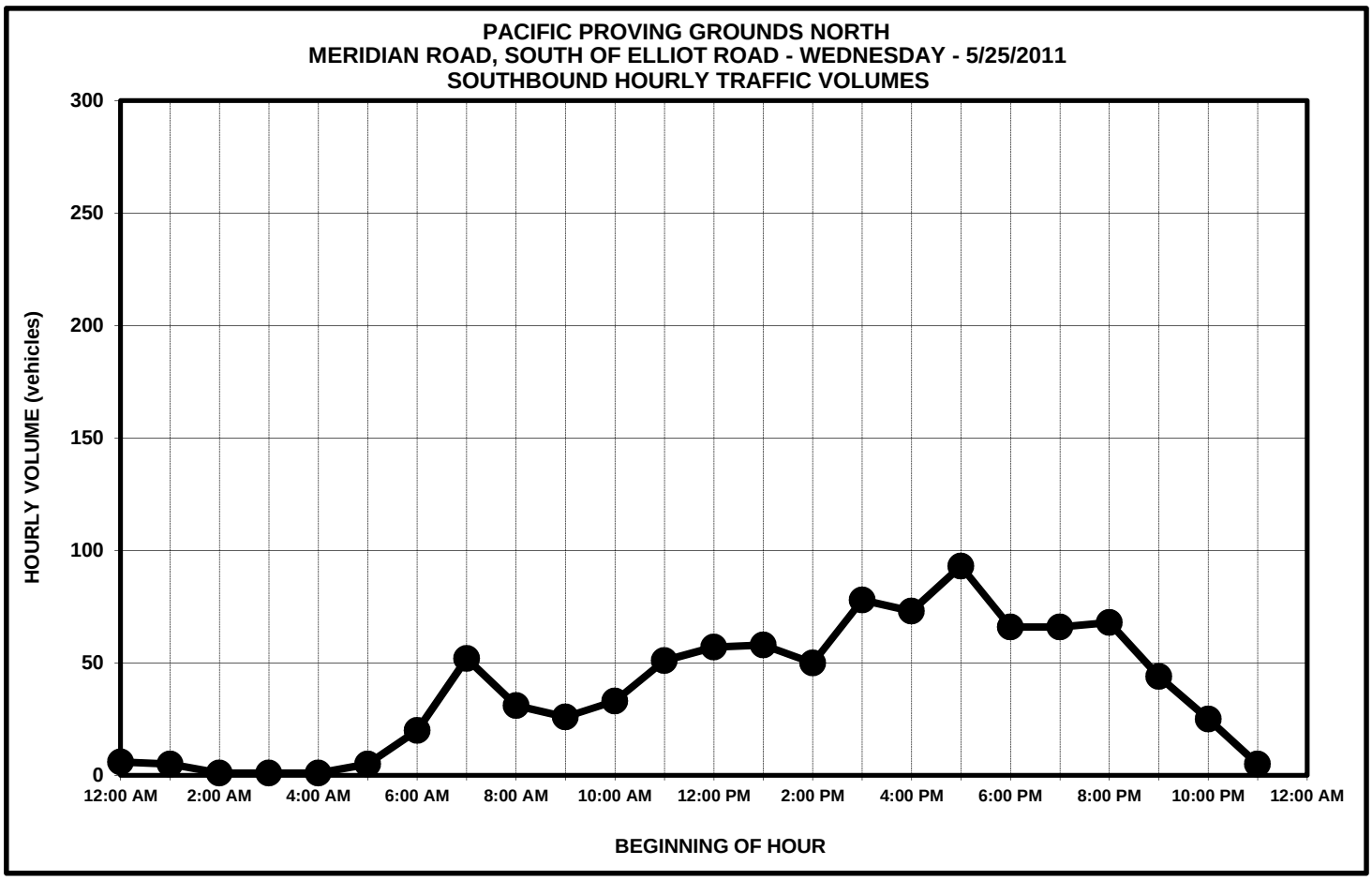
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
MERIDIAN ROAD, SOUTH OF ELLIOT ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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12:00 AM
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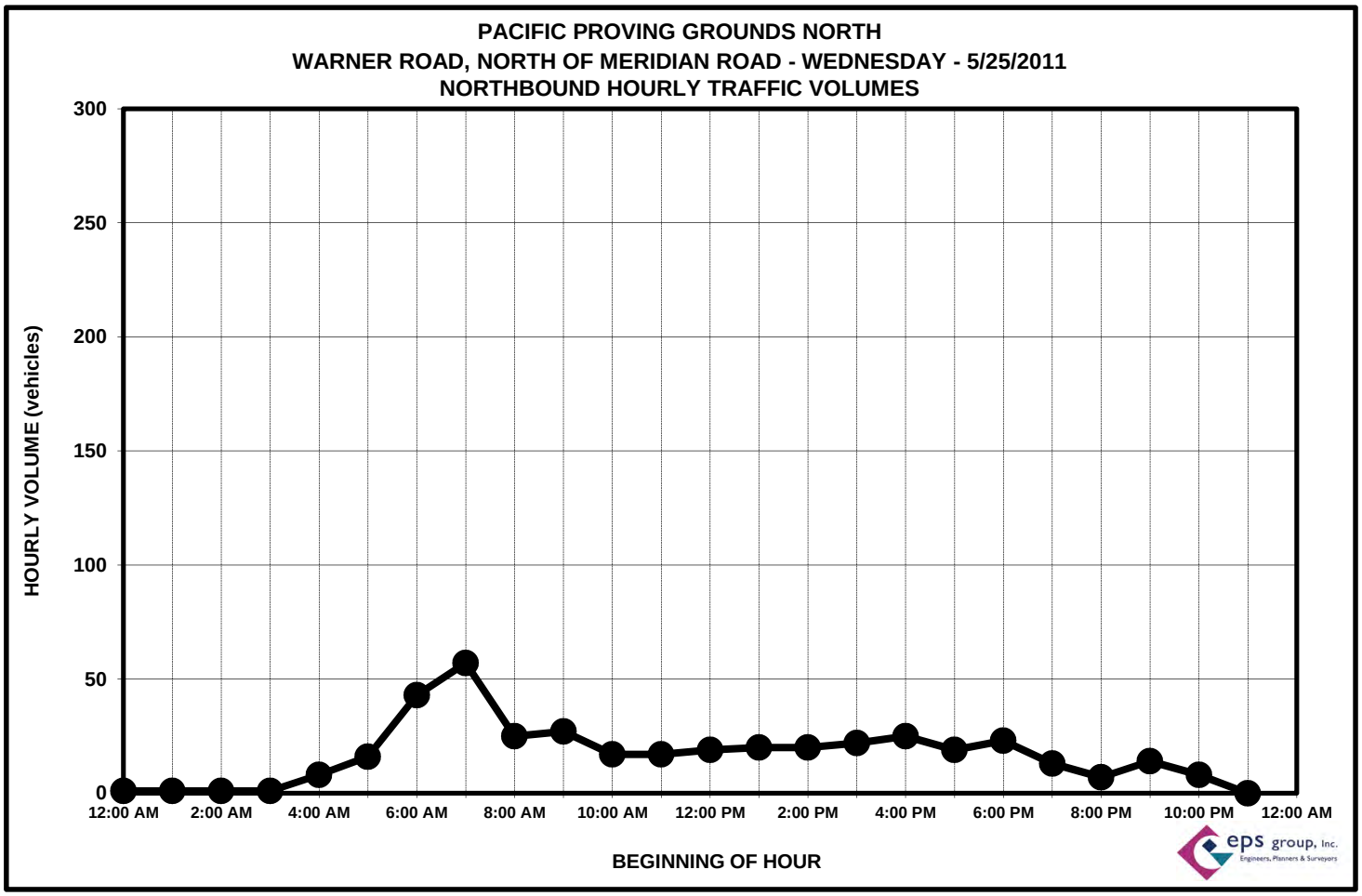
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
WARNER ROAD, NORTH OF MERIDIAN ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
300
250
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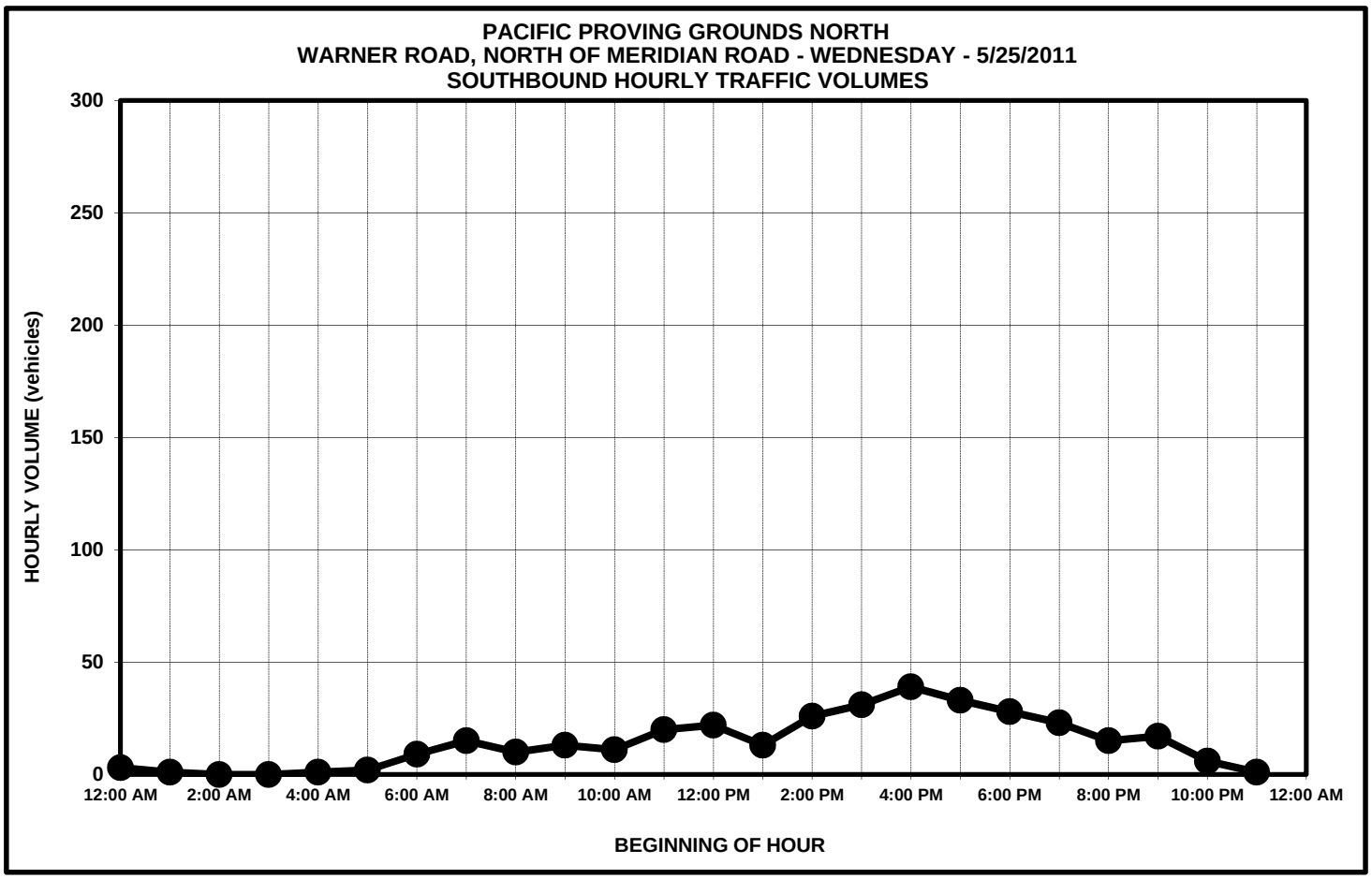
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
WARNER ROAD, NORTH OF MERIDIAN ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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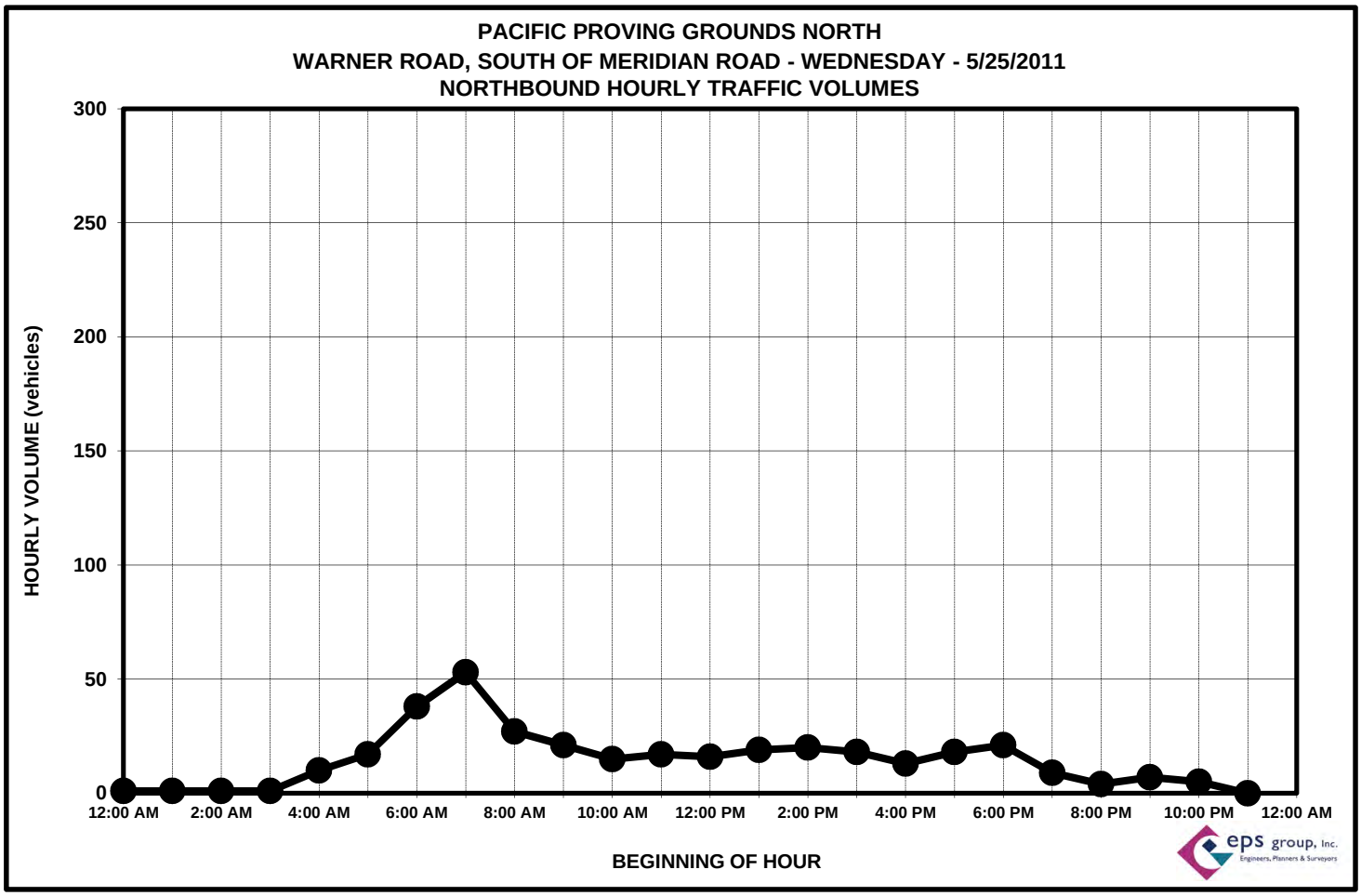
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
WARNER ROAD, SOUTH OF MERIDIAN ROAD - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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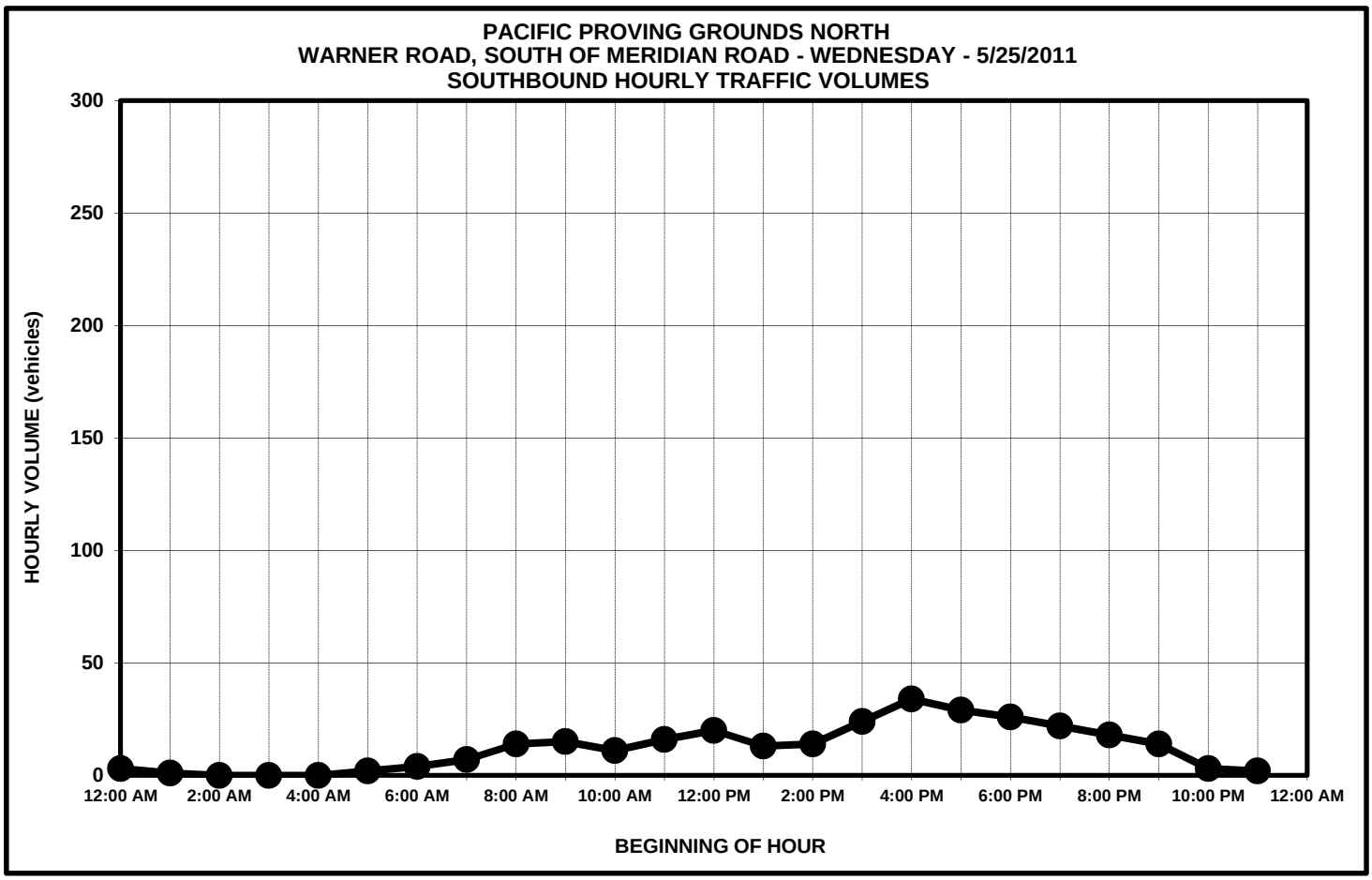
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
WARNER ROAD, SOUTH OF MERIDIAN ROAD - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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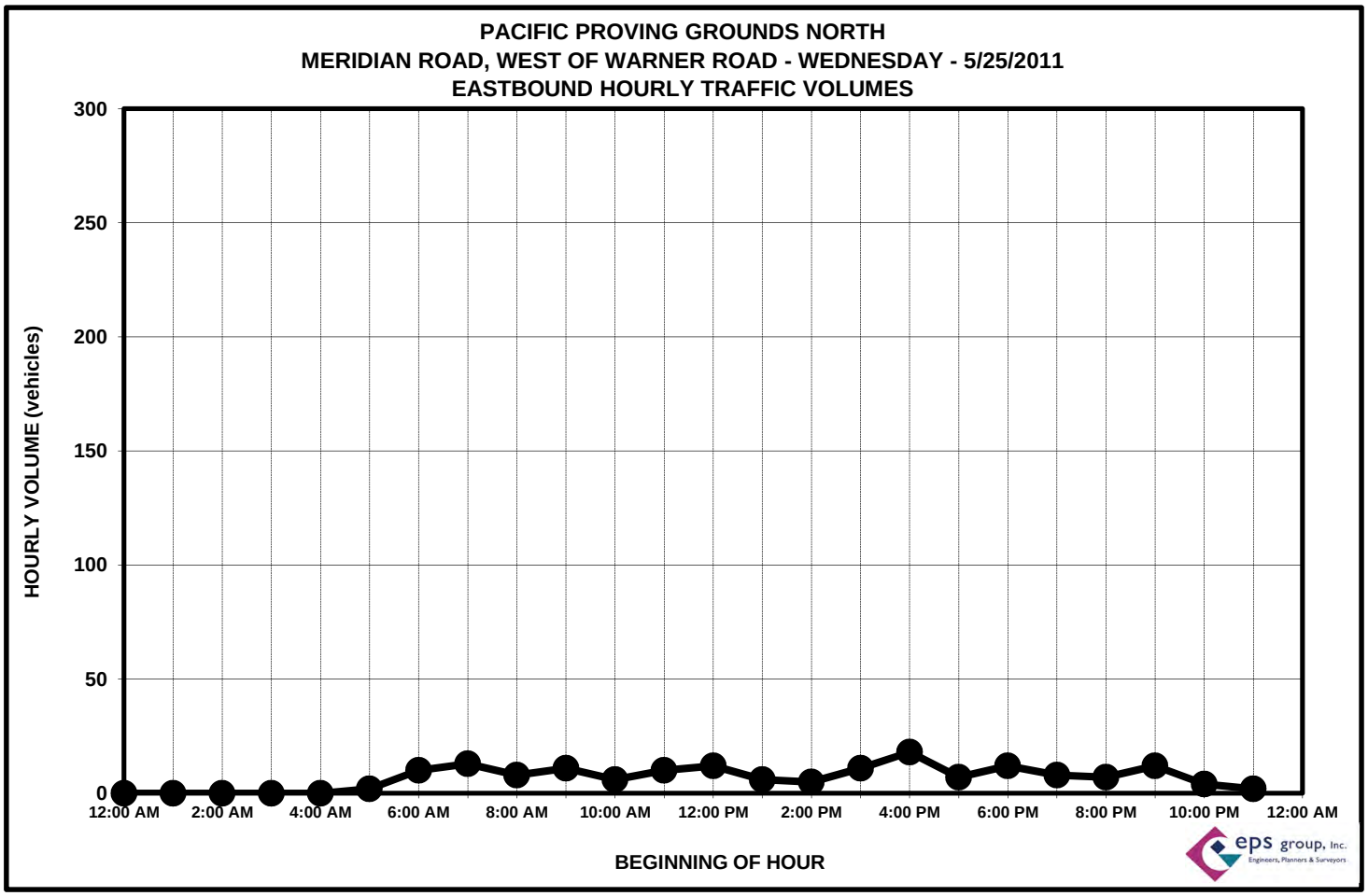
BEGINNING OF HOUR


PACIFIC PROVING GROUNDS NORTH
MERIDIAN ROAD, WEST OF WARNER ROAD - WEDNESDAY - 5/25/2011
EASTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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12:00 AM
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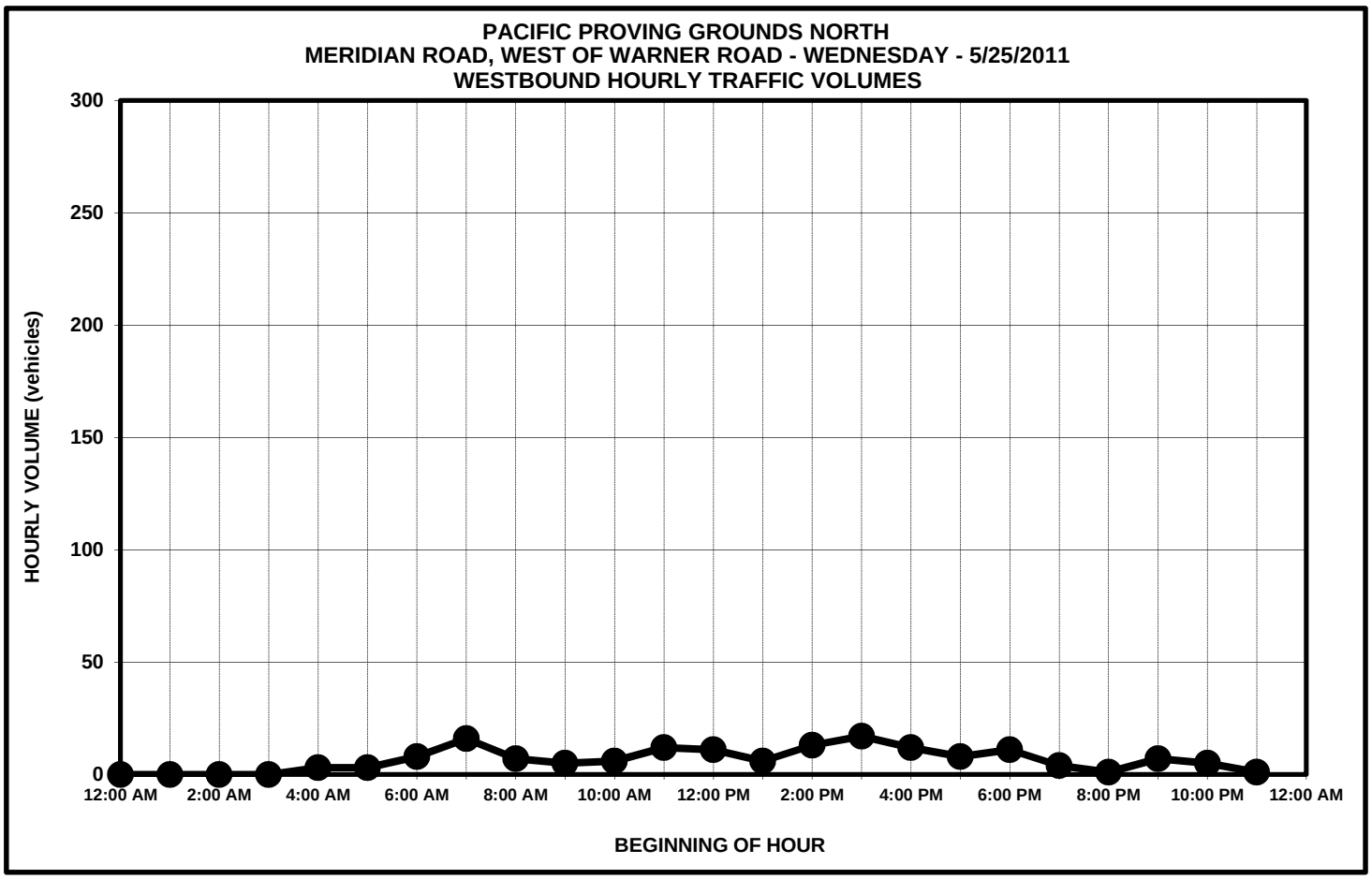
BEGINNING OF HOUR
eps group, Inc.
Engineers, Planners & Surveyors


PACIFIC PROVING GROUNDS NORTH
MERIDIAN ROAD, WEST OF WARNER ROAD - WEDNESDAY - 5/25/2011
WESTBOUND HOURLY TRAFFIC VOLUMES
HOURLY VOLUME (vehicles)
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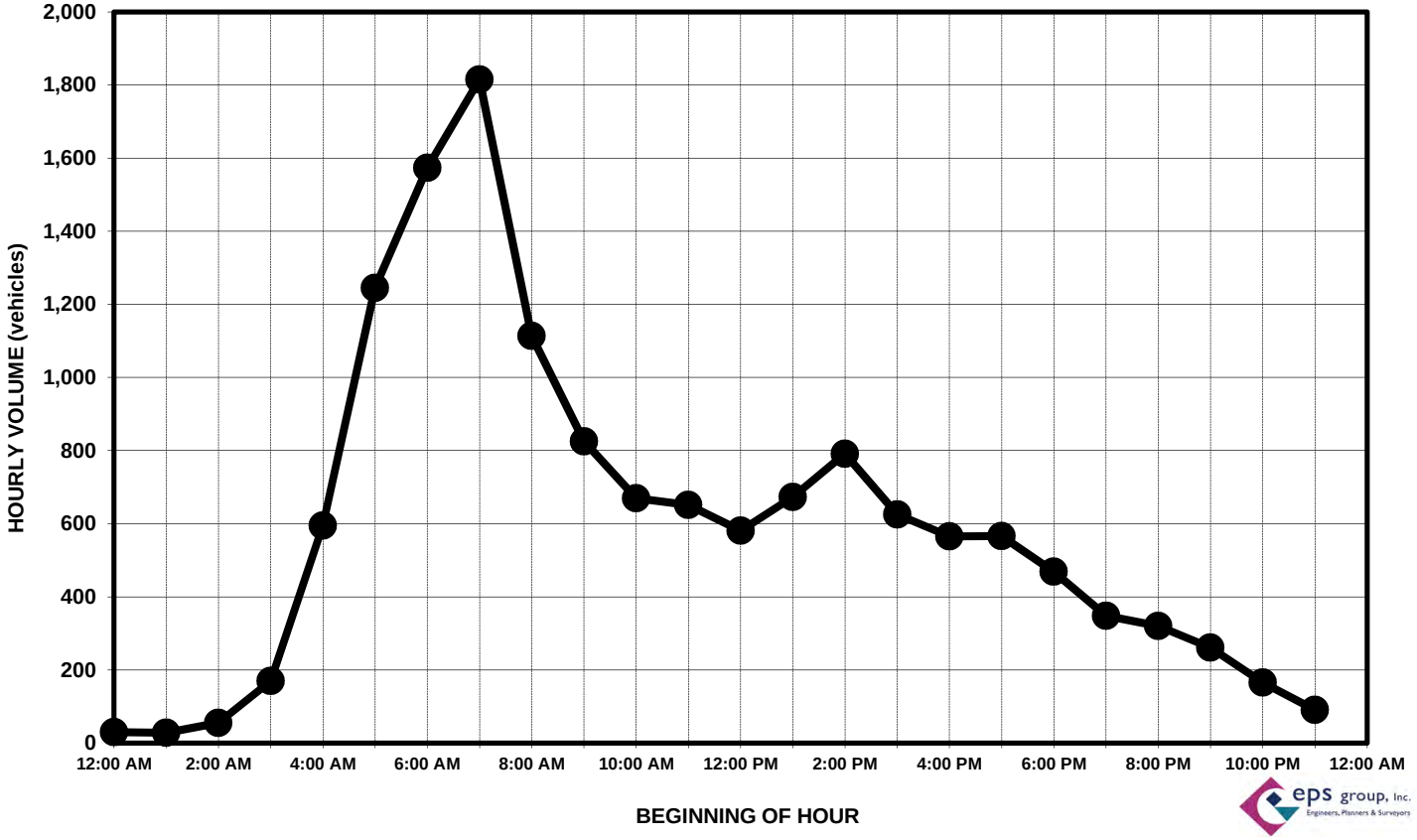
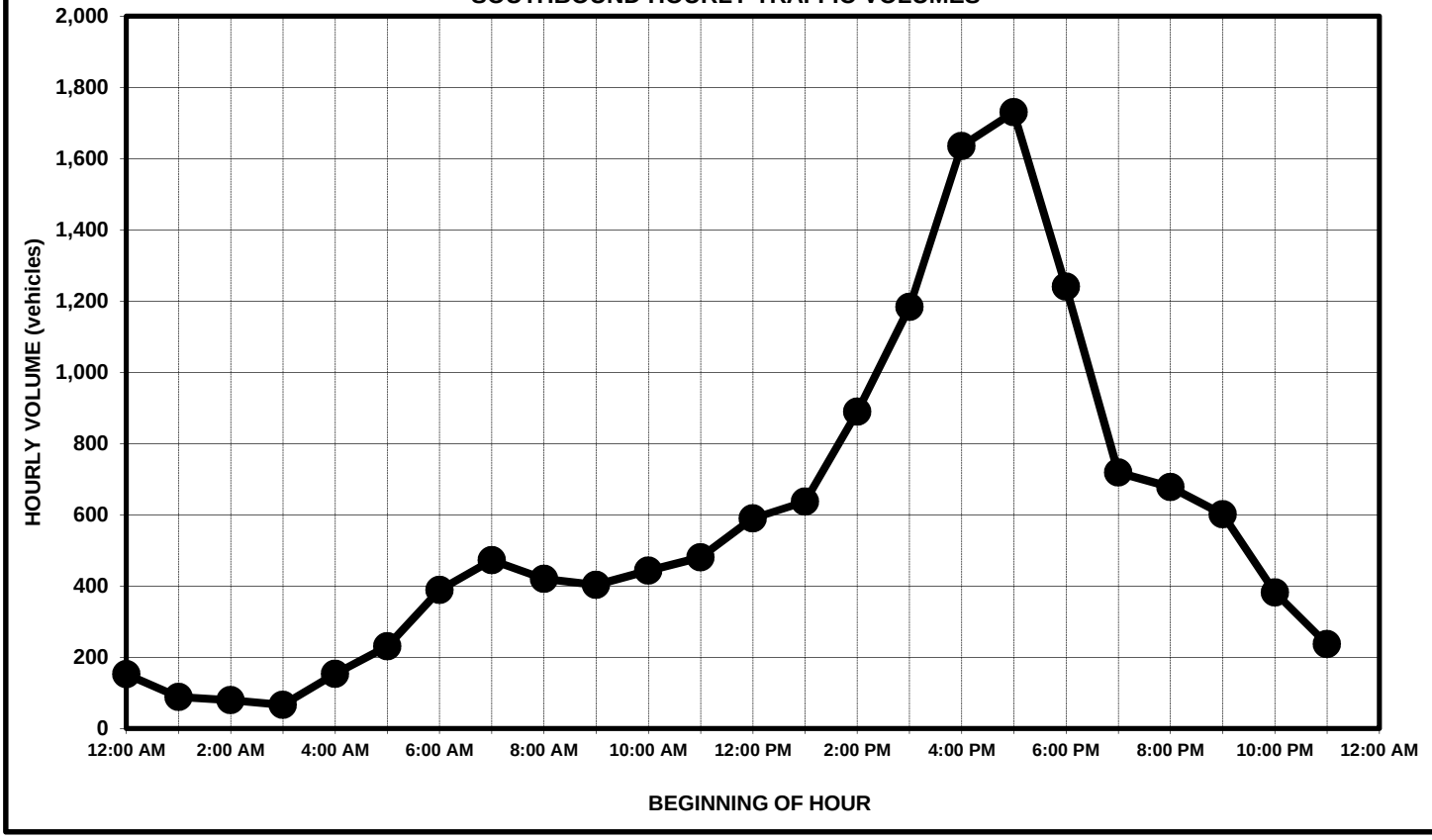
BEGINNING OF HOUR

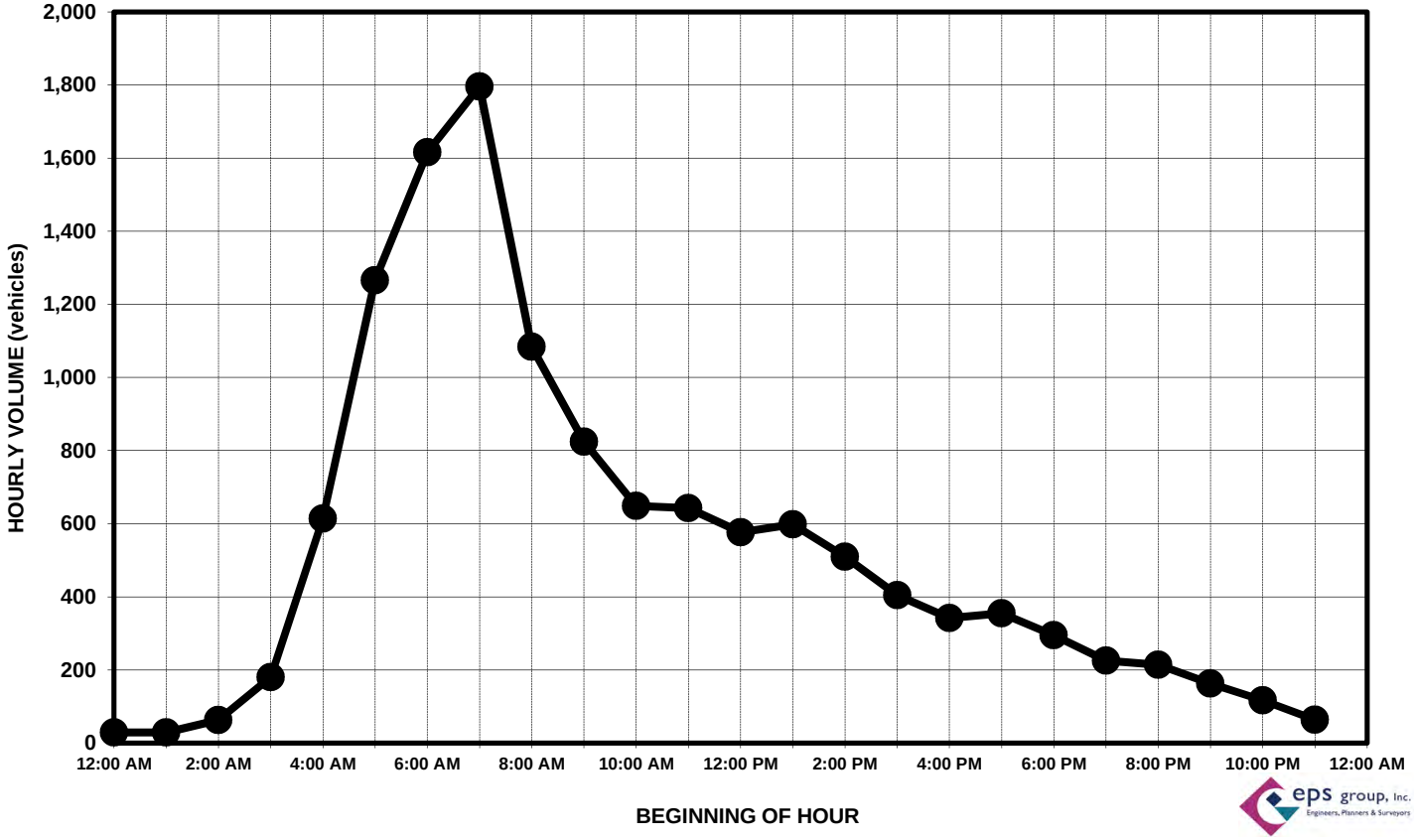
PACIFIC PROVING GROUNDS NORTH
IRONWOOD ROAD and ELLIOT ROAD (ALIGN) - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES




PACIFIC PROVING GROUNDS NORTH
IRONWOOD ROAD and ELLIOT ROAD (ALIGN) - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES

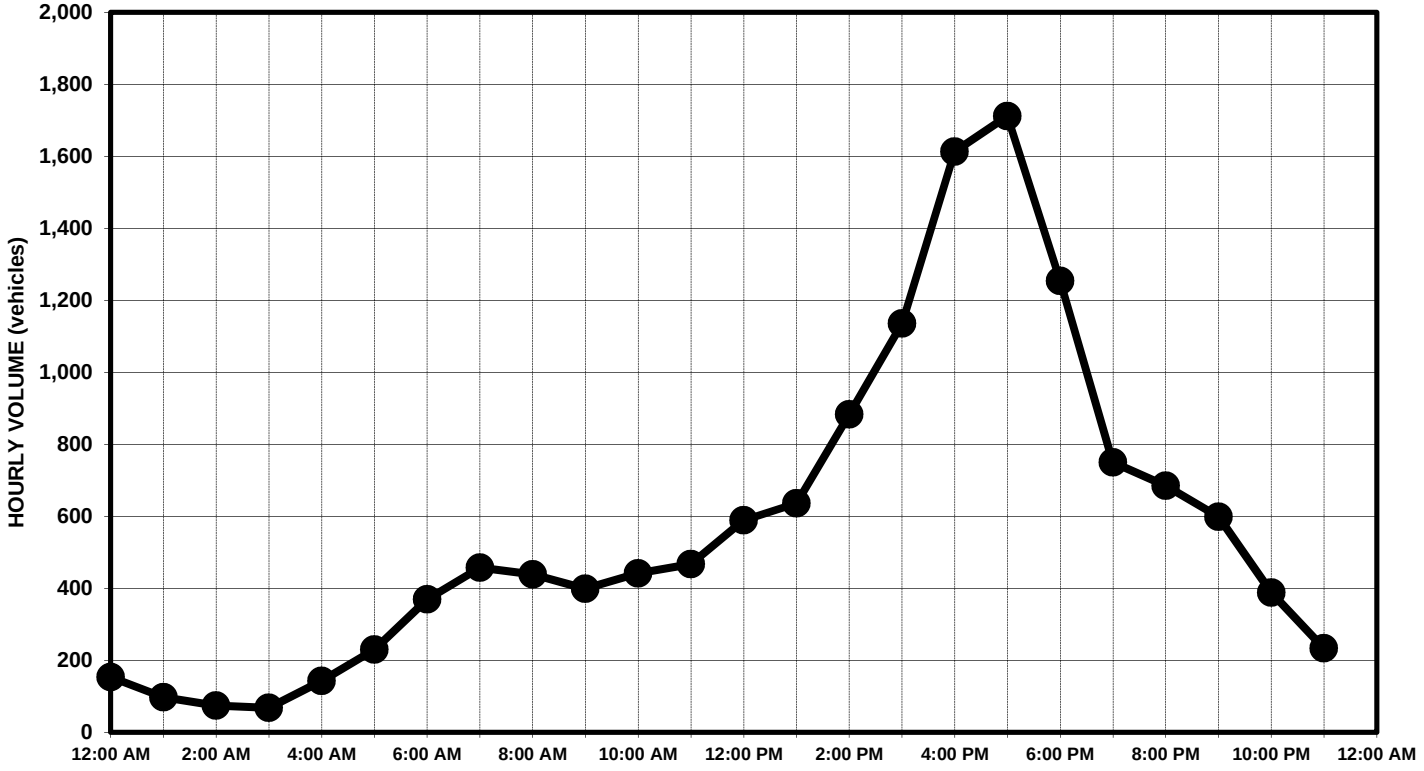


PACIFIC PROVING GROUNDS NORTH
IRONWOOD ROAD and PECOS ROAD (ALIGN) - WEDNESDAY - 5/25/2011
NORTHBOUND HOURLY TRAFFIC VOLUMES




eps group, Inc.
Engineers, Planners & Surveyors

PACIFIC PROVING GROUNDS NORTH
IRONWOOD ROAD and PECOS ROAD (ALIGN) - WEDNESDAY - 5/25/2011
SOUTHBOUND HOURLY TRAFFIC VOLUMES



# *APPENDIX B*
# *2008 DMJM MPG TRANSPORTATION MODEL*

# MESA PROVING GROUNDS

# MASTER TRANSPORTATION PLAN

## FINAL REPORT

Prepared For:

**DMB Associates, Inc.**


Prepared By:

DMJM HARRIS | AECOM

**2777 East Camelback Road, Suite 200**
**Phoenix, Arizona 85016**
**(602) 337 – 2777**


Project No. 60023972

**September 23, 2008**

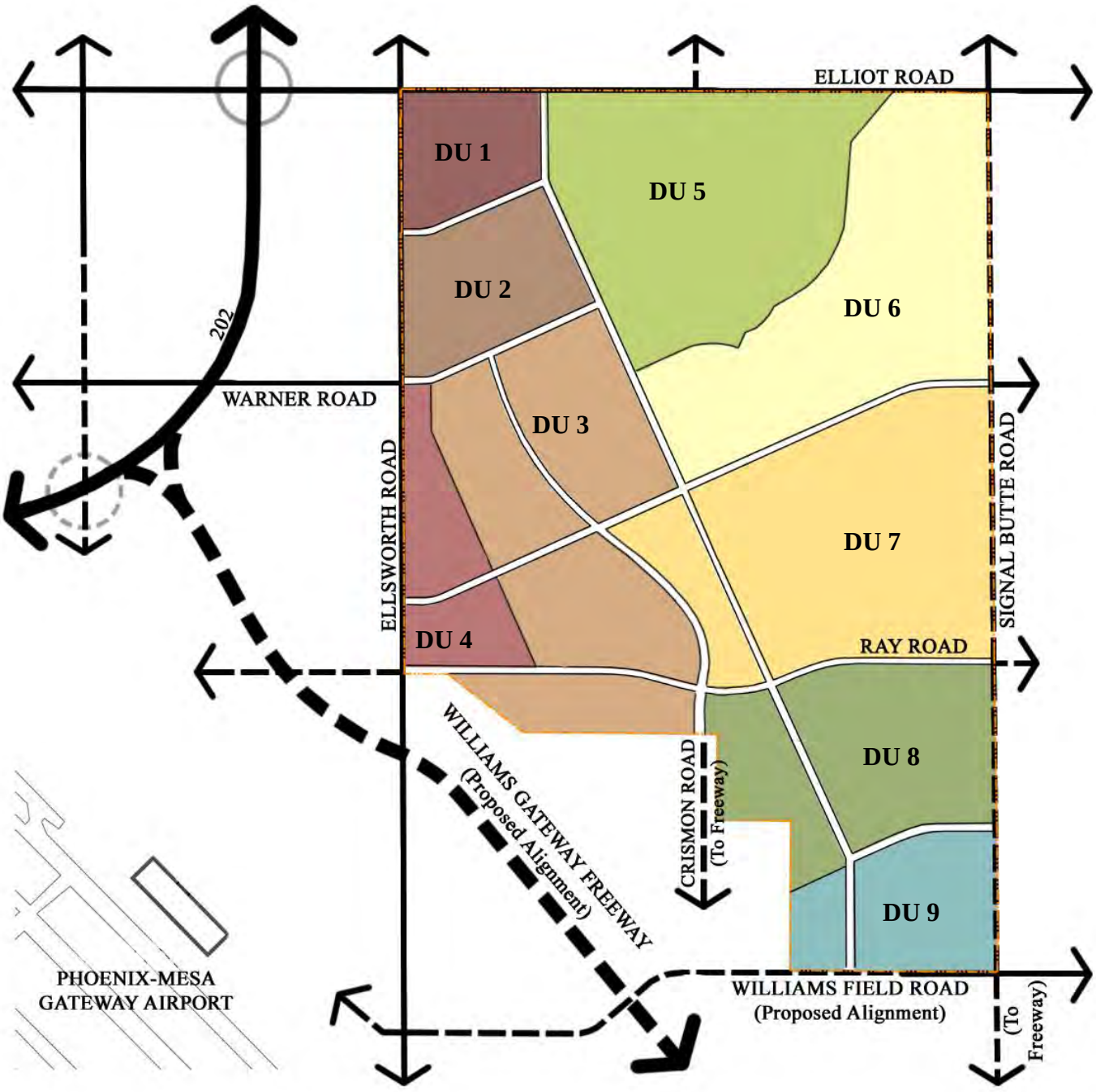



**Figure 2.1 Preliminary Planning Framework**

**Table 2.1 Mesa Proving Grounds Land Use Budget**

| LAND USE BUDGET | | | | | | |
|---|---|---|---|---|---|---|
| DEVELOPMENT UNIT | DWELLING UNITS MINIMUM - MAXIMUM | | G.F.A. OF NON-RESIDENTIAL MINIMUM - MAXIMUM | | ACRES | LAND USE GROUPS |
| DU #1 | 200 | 2,000 | 4,375,000 | 8,750,000 | 130 | OS, CS, GU, UC |
| DU #2 | 390 | 2,800 | 50,000 | 5,500,000 | 190 | D, GU, UC |
| DU #3 | 1,120 | 3,600 | 50,000 | 1,000,000 | 540 | E, V, D, C, GU, UC |
| DU #4 | 200 | 1,350 | 2,250,000 | 6,500,000 | 160 | OS, CS, C, GU, UC |
| DU #5 | 710 | 1,680 | 1,875,000 | 8,750,000 | 500 | E, V, D, R, GU, UC |
| DU #6 | 890 | 3,310 | 0 | 2,000,000 | 500 | E, V, D, C, R, GU |
| DU #7 | 1,270 | 4,060 | 0 | 375,000 | 590 | E, V, D, GU |
| DU #8 | 890 | 2,810 | 0 | 350,000 | 360 | E, V, D, GU |
| DU #9 | 430 | 1,250 | 0 | 3,250,000 | 200 | OS, CS, E, V, D, C, GU, UC |

Mesa Proving Grounds offers an alternative approach to the buildout of a master planned community with a system that seeks to create a sustainable environment. Creative land development planning and the utilization of a multi-modal transportation network will reduce vehicle miles traveled and resultant air quality impacts. Therefore, the planning framework and design for Mesa Proving Grounds allows for a seamless multi-modal transportation system that provides the highest levels of connectivity throughout the community.

## 2.3 Master Street Circulation Plan

Figure 2.2 shows the proposed Master Street Circulation Plan for Mesa Proving Grounds and the design speed/posted speed for each roadway. A hierarchy of roadways, including arterials, collectors/district streets, local and neighborhood streets, is intended to provide efficient vehicular access while remaining appropriate to and preserving the character of adjacent land uses. The proposed Williams Gateway Freeway (SR 802) and SR 202L will serve as high-capacity roadways to facilitate east-west and north-south movement within the region. The local streets will provide parallel facilities to accommodate multi-modal traffic and provide internal and external connectivity throughout the site. The circulation system is founded on an interconnected roadway and transit network, combined with sustainable transportation infrastructure.

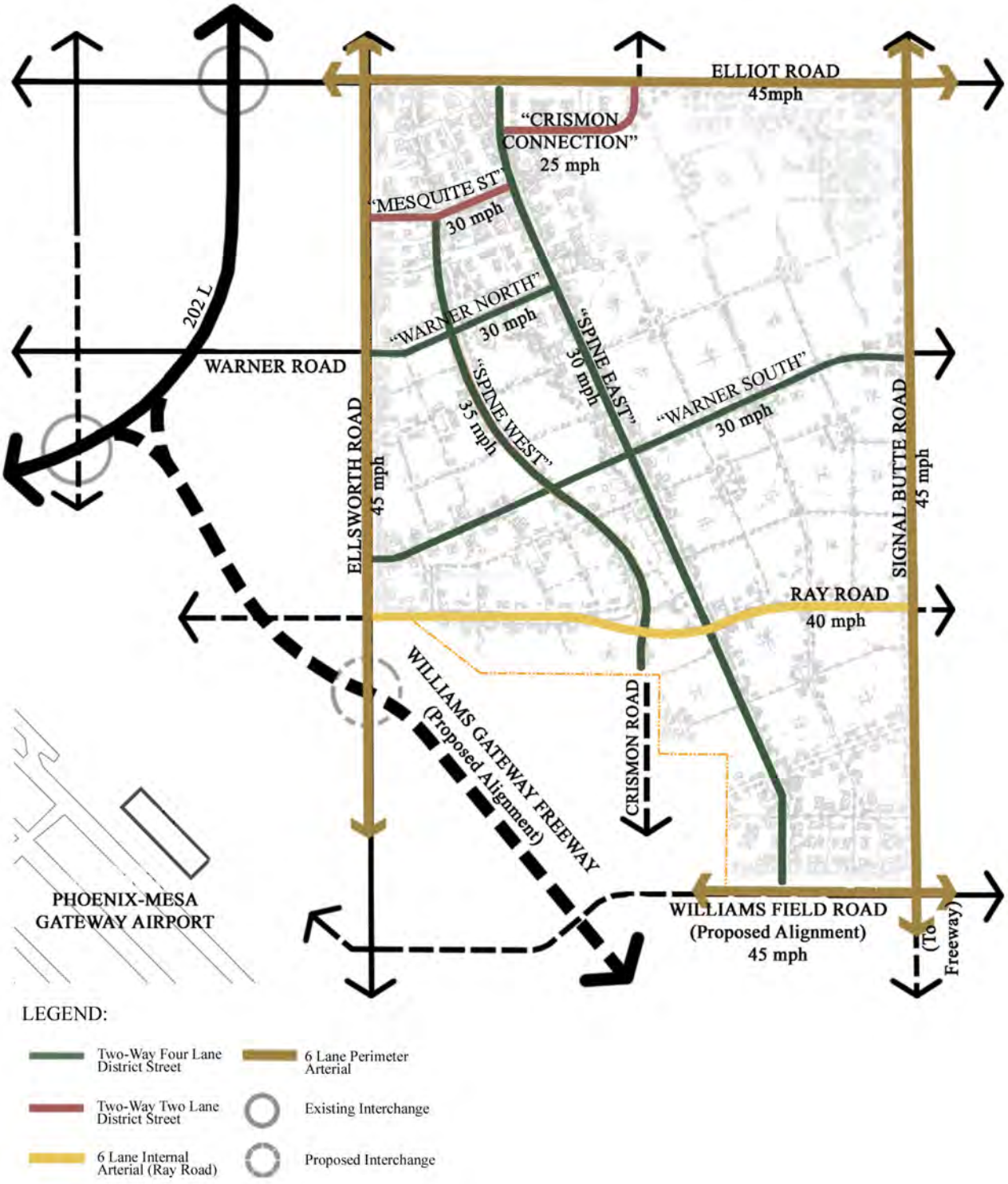



**Figure 2.2 Conceptual Master Street Circulation Plan**

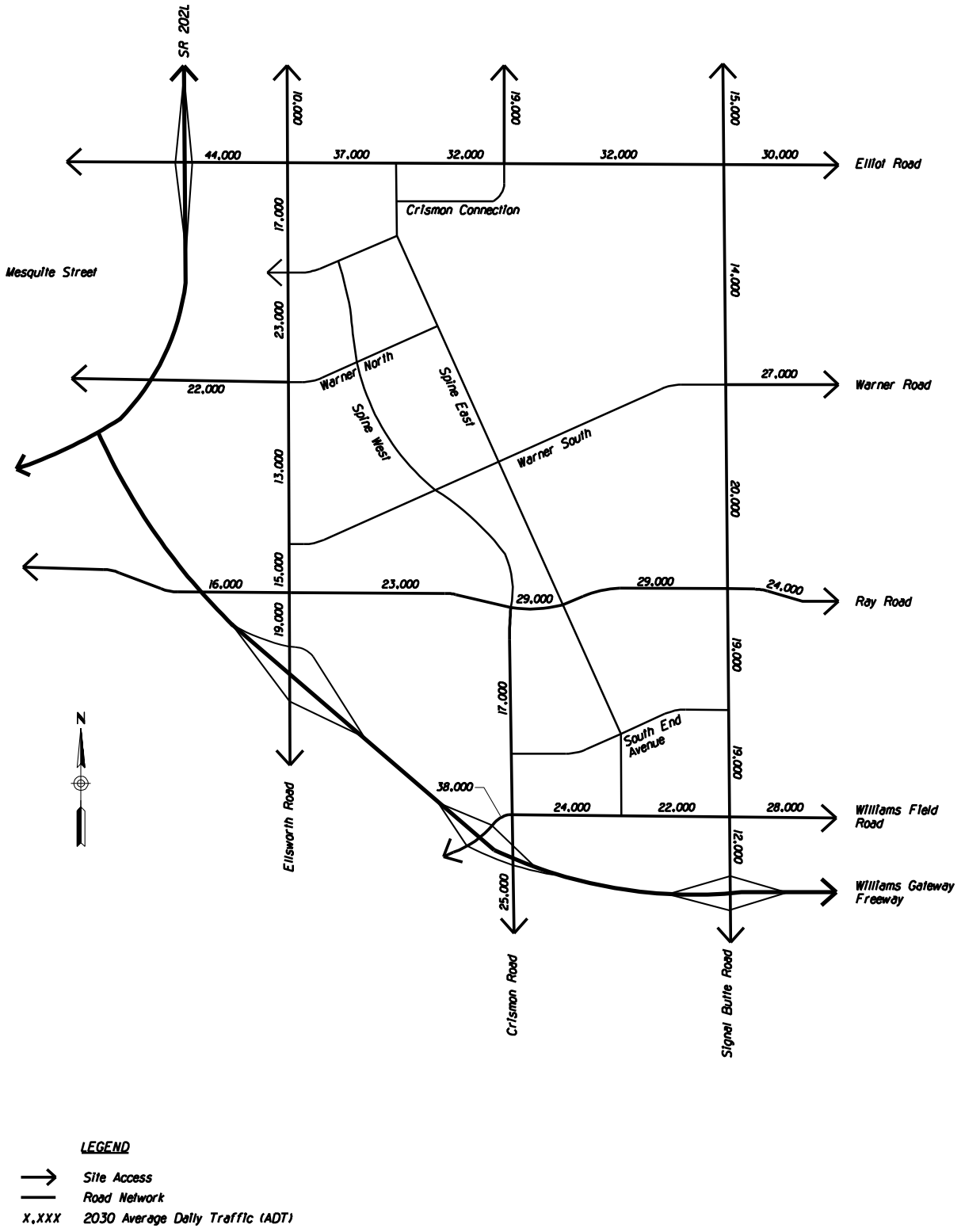



**Figure 3.2 MAG Year 2030 Background Traffic Volumes (Excluding MPG)**

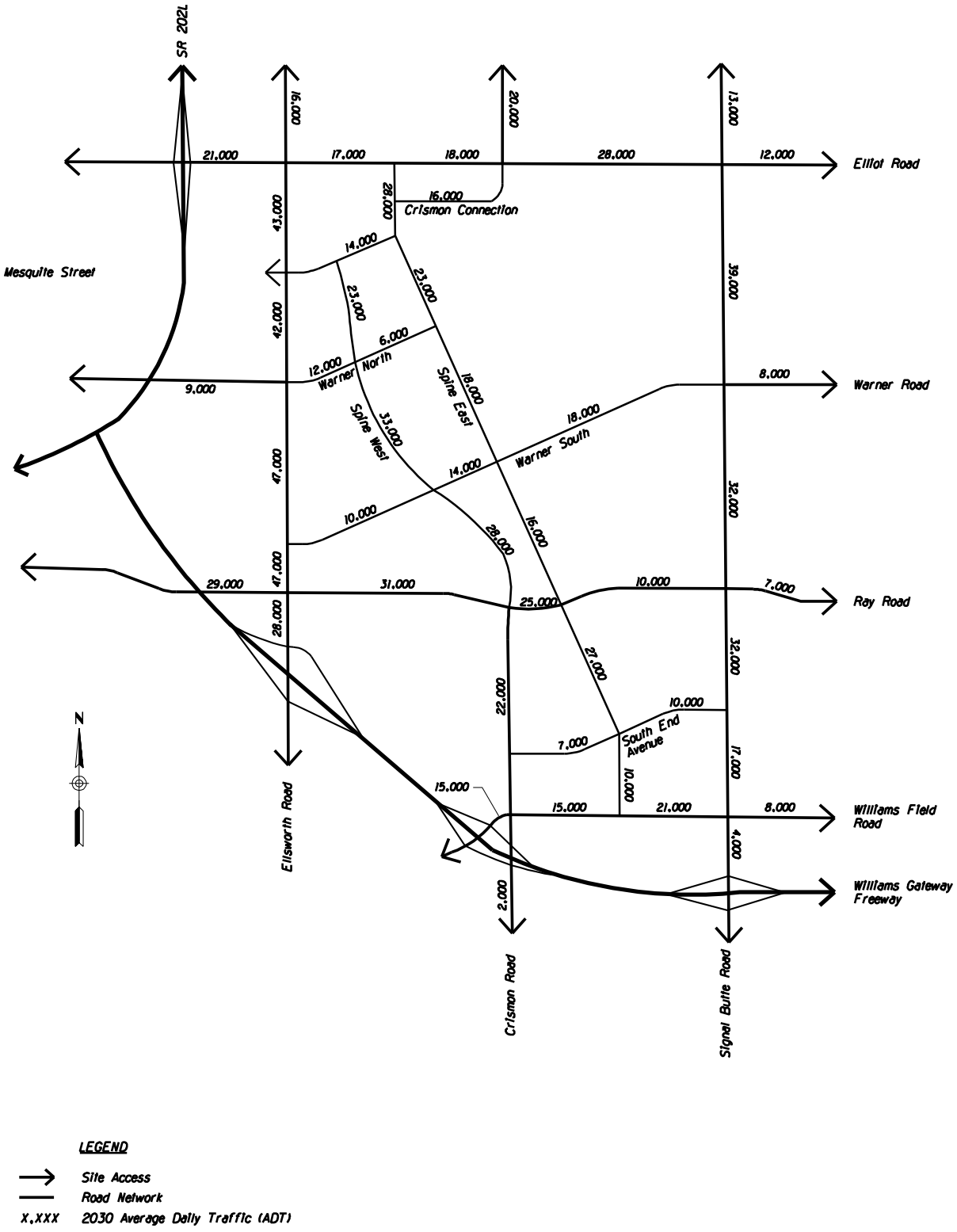



**Figure 4.1 Site Traffic for Mesa Proving Grounds Preliminary Planning Concept**

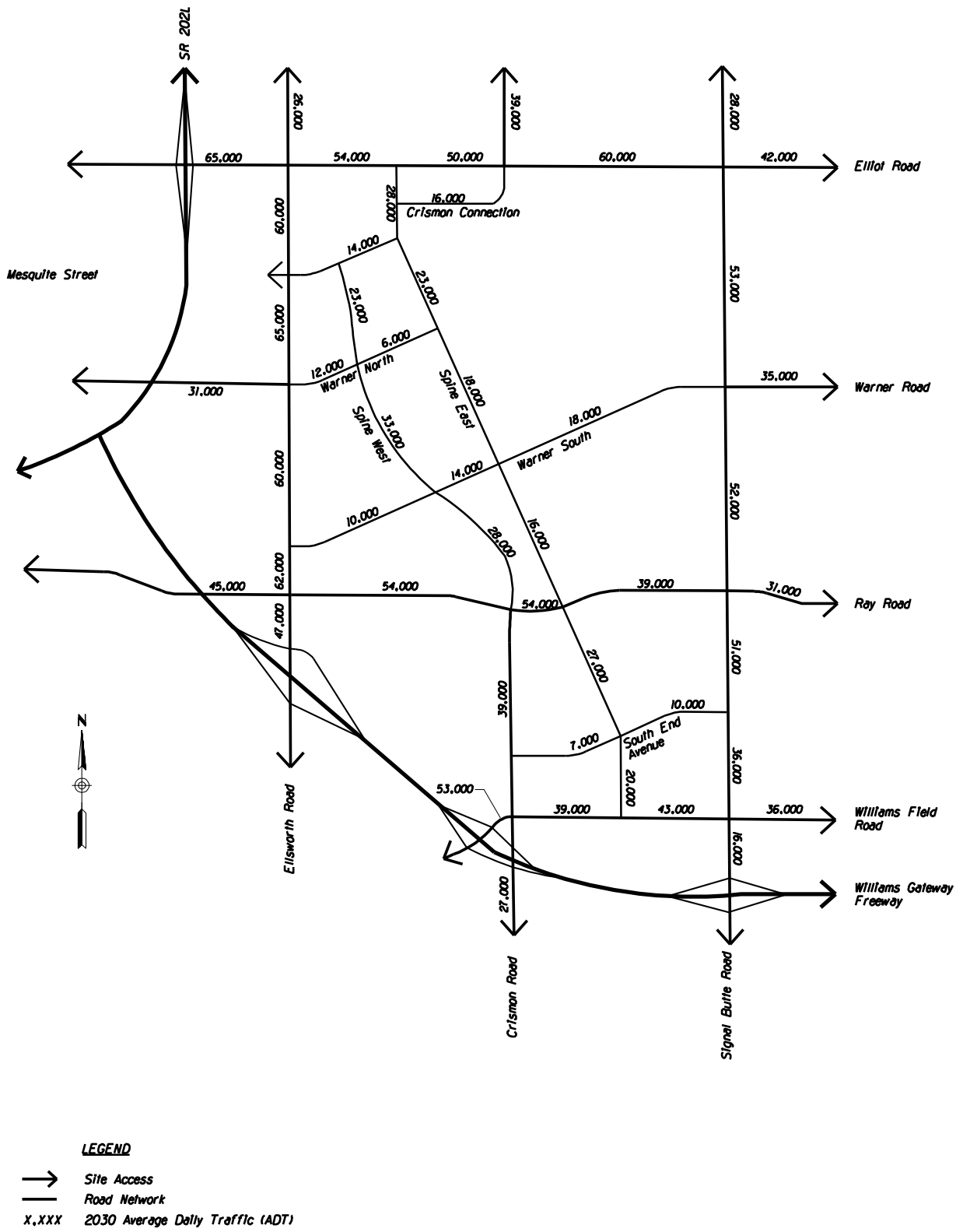



**Figure 4.2 Year 2030 Total Traffic for Mesa Proving Grounds Preliminary Planning Concept**

# *APPENDIX C*
# *2009 HDR MESA GATEWAY TRANSPORTATION MODEL*

City of Mesa

Mesa Gateway

Strategic Development Plan

# Transportation Analysis Memorandum

## Task 3C.4

Prepared for: City of Mesa

Prepared by: HDR Inc.

January 23, 2009

# 2.0 Year 2005 Mesa Gateway Travel Demand Model

This section details the development and validation of the year 2005 Mesa Gateway Travel Demand Model. This model is a sub-area sketch planning tool developed to evaluate alternative land use concepts for the Mesa Gateway Strategic Development Plan.

## *2.1 Year 2005 Socioeconomic Inputs*

MAG traffic analysis zone (TAZ) geography was reviewed and refined to provide more detailed traffic assignments. MAG year 2005 population and employment estimates were disaggregated into the revised zone geography using recent aerial photography and windshield surveys of the study area. Figure 2-1 shows the TAZ geography for the Mesa Gateway Travel Demand Model. Table 2-1 shows a summary of MAG population and employment for the City of Mesa Transportation Planning Area. Population and employment data are shown by TAZ in Appendix A.

Table 2-1: MAG Study Area Population and Employment Estimates

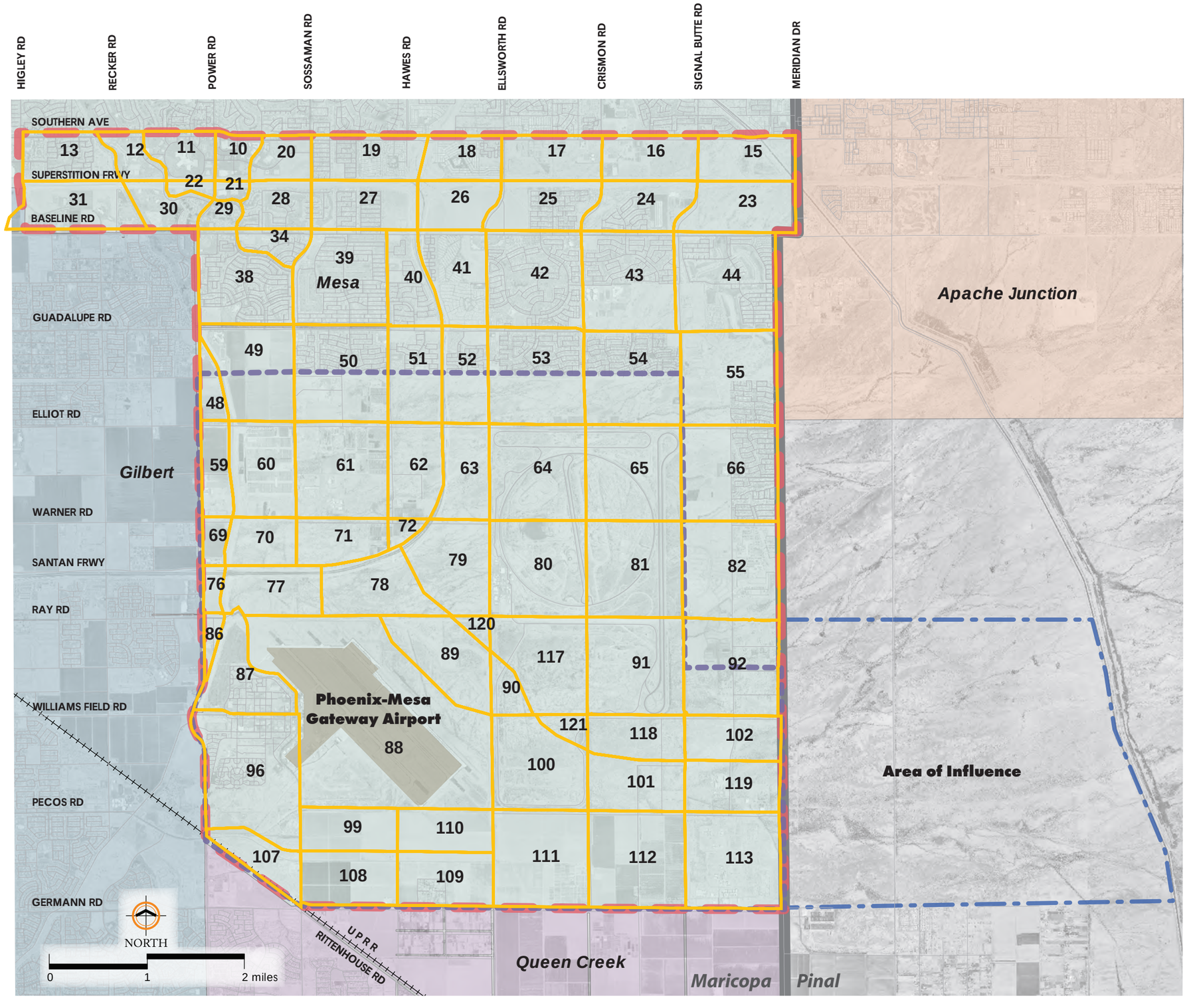
| Description | Dwelling Units | Population | Employment |
|---|---|---|---|
| **2005** | | | |
| **Transportation Planning Study Area** | 24,462 | 48,095 | 15,412 |
| **Land Use Evaluation Area** | 952 | 2,370 | 3,495 |
| **Study Area Total** | **25,414** | **50,465** | **18,907** |

Source: MAG Resident Population, Housing and Employment by Municipal Planning Area and Regional Analysis Zone for July 1, 2010, 2020 and 2030, May 2007.

Year 2005 daily vehicle trips were also estimated for the ASU Polytechnic Campus and the Mesa Gateway Airport.

# Mesa Gateway

Strategic Development Plan




XX Traffic Analysis Zone

STUDY AREA

Land Use Evaluation Area

Transportation Planning Study Area

CITY OF MESA

HDR

January 2008



figure 2-1
traffic analysis zones

## 2.2 Trip Generation

Study area trip generation is based on vehicle trip generation rates developed by HDR based on Institute of Transportation Engineers data and other studies including the National Cooperative Highway Research Program (NCHRP) Report 365 *Travel Estimation Techniques for Urban Planning*. Trips were estimated for three trip purposes: Home-Based Work (HBW); Home-Based Other (HBO); and, Non-Home-Based (NHB). A Home-Based Work trip is the first trip of the day that starts at home and ends at work. It also includes trips directly between work and home at the end of the day. A Home-Based Other trip is a trip from home with a non-work purpose such as shopping, school, or social/recreation. A Non-Home-Based trip is a trip that does not start at home. It could be a trip between work and shopping, for example. Table 2-2 shows the trip generation rates for the various land use categories used in the trip generation analysis.

Table 2-2: Daily Vehicle Trip Generation Rates

| Land Use Description | Units | Daily Rate |
|---|---|---|
| Single Family Detached Dwelling Unit | Household | 9.57 |
| Multi-Family Dwelling Unit | Household | 6.72 |
| Retail | Employment | 21 |
| Office | Employment | 4.5 |
| Public | Employment | 12 |
| Industrial, Manufacturing | Employment | 4 |
| Schools | Students | 0.5 |

Source: HDR Inc., January 2008.

Table 2-3 provides a summary of the year 2005 daily vehicle trip generation estimates by trip purpose for the entire Mesa Gateway sub-area model.

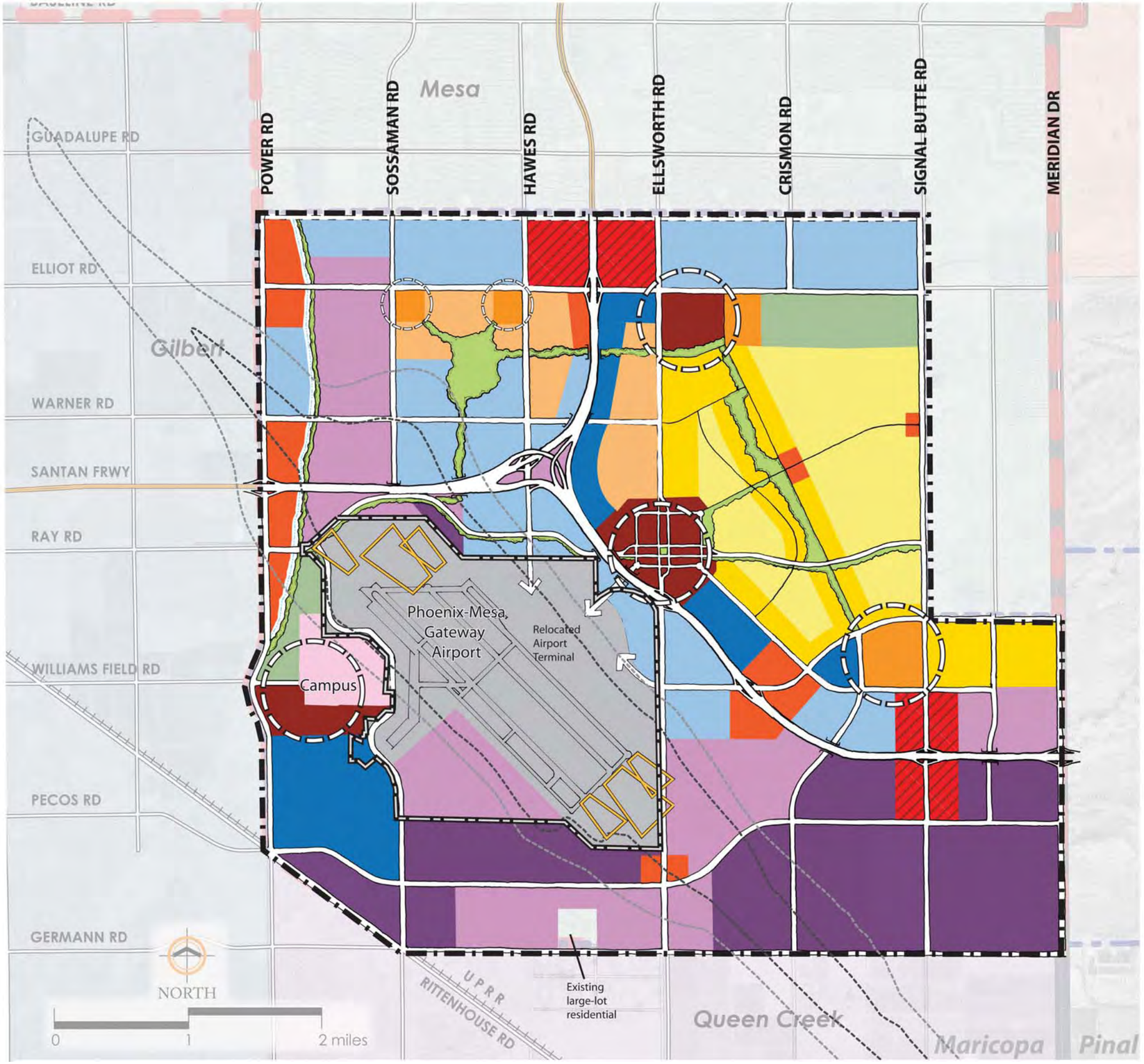
Table 2-3: Year 2005 Daily Trip Summary

| Trip Purpose | Total Trips | Percent Trips |
|---|---|---|
| HBW | 246,600 | 21 |
| HBO | 392,200 | 32 |
| NHB | 258,600 | 21 |
| External | 313,200 | 26 |
| **Total** | **1,210,600** | **100** |

Source: HDR Inc., January 2008.

# Mesa Gateway

## Strategic Development Plan




### Preferred Concept: Study Area Land Uses

- High Density Urban Living
- Community Commercial
- Regional Commercial
- Business Park
- Light Industrial
- General Industrial
- Golf
- Education
- Open Space
- Airport
- Urban Center
- Urban Employment/ Mixed Use
- Village Center
- Medium-High Density Residential
- Blended Residential
- Mixed Use Center
- Study Area Boundary
- Canal
- Airport Access
- Airport property boundary
- Runway Protection Zone
- 60 Dnl Noise Contour*
- 65 Dnl Noise Contour*

* Noise contours are derived from a combination of the 2015 noise exposure contour from the 1993 Williams Gateway Airport Master Plan and the 1993 Williams Gateway Airport Master Plan high range 2020 forecasts.

CITY OF MESA

**May 5, 2008**

**April 18, 2008**



figure 5-1

# alt a illustrative development map

# Appendix A

## Year 2005 Population and Employment estimates by TAZ

Table A-1: Year 2005 Mesa Gateway Travel Demand Model Socioeconomic Data

| TAZ | Dwelling Units | | | Employment | | | School | | |
|---|---|---|---|---|---|---|---|---|---|
| | Single Family | Multi-Family | Total | Retail | Office | Indust. | College | Primary | Secondary |
| 10 | 0 | 0 | 0 | 1308 | 0 | 74 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 2443 | 0 | 90 | 0 | 0 | 0 |
| 12 | 0 | 49 | 49 | 1909 | 62 | 90 | 0 | 0 | 0 |
| 13 | 486 | 361 | 847 | 0 | 245 | 256 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 140 | 0 | 81 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 | 181 | 0 | 0 | 0 |
| 18 | 448 | 0 | 448 | 18 | 0 | 100 | 0 | 0 | 0 |
| 19 | 824 | 5 | 829 | 79 | 0 | 79 | 0 | 0 | 0 |
| 20 | 0 | 0 | 0 | 0 | 929 | 662 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 | 650 | 0 | 25 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | 198 | 27 | 225 | 0 | 0 | 185 | 0 | 0 | 0 |
| 25 | 558 | 7 | 565 | 0 | 0 | 66 | 0 | 0 | 0 |
| 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 715 | 8 | 723 | 61 | 99 | 99 | 0 | 0 | 0 |
| 28 | 405 | 0 | 405 | 0 | 0 | 55 | 0 | 0 | 0 |
| 29 | 0 | 405 | 405 | 171 | 0 | 25 | 0 | 0 | 0 |
| 30 | 0 | 291 | 291 | 203 | 90 | 148 | 0 | 0 | 0 |
| 31 | 10 | 232 | 242 | 29 | 0 | 378 | 0 | 0 | 0 |
| 34 | 398 | 0 | 398 | 42 | 0 | 38 | 0 | 0 | 0 |
| 38 | 1532 | 0 | 1532 | 377 | 287 | 274 | 0 | 887 | 0 |
| 39 | 1620 | 93 | 1713 | 0 | 0 | 316 | 0 | 0 | 0 |
| 40 | 763 | 43 | 806 | 0 | 0 | 0 | 0 | 0 | 0 |
| 41 | 1398 | 0 | 1398 | 118 | 1 | 194 | 0 | 0 | 0 |
| 42 | 1439 | 241 | 1680 | 387 | 0 | 259 | 0 | 1421 | 0 |
| 43 | 675 | 12 | 687 | 2 | 2 | 288 | 0 | 3411 | 2260 |
| 44 | 1013 | 82 | 1095 | 0 | 0 | 473 | 0 | 0 | 0 |
| 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 49 | 3 | 0 | 3 | 0 | 0 | 103 | 0 | 1382 | 0 |
| 50 | 839 | 0 | 839 | 193 | 0 | 258 | 0 | 0 | 0 |
| 51 | 482 | 0 | 482 | 99 | 0 | 0 | 0 | 0 | 0 |
| 52 | 282 | 58 | 340 | 2 | 0 | 68 | 0 | 0 | 0 |
| 53 | 802 | 12 | 814 | 69 | 154 | 164 | 0 | 1095 | 0 |
| 54 | 731 | 0 | 731 | 0 | 0 | 24 | 0 | 0 | 0 |
| 55 | 367 | 8 | 375 | 0 | 0 | 96 | 0 | 0 | 0 |
| 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 48 | 0 | 48 | 0 | 0 | 103 | 0 | 0 | 0 |
| 61 | 21 | 0 | 21 | 20 | 0 | 0 | 0 | 881 | 0 |

Table A-1 (Cont'd): Year 2005 Mesa Gateway Travel Demand Model Socioeconomic Data

| | Dwelling Units | | | Employment | | | School | | |
|---|---|---|---|---|---|---|---|---|---|
| TAZ | Single Family | Multi-Family | Total | Retail | Office | Indust. | College | Primary | Secondary |
| 62 | 10 | 0 | 10 | 0 | 0 | 137 | 0 | 0 | 0 |
| 63 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 |
| 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 | 738 | 0 | 738 | 2 | 0 | 113 | 0 | 868 | 0 |
| 69 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 |
| 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 71 | 0 | 0 | 0 | 0 | 0 | 56 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79 | 12 | 0 | 12 | 0 | 0 | 50 | 0 | 0 | 0 |
| 80 | 0 | 0 | 0 | 0 | 0 | 272 | 0 | 0 | 0 |
| 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 82 | 2 | 0 | 2 | 0 | 0 | 54 | 0 | 0 | 0 |
| 86 | 16 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 |
| 87 | 110 | 17 | 127 | 0 | 0 | 1263 | 6500 | 3000 | 0 |
| 88 | 0 | 0 | 0 | 0 | 0 | 356 | 0 | 0 | 0 |
| 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 92 | 88 | 0 | 88 | 0 | 0 | 6 | 0 | 0 | 0 |
| 96 | 154 | 23 | 177 | 16 | 0 | 32 | 0 | 0 | 0 |
| 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 101 | 17 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102 | 2 | 0 | 2 | 0 | 0 | 201 | 0 | 0 | 0 |
| 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 108 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 109 | 60 | 0 | 60 | 0 | 0 | 1 | 0 | 0 | 0 |
| 110 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 111 | 3 | 0 | 3 | 36 | 0 | 0 | 0 | 0 | 0 |
| 112 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 113 | 1 | 0 | 1 | 0 | 0 | 810 | 0 | 0 | 0 |
| 117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 120 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Source: HDR Engineering, January 2008; Maricopa Association of Governments, July 2007.

# Appendix B
## Year 2005 External Trip Estimates

Table B-1: Year 2005 Mesa Gateway Travel Demand Model External Stations

| Zone | Location Description | Year 2005 Daily Traffic Count | External Trip Estimate | I-E Trip Estimate |
|---|---|---|---|---|
| 130 | Southern Ave West of Higley Rd | 23,400 | 5,400 | 18,000 |
| 131 | US 60 West of Higley Rd | 120,000 | 73,200 | 46,800 |
| 132 | Baseline Rd West of Higley Rd | 21,800 | 5,900 | 15,900 |
| 133 | Guadalupe Rd West of Higley Rd | 20,400 | 15,900 | 4,500 |
| 134 | Elliot Rd West of Higley Rd | 12,500 | 3,000 | 9,500 |
| 135 | Warner Rd West of Higley Rd | 10,100 | 2,400 | 7,700 |
| 136 | Loop 202 West of Higley Rd | 19,000 | - | 19,000 |
| 137 | Ray Rd West of Higley Rd | 9,610 | 2,020 | 7,590 |
| 138 | Williams Field Rd West of Higley Rd | 19,200 | 6,200 | 13,000 |
| 139 | Pecos Rd West of Higley Rd | 7,900 | 4,100 | 3,800 |
| 140 | Germann Rd West of Higley Rd | 13,600 | 11,600 | 2,000 |
| 141 | Higley Rd South of Germann Rd | 23,800 | 19,200 | 4,600 |
| 142 | Power Rd South of Germann Rd | 22,000 | 14,600 | 8,400 |
| 143 | Sossaman Rd South of Germann Rd | 14,200 | 7,300 | 6,900 |
| 144 | Ellsworth Rd South of Germann Rd | 28,000 | 18,200 | 9,800 |
| 145 | Crismon Rd South of Germann Rd | 500[1] | - | 500 |
| 146 | Signal Butte Rd South of Germann Rd | 500[1] | - | 500 |
| 147 | Germann Rd East of Meridian Rd | 500[1] | - | 500 |
| 148 | Pecos Rd East of Meridian Rd | 500[1] | - | 500 |
| 149 | Williams Field Rd East of Meridian Rd | 500[1] | - | 500 |
| 150 | Warner Rd East of Meridian Rd | 500[1] | - | 500 |
| 151 | Elliot Rd East of Meridian Rd | 2,800 | 1,800 | 1,000 |
| 153 | Baseline Rd East of Meridian Rd | 11,500 | 7,600 | 3,900 |
| 154 | US 60 East of Meridian Rd | 69,000 | 56,700 | 12,300 |
| 155 | Southern Ave East of Meridian Rd | 9,000 | 2,250 | 6,750 |
| 156 | Meridian Rd North of Southern Ave | 8,050 | 6,600 | 1,450 |
| 157 | Signal Butte Rd North of Southern Ave | 18,000 | 7,200 | 10,800 |
| 158 | Crismon Rd North of Southern Ave | 16,100 | 7,730 | 8,370 |
| 159 | Ellsworth Rd North of Southern Ave | 24,800 | 9,670 | 15,130 |
| 161 | Hawes Rd North of Southern Ave | 2,700 | 620 | 2,080 |
| 162 | Sossaman Rd North of Southern Ave | 19,700 | 5,100 | 14,600 |
| 164 | Power Rd North of Southern Ave | 52,400 | 11,530 | 40,870 |
| 165 | Higley Rd North of Southern Ave | 34,400 | 17,900 | 16,500 |

Source: City of Mesa 2006 Traffic Volume Map, December 14, 2006; City of Mesa 2007 Traffic Volume Map, January 16, 2007; Town of Gilbert Year 2005 Traffic Counts (http://216.197.126.228/traffic/counts05.cfm); MCDOT Traffic Counts (http://www.mcdot.maricopa.gov/manuals/trafCounts/maps/close-ups/B-4.htm); HDR Inc., January 2008.

1) Estimated value; actual traffic count data unavailable at this location.

# Appendix C
## Year 2030 External Trip Estimates

Table C-1: Year 2030 External Traffic Volume Estimates

| Zone | Location Description | I-E Trip Estimate | External Trip Estimate | Total Traffic Volume Estimate |
|---|---|---|---|---|
| 143 | Southern Ave West of Higley Rd | 34,700 | 4,900 | 39,600 |
| 144 | US 60 West of Higley Rd | 221,300 | 171,200 | 392,500 |
| 145 | Baseline Rd West of Higley Rd | 46,200 | 4,400 | 50,600 |
| 146 | Guadalupe Rd West of Higley Rd | 35,200 | 3,900 | 39,100 |
| 147 | Elliot Rd West of Higley Rd | 33,600 | 5,300 | 38,900 |
| 148 | Warner Rd West of Higley Rd | 40,100 | 16,100 | 56,200 |
| 149 | Loop 202 West of Higley Rd | 100,700 | 70,900 | 171,600 |
| 150 | Ray Rd West of Higley Rd | 44,200 | 12,400 | 56,600 |
| 151 | Williams Field Rd West of Higley Rd | 68,200 | 5,700 | 73,900 |
| 152 | Pecos Rd West of Higley Rd | 41,500 | 29,500 | 71,000 |
| 153 | Germann Rd West of Higley Rd | 20,500 | 38,300 | 58,800 |
| 154 | Higley Rd South of Germann Rd | 22,400 | 24,000 | 46,400 |
| 155 | Power Rd South of Germann Rd | 30,000 | 15,800 | 45,800 |
| 156 | Sossaman Rd South of Germann Rd | 16,500 | 16,700 | 33,200 |
| 157 | Ellsworth/Rittenhouse South of Germann | 57,900 | 51,200 | 109,100 |
| 158 | Crismon Rd South of Germann Rd | 17,300 | 10,300 | 27,600 |
| 159 | Meridian Rd South of Germann Rd | 31,800 | 21,500 | 53,300 |
| 160 | Germann Rd East of Meridian Rd | 19,500 | 10,500 | 30,000 |
| 161 | Pecos Rd East of Meridian Rd | 23,700 | 4,800 | 28,500 |
| 162 | Williams Field Rd East of Meridian Rd | 19,700 | 3,400 | 23,100 |
| 163 | Warner Rd East of Meridian Rd | 24,800 | 6,900 | 31,700 |
| 164 | Elliot Rd East of Meridian Rd | 21,800 | 10,200 | 32,000 |
| 166 | Baseline Rd East of Meridian Rd | 31,300 | 5,800 | 37,100 |
| 167 | US 60 East of Meridian Rd | 51,800 | 148,400 | 200,200 |
| 168 | Southern Ave East of Meridian Rd | 29,700 | 5,700 | 35,400 |
| 169 | Meridian Rd North of Southern Ave | 16,300 | 3,000 | 19,300 |
| 170 | Signal Butte Rd North of Southern Ave | 16,300 | 1,600 | 17,900 |
| 171 | Crismon Rd North of Southern Ave | 12,200 | 1,900 | 14,100 |
| 172 | Ellsworth Rd North of Southern Ave | 21,000 | 2,700 | 23,700 |
| 173 | Guadalupe Rd East of Meridian Rd | 13,400 | 2,100 | 15,500 |
| 174 | Hawes Rd North of Southern Ave | 6,300 | 1,100 | 7,400 |
| 175 | Sossaman Rd North of Southern Ave | 24,700 | 4,600 | 29,300 |
| 177 | Power Rd North of Southern Ave | 45,400 | 7,000 | 52,400 |
| 178 | Higley Rd North of Southern Ave | 34,000 | 13,800 | 47,800 |
| 179 | Ray Road East of Meridian Rd | 21,400 | 2,900 | 24,300 |
| 180 | Williams Gateway Freeway East of Meridian | 59,700 | 93,200 | 152,900 |
| 181 | Loop 202 North of Southern Ave | 64,200 | 93,800 | 158,000 |
| 182 | Signal Butte Rd South of Germann Rd | 19,200 | 12,500 | 31,700 |

Source: HDR Inc., January 2009; Maricopa Association of Governments, July 2007.

# Appendix D

## Year 2030 Population and Employment estimates by TAZ

# Mesa Gateway

Strategic Development Plan

HIGLEY RD
RECKER RD
POWER RD
SOSSAMAN RD
HAWES RD
ELLSWORTH RD
CRISMON RD
SIGNAL BUTTE RD
MERIDIAN DR

SOUTHERN AVE
SUPERSTITION FRWY
BASELINE RD
GUADALUPE RD
ELLIOT RD
WARNER RD
SANTAN FRWY
RAY RD
WILLIAMS FIELD RD
PECOS RD
GERMANN RD

*Mesa*
*Gilbert*
*Apache Junction*
*Queen Creek*
*Maricopa*
*Pinal*

**Phoenix-Mesa Gateway Airport**

Assumed Traffic Interchange Location (TYP)

UPRR
RITTENHOUSE RD

**Area of Influence**

NORTH

0 1 2 miles

**STUDY AREA**

**Land Use Evaluation Area**

**Transportation Planning Study Area**

CITY OF MESA

DMJM HARRIS | AECOM

HDR

January 2009

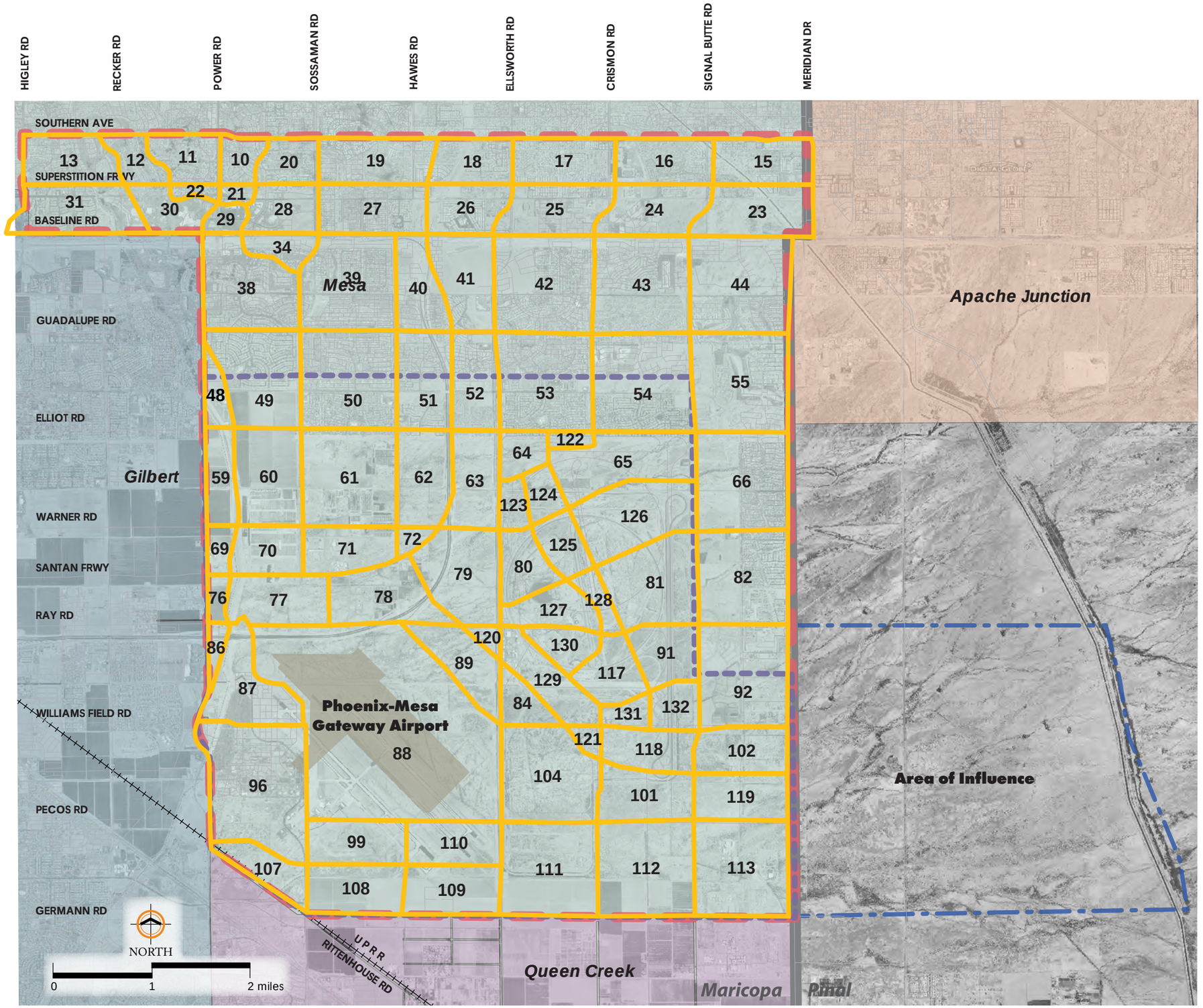
travel demand model

figure D-1

mesa proving ground transportation

# Mesa Gateway

Strategic Development Plan




XX Traffic Analysis Zone

STUDY AREA

Land Use Evaluation Area

Transportation Planning Study Area

CITY OF MESA

HDR

January 2009

figure D-2

revised year 2030 traffic analysis zones

Table D-1: Year 2030 Mesa Gateway Travel Demand Model Socioeconomic Data

| TAZ | Dwelling Units | | | Employment | | | School | | |
|---|---|---|---|---|---|---|---|---|---|
| | Single Family | Multi-Family | Total | Retail | Office | Indust. | College | Primary | Secondary |
| 10 | 0 | 0 | 0 | 1373 | 210 | 19 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 3000 | 106 | 0 | 0 | 0 | 0 |
| 12 | 0 | 50 | 50 | 1546 | 168 | 0 | 0 | 0 | 0 |
| 13 | 486 | 361 | 847 | 54 | 276 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 212 | 220 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 144 | 976 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 1139 | 3005 | 0 | 0 | 0 | 0 |
| 17 | 643 | 0 | 643 | 306 | 804 | 0 | 0 | 0 | 0 |
| 18 | 643 | 0 | 643 | 0 | 266 | 0 | 0 | 0 | 0 |
| 19 | 824 | 5 | 829 | 31 | 84 | 0 | 0 | 0 | 0 |
| 20 | 156 | 0 | 156 | 0 | 2290 | 569 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 | 827 | 95 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 652 | 1438 | 0 | 0 | 0 | 0 |
| 24 | 198 | 455 | 653 | 645 | 34 | 0 | 0 | 0 | 0 |
| 25 | 558 | 9 | 567 | 304 | 347 | 0 | 0 | 0 | 0 |
| 26 | 0 | 0 | 0 | 0 | 3264 | 0 | 0 | 0 | 0 |
| 27 | 715 | 8 | 723 | 189 | 686 | 0 | 0 | 0 | 0 |
| 28 | 578 | 0 | 578 | 827 | 95 | 0 | 0 | 0 | 0 |
| 29 | 0 | 578 | 578 | 827 | 95 | 0 | 0 | 0 | 0 |
| 30 | 0 | 311 | 311 | 616 | 375 | 0 | 0 | 0 | 0 |
| 31 | 10 | 232 | 242 | 177 | 3656 | 64 | 0 | 0 | 0 |
| 32 | 0 | 0 | 0 | 476 | 1428 | 0 | 0 | 0 | 0 |
| 33 | 115 | 0 | 115 | 718 | 189 | 0 | 0 | 0 | 0 |
| 34 | 398 | 169 | 567 | 808 | 400 | 0 | 0 | 0 | 0 |
| 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 | 1554 | 0 | 1554 | 572 | 234 | 234 | 0 | 0 | 0 |
| 37 | 1213 | 152 | 1365 | 718 | 189 | 0 | 0 | 0 | 0 |
| 38 | 1532 | 200 | 1732 | 808 | 400 | 0 | 0 | 887 | 0 |
| 39 | 1620 | 93 | 1713 | 159 | 299 | 0 | 0 | 0 | 0 |
| 40 | 763 | 302 | 1065 | 159 | 299 | 0 | 0 | 0 | 0 |
| 41 | 1398 | 441 | 1839 | 286 | 65 | 0 | 0 | 0 | 0 |
| 42 | 1439 | 338 | 1777 | 549 | 68 | 0 | 0 | 1421 | 0 |
| 43 | 1291 | 303 | 1594 | 155 | 130 | 0 | 0 | 1151 | 2260 |
| 44 | 1770 | 82 | 1852 | 67 | 82 | 205 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 1345 | 81 | 1426 | 178 | 107 | 0 | 0 | 0 | 0 |
| 47 | 1180 | 629 | 1809 | 178 | 843 | 0 | 0 | 0 | 2859 |
| 48 | 0 | 650 | 650 | 159 | 462 | 0 | 0 | 0 | 0 |
| 49 | 0 | 0 | 0 | 0 | 2811 | 691 | 0 | 1382 | 0 |

Table D-1 (Cont'd): Year 2030 Mesa Gateway Travel Demand Model Socioeconomic Data

| TAZ | Dwelling Units | | | Employment | | | School | | |
|---|---|---|---|---|---|---|---|---|---|
| | Single Family | Multi-Family | Total | Retail | Office | Indust. | College | Primary | Secondary |
| 50 | 568 | 0 | 568 | 0 | 5157 | 0 | 0 | 0 | 0 |
| 51 | 326 | 0 | 326 | 1144 | 0 | 0 | 0 | 0 | 0 |
| 52 | 608 | 0 | 608 | 958 | 68 | 0 | 0 | 0 | 0 |
| 53 | 668 | 0 | 668 | 0 | 5132 | 0 | 0 | 1095 | 0 |
| 54 | 577 | 1678 | 2255 | 0 | 24 | 0 | 0 | 0 | 0 |
| 55 | 0 | 0 | 0 | 0 | 96 | 0 | 0 | 0 | 0 |
| 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57 | 2308 | 0 | 2308 | 1276 | 331 | 0 | 0 | 0 | 0 |
| 58 | 1607 | 0 | 1607 | 385 | 1019 | 0 | 0 | 0 | 0 |
| 59 | 0 | 532 | 532 | 63 | 2258 | 0 | 0 | 0 | 0 |
| 60 | 0 | 0 | 0 | 0 | 103 | 3944 | 0 | 0 | 0 |
| 61 | 0 | 4332 | 4332 | 127 | 600 | 0 | 0 | 881 | 0 |
| 62 | 0 | 3329 | 3329 | 0 | 137 | 0 | 0 | 0 | 0 |
| 63 | 0 | 2395 | 2395 | 0 | 1253 | 0 | 0 | 0 | 0 |
| 64 | 0 | 1703 | 1703 | 453 | 15942 | | 0 | 0 | 0 |
| 65 | | 449 | 449 | 42 | 244 | | 0 | 0 | 0 |
| 66 | 1334 | 0 | 1334 | 0 | 0 | 0 | 0 | 868 | 0 |
| 67 | 396 | 1000 | 1396 | 78 | 139 | 0 | 6500 | 0 | 0 |
| 68 | 711 | 10 | 721 | 716 | 166 | 332 | 0 | 0 | 0 |
| 69 | 0 | 0 | 0 | 0 | 1349 | 0 | 0 | 0 | 0 |
| 70 | 0 | 0 | 0 | 0 | 0 | 2110 | 0 | 0 | 0 |
| 71 | 0 | 2375 | 2375 | 0 | 0 | 0 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 | 626 | 0 | 0 | 0 | 0 |
| 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74 | 149 | 2223 | 2372 | 120 | 560 | 0 | 0 | 0 | 0 |
| 75 | 450 | 257 | 707 | 500 | 700 | 0 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 1028 | 0 | 0 | 0 | 0 |
| 77 | 0 | 0 | 0 | 0 | 0 | 1382 | 0 | 0 | 0 |
| 78 | 0 | 0 | 0 | 0 | 0 | 2700 | 0 | 0 | 0 |
| 79 | 0 | 1282 | 1282 | 148 | 5530 | 296 | 0 | 0 | 0 |
| 80 | 0 | 1493 | 1493 | 210 | 210 | 0 | 0 | 0 | 0 |
| 81 | 0 | 2500 | 2500 | 254 | 106 | 0 | 0 | 0 | 0 |
| 82 | 977 | 93 | 1070 | 0 | 168 | 0 | 0 | 0 | 0 |
| 83 | 0 | 0 | 0 | 0 | 276 | 0 | 0 | 0 | 0 |
| 84 | 325 | 3503 | 3828 | 228 | 220 | 0 | 0 | 0 | 0 |
| 85 | 914 | 2063 | 2977 | 557 | 976 | 0 | 0 | 0 | 0 |
| 86 | 0 | 0 | 0 | 0 | 3005 | 0 | 0 | 0 | 0 |
| 87 | 0 | 0 | 0 | 0 | 804 | 0 | 0 | 0 | 0 |

Table D-1 (Cont'd): Year 2030 Mesa Gateway Travel Demand Model Socioeconomic Data

| TAZ | Dwelling Units | | | Employment | | | School | | |
|---|---|---|---|---|---|---|---|---|---|
| | Single Family | Multi-Family | Total | Retail | Office | Indust. | College | Primary | Secondary |
| 88 | 0 | 0 | 0 | 0 | 266 | 4055 | 0 | 0 | 0 |
| 89 | 0 | 0 | 0 | 0 | 84 | 461 | 0 | 0 | 0 |
| 90 | 0 | 0 | 0 | 0 | 2290 | 0 | 0 | 0 | 0 |
| 91 | 0 | 1428 | 1428 | 166 | 95 | | 0 | 0 | 0 |
| 92 | 586 | 0 | 586 | 0 | 0 | 2857 | 0 | 0 | 0 |
| 93 | 0 | 0 | 0 | 175 | 1438 | 0 | 0 | 0 | 0 |
| 94 | 450 | 122 | 572 | 100 | 34 | 0 | 0 | 0 | 0 |
| 95 | 1000 | 297 | 1297 | 120 | 347 | 0 | 0 | 0 | 0 |
| 96 | 0 | 483 | 483 | 494 | 3264 | 4792 | 0 | 0 | 0 |
| 97 | 931 | 0 | 931 | 77 | 686 | 0 | 0 | 0 | 0 |
| 98 | 1000 | 285 | 1285 | 100 | 95 | 0 | 0 | 0 | 0 |
| 99 | 0 | 0 | 0 | 0 | 95 | 2672 | 0 | 0 | 0 |
| 100 | 0 | 0 | 0 | 0 | 375 | 5050 | 0 | 0 | 0 |
| 101 | 0 | 0 | 0 | 0 | 3656 | 3234 | 0 | 0 | 0 |
| 102 | 0 | 0 | 0 | 0 | 1428 | 2755 | 0 | 0 | 0 |
| 103 | 0 | 0 | 0 | 0 | 189 | 0 | 0 | 0 | 0 |
| 104 | 1933 | 0 | 1933 | 352 | 400 | 0 | 0 | 0 | 0 |
| 105 | 2201 | 0 | 2201 | 449 | 0 | 0 | 0 | 0 | 0 |
| 106 | 0 | 0 | 0 | 0 | 234 | 0 | 0 | 0 | 0 |
| 107 | 0 | 0 | 0 | 0 | 189 | 2073 | 0 | 0 | 0 |
| 108 | 0 | 0 | 0 | 0 | 400 | 3280 | 0 | 0 | 0 |
| 109 | 0 | 20 | 20 | 15 | 299 | 2934 | 0 | 0 | 0 |
| 110 | 0 | 0 | 0 | 0 | 299 | 2597 | 0 | 0 | 0 |
| 111 | 0 | 150 | 150 | 111 | 65 | 5556 | 0 | 0 | 0 |
| 112 | 0 | 0 | 0 | 0 | 68 | 5916 | 0 | 0 | 0 |
| 113 | 0 | 0 | 0 | 0 | 130 | 5796 | 0 | 0 | 0 |
| 114 | 0 | 2 | 2 | 0 | 82 | 0 | 0 | 0 | 0 |
| 115 | 0 | 2 | 2 | 271 | 0 | 0 | 0 | 0 | 0 |
| 116 | 0 | 0 | 0 | 1022 | 107 | 0 | 0 | 0 | 0 |
| 117 | 0 | 572 | 572 | 78 | 843 | 0 | 0 | 0 | 0 |
| 118 | 0 | 0 | 0 | 0 | 462 | 2672 | 0 | 0 | 0 |
| 119 | 0 | 0 | 0 | 0 | 2811 | 3087 | 0 | 0 | 0 |
| 120 | 0 | 133 | 133 | 137 | 5157 | 0 | 0 | 0 | 0 |
| 121 | 0 | 0 | 0 | 0 | 0 | 700 | 0 | 0 | 0 |
| 122 | 0 | 596 | 596 | 82 | 68 | 0 | 0 | 0 | 0 |
| 123 | 0 | 1361 | 1361 | 292 | 5132 | 0 | 0 | 0 | 0 |
| 124 | 0 | 985 | 985 | 206 | 24 | 0 | 0 | 0 | 0 |
| 125 | 0 | 675 | 675 | 122 | 96 | 0 | 0 | 0 | 0 |

Table D-1 (Cont'd): Year 2030 Mesa Gateway Travel Demand Model Socioeconomic Data

| TAZ | Dwelling Units | | | Employment | | | School | | |
|---|---|---|---|---|---|---|---|---|---|
| | Single Family | Multi-Family | Total | Retail | Office | Indust. | College | Primary | Secondary |
| 126 | 455 | 455 | 59 | 0 | 0 | 0 | 0 | 0 | 0 |
| 127 | 1297 | 1297 | 176 | 331 | 0 | 0 | 0 | 0 | 0 |
| 128 | 250 | 250 | 0 | 1019 | 0 | 0 | 0 | 0 | 0 |
| 129 | 105 | 105 | | 2258 | 0 | 0 | 0 | 0 | 0 |
| 130 | 236 | 236 | 41 | 103 | 0 | 0 | 0 | 0 | 0 |
| 131 | 250 | 250 | 179 | 600 | 0 | 0 | 0 | 0 | 0 |
| 132 | 794 | 794 | 532 | 137 | 0 | 0 | 0 | 0 | 0 |

Source: HDR Engineering, January 2009; Maricopa Association of Governments, July 2007.

# *APPENDIX D*
# *2009 EPS SIGNAL BUTTE CORRIDOR STUDY*

# Signal Butte Corridor Improvement Study: US 60 to Rittenhouse Road

## Final Report

Prepared For:

Prepared By:

December 2009

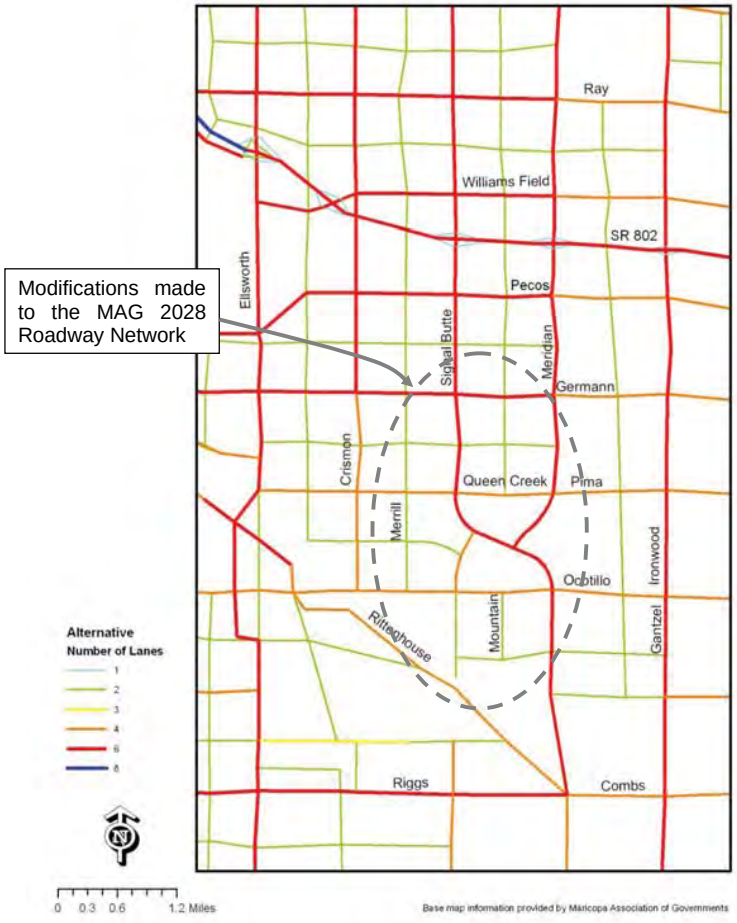



**Figure 3-6 Modified Year 2028 MAG Roadway Network**

The modified roadway network shown in Figure 3-6 was provided to MAG to generate traffic forecast data for the year 2028. MAG provided year 2028 directional daily traffic volumes for each segment in the study area. These volumes were added together to produce two-way average daily traffic (ADT) volumes. A table comparing the forecast 2028 MAG ADT volumes for the original MAG network and the modified network is provided in Table 3-4. When comparing the MAG forecast ADT volumes for the modified network and those for the original MAG 2028 traffic forecast, the following observations can be made:

- The traffic volumes on Signal Butte Road north of SR 802 are generally lower with the modified network.
- The traffic volumes on Signal Butte Road south of SR 802 are significantly higher with the modified network.
- The traffic volumes on Meridian Road north of the southern tee intersection are significantly less with the modified network.
- Signal Butte Road south of the northern tee intersection has significantly lower volumes with the modified network due to the fact that it does not connect to Rittenhouse Road under this condition.

**Table 3-4 MAG 2028 - Modified Roadway Network vs. Original MAG Network**

| Street | Segment | | MAG 2028 Forecast 2-way ADT | | Change % |
|---|---|---|---|---|---|
| | From | To | Original Network | Modified Network | |
| Signal Butte Road | Williams Field Road | SR 802 | 15,384 | 11,035 | -28.3% |
| | SR 802 | Pecos Road | 29,611 | 30,423 | 2.7% |
| | Pecos Road | Germann Road | 24,476 | 27,797 | 13.6% |
| | Germann Road | Queen Creek Road | 22,237 | 33,689 | 51.5% |
| | Queen Creek Road | Northern Tee Intersection | 22,012 | 42,596 | 93.5% |
| | Northern Tee Intersection | Southern Tee Intersection | N/A | 39,812 | N/A |
| | Southern Tee Intersection | Ocotillo Road | 22,012 | 6,108 | -72.3% |
| | Ocotillo Road | End of Road | 22,979 | 10,260 | -55.4% |
| Meridian Road | SR 802 | Pecos Road | 38,019 | 28,077 | -26.2% |
| | Pecos Road | Germann Road | 35,715 | 22,058 | -38.2% |
| | Germann Road | Queen Creek Road | 42,130 | 21,897 | -47.8% |
| | Queen Creek Road | Southern Tee Intersection | 40,712 | 8,874 | -78.2% |
| | Southern Tee Intersection | Ocotillo Road | 45,614 | 47,392 | 3.9% |
| | Ocotillo Road | Chandler Heights Road | 45,352 | 42,406 | -6.5% |

The MAG 2028 traffic forecast volumes for the proposed modified roadway network were adjusted to account for the Mesa Proving Grounds (MPG) planned development. These volumes were adjusted using the exact same procedure that was utilized to adjust the MAG 2028 traffic forecast in the Signal Butte Road Corridor Improvement Study Technical Memorandum # 3 - Traffic Analysis. The resulting adjusted daily traffic forecast for year 2028 is provided in Figure 3-7.

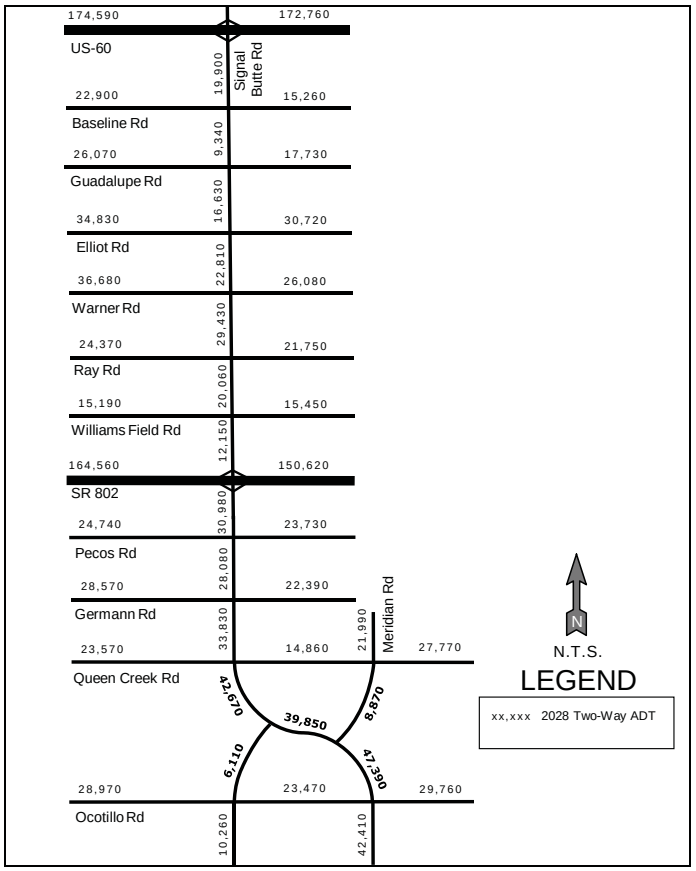



**Figure 3-7 Modified MAG 2028 Traffic Forecast Adjusted for the MPG Project**

### 3.5.1 Modified Year 2030 Traffic Forecast

The long range analysis year for the Signal Butte Road Corridor Improvement Study is 2030. The socioeconomic, roadway network and traffic forecast data maintained by MAG are for year 2028. Growth factors were developed for application to the MAG 2028 traffic forecasts based on the projected MAG socioeconomic data. This analysis yielded a 9.7 percent growth from year 2028 to year 2030. These growth rates were used to increase the year 2028 traffic forecasts to represent the analysis year 2030.

The directional daily traffic volumes provided by MAG for the proposed modified roadway network for the year 2028 were increased by 9.7 percent to generate the traffic volumes for the 2030 analysis year. These volumes were added together to produce two way ADT volumes, which are provided in Figure 3-8. The intersection turning movement volumes were estimated at the planning level using the methods provided in the NCHRP 255, Highway Traffic Data for Urbanized Area Project Planning and Design.

The peak-hour proportion of daily traffic "K" values that were used to develop the 2030 AM and PM peak-hour turning movement volumes were obtained from the year 2008 "K" values from the intersection of Signal Butte Road and Ocotillo Road. These data were provided by the Town of Queen Creek from a recent traffic signal warrant study. The year 2008 "K" values used to develop the AM and PM turning movement volumes within the study area for year 2016 were 0.071 for AM and 0.086 for PM.

The calculation matrices used in developing the AM and PM peak-hour turning movement volumes for the analysis year 2030 are provided in the addendum to the Signal Butte Road Corridor Improvement Study Technical Memorandum # 3 – Traffic Analysis (September, 2009). A map displaying the 2030 intersection turning movement volumes for the proposed modified roadway network is also provided in Figure 3-8.

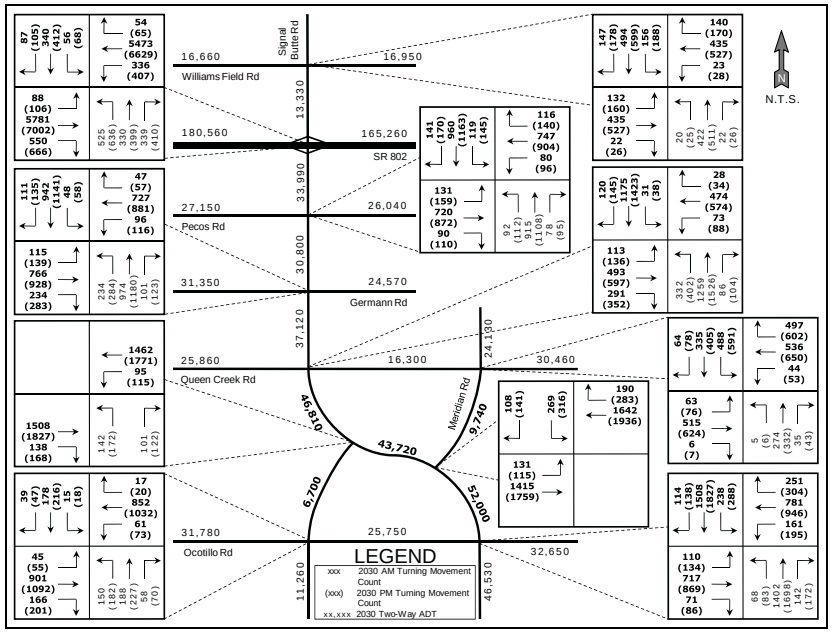



**Figure 3-8 Modified Year 2030 Forecast and Intersection Turning Movement Volumes**

# *APPENDIX E*
# *TRIP GENERATION*

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | ALL RESIDENTIAL | | | |
| ITE LAND USE CATEGORY AND CODE | PLANNED UNIT DEVELOPMENT - 270 | | | |
| INDEPENDENT VARIABLE | MAXIMUM OF DWELLING UNITS AND ACRES | | | |
| SIZE | 2263 DWELLING UNITS AND 283.13 ACRES | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | | | |
| MINIMUM RATE | | 6,552 | 6,551 | 13,103 |
| AVERAGE RATE | | 8,487 | 8,486 | 16,973 |
| MAXIMUM RATE | | 16,271 | 16,271 | 32,542 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 7,513 | 7,513 | 15,026 |
| **LARGEST OF AVERAGE OR EQUATION** | | **8,487** | **8,486** | **16,973** |
| **AM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 116 | 413 | 529 |
| AVERAGE RATE | | 254 | 900 | 1,154 |
| MAXIMUM RATE | | 383 | 1,360 | 1,743 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 401 | 1,420 | 1,821 |
| **LARGEST OF AVERAGE OR EQUATION** | | **401** | **1,420** | **1,821** |
| **AM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 255 | 854 | 1,109 |
| AVERAGE RATE | | 302 | 1,011 | 1,313 |
| MAXIMUM RATE | | 510 | 1,708 | 2,218 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 276 | 926 | 1,202 |
| **LARGEST OF AVERAGE OR EQUATION** | | **302** | **1,011** | **1,313** |
| **PM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 613 | 360 | 973 |
| AVERAGE RATE | | 884 | 519 | 1,403 |
| MAXIMUM RATE | | 1,611 | 946 | 2,557 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 1,066 | 574 | 1,640 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,066** | **574** | **1,640** |
| **PM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 854 | 481 | 1,335 |
| AVERAGE RATE | | 1,043 | 586 | 1,629 |
| MAXIMUM RATE | | 1,695 | 953 | 2,648 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 993 | 558 | 1,551 |
| LARGEST OF AVERAGE OR EQUATION | | **1,043** | **586** | **1,629** |



| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | ALL RESIDENTIAL | | | |
| ITE LAND USE CATEGORY AND CODE | PLANNED UNIT DEVELOPMENT - 270 | | | |
| INDEPENDENT VARIABLE | MAXIMUM OF DWELLING UNITS AND ACRES | | | |
| SIZE | 2263 DWELLING UNITS AND 283.13 ACRES | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | | | |
| MINIMUM RATE | | 6,914 | 6,913 | 13,827 |
| AVERAGE RATE | | 7,717 | 7,717 | 15,434 |
| MAXIMUM RATE | | 8,453 | 8,452 | 16,905 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 7,896 | 7,895 | 15,791 |
| **LARGEST OF AVERAGE OR EQUATION** | | **7,896** | **7,895** | **15,791** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 521 | 543 | 1,064 |
| AVERAGE RATE | | 621 | 646 | 1,267 |
| MAXIMUM RATE | | 665 | 693 | 1,358 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 595 | 620 | 1,215 |
| **LARGEST OF AVERAGE OR EQUATION** | | **621** | **646** | **1,267** |
| ***SUNDAY* DAILY** | | | | |
| MINIMUM RATE | | 4,798 | 4,797 | 9,595 |
| AVERAGE RATE | | 5,760 | 5,759 | 11,519 |
| MAXIMUM RATE | | 7,185 | 7,185 | 14,370 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 5,426 | 5,425 | 10,851 |
| **LARGEST OF AVERAGE OR EQUATION** | | **5,760** | **5,759** | **11,519** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 647 | 598 | 1,245 |
| AVERAGE RATE | | 1,012 | 934 | 1,946 |
| MAXIMUM RATE | | 1,741 | 1,608 | 3,349 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 508 | 468 | 976 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,012** | **934** | **1,946** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | ALL RESIDENTIAL | | | |
| ITE LAND USE CATEGORY AND CODE | PLANNED UNIT DEVELOPMENT - 270 | | | |
| INDEPENDENT VARIABLE | DWELLING UNITS | | | |
| SIZE | 2,263 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 13 | | | |
| AVERAGE SIZE | 664 | | | |
| MINIMUM RATE | 5.79 | 6,552 | 6,551 | 13,103 |
| AVERAGE RATE | 7.50 | 8,487 | 8,486 | 16,973 |
| MAXIMUM RATE | 14.38 | 16,271 | 16,271 | 32,542 |
| STANDARD DEVIATION | 3.32 | | | |
| EQUATION: LN (T) = 0.88 * LN(X) + 2.82 | $R^2$ = 0.94 | 7,513 | 7,513 | 15,026 |
| **LARGEST OF AVERAGE OR EQUATION** | | **8,487** | **8,486** | **16,973** |
| **AM PEAK HOUR ADJACENT STREET** | | 22% | 78% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 771 | | | |
| MINIMUM RATE | 0.20 | 100 | 353 | 453 |
| AVERAGE RATE | 0.51 | 254 | 900 | 1,154 |
| MAXIMUM RATE | 0.77 | 383 | 1,360 | 1,743 |
| STANDARD DEVIATION | 0.72 | | | |
| EQUATION: LN (T) = 0.93 * LN(X) - 0.20 | $R^2$ = 0.93 | 237 | 842 | 1,079 |
| **LARGEST OF AVERAGE OR EQUATION** | | **254** | **900** | **1,154** |
| **AM PEAK HOUR GENERATOR** | | 23% | 77% | |
| NUMBER OF STUDIES | 11 | | | |
| AVERAGE SIZE | 757 | | | |
| MINIMUM RATE | 0.49 | 255 | 854 | 1,109 |
| AVERAGE RATE | 0.58 | 302 | 1,011 | 1,313 |
| MAXIMUM RATE | 0.98 | 510 | 1,708 | 2,218 |
| STANDARD DEVIATION | 0.77 | | | |
| EQUATION: LN (T) = 0.90 * LN(X) + 0.14 | $R^2$ = 0.97 | 276 | 926 | 1,202 |
| **LARGEST OF AVERAGE OR EQUATION** | | **302** | **1,011** | **1,313** |
| **PM PEAK HOUR ADJACENT STREET** | | 63% | 37% | |
| NUMBER OF STUDIES | 18 | | | |
| AVERAGE SIZE | 945 | | | |
| MINIMUM RATE | 0.43 | 613 | 360 | 973 |
| AVERAGE RATE | 0.62 | 884 | 519 | 1,403 |
| MAXIMUM RATE | 1.13 | 1,611 | 946 | 2,557 |
| STANDARD DEVIATION | 0.80 | | | |
| EQUATION: LN (T) = 0.90 * LN(X) + 0.27 | $R^2$ = 0.97 | 862 | 507 | 1,369 |
| **LARGEST OF AVERAGE OR EQUATION** | | **884** | **519** | **1,403** |
| **PM PEAK HOUR GENERATOR** | | 64% | 36% | |
| NUMBER OF STUDIES | 11 | | | |
| AVERAGE SIZE | 757 | | | |
| MINIMUM RATE | 0.59 | 854 | 481 | 1,335 |
| AVERAGE RATE | 0.72 | 1,043 | 586 | 1,629 |
| MAXIMUM RATE | 1.17 | 1,695 | 953 | 2,648 |
| STANDARD DEVIATION | 0.86 | | | |
| EQUATION: LN (T) = 0.92 * LN(X) + 0.24 | $R^2$ = 0.97 | 993 | 558 | 1,551 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,043** | **586** | **1,629** |



| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | ALL RESIDENTIAL | | | |
| ITE LAND USE CATEGORY AND CODE | PLANNED UNIT DEVELOPMENT - 270 | | | |
| INDEPENDENT VARIABLE | DWELLING UNITS | | | |
| SIZE | 2,263 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 5 | | | |
| AVERAGE SIZE | 1,408 | | | |
| MINIMUM RATE | 6.11 | 6,914 | 6,913 | 13,827 |
| AVERAGE RATE | 6.82 | 7,717 | 7,717 | 15,434 |
| MAXIMUM RATE | 7.47 | 8,453 | 8,452 | 16,905 |
| STANDARD DEVIATION | 2.66 | | | |
| EQUATION: LN (T) = 0.99 * LN(X) + 2.02 | $R^2$ = 0.98 | 7,896 | 7,895 | 15,791 |
| **LARGEST OF AVERAGE OR EQUATION** | | **7,896** | **7,895** | **15,791** |
| **PEAK HOUR GENERATOR** | | 49% | 51% | |
| NUMBER OF STUDIES | 5 | | | |
| AVERAGE SIZE | 1,408 | | | |
| MINIMUM RATE | 0.47 | 521 | 543 | 1,064 |
| AVERAGE RATE | 0.56 | 621 | 646 | 1,267 |
| MAXIMUM RATE | 0.60 | 665 | 693 | 1,358 |
| STANDARD DEVIATION | 0.75 | | | |
| EQUATION: LN (T) = 0.97 * LN(X) - 0.39 | $R^2$ = 0.98 | 595 | 620 | 1,215 |
| **LARGEST OF AVERAGE OR EQUATION** | | **621** | **646** | **1,267** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 5 | | | |
| AVERAGE SIZE | 1,408 | | | |
| MINIMUM RATE | 4.24 | 4,798 | 4,797 | 9,595 |
| AVERAGE RATE | 5.09 | 5,760 | 5,759 | 11,519 |
| MAXIMUM RATE | 6.35 | 7,185 | 7,185 | 14,370 |
| STANDARD DEVIATION | 2.36 | | | |
| EQUATION: LN (T) = 0.90 * LN(X) + 2.34 | $R^2$ = 0.95 | 5,426 | 5,425 | 10,851 |
| **LARGEST OF AVERAGE OR EQUATION** | | **5,760** | **5,759** | **11,519** |
| **PEAK HOUR GENERATOR** | | 52% | 48% | |
| NUMBER OF STUDIES | 5 | | | |
| AVERAGE SIZE | 1,408 | | | |
| MINIMUM RATE | 0.55 | 647 | 598 | 1,245 |
| AVERAGE RATE | 0.86 | 1,012 | 934 | 1,946 |
| MAXIMUM RATE | 1.48 | 1,741 | 1,608 | 3,349 |
| STANDARD DEVIATION | 0.95 | | | |
| EQUATION: T = 0.41 * (X) + 48.27 | $R^2$ = 0.96 | 508 | 468 | 976 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,012** | **934** | **1,946** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | ALL RESIDENTIAL | | | |
| ITE LAND USE CATEGORY AND CODE | PLANNED UNIT DEVELOPMENT - 270 | | | |
| INDEPENDENT VARIABLE | ACRES | | | |
| SIZE | 283.130 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 4 | | | |
| AVERAGE SIZE | 33 | | | |
| MINIMUM RATE | 41.85 | 5,925 | 5,924 | 11,849 |
| AVERAGE RATE | 46.78 | 6,623 | 6,622 | 13,245 |
| MAXIMUM RATE | 50.80 | 7,192 | 7,191 | 14,383 |
| STANDARD DEVIATION | 7.82 | | | |
| EQUATION: LN (T) = 1.02 * LN(X) + 3.78 | $R^2$ = 0.98 | 6,945 | 6,944 | 13,889 |
| **LARGEST OF AVERAGE OR EQUATION** | | **6,945** | **6,944** | **13,889** |
| **AM PEAK HOUR ADJACENT STREET** | | 22% | 78% | |
| NUMBER OF STUDIES | 4 | | | |
| AVERAGE SIZE | 33 | | | |
| MINIMUM RATE | 1.87 | 116 | 413 | 529 |
| AVERAGE RATE | 2.88 | 179 | 636 | 815 |
| MAXIMUM RATE | 4.13 | 257 | 912 | 1,169 |
| STANDARD DEVIATION | 1.92 | | | |
| EQUATION: LN (T) = 1.42 * LN(X) - 0.51 | $R^2$ = 0.91 | 401 | 1,420 | 1,821 |
| **LARGEST OF AVERAGE OR EQUATION** | | **401** | **1,420** | **1,821** |
| **AM PEAK HOUR GENERATOR** | | 23% | 77% | |
| NUMBER OF STUDIES | 4 | | | |
| AVERAGE SIZE | 33 | | | |
| MINIMUM RATE | 2.58 | 168 | 562 | 730 |
| AVERAGE RATE | 3.27 | 213 | 713 | 926 |
| MAXIMUM RATE | 4.13 | 269 | 900 | 1,169 |
| STANDARD DEVIATION | 1.91 | | | |
| EQUATION: LN (T) = 0.92 * LN(X) + 1.43 | $R^2$ = 0.88 | 173 | 580 | 753 |
| **LARGEST OF AVERAGE OR EQUATION** | | **213** | **713** | **926** |
| **PM PEAK HOUR ADJACENT STREET** | | 65% | 35% | |
| NUMBER OF STUDIES | 4 | | | |
| AVERAGE SIZE | 33 | | | |
| MINIMUM RATE | 3.25 | 598 | 322 | 920 |
| AVERAGE RATE | 4.05 | 746 | 401 | 1,147 |
| MAXIMUM RATE | 4.93 | 907 | 489 | 1,396 |
| STANDARD DEVIATION | 2.10 | | | |
| EQUATION: LN (T) = 1.18 * LN(X) + 0.74 | $R^2$ = 0.96 | 1,066 | 574 | 1,640 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,066** | **574** | **1,640** |
| **PM PEAK HOUR GENERATOR** | | 64% | 36% | |
| NUMBER OF STUDIES | 4 | | | |
| AVERAGE SIZE | 33 | | | |
| MINIMUM RATE | 2.58 | 467 | 263 | 730 |
| AVERAGE RATE | 3.27 | 593 | 333 | 926 |
| MAXIMUM RATE | 4.13 | 748 | 421 | 1,169 |
| STANDARD DEVIATION | 1.91 | | | |
| EQUATION: LN (T) = 1.07 * LN(X) + 1.15 | $R^2$ = 0.95 | 850 | 478 | 1,328 |
| **LARGEST OF AVERAGE OR EQUATION** | | **850** | **478** | **1,328** |



| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | ALL RESIDENTIAL | | | |
| ITE LAND USE CATEGORY AND CODE | PLANNED UNIT DEVELOPMENT - 270 | | | |
| INDEPENDENT VARIABLE | ACRES | | | |
| SIZE | 283.130 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| ***SUNDAY* DAILY** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 550.00 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | | | |
| MINIMUM RATE | | 3,438 | 3,437 | 6,875 |
| AVERAGE RATE | | 11,809 | 11,808 | 23,617 |
| MAXIMUM RATE | | 74,495 | 74,495 | 148,990 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 10,284 | 10,283 | 20,567 |
| **LARGEST OF AVERAGE OR EQUATION** | | **11,809** | **11,808** | **23,617** |
| **AM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 34 | 21 | 55 |
| AVERAGE RATE | | 336 | 214 | 550 |
| MAXIMUM RATE | | 3,037 | 1,941 | 4,978 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 257 | 164 | 421 |
| **LARGEST OF AVERAGE OR EQUATION** | | **336** | **214** | **550** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 49% | 51% | |
| MINIMUM RATE | | 183 | 191 | 374 |
| AVERAGE RATE | | 1,005 | 1,047 | 2,052 |
| MAXIMUM RATE | | 7,889 | 8,210 | 16,099 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 977 | 1,016 | 1,993 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,005** | **1,047** | **2,052** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| LARGEST OF AVERAGE OR EQUATION | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 550.00 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | | | |
| MINIMUM RATE | | 4,593 | 4,592 | 9,185 |
| AVERAGE RATE | | 13,742 | 13,742 | 27,484 |
| MAXIMUM RATE | | 62,563 | 62,562 | 125,125 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 13,523 | 13,522 | 27,045 |
| **LARGEST OF AVERAGE OR EQUATION** | | **13,742** | **13,742** | **27,484** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 418 | 385 | 803 |
| AVERAGE RATE | | 1,399 | 1,291 | 2,690 |
| MAXIMUM RATE | | 5,240 | 4,836 | 10,076 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 1,349 | 1,246 | 2,595 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,399** | **1,291** | **2,690** |
| ***SUNDAY* DAILY** | | | | |
| MINIMUM RATE | | 1,142 | 1,141 | 2,283 |
| AVERAGE RATE | | 6,941 | 6,941 | 13,882 |
| MAXIMUM RATE | | 40,742 | 40,741 | 81,483 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 6,406 | 6,405 | 12,811 |
| **LARGEST OF AVERAGE OR EQUATION** | | **6,941** | **6,941** | **13,882** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 105 | 110 | 215 |
| AVERAGE RATE | | 841 | 875 | 1,716 |
| MAXIMUM RATE | | 3,342 | 3,478 | 6,820 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **841** | **875** | **1,716** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 550.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 302 | | | |
| AVERAGE SIZE | 328 | | | |
| MINIMUM RATE | 12.50 | 3,438 | 3,437 | 6,875 |
| AVERAGE RATE | 42.94 | 11,809 | 11,808 | 23,617 |
| MAXIMUM RATE | 270.89 | 74,495 | 74,495 | 148,990 |
| STANDARD DEVIATION | 21.38 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 5.83 | $R^2$ = 0.78 | 10,284 | 10,283 | 20,567 |
| **LARGEST OF AVERAGE OR EQUATION** | | **11,809** | **11,808** | **23,617** |
| **AM PEAK HOUR ADJACENT STREET** | | 61% | 39% | |
| NUMBER OF STUDIES | 101 | | | |
| AVERAGE SIZE | 296 | | | |
| MINIMUM RATE | 0.10 | 34 | 21 | 55 |
| AVERAGE RATE | 1.00 | 336 | 214 | 550 |
| MAXIMUM RATE | 9.05 | 3,037 | 1,941 | 4,978 |
| STANDARD DEVIATION | 1.38 | | | |
| EQUATION: LN (T) = 0.59 * LN(X) + 2.32 | $R^2$ = 0.52 | 257 | 164 | 421 |
| **LARGEST OF AVERAGE OR EQUATION** | | **336** | **214** | **550** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 49% | 51% | |
| NUMBER OF STUDIES | 412 | | | |
| AVERAGE SIZE | 379 | | | |
| MINIMUM RATE | 0.68 | 183 | 191 | 374 |
| AVERAGE RATE | 3.73 | 1,005 | 1,047 | 2,052 |
| MAXIMUM RATE | 29.27 | 7,889 | 8,210 | 16,099 |
| STANDARD DEVIATION | 2.74 | | | |
| EQUATION: LN (T) = 0.67 * LN(X) + 3.37 | $R^2$ = 0.81 | 977 | 1,016 | 1,993 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,005** | **1,047** | **2,052** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 550.000 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 123 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 16.70 | 4,593 | 4,592 | 9,185 |
| AVERAGE RATE | 49.97 | 13,742 | 13,742 | 27,484 |
| MAXIMUM RATE | 227.50 | 62,563 | 62,562 | 125,125 |
| STANDARD DEVIATION | 22.62 | | | |
| EQUATION: LN (T) = 0.63 * LN(X) + 6.23 | $R^2$ = 0.82 | 13,523 | 13,522 | 27,045 |
| **LARGEST OF AVERAGE OR EQUATION** | | **13,742** | **13,742** | **27,484** |
| **PEAK HOUR GENERATOR** | | 52% | 48% | |
| NUMBER OF STUDIES | 127 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 1.46 | 418 | 385 | 803 |
| AVERAGE RATE | 4.89 | 1,399 | 1,291 | 2,690 |
| MAXIMUM RATE | 18.32 | 5,240 | 4,836 | 10,076 |
| STANDARD DEVIATION | 3.10 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 3.76 | $R^2$ = 0.83 | 1,349 | 1,246 | 2,595 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,399** | **1,291** | **2,690** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 77 | | | |
| AVERAGE SIZE | 439 | | | |
| MINIMUM RATE | 4.15 | 1,142 | 1,141 | 2,283 |
| AVERAGE RATE | 25.24 | 6,941 | 6,941 | 13,882 |
| MAXIMUM RATE | 148.15 | 40,742 | 40,741 | 81,483 |
| STANDARD DEVIATION | 17.23 | | | |
| EQUATION: T = 15.63 * (X) + 4214.46 | $R^2$ = 0.52 | 6,406 | 6,405 | 12,811 |
| **LARGEST OF AVERAGE OR EQUATION** | | **6,941** | **6,941** | **13,882** |
| **PEAK HOUR GENERATOR** | | 49% | 51% | |
| NUMBER OF STUDIES | 39 | | | |
| AVERAGE SIZE | 369 | | | |
| MINIMUM RATE | 0.39 | 105 | 110 | 215 |
| AVERAGE RATE | 3.12 | 841 | 875 | 1,716 |
| MAXIMUM RATE | 12.40 | 3,342 | 3,478 | 6,820 |
| STANDARD DEVIATION | 2.78 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **841** | **875** | **1,716** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 1 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 78 | | | |
| AVERAGE SIZE | 199 | | | |
| MINIMUM RATE | 3.58 | 0 | 0 | 0 |
| AVERAGE RATE | 11.01 | 0 | 0 | 0 |
| MAXIMUM RATE | 28.80 | 0 | 0 | 0 |
| STANDARD DEVIATION | 6.13 | | | |
| EQUATION: LN (T) = 0.77 * LN(X) + 3.65 | $R^2$ = 0.80 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR ADJACENT STREET** | | 88% | 12% | |
| NUMBER OF STUDIES | 217 | | | |
| AVERAGE SIZE | 223 | | | |
| MINIMUM RATE | 0.60 | 0 | 0 | 0 |
| AVERAGE RATE | 1.55 | 0 | 0 | 0 |
| MAXIMUM RATE | 5.98 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.39 | | | |
| EQUATION: LN (T) = 0.80 * LN(X) + 1.55 | $R^2$ = 0.83 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 17% | 83% | |
| NUMBER OF STUDIES | 235 | | | |
| AVERAGE SIZE | 216 | | | |
| MINIMUM RATE | 0.49 | 0 | 0 | 0 |
| AVERAGE RATE | 1.49 | 0 | 0 | 0 |
| MAXIMUM RATE | 6.39 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.37 | | | |
| EQUATION: T = 1.12 * (X) + 78.81 | $R^2$ = 0.82 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 1 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.59 | 0 | 0 | 0 |
| AVERAGE RATE | 2.37 | 0 | 0 | 0 |
| MAXIMUM RATE | 14.67 | 0 | 0 | 0 |
| STANDARD DEVIATION | 2.08 | | | |
| EQUATION: T = 2.14 * (X) + 18.47 | $R^2$ = 0.66 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 54% | 46% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.16 | 0 | 0 | 0 |
| AVERAGE RATE | 0.41 | 0 | 0 | 0 |
| MAXIMUM RATE | 1.57 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.68 | | | |
| EQUATION: LN (T) = 0.81 * LN(X) - 0.12 | $R^2$ = 0.59 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.19 | 0 | 0 | 0 |
| AVERAGE RATE | 0.98 | 0 | 0 | 0 |
| MAXIMUM RATE | 7.33 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.29 | | | |
| EQUATION: LN (T) = 0.86 * LN(X) + 0.31 | $R^2$ = 0.50 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 58% | 42% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.06 | 0 | 0 | 0 |
| AVERAGE RATE | 0.14 | 0 | 0 | 0 |
| MAXIMUM RATE | 0.37 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.38 | | | |
| EQUATION: LN (T) = 0.61 * LN(X) - 0.23 | $R^2$ = 0.56 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 2 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 125.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | | | |
| MINIMUM RATE | | 782 | 781 | 1,563 |
| AVERAGE RATE | | 2,684 | 2,684 | 5,368 |
| MAXIMUM RATE | | 16,931 | 16,930 | 33,861 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 3,926 | 3,925 | 7,851 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,926** | **3,925** | **7,851** |
| **AM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 8 | 5 | 13 |
| AVERAGE RATE | | 76 | 49 | 125 |
| MAXIMUM RATE | | 690 | 441 | 1,131 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 107 | 69 | 176 |
| **LARGEST OF AVERAGE OR EQUATION** | | **107** | **69** | **176** |
| **AM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 42 | 43 | 85 |
| AVERAGE RATE | | 228 | 238 | 466 |
| MAXIMUM RATE | | 1,793 | 1,866 | 3,659 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 362 | 377 | 739 |
| **LARGEST OF AVERAGE OR EQUATION** | | **362** | **377** | **739** |
| **PM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| LARGEST OF AVERAGE OR EQUATION | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 2 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 125.000 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | | | |
| MINIMUM RATE | | 1,044 | 1,044 | 2,088 |
| AVERAGE RATE | | 3,123 | 3,123 | 6,246 |
| MAXIMUM RATE | | 14,219 | 14,219 | 28,438 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 5,317 | 5,317 | 10,634 |
| **LARGEST OF AVERAGE OR EQUATION** | | **5,317** | **5,317** | **10,634** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 95 | 88 | 183 |
| AVERAGE RATE | | 318 | 293 | 611 |
| MAXIMUM RATE | | 1,191 | 1,099 | 2,290 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 515 | 476 | 991 |
| **LARGEST OF AVERAGE OR EQUATION** | | **515** | **476** | **991** |
| ***SUNDAY* DAILY** | | | | |
| MINIMUM RATE | | 260 | 259 | 519 |
| AVERAGE RATE | | 1,578 | 1,577 | 3,155 |
| MAXIMUM RATE | | 9,260 | 9,259 | 18,519 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 3,084 | 3,084 | 6,168 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,084** | **3,084** | **6,168** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 24 | 25 | 49 |
| AVERAGE RATE | | 191 | 199 | 390 |
| MAXIMUM RATE | | 760 | 790 | 1,550 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **191** | **199** | **390** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 2 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 125.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 302 | | | |
| AVERAGE SIZE | 328 | | | |
| MINIMUM RATE | 12.50 | 782 | 781 | 1,563 |
| AVERAGE RATE | 42.94 | 2,684 | 2,684 | 5,368 |
| MAXIMUM RATE | 270.89 | 16,931 | 16,930 | 33,861 |
| STANDARD DEVIATION | 21.38 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 5.83 | $R^2$ = 0.78 | 3,926 | 3,925 | 7,851 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,926** | **3,925** | **7,851** |
| **AM PEAK HOUR ADJACENT STREET** | | 61% | 39% | |
| NUMBER OF STUDIES | 101 | | | |
| AVERAGE SIZE | 296 | | | |
| MINIMUM RATE | 0.10 | 8 | 5 | 13 |
| AVERAGE RATE | 1.00 | 76 | 49 | 125 |
| MAXIMUM RATE | 9.05 | 690 | 441 | 1,131 |
| STANDARD DEVIATION | 1.38 | | | |
| EQUATION: LN (T) = 0.59 * LN(X) + 2.32 | $R^2$ = 0.52 | 107 | 69 | 176 |
| **LARGEST OF AVERAGE OR EQUATION** | | **107** | **69** | **176** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 49% | 51% | |
| NUMBER OF STUDIES | 412 | | | |
| AVERAGE SIZE | 379 | | | |
| MINIMUM RATE | 0.68 | 42 | 43 | 85 |
| AVERAGE RATE | 3.73 | 228 | 238 | 466 |
| MAXIMUM RATE | 29.27 | 1,793 | 1,866 | 3,659 |
| STANDARD DEVIATION | 2.74 | | | |
| EQUATION: LN (T) = 0.67 * LN(X) + 3.37 | $R^2$ = 0.81 | 362 | 377 | 739 |
| **LARGEST OF AVERAGE OR EQUATION** | | **362** | **377** | **739** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 2 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 125.000 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 123 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 16.70 | 1,044 | 1,044 | 2,088 |
| AVERAGE RATE | 49.97 | 3,123 | 3,123 | 6,246 |
| MAXIMUM RATE | 227.50 | 14,219 | 14,219 | 28,438 |
| STANDARD DEVIATION | 22.62 | | | |
| EQUATION: LN (T) = 0.63 * LN(X) + 6.23 | $R^2$ = 0.82 | 5,317 | 5,317 | 10,634 |
| **LARGEST OF AVERAGE OR EQUATION** | | **5,317** | **5,317** | **10,634** |
| **PEAK HOUR GENERATOR** | | 52% | 48% | |
| NUMBER OF STUDIES | 127 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 1.46 | 95 | 88 | 183 |
| AVERAGE RATE | 4.89 | 318 | 293 | 611 |
| MAXIMUM RATE | 18.32 | 1,191 | 1,099 | 2,290 |
| STANDARD DEVIATION | 3.10 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 3.76 | $R^2$ = 0.83 | 515 | 476 | 991 |
| **LARGEST OF AVERAGE OR EQUATION** | | **515** | **476** | **991** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 77 | | | |
| AVERAGE SIZE | 439 | | | |
| MINIMUM RATE | 4.15 | 260 | 259 | 519 |
| AVERAGE RATE | 25.24 | 1,578 | 1,577 | 3,155 |
| MAXIMUM RATE | 148.15 | 9,260 | 9,259 | 18,519 |
| STANDARD DEVIATION | 17.23 | | | |
| EQUATION: T = 15.63 * (X) + 4214.46 | $R^2$ = 0.52 | 3,084 | 3,084 | 6,168 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,084** | **3,084** | **6,168** |
| **PEAK HOUR GENERATOR** | | 49% | 51% | |
| NUMBER OF STUDIES | 39 | | | |
| AVERAGE SIZE | 369 | | | |
| MINIMUM RATE | 0.39 | 24 | 25 | 49 |
| AVERAGE RATE | 3.12 | 191 | 199 | 390 |
| MAXIMUM RATE | 12.40 | 760 | 790 | 1,550 |
| STANDARD DEVIATION | 2.78 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **191** | **199** | **390** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 2 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 78 | | | |
| AVERAGE SIZE | 199 | | | |
| MINIMUM RATE | 3.58 | 0 | 0 | 0 |
| AVERAGE RATE | 11.01 | 0 | 0 | 0 |
| MAXIMUM RATE | 28.80 | 0 | 0 | 0 |
| STANDARD DEVIATION | 6.13 | | | |
| EQUATION: LN (T) = 0.77 * LN(X) + 3.65 | $R^2$ = 0.80 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR ADJACENT STREET** | | 88% | 12% | |
| NUMBER OF STUDIES | 217 | | | |
| AVERAGE SIZE | 223 | | | |
| MINIMUM RATE | 0.60 | 0 | 0 | 0 |
| AVERAGE RATE | 1.55 | 0 | 0 | 0 |
| MAXIMUM RATE | 5.98 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.39 | | | |
| EQUATION: LN (T) = 0.80 * LN(X) + 1.55 | $R^2$ = 0.83 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 17% | 83% | |
| NUMBER OF STUDIES | 235 | | | |
| AVERAGE SIZE | 216 | | | |
| MINIMUM RATE | 0.49 | 0 | 0 | 0 |
| AVERAGE RATE | 1.49 | 0 | 0 | 0 |
| MAXIMUM RATE | 6.39 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.37 | | | |
| EQUATION: T = 1.12 * (X) + 78.81 | $R^2$ = 0.82 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 2 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.59 | 0 | 0 | 0 |
| AVERAGE RATE | 2.37 | 0 | 0 | 0 |
| MAXIMUM RATE | 14.67 | 0 | 0 | 0 |
| STANDARD DEVIATION | 2.08 | | | |
| EQUATION: T = 2.14 * (X) + 18.47 | $R^2$ = 0.66 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 54% | 46% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.16 | 0 | 0 | 0 |
| AVERAGE RATE | 0.41 | 0 | 0 | 0 |
| MAXIMUM RATE | 1.57 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.68 | | | |
| EQUATION: LN (T) = 0.81 * LN(X) - 0.12 | $R^2$ = 0.59 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.19 | 0 | 0 | 0 |
| AVERAGE RATE | 0.98 | 0 | 0 | 0 |
| MAXIMUM RATE | 7.33 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.29 | | | |
| EQUATION: LN (T) = 0.86 * LN(X) + 0.31 | $R^2$ = 0.50 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 58% | 42% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.06 | 0 | 0 | 0 |
| AVERAGE RATE | 0.14 | 0 | 0 | 0 |
| MAXIMUM RATE | 0.37 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.38 | | | |
| EQUATION: LN (T) = 0.61 * LN(X) - 0.23 | $R^2$ = 0.56 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 3 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 350.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | | | |
| MINIMUM RATE | | 2,188 | 2,187 | 4,375 |
| AVERAGE RATE | | 7,515 | 7,514 | 15,029 |
| MAXIMUM RATE | | 47,406 | 47,406 | 94,812 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 7,666 | 7,665 | 15,331 |
| **LARGEST OF AVERAGE OR EQUATION** | | **7,666** | **7,665** | **15,331** |
| **AM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 21 | 14 | 35 |
| AVERAGE RATE | | 214 | 136 | 350 |
| MAXIMUM RATE | | 1,932 | 1,236 | 3,168 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 197 | 126 | 323 |
| **LARGEST OF AVERAGE OR EQUATION** | | **214** | **136** | **350** |
| **AM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 117 | 121 | 238 |
| AVERAGE RATE | | 640 | 666 | 1,306 |
| MAXIMUM RATE | | 5,020 | 5,225 | 10,245 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 722 | 751 | 1,473 |
| **LARGEST OF AVERAGE OR EQUATION** | | **722** | **751** | **1,473** |
| **PM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| LARGEST OF AVERAGE OR EQUATION | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 3 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 350.000 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | | | |
| MINIMUM RATE | | 2,923 | 2,922 | 5,845 |
| AVERAGE RATE | | 8,745 | 8,745 | 17,490 |
| MAXIMUM RATE | | 39,813 | 39,812 | 79,625 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 10,172 | 10,171 | 20,343 |
| **LARGEST OF AVERAGE OR EQUATION** | | **10,172** | **10,171** | **20,343** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 266 | 245 | 511 |
| AVERAGE RATE | | 890 | 822 | 1,712 |
| MAXIMUM RATE | | 3,334 | 3,078 | 6,412 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 1,006 | 929 | 1,935 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,006** | **929** | **1,935** |
| ***SUNDAY* DAILY** | | | | |
| MINIMUM RATE | | 727 | 726 | 1,453 |
| AVERAGE RATE | | 4,417 | 4,417 | 8,834 |
| MAXIMUM RATE | | 25,927 | 25,926 | 51,853 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 4,843 | 4,842 | 9,685 |
| **LARGEST OF AVERAGE OR EQUATION** | | **4,843** | **4,842** | **9,685** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 67 | 70 | 137 |
| AVERAGE RATE | | 535 | 557 | 1,092 |
| MAXIMUM RATE | | 2,127 | 2,213 | 4,340 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **535** | **557** | **1,092** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 3 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 350.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 302 | | | |
| AVERAGE SIZE | 328 | | | |
| MINIMUM RATE | 12.50 | 2,188 | 2,187 | 4,375 |
| AVERAGE RATE | 42.94 | 7,515 | 7,514 | 15,029 |
| MAXIMUM RATE | 270.89 | 47,406 | 47,406 | 94,812 |
| STANDARD DEVIATION | 21.38 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 5.83 | $R^2$ = 0.78 | 7,666 | 7,665 | 15,331 |
| **LARGEST OF AVERAGE OR EQUATION** | | **7,666** | **7,665** | **15,331** |
| **AM PEAK HOUR ADJACENT STREET** | | 61% | 39% | |
| NUMBER OF STUDIES | 101 | | | |
| AVERAGE SIZE | 296 | | | |
| MINIMUM RATE | 0.10 | 21 | 14 | 35 |
| AVERAGE RATE | 1.00 | 214 | 136 | 350 |
| MAXIMUM RATE | 9.05 | 1,932 | 1,236 | 3,168 |
| STANDARD DEVIATION | 1.38 | | | |
| EQUATION: LN (T) = 0.59 * LN(X) + 2.32 | $R^2$ = 0.52 | 197 | 126 | 323 |
| **LARGEST OF AVERAGE OR EQUATION** | | **214** | **136** | **350** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 49% | 51% | |
| NUMBER OF STUDIES | 412 | | | |
| AVERAGE SIZE | 379 | | | |
| MINIMUM RATE | 0.68 | 117 | 121 | 238 |
| AVERAGE RATE | 3.73 | 640 | 666 | 1,306 |
| MAXIMUM RATE | 29.27 | 5,020 | 5,225 | 10,245 |
| STANDARD DEVIATION | 2.74 | | | |
| EQUATION: LN (T) = 0.67 * LN(X) + 3.37 | $R^2$ = 0.81 | 722 | 751 | 1,473 |
| **LARGEST OF AVERAGE OR EQUATION** | | **722** | **751** | **1,473** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 3 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 350.000 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 123 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 16.70 | 2,923 | 2,922 | 5,845 |
| AVERAGE RATE | 49.97 | 8,745 | 8,745 | 17,490 |
| MAXIMUM RATE | 227.50 | 39,813 | 39,812 | 79,625 |
| STANDARD DEVIATION | 22.62 | | | |
| EQUATION: LN (T) = 0.63 * LN(X) + 6.23 | $R^2$ = 0.82 | 10,172 | 10,171 | 20,343 |
| **LARGEST OF AVERAGE OR EQUATION** | | **10,172** | **10,171** | **20,343** |
| **PEAK HOUR GENERATOR** | | 52% | 48% | |
| NUMBER OF STUDIES | 127 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 1.46 | 266 | 245 | 511 |
| AVERAGE RATE | 4.89 | 890 | 822 | 1,712 |
| MAXIMUM RATE | 18.32 | 3,334 | 3,078 | 6,412 |
| STANDARD DEVIATION | 3.10 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 3.76 | $R^2$ = 0.83 | 1,006 | 929 | 1,935 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,006** | **929** | **1,935** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 77 | | | |
| AVERAGE SIZE | 439 | | | |
| MINIMUM RATE | 4.15 | 727 | 726 | 1,453 |
| AVERAGE RATE | 25.24 | 4,417 | 4,417 | 8,834 |
| MAXIMUM RATE | 148.15 | 25,927 | 25,926 | 51,853 |
| STANDARD DEVIATION | 17.23 | | | |
| EQUATION: T = 15.63 * (X) + 4214.46 | $R^2$ = 0.52 | 4,843 | 4,842 | 9,685 |
| **LARGEST OF AVERAGE OR EQUATION** | | **4,843** | **4,842** | **9,685** |
| **PEAK HOUR GENERATOR** | | 49% | 51% | |
| NUMBER OF STUDIES | 39 | | | |
| AVERAGE SIZE | 369 | | | |
| MINIMUM RATE | 0.39 | 67 | 70 | 137 |
| AVERAGE RATE | 3.12 | 535 | 557 | 1,092 |
| MAXIMUM RATE | 12.40 | 2,127 | 2,213 | 4,340 |
| STANDARD DEVIATION | 2.78 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **535** | **557** | **1,092** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 3 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 78 | | | |
| AVERAGE SIZE | 199 | | | |
| MINIMUM RATE | 3.58 | 0 | 0 | 0 |
| AVERAGE RATE | 11.01 | 0 | 0 | 0 |
| MAXIMUM RATE | 28.80 | 0 | 0 | 0 |
| STANDARD DEVIATION | 6.13 | | | |
| EQUATION: LN (T) = 0.77 * LN(X) + 3.65 | $R^2$ = 0.80 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR ADJACENT STREET** | | 88% | 12% | |
| NUMBER OF STUDIES | 217 | | | |
| AVERAGE SIZE | 223 | | | |
| MINIMUM RATE | 0.60 | 0 | 0 | 0 |
| AVERAGE RATE | 1.55 | 0 | 0 | 0 |
| MAXIMUM RATE | 5.98 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.39 | | | |
| EQUATION: LN (T) = 0.80 * LN(X) + 1.55 | $R^2$ = 0.83 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 17% | 83% | |
| NUMBER OF STUDIES | 235 | | | |
| AVERAGE SIZE | 216 | | | |
| MINIMUM RATE | 0.49 | 0 | 0 | 0 |
| AVERAGE RATE | 1.49 | 0 | 0 | 0 |
| MAXIMUM RATE | 6.39 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.37 | | | |
| EQUATION: T = 1.12 * (X) + 78.81 | $R^2$ = 0.82 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 3 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.59 | 0 | 0 | 0 |
| AVERAGE RATE | 2.37 | 0 | 0 | 0 |
| MAXIMUM RATE | 14.67 | 0 | 0 | 0 |
| STANDARD DEVIATION | 2.08 | | | |
| EQUATION: T = 2.14 * (X) + 18.47 | $R^2$ = 0.66 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 54% | 46% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.16 | 0 | 0 | 0 |
| AVERAGE RATE | 0.41 | 0 | 0 | 0 |
| MAXIMUM RATE | 1.57 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.68 | | | |
| EQUATION: LN (T) = 0.81 * LN(X) - 0.12 | $R^2$ = 0.59 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.19 | 0 | 0 | 0 |
| AVERAGE RATE | 0.98 | 0 | 0 | 0 |
| MAXIMUM RATE | 7.33 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.29 | | | |
| EQUATION: LN (T) = 0.86 * LN(X) + 0.31 | $R^2$ = 0.50 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 58% | 42% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.06 | 0 | 0 | 0 |
| AVERAGE RATE | 0.14 | 0 | 0 | 0 |
| MAXIMUM RATE | 0.37 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.38 | | | |
| EQUATION: LN (T) = 0.61 * LN(X) - 0.23 | $R^2$ = 0.56 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 4 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 125.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | | | |
| MINIMUM RATE | | 782 | 781 | 1,563 |
| AVERAGE RATE | | 2,684 | 2,684 | 5,368 |
| MAXIMUM RATE | | 16,931 | 16,930 | 33,861 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 3,926 | 3,925 | 7,851 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,926** | **3,925** | **7,851** |
| **AM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 8 | 5 | 13 |
| AVERAGE RATE | | 76 | 49 | 125 |
| MAXIMUM RATE | | 690 | 441 | 1,131 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 107 | 69 | 176 |
| **LARGEST OF AVERAGE OR EQUATION** | | **107** | **69** | **176** |
| **AM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 42 | 43 | 85 |
| AVERAGE RATE | | 228 | 238 | 466 |
| MAXIMUM RATE | | 1,793 | 1,866 | 3,659 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 362 | 377 | 739 |
| **LARGEST OF AVERAGE OR EQUATION** | | **362** | **377** | **739** |
| **PM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| LARGEST OF AVERAGE OR EQUATION | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 4 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 125 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | | | |
| MINIMUM RATE | | 1,044 | 1,044 | 2,088 |
| AVERAGE RATE | | 3,123 | 3,123 | 6,246 |
| MAXIMUM RATE | | 14,219 | 14,219 | 28,438 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 5,317 | 5,317 | 10,634 |
| **LARGEST OF AVERAGE OR EQUATION** | | **5,317** | **5,317** | **10,634** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 95 | 88 | 183 |
| AVERAGE RATE | | 318 | 293 | 611 |
| MAXIMUM RATE | | 1,191 | 1,099 | 2,290 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 515 | 476 | 991 |
| **LARGEST OF AVERAGE OR EQUATION** | | **515** | **476** | **991** |
| ***SUNDAY* DAILY** | | | | |
| MINIMUM RATE | | 260 | 259 | 519 |
| AVERAGE RATE | | 1,578 | 1,577 | 3,155 |
| MAXIMUM RATE | | 9,260 | 9,259 | 18,519 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 3,084 | 3,084 | 6,168 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,084** | **3,084** | **6,168** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 24 | 25 | 49 |
| AVERAGE RATE | | 191 | 199 | 390 |
| MAXIMUM RATE | | 760 | 790 | 1,550 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **191** | **199** | **390** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 4 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 125.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 302 | | | |
| AVERAGE SIZE | 328 | | | |
| MINIMUM RATE | 12.50 | 782 | 781 | 1,563 |
| AVERAGE RATE | 42.94 | 2,684 | 2,684 | 5,368 |
| MAXIMUM RATE | 270.89 | 16,931 | 16,930 | 33,861 |
| STANDARD DEVIATION | 21.38 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 5.83 | $R^2$ = 0.78 | 3,926 | 3,925 | 7,851 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,926** | **3,925** | **7,851** |
| **AM PEAK HOUR ADJACENT STREET** | | 61% | 39% | |
| NUMBER OF STUDIES | 101 | | | |
| AVERAGE SIZE | 296 | | | |
| MINIMUM RATE | 0.10 | 8 | 5 | 13 |
| AVERAGE RATE | 1.00 | 76 | 49 | 125 |
| MAXIMUM RATE | 9.05 | 690 | 441 | 1,131 |
| STANDARD DEVIATION | 1.38 | | | |
| EQUATION: LN (T) = 0.59 * LN(X) + 2.32 | $R^2$ = 0.52 | 107 | 69 | 176 |
| **LARGEST OF AVERAGE OR EQUATION** | | **107** | **69** | **176** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 49% | 51% | |
| NUMBER OF STUDIES | 412 | | | |
| AVERAGE SIZE | 379 | | | |
| MINIMUM RATE | 0.68 | 42 | 43 | 85 |
| AVERAGE RATE | 3.73 | 228 | 238 | 466 |
| MAXIMUM RATE | 29.27 | 1,793 | 1,866 | 3,659 |
| STANDARD DEVIATION | 2.74 | | | |
| EQUATION: LN (T) = 0.67 * LN(X) + 3.37 | $R^2$ = 0.81 | 362 | 377 | 739 |
| **LARGEST OF AVERAGE OR EQUATION** | | **362** | **377** | **739** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 4 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 125.000 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 123 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 16.70 | 1,044 | 1,044 | 2,088 |
| AVERAGE RATE | 49.97 | 3,123 | 3,123 | 6,246 |
| MAXIMUM RATE | 227.50 | 14,219 | 14,219 | 28,438 |
| STANDARD DEVIATION | 22.62 | | | |
| EQUATION: LN (T) = 0.63 * LN(X) + 6.23 | $R^2$ = 0.82 | 5,317 | 5,317 | 10,634 |
| **LARGEST OF AVERAGE OR EQUATION** | | **5,317** | **5,317** | **10,634** |
| **PEAK HOUR GENERATOR** | | 52% | 48% | |
| NUMBER OF STUDIES | 127 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 1.46 | 95 | 88 | 183 |
| AVERAGE RATE | 4.89 | 318 | 293 | 611 |
| MAXIMUM RATE | 18.32 | 1,191 | 1,099 | 2,290 |
| STANDARD DEVIATION | 3.10 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 3.76 | $R^2$ = 0.83 | 515 | 476 | 991 |
| **LARGEST OF AVERAGE OR EQUATION** | | **515** | **476** | **991** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 77 | | | |
| AVERAGE SIZE | 439 | | | |
| MINIMUM RATE | 4.15 | 260 | 259 | 519 |
| AVERAGE RATE | 25.24 | 1,578 | 1,577 | 3,155 |
| MAXIMUM RATE | 148.15 | 9,260 | 9,259 | 18,519 |
| STANDARD DEVIATION | 17.23 | | | |
| EQUATION: T = 15.63 * (X) + 4214.46 | $R^2$ = 0.52 | 3,084 | 3,084 | 6,168 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,084** | **3,084** | **6,168** |
| **PEAK HOUR GENERATOR** | | 49% | 51% | |
| NUMBER OF STUDIES | 39 | | | |
| AVERAGE SIZE | 369 | | | |
| MINIMUM RATE | 0.39 | 24 | 25 | 49 |
| AVERAGE RATE | 3.12 | 191 | 199 | 390 |
| MAXIMUM RATE | 12.40 | 760 | 790 | 1,550 |
| STANDARD DEVIATION | 2.78 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **191** | **199** | **390** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 4 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 78 | | | |
| AVERAGE SIZE | 199 | | | |
| MINIMUM RATE | 3.58 | 0 | 0 | 0 |
| AVERAGE RATE | 11.01 | 0 | 0 | 0 |
| MAXIMUM RATE | 28.80 | 0 | 0 | 0 |
| STANDARD DEVIATION | 6.13 | | | |
| EQUATION: LN (T) = 0.77 * LN(X) + 3.65 | $R^2$ = 0.80 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR ADJACENT STREET** | | 88% | 12% | |
| NUMBER OF STUDIES | 217 | | | |
| AVERAGE SIZE | 223 | | | |
| MINIMUM RATE | 0.60 | 0 | 0 | 0 |
| AVERAGE RATE | 1.55 | 0 | 0 | 0 |
| MAXIMUM RATE | 5.98 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.39 | | | |
| EQUATION: LN (T) = 0.80 * LN(X) + 1.55 | $R^2$ = 0.83 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 17% | 83% | |
| NUMBER OF STUDIES | 235 | | | |
| AVERAGE SIZE | 216 | | | |
| MINIMUM RATE | 0.49 | 0 | 0 | 0 |
| AVERAGE RATE | 1.49 | 0 | 0 | 0 |
| MAXIMUM RATE | 6.39 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.37 | | | |
| EQUATION: T = 1.12 * (X) + 78.81 | $R^2$ = 0.82 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 4 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.59 | 0 | 0 | 0 |
| AVERAGE RATE | 2.37 | 0 | 0 | 0 |
| MAXIMUM RATE | 14.67 | 0 | 0 | 0 |
| STANDARD DEVIATION | 2.08 | | | |
| EQUATION: T = 2.14 * (X) + 18.47 | $R^2$ = 0.66 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 54% | 46% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.16 | 0 | 0 | 0 |
| AVERAGE RATE | 0.41 | 0 | 0 | 0 |
| MAXIMUM RATE | 1.57 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.68 | | | |
| EQUATION: LN (T) = 0.81 * LN(X) - 0.12 | $R^2$ = 0.59 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.19 | 0 | 0 | 0 |
| AVERAGE RATE | 0.98 | 0 | 0 | 0 |
| MAXIMUM RATE | 7.33 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.29 | | | |
| EQUATION: LN (T) = 0.86 * LN(X) + 0.31 | $R^2$ = 0.50 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 58% | 42% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.06 | 0 | 0 | 0 |
| AVERAGE RATE | 0.14 | 0 | 0 | 0 |
| MAXIMUM RATE | 0.37 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.38 | | | |
| EQUATION: LN (T) = 0.61 * LN(X) - 0.23 | $R^2$ = 0.56 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 5 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 350.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | | | |
| MINIMUM RATE | | 2,188 | 2,187 | 4,375 |
| AVERAGE RATE | | 7,515 | 7,514 | 15,029 |
| MAXIMUM RATE | | 47,406 | 47,406 | 94,812 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 7,666 | 7,665 | 15,331 |
| **LARGEST OF AVERAGE OR EQUATION** | | **7,666** | **7,665** | **15,331** |
| **AM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 21 | 14 | 35 |
| AVERAGE RATE | | 214 | 136 | 350 |
| MAXIMUM RATE | | 1,932 | 1,236 | 3,168 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 197 | 126 | 323 |
| **LARGEST OF AVERAGE OR EQUATION** | | **214** | **136** | **350** |
| **AM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 117 | 121 | 238 |
| AVERAGE RATE | | 640 | 666 | 1,306 |
| MAXIMUM RATE | | 5,020 | 5,225 | 10,245 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 722 | 751 | 1,473 |
| **LARGEST OF AVERAGE OR EQUATION** | | **722** | **751** | **1,473** |
| **PM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | NA | NA | NA |
| AVERAGE RATE | | NA | NA | NA |
| MAXIMUM RATE | | NA | NA | NA |
| STANDARD DEVIATION | | | | |
| EQUATION | | NA | NA | NA |
| LARGEST OF AVERAGE OR EQUATION | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 5 | | | |
| ITE LAND USE CATEGORY AND CODE | SUM OF SHOPPING CENTER AND GENERAL OFFICE BUILDING | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 350.000 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | | | |
| MINIMUM RATE | | 2,923 | 2,922 | 5,845 |
| AVERAGE RATE | | 8,745 | 8,745 | 17,490 |
| MAXIMUM RATE | | 39,813 | 39,812 | 79,625 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 10,172 | 10,171 | 20,343 |
| **LARGEST OF AVERAGE OR EQUATION** | | **10,172** | **10,171** | **20,343** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 266 | 245 | 511 |
| AVERAGE RATE | | 890 | 822 | 1,712 |
| MAXIMUM RATE | | 3,334 | 3,078 | 6,412 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 1,006 | 929 | 1,935 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,006** | **929** | **1,935** |
| ***SUNDAY* DAILY** | | | | |
| MINIMUM RATE | | 727 | 726 | 1,453 |
| AVERAGE RATE | | 4,417 | 4,417 | 8,834 |
| MAXIMUM RATE | | 25,927 | 25,926 | 51,853 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 4,843 | 4,842 | 9,685 |
| **LARGEST OF AVERAGE OR EQUATION** | | **4,843** | **4,842** | **9,685** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 67 | 70 | 137 |
| AVERAGE RATE | | 535 | 557 | 1,092 |
| MAXIMUM RATE | | 2,127 | 2,213 | 4,340 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **535** | **557** | **1,092** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 5 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 350.000 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 302 | | | |
| AVERAGE SIZE | 328 | | | |
| MINIMUM RATE | 12.50 | 2,188 | 2,187 | 4,375 |
| AVERAGE RATE | 42.94 | 7,515 | 7,514 | 15,029 |
| MAXIMUM RATE | 270.89 | 47,406 | 47,406 | 94,812 |
| STANDARD DEVIATION | 21.38 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 5.83 | $R^2$ = 0.78 | 7,666 | 7,665 | 15,331 |
| **LARGEST OF AVERAGE OR EQUATION** | | **7,666** | **7,665** | **15,331** |
| **AM PEAK HOUR ADJACENT STREET** | | 61% | 39% | |
| NUMBER OF STUDIES | 101 | | | |
| AVERAGE SIZE | 296 | | | |
| MINIMUM RATE | 0.10 | 21 | 14 | 35 |
| AVERAGE RATE | 1.00 | 214 | 136 | 350 |
| MAXIMUM RATE | 9.05 | 1,932 | 1,236 | 3,168 |
| STANDARD DEVIATION | 1.38 | | | |
| EQUATION: LN (T) = 0.59 * LN(X) + 2.32 | $R^2$ = 0.52 | 197 | 126 | 323 |
| **LARGEST OF AVERAGE OR EQUATION** | | **214** | **136** | **350** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 49% | 51% | |
| NUMBER OF STUDIES | 412 | | | |
| AVERAGE SIZE | 379 | | | |
| MINIMUM RATE | 0.68 | 117 | 121 | 238 |
| AVERAGE RATE | 3.73 | 640 | 666 | 1,306 |
| MAXIMUM RATE | 29.27 | 5,020 | 5,225 | 10,245 |
| STANDARD DEVIATION | 2.74 | | | |
| EQUATION: LN (T) = 0.67 * LN(X) + 3.37 | $R^2$ = 0.81 | 722 | 751 | 1,473 |
| **LARGEST OF AVERAGE OR EQUATION** | | **722** | **751** | **1,473** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 5 | | | |
| ITE LAND USE CATEGORY AND CODE | SHOPPING CENTER - 820 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 350.000 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 123 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 16.70 | 2,923 | 2,922 | 5,845 |
| AVERAGE RATE | 49.97 | 8,745 | 8,745 | 17,490 |
| MAXIMUM RATE | 227.50 | 39,813 | 39,812 | 79,625 |
| STANDARD DEVIATION | 22.62 | | | |
| EQUATION: LN (T) = 0.63 * LN(X) + 6.23 | $R^2$ = 0.82 | 10,172 | 10,171 | 20,343 |
| **LARGEST OF AVERAGE OR EQUATION** | | **10,172** | **10,171** | **20,343** |
| **PEAK HOUR GENERATOR** | | 52% | 48% | |
| NUMBER OF STUDIES | 127 | | | |
| AVERAGE SIZE | 450 | | | |
| MINIMUM RATE | 1.46 | 266 | 245 | 511 |
| AVERAGE RATE | 4.89 | 890 | 822 | 1,712 |
| MAXIMUM RATE | 18.32 | 3,334 | 3,078 | 6,412 |
| STANDARD DEVIATION | 3.10 | | | |
| EQUATION: LN (T) = 0.65 * LN(X) + 3.76 | $R^2$ = 0.83 | 1,006 | 929 | 1,935 |
| **LARGEST OF AVERAGE OR EQUATION** | | **1,006** | **929** | **1,935** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 77 | | | |
| AVERAGE SIZE | 439 | | | |
| MINIMUM RATE | 4.15 | 727 | 726 | 1,453 |
| AVERAGE RATE | 25.24 | 4,417 | 4,417 | 8,834 |
| MAXIMUM RATE | 148.15 | 25,927 | 25,926 | 51,853 |
| STANDARD DEVIATION | 17.23 | | | |
| EQUATION: T = 15.63 * (X) + 4214.46 | $R^2$ = 0.52 | 4,843 | 4,842 | 9,685 |
| **LARGEST OF AVERAGE OR EQUATION** | | **4,843** | **4,842** | **9,685** |
| **PEAK HOUR GENERATOR** | | 49% | 51% | |
| NUMBER OF STUDIES | 39 | | | |
| AVERAGE SIZE | 369 | | | |
| MINIMUM RATE | 0.39 | 67 | 70 | 137 |
| AVERAGE RATE | 3.12 | 535 | 557 | 1,092 |
| MAXIMUM RATE | 12.40 | 2,127 | 2,213 | 4,340 |
| STANDARD DEVIATION | 2.78 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **535** | **557** | **1,092** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 5 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 78 | | | |
| AVERAGE SIZE | 199 | | | |
| MINIMUM RATE | 3.58 | 0 | 0 | 0 |
| AVERAGE RATE | 11.01 | 0 | 0 | 0 |
| MAXIMUM RATE | 28.80 | 0 | 0 | 0 |
| STANDARD DEVIATION | 6.13 | | | |
| EQUATION: LN (T) = 0.77 * LN(X) + 3.65 | $R^2$ = 0.80 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR ADJACENT STREET** | | 88% | 12% | |
| NUMBER OF STUDIES | 217 | | | |
| AVERAGE SIZE | 223 | | | |
| MINIMUM RATE | 0.60 | 0 | 0 | 0 |
| AVERAGE RATE | 1.55 | 0 | 0 | 0 |
| MAXIMUM RATE | 5.98 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.39 | | | |
| EQUATION: LN (T) = 0.80 * LN(X) + 1.55 | $R^2$ = 0.83 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **AM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |
| **PM PEAK HOUR ADJACENT STREET** | | 17% | 83% | |
| NUMBER OF STUDIES | 235 | | | |
| AVERAGE SIZE | 216 | | | |
| MINIMUM RATE | 0.49 | 0 | 0 | 0 |
| AVERAGE RATE | 1.49 | 0 | 0 | 0 |
| MAXIMUM RATE | 6.39 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.37 | | | |
| EQUATION: T = 1.12 * (X) + 78.81 | $R^2$ = 0.82 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PM PEAK HOUR GENERATOR** | | NA | NA | |
| NUMBER OF STUDIES | NA | | | |
| AVERAGE SIZE | NA | | | |
| MINIMUM RATE | NA | NA | NA | NA |
| AVERAGE RATE | NA | NA | NA | NA |
| MAXIMUM RATE | NA | NA | NA | NA |
| STANDARD DEVIATION | NA | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **NA** | **NA** | **NA** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DEVELOPMENT UNIT 5 | | | |
| ITE LAND USE CATEGORY AND CODE | GENERAL OFFICE BUILDING - 710 | | | |
| INDEPENDENT VARIABLE | 1,000 SQUARE FEET | | | |
| SIZE | 0.00 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.59 | 0 | 0 | 0 |
| AVERAGE RATE | 2.37 | 0 | 0 | 0 |
| MAXIMUM RATE | 14.67 | 0 | 0 | 0 |
| STANDARD DEVIATION | 2.08 | | | |
| EQUATION: T = 2.14 * (X) + 18.47 | $R^2$ = 0.66 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 54% | 46% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.16 | 0 | 0 | 0 |
| AVERAGE RATE | 0.41 | 0 | 0 | 0 |
| MAXIMUM RATE | 1.57 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.68 | | | |
| EQUATION: LN (T) = 0.81 * LN(X) - 0.12 | $R^2$ = 0.59 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 17 | | | |
| AVERAGE SIZE | 78 | | | |
| MINIMUM RATE | 0.19 | 0 | 0 | 0 |
| AVERAGE RATE | 0.98 | 0 | 0 | 0 |
| MAXIMUM RATE | 7.33 | 0 | 0 | 0 |
| STANDARD DEVIATION | 1.29 | | | |
| EQUATION: LN (T) = 0.86 * LN(X) + 0.31 | $R^2$ = 0.50 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |
| **PEAK HOUR GENERATOR** | | 58% | 42% | |
| NUMBER OF STUDIES | 10 | | | |
| AVERAGE SIZE | 97 | | | |
| MINIMUM RATE | 0.06 | 0 | 0 | 0 |
| AVERAGE RATE | 0.14 | 0 | 0 | 0 |
| MAXIMUM RATE | 0.37 | 0 | 0 | 0 |
| STANDARD DEVIATION | 0.38 | | | |
| EQUATION: LN (T) = 0.61 * LN(X) - 0.23 | $R^2$ = 0.56 | 0 | 0 | 0 |
| **LARGEST OF AVERAGE OR EQUATION** | | **0** | **0** | **0** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DU 2 - PHASE 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SINGLE FAMILY - 210 | | | |
| INDEPENDENT VARIABLE | MAXIMUM OF DWELLING UNITS AND ACRES | | | |
| SIZE | 646 DWELLING UNITS AND 161.37 ACRES | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | | | |
| MINIMUM RATE | | 1,392 | 1,392 | 2,784 |
| AVERAGE RATE | | 3,091 | 3,091 | 6,182 |
| MAXIMUM RATE | | 7,058 | 7,057 | 14,115 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 2,893 | 2,893 | 5,786 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,091** | **3,091** | **6,182** |
| **AM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 49 | 145 | 194 |
| AVERAGE RATE | | 121 | 364 | 485 |
| MAXIMUM RATE | | 367 | 1,099 | 1,466 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 116 | 346 | 462 |
| **LARGEST OF AVERAGE OR EQUATION** | | **121** | **364** | **485** |
| **AM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 55 | 158 | 213 |
| AVERAGE RATE | | 175 | 368 | 543 |
| MAXIMUM RATE | | 553 | 1,085 | 1,638 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 124 | 344 | 468 |
| **LARGEST OF AVERAGE OR EQUATION** | | **175** | **368** | **543** |
| **PM PEAK HOUR ADJACENT STREET** | | | | |
| MINIMUM RATE | | 171 | 100 | 271 |
| AVERAGE RATE | | 411 | 241 | 652 |
| MAXIMUM RATE | | 1,213 | 712 | 1,925 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 355 | 208 | 563 |
| **LARGEST OF AVERAGE OR EQUATION** | | **411** | **241** | **652** |
| **PM PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 173 | 98 | 271 |
| AVERAGE RATE | | 422 | 237 | 659 |
| MAXIMUM RATE | | 1,232 | 693 | 1,925 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 353 | 199 | 552 |
| LARGEST OF AVERAGE OR EQUATION | | **422** | **237** | **659** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DU 2 - PHASE 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SINGLE FAMILY - 210 | | | |
| INDEPENDENT VARIABLE | MAXIMUM OF DWELLING UNITS AND ACRES | | | |
| SIZE | 646 DWELLING UNITS AND 161.37 ACRES | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | | | |
| MINIMUM RATE | | 1,719 | 1,718 | 3,437 |
| AVERAGE RATE | | 3,256 | 3,256 | 6,512 |
| MAXIMUM RATE | | 7,503 | 7,503 | 15,006 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 3,116 | 3,115 | 6,231 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,256** | **3,256** | **6,512** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 162 | 161 | 323 |
| AVERAGE RATE | | 301 | 300 | 601 |
| MAXIMUM RATE | | 822 | 701 | 1,523 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 293 | 292 | 585 |
| **LARGEST OF AVERAGE OR EQUATION** | | **301** | **300** | **601** |
| ***SUNDAY* DAILY** | | | | |
| MINIMUM RATE | | 1,531 | 1,531 | 3,062 |
| AVERAGE RATE | | 2,833 | 2,832 | 5,665 |
| MAXIMUM RATE | | 5,806 | 5,805 | 11,611 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 2,849 | 2,848 | 5,697 |
| **LARGEST OF AVERAGE OR EQUATION** | | **2,849** | **2,848** | **5,697** |
| **PEAK HOUR GENERATOR** | | | | |
| MINIMUM RATE | | 188 | 167 | 355 |
| AVERAGE RATE | | 295 | 261 | 556 |
| MAXIMUM RATE | | 608 | 607 | 1,215 |
| STANDARD DEVIATION | | | | |
| EQUATION | | 271 | 241 | 512 |
| **LARGEST OF AVERAGE OR EQUATION** | | **295** | **261** | **556** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DU 2 - PHASE 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SINGLE FAMILY - 210 | | | |
| INDEPENDENT VARIABLE | DWELLING UNITS | | | |
| SIZE | 646 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 351 | | | |
| AVERAGE SIZE | 197 | | | |
| MINIMUM RATE | 4.31 | 1,392 | 1,392 | 2,784 |
| AVERAGE RATE | 9.57 | 3,091 | 3,091 | 6,182 |
| MAXIMUM RATE | 21.85 | 7,058 | 7,057 | 14,115 |
| STANDARD DEVIATION | 3.69 | | | |
| EQUATION: LN (T) = 0.92 * LN(X) + 2.71 | $R^2$ = 0.89 | 2,893 | 2,893 | 5,786 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,091** | **3,091** | **6,182** |
| **AM PEAK HOUR ADJACENT STREET** | | 25% | 75% | |
| NUMBER OF STUDIES | 286 | | | |
| AVERAGE SIZE | 194 | | | |
| MINIMUM RATE | 0.30 | 49 | 145 | 194 |
| AVERAGE RATE | 0.75 | 121 | 364 | 485 |
| MAXIMUM RATE | 2.27 | 367 | 1,099 | 1,466 |
| STANDARD DEVIATION | 2.41 | | | |
| EQUATION: T = 0.70 * (X) + 9.74 | $R^2$ = 0.90 | 116 | 346 | 462 |
| **LARGEST OF AVERAGE OR EQUATION** | | **121** | **364** | **485** |
| **AM PEAK HOUR GENERATOR** | | 26% | 74% | |
| NUMBER OF STUDIES | 341 | | | |
| AVERAGE SIZE | 181 | | | |
| MINIMUM RATE | 0.33 | 55 | 158 | 213 |
| AVERAGE RATE | 0.77 | 129 | 368 | 497 |
| MAXIMUM RATE | 2.27 | 381 | 1,085 | 1,466 |
| STANDARD DEVIATION | 0.91 | | | |
| EQUATION: T = 0.70 * (X) + 12.37 | $R^2$ = 0.89 | 121 | 344 | 465 |
| **LARGEST OF AVERAGE OR EQUATION** | | **129** | **368** | **497** |
| **PM PEAK HOUR ADJACENT STREET** | | 63% | 37% | |
| NUMBER OF STUDIES | 314 | | | |
| AVERAGE SIZE | 208 | | | |
| MINIMUM RATE | 0.42 | 171 | 100 | 271 |
| AVERAGE RATE | 1.01 | 411 | 241 | 652 |
| MAXIMUM RATE | 2.98 | 1,213 | 712 | 1,925 |
| STANDARD DEVIATION | 1.05 | | | |
| EQUATION: LN (T) = 0.90 * LN(X) + 0.51 | $R^2$ = 0.91 | 355 | 208 | 563 |
| **LARGEST OF AVERAGE OR EQUATION** | | **411** | **241** | **652** |
| **PM PEAK HOUR GENERATOR** | | 64% | 36% | |
| NUMBER OF STUDIES | 360 | | | |
| AVERAGE SIZE | 174 | | | |
| MINIMUM RATE | 0.42 | 173 | 98 | 271 |
| AVERAGE RATE | 1.02 | 422 | 237 | 659 |
| MAXIMUM RATE | 2.98 | 1,232 | 693 | 1,925 |
| STANDARD DEVIATION | 1.05 | | | |
| EQUATION: LN (T) = 0.88 * LN(X) + 0.62 | $R^2$ = 0.91 | 353 | 199 | 552 |
| **LARGEST OF AVERAGE OR EQUATION** | | **422** | **237** | **659** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DU 2 - PHASE 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SINGLE FAMILY - 210 | | | |
| INDEPENDENT VARIABLE | DWELLING UNITS | | | |
| SIZE | 646 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 74 | | | |
| AVERAGE SIZE | 213 | | | |
| MINIMUM RATE | 5.32 | 1,719 | 1,718 | 3,437 |
| AVERAGE RATE | 10.08 | 3,256 | 3,256 | 6,512 |
| MAXIMUM RATE | 15.25 | 4,926 | 4,926 | 9,852 |
| STANDARD DEVIATION | 3.68 | | | |
| EQUATION: LN (T) = 0.95 * LN(X) + 2.59 | $R^2$ = 0.91 | 3,116 | 3,115 | 6,231 |
| **LARGEST OF AVERAGE OR EQUATION** | | **3,256** | **3,256** | **6,512** |
| **PEAK HOUR GENERATOR** | | 50% | 50% | |
| NUMBER OF STUDIES | 53 | | | |
| AVERAGE SIZE | 217 | | | |
| MINIMUM RATE | 0.50 | 162 | 161 | 323 |
| AVERAGE RATE | 0.93 | 301 | 300 | 601 |
| MAXIMUM RATE | 1.75 | 566 | 565 | 1,131 |
| STANDARD DEVIATION | 0.99 | | | |
| EQUATION: T = 0.89 * (X) + 9.56 | $R^2$ = 0.91 | 293 | 292 | 585 |
| **LARGEST OF AVERAGE OR EQUATION** | | **301** | **300** | **601** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 70 | | | |
| AVERAGE SIZE | 216 | | | |
| MINIMUM RATE | 4.74 | 1,531 | 1,531 | 3,062 |
| AVERAGE RATE | 8.77 | 2,833 | 2,832 | 5,665 |
| MAXIMUM RATE | 12.31 | 3,976 | 3,976 | 7,952 |
| STANDARD DEVIATION | 3.33 | | | |
| EQUATION: T = 8.84 * (X) - 13.31 | $R^2$ = 0.94 | 2,849 | 2,848 | 5,697 |
| **LARGEST OF AVERAGE OR EQUATION** | | **2,849** | **2,848** | **5,697** |
| **PEAK HOUR GENERATOR** | | 53% | 47% | |
| NUMBER OF STUDIES | 52 | | | |
| AVERAGE SIZE | 215 | | | |
| MINIMUM RATE | 0.55 | 188 | 167 | 355 |
| AVERAGE RATE | 0.86 | 295 | 261 | 556 |
| MAXIMUM RATE | 1.48 | 507 | 449 | 956 |
| STANDARD DEVIATION | 0.95 | | | |
| EQUATION: LN (T) = 0.91 * LN(X) + 0.35 | $R^2$ = 0.87 | 271 | 241 | 512 |
| **LARGEST OF AVERAGE OR EQUATION** | | **295** | **261** | **556** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DU 2 - PHASE 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SINGLE FAMILY - 210 | | | |
| INDEPENDENT VARIABLE | ACRES | | | |
| SIZE | 161.370 | | | |
| | | TRIPS | | |
| | | ENTERING | EXITING | TOTAL |
| ***WEEKDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 144 | | | |
| AVERAGE SIZE | 70 | | | |
| MINIMUM RATE | 3.17 | 256 | 256 | 512 |
| AVERAGE RATE | 26.04 | 2,101 | 2,101 | 4,202 |
| MAXIMUM RATE | 84.94 | 6,854 | 6,853 | 13,707 |
| STANDARD DEVIATION | 19.62 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **2,101** | **2,101** | **4,202** |
| **AM PEAK HOUR ADJACENT STREET** | | 31% | 69% | |
| NUMBER OF STUDIES | 123 | | | |
| AVERAGE SIZE | 71 | | | |
| MINIMUM RATE | 0.28 | 14 | 31 | 45 |
| AVERAGE RATE | 2.06 | 103 | 229 | 332 |
| MAXIMUM RATE | 6.59 | 330 | 733 | 1,063 |
| STANDARD DEVIATION | 1.97 | | | |
| EQUATION: LN (T) = 0.77 * LN(X) + 1.58 | $R^2$ = 0.90 | 75 | 168 | 243 |
| **LARGEST OF AVERAGE OR EQUATION** | | **103** | **229** | **332** |
| **AM PEAK HOUR GENERATOR** | | 52% | 48% | |
| NUMBER OF STUDIES | 132 | | | |
| AVERAGE SIZE | 69 | | | |
| MINIMUM RATE | 0.28 | 23 | 22 | 45 |
| AVERAGE RATE | 2.08 | 175 | 161 | 336 |
| MAXIMUM RATE | 6.59 | 553 | 510 | 1,063 |
| STANDARD DEVIATION | 1.99 | | | |
| EQUATION: LN (T) = 0.76 * LN(X) + 1.61 | $R^2$ = 0.55 | 124 | 114 | 238 |
| **LARGEST OF AVERAGE OR EQUATION** | | **175** | **161** | **336** |
| **PM PEAK HOUR ADJACENT STREET** | | 66% | 34% | |
| NUMBER OF STUDIES | 124 | | | |
| AVERAGE SIZE | 70 | | | |
| MINIMUM RATE | 0.36 | 38 | 20 | 58 |
| AVERAGE RATE | 2.74 | 292 | 150 | 442 |
| MAXIMUM RATE | 10.39 | 1,107 | 570 | 1,677 |
| STANDARD DEVIATION | 2.65 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **292** | **150** | **442** |
| **PM PEAK HOUR GENERATOR** | | 66% | 34% | |
| NUMBER OF STUDIES | 132 | | | |
| AVERAGE SIZE | 69 | | | |
| MINIMUM RATE | 0.36 | 38 | 20 | 58 |
| AVERAGE RATE | 2.73 | 291 | 150 | 441 |
| MAXIMUM RATE | 10.39 | 1,107 | 570 | 1,677 |
| STANDARD DEVIATION | 2.64 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **291** | **150** | **441** |

| PROJECT | PACIFIC PROVING GROUNDS NORTH | | | |
|---|---|---|---|---|
| PARCEL | DU 2 - PHASE 1 | | | |
| ITE LAND USE CATEGORY AND CODE | SINGLE FAMILY - 210 | | | |
| INDEPENDENT VARIABLE | ACRES | | | |
| SIZE | 161.370 | | | |
| | | TRIPS | | |
| | RATE | ENTERING | EXITING | SUM |
| ***SATURDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 37 | | | |
| AVERAGE SIZE | 75 | | | |
| MINIMUM RATE | 3.69 | 298 | 297 | 595 |
| AVERAGE RATE | 31.02 | 2,503 | 2,503 | 5,006 |
| MAXIMUM RATE | 92.99 | 7,503 | 7,503 | 15,006 |
| STANDARD DEVIATION | 24.43 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **2,503** | **2,503** | **5,006** |
| **PEAK HOUR GENERATOR** | | 54% | 46% | |
| NUMBER OF STUDIES | 15 | | | |
| AVERAGE SIZE | 101 | | | |
| MINIMUM RATE | 0.46 | 40 | 34 | 74 |
| AVERAGE RATE | 2.97 | 259 | 220 | 479 |
| MAXIMUM RATE | 9.44 | 822 | 701 | 1,523 |
| STANDARD DEVIATION | 3.20 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **259** | **220** | **479** |
| ***SUNDAY* DAILY** | | 50% | 50% | |
| NUMBER OF STUDIES | 33 | | | |
| AVERAGE SIZE | 80 | | | |
| MINIMUM RATE | 3.24 | 262 | 261 | 523 |
| AVERAGE RATE | 27.02 | 2,180 | 2,180 | 4,360 |
| MAXIMUM RATE | 71.95 | 5,806 | 5,805 | 11,611 |
| STANDARD DEVIATION | 19.90 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **2,180** | **2,180** | **4,360** |
| **PEAK HOUR GENERATOR** | | 50% | 50% | |
| NUMBER OF STUDIES | 14 | | | |
| AVERAGE SIZE | 103 | | | |
| MINIMUM RATE | 0.40 | 33 | 32 | 65 |
| AVERAGE RATE | 2.61 | 211 | 210 | 421 |
| MAXIMUM RATE | 7.53 | 608 | 607 | 1,215 |
| STANDARD DEVIATION | 2.86 | | | |
| EQUATION: NOT PROVIDED | NA | NA | NA | NA |
| **LARGEST OF AVERAGE OR EQUATION** | | **211** | **210** | **421** |

# *APPENDIX F*
# *LEVEL-OF-SERVICE*

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 210 | 668 | 117 | 363 | 1173 | 151 | 265 | 901 | 245 | 334 | 2032 | 326 |
| v/c Ratio | 0.79 | 0.73 | 0.19 | 0.81 | 0.99 | 0.22 | 0.87 | 0.48 | 0.27 | 0.68 | 0.95 | 0.36 |
| Control Delay | 62.4 | 40.3 | 2.5 | 53.1 | 59.1 | 10.5 | 68.8 | 23.2 | 6.9 | 43.9 | 36.1 | 8.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 1.6 | 0.0 | 0.0 | 0.0 |
| Total Delay | 62.4 | 40.3 | 2.5 | 53.1 | 59.1 | 10.5 | 68.8 | 28.0 | 8.5 | 43.9 | 36.1 | 8.7 |
| Queue Length 50th (ft) | 61 | 132 | 0 | 104 | 244 | 30 | 78 | 144 | 37 | 92 | 396 | 61 |
| Queue Length 95th (ft) | #118 | 174 | 20 | #170 | #342 | 68 | #146 | 183 | 78 | 137 | #515 | 115 |
| Internal Link Dist (ft) | | 158 | | | 2442 | | | 150 | | | 39 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | 267 | 914 | 604 | 457 | 1186 | 720 | 305 | 1870 | 913 | 534 | 2147 | 911 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 883 | 496 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.79 | 0.73 | 0.19 | 0.79 | 0.99 | 0.21 | 0.87 | 0.91 | 0.59 | 0.63 | 0.95 | 0.36 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 193 | 615 | 108 | 334 | 1079 | 139 | 244 | 829 | 225 | 307 | 1869 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 210 | 668 | 117 | 363 | 1173 | 151 | 265 | 901 | 245 | 334 | 2032 | 326 |
| RTOR Reduction (vph) | 0 | 0 | 86 | 0 | 0 | 38 | 0 | 0 | 55 | 0 | 0 | 55 |
| Lane Group Flow (vph) | 210 | 668 | 31 | 363 | 1173 | 113 | 265 | 901 | 190 | 334 | 2032 | 272 |
| Turn Type | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 16.2 | 24.2 | 11.8 | 21.0 | 33.9 | 8.0 | 33.1 | 44.9 | 12.9 | 38.0 | 45.0 |
| Effective Green, g (s) | 7.0 | 16.2 | 24.2 | 11.8 | 21.0 | 33.9 | 8.0 | 33.1 | 44.9 | 12.9 | 38.0 | 45.0 |
| Actuated g/C Ratio | 0.08 | 0.18 | 0.27 | 0.13 | 0.23 | 0.38 | 0.09 | 0.37 | 0.50 | 0.14 | 0.42 | 0.50 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 267 | 915 | 496 | 450 | 1186 | 666 | 305 | 1870 | 860 | 492 | 2147 | 861 |
| v/s Ratio Prot | 0.06 | 0.13 | 0.01 | c0.11 | c0.23 | 0.02 | c0.08 | 0.18 | 0.03 | c0.10 | c0.40 | 0.02 |
| v/s Ratio Perm | | | 0.01 | | | 0.05 | | | 0.09 | | | 0.15 |
| v/c Ratio | 0.79 | 0.73 | 0.06 | 0.81 | 0.99 | 0.17 | 0.87 | 0.48 | 0.22 | 0.68 | 0.95 | 0.32 |
| Uniform Delay, d1 | 40.8 | 34.8 | 24.5 | 38.0 | 34.4 | 18.7 | 40.5 | 21.9 | 12.7 | 36.6 | 25.0 | 13.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 14.1 | 3.0 | 0.1 | 10.2 | 23.2 | 0.1 | 22.1 | 0.2 | 0.1 | 3.7 | 9.6 | 0.2 |
| Delay (s) | 54.9 | 37.9 | 24.5 | 48.2 | 57.6 | 18.8 | 62.6 | 22.1 | 12.8 | 40.3 | 34.6 | 13.6 |
| Level of Service | D | D | C | D | E | B | E | C | B | D | C | B |
| Approach Delay (s) | | 39.9 | | | 52.1 | | | 28.1 | | | 32.8 | |
| Approach LOS | | D | | | D | | | C | | | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 37.6 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 901 | 216 | 1196 | 412 | 199 | 2311 |
| v/c Ratio | 0.79 | 0.26 | 0.68 | 0.19 | 0.50 | 0.86 |
| Control Delay | 23.4 | 8.4 | 19.2 | 1.3 | 29.3 | 16.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 46.8 |
| Total Delay | 23.4 | 8.4 | 19.2 | 1.3 | 29.3 | 63.5 |
| Queue Length 50th (ft) | 144 | 37 | 135 | 7 | 35 | 248 |
| Queue Length 95th (ft) | 205 | 70 | 179 | 17 | 63 | #321 |
| Internal Link Dist (ft) | 231 | | 1640 | | | 150 |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | 1232 | 829 | 1752 | 2197 | 410 | 2695 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 797 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.73 | 0.26 | 0.68 | 0.19 | 0.49 | 1.22 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.





| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 829 | 199 | 1100 | 379 | 183 | 2126 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 0.88 | 0.97 | 0.91 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3433 | 1583 | 5085 | 2787 | 3433 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3433 | 1583 | 5085 | 2787 | 3433 | 5085 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 901 | 216 | 1196 | 412 | 199 | 2311 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 65 | 0 | 0 |
| Lane Group Flow (vph) | 901 | 212 | 1196 | 347 | 199 | 2311 |
| Turn Type | Prot | pm+ov | NA | pm+ov | Prot | NA |
| Protected Phases | 8 | 1 | 2 | 8 | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 19.5 | 26.4 | 20.2 | 39.7 | 6.9 | 31.1 |
| Effective Green, g (s) | 19.5 | 26.4 | 20.2 | 39.7 | 6.9 | 31.1 |
| Actuated g/C Ratio | 0.33 | 0.45 | 0.34 | 0.68 | 0.12 | 0.53 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1142 | 821 | 1752 | 2078 | 404 | 2698 |
| v/s Ratio Prot | c0.26 | 0.03 | 0.24 | 0.06 | 0.06 | c0.45 |
| v/s Ratio Perm | | 0.10 | | 0.07 | | |
| v/c Ratio | 0.79 | 0.26 | 0.68 | 0.17 | 0.49 | 0.86 |
| Uniform Delay, d1 | 17.7 | 10.0 | 16.5 | 3.4 | 24.2 | 11.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 0.2 | 1.1 | 0.0 | 0.9 | 2.9 |
| Delay (s) | 21.4 | 10.2 | 17.6 | 3.5 | 25.2 | 14.7 |
| Level of Service | C | B | B | A | C | B |
| Approach Delay (s) | 19.2 | | 14.0 | | | 15.6 |
| Approach LOS | B | | B | | | B |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 15.8 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 58.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 109 | 752 | 273 | 133 | 918 | 109 | 197 | 731 | 109 | 1192 |
| v/c Ratio | 0.48 | 0.60 | 0.41 | 0.59 | 0.73 | 0.15 | 0.77 | 0.52 | 0.30 | 0.90 |
| Control Delay | 22.2 | 23.5 | 12.0 | 27.4 | 26.0 | 3.7 | 34.1 | 16.2 | 10.8 | 29.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 22.2 | 23.5 | 12.0 | 27.4 | 26.0 | 3.7 | 34.1 | 16.2 | 10.8 | 29.4 |
| Queue Length 50th (ft) | 28 | 96 | 51 | 35 | 122 | 0 | 40 | 111 | 21 | 224 |
| Queue Length 95th (ft) | 59 | 132 | 107 | #78 | 164 | 26 | #134 | 162 | 44 | #355 |
| Internal Link Dist (ft) | | 2442 | | | 1000 | | | 845 | | 327 |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 227 | 1322 | 672 | 227 | 1322 | 712 | 257 | 1411 | 370 | 1370 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.48 | 0.57 | 0.41 | 0.59 | 0.69 | 0.15 | 0.77 | 0.52 | 0.29 | 0.87 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 692 | 251 | 122 | 845 | 100 | 181 | 533 | 140 | 100 | 928 | 168 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 5085 | 1583 | 1770 | 5085 | 1583 | 1770 | 3429 | | 1770 | 3458 | |
| Flt Permitted | 0.26 | 1.00 | 1.00 | 0.26 | 1.00 | 1.00 | 0.16 | 1.00 | | 0.28 | 1.00 | |
| Satd. Flow (perm) | 487 | 5085 | 1583 | 487 | 5085 | 1583 | 298 | 3429 | | 521 | 3458 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 109 | 752 | 273 | 133 | 918 | 109 | 197 | 579 | 152 | 109 | 1009 | 183 |
| RTOR Reduction (vph) | 0 | 0 | 57 | 0 | 0 | 75 | 0 | 34 | 0 | 0 | 22 | 0 |
| Lane Group Flow (vph) | 109 | 752 | 216 | 133 | 918 | 34 | 197 | 697 | 0 | 109 | 1170 | 0 |
| Turn Type | pm+pt | NA | pm+ov | pm+pt | NA | pm+ov | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 18.4 | 15.3 | 20.3 | 18.4 | 15.3 | 19.9 | 30.0 | 25.0 | | 29.2 | 24.6 | |
| Effective Green, g (s) | 18.4 | 15.3 | 20.3 | 18.4 | 15.3 | 19.9 | 30.0 | 25.0 | | 29.2 | 24.6 | |
| Actuated g/C Ratio | 0.29 | 0.24 | 0.32 | 0.29 | 0.24 | 0.31 | 0.47 | 0.39 | | 0.46 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 202 | 1215 | 601 | 202 | 1215 | 591 | 254 | 1339 | | 327 | 1329 | |
| v/s Ratio Prot | 0.03 | 0.15 | 0.03 | c0.03 | c0.18 | 0.00 | c0.06 | 0.20 | | 0.02 | c0.34 | |
| v/s Ratio Perm | 0.13 | | 0.11 | 0.16 | | 0.02 | 0.30 | | | 0.13 | | |
| v/c Ratio | 0.54 | 0.62 | 0.36 | 0.66 | 0.76 | 0.06 | 0.78 | 0.52 | | 0.33 | 0.88 | |
| Uniform Delay, d1 | 17.8 | 21.7 | 16.8 | 18.5 | 22.6 | 15.5 | 13.1 | 14.9 | | 10.4 | 18.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.8 | 0.9 | 0.4 | 7.5 | 2.7 | 0.0 | 13.8 | 0.4 | | 0.6 | 7.1 | |
| Delay (s) | 20.5 | 22.7 | 17.2 | 26.1 | 25.3 | 15.5 | 26.9 | 15.3 | | 11.0 | 25.4 | |
| Level of Service | C | C | B | C | C | B | C | B | | B | C | |
| Approach Delay (s) | | 21.2 | | | 24.5 | | | 17.7 | | | 24.2 | |
| Approach LOS | | C | | | C | | | B | | | C | |

Intersection Summary

| | | | | | |
|---|---|---|---|---|---|
| HCM 2000 Control Delay | 22.2 | HCM 2000 Level of Service | | C | |
| HCM 2000 Volume to Capacity ratio | 0.81 | | | | |
| Actuated Cycle Length (s) | 64.0 | Sum of lost time (s) | | 16.0 | |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | | D | |
| Analysis Period (min) | 15 | | | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 43 | 354 | 75 | 29 | 122 | 983 | 9 | 1247 |
| v/c Ratio | 0.12 | 0.73 | 0.31 | 0.05 | 0.46 | 0.51 | 0.03 | 0.77 |
| Control Delay | 14.8 | 19.0 | 17.9 | 0.2 | 34.8 | 11.4 | 28.6 | 20.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 14.8 | 19.0 | 17.9 | 0.2 | 34.8 | 11.4 | 28.6 | 20.0 |
| Queue Length 50th (ft) | 11 | 47 | 19 | 0 | 22 | 106 | 1 | 207 |
| Queue Length 95th (ft) | 29 | 128 | 44 | 0 | #54 | 233 | 8 | #372 |
| Internal Link Dist (ft) | | 298 | | 452 | | 380 | | 845 |
| Turn Bay Length (ft) | | | | | | | | |
| Base Capacity (vph) | 359 | 638 | 243 | 693 | 267 | 2009 | 267 | 1719 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.12 | 0.55 | 0.31 | 0.04 | 0.46 | 0.49 | 0.03 | 0.73 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 0 | 326 | 69 | 0 | 27 | 112 | 870 | 34 | 8 | 1122 | 25 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.97 | 0.95 | | 0.97 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 1583 | | 1770 | 1583 | | 3433 | 3519 | | 3433 | 3528 | |
| Flt Permitted | 0.74 | 1.00 | | 0.32 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1375 | 1583 | | 601 | 1583 | | 3433 | 3519 | | 3433 | 3528 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 0 | 354 | 75 | 0 | 29 | 122 | 946 | 37 | 9 | 1220 | 27 |
| RTOR Reduction (vph) | 0 | 170 | 0 | 0 | 23 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 43 | 184 | 0 | 75 | 6 | 0 | 122 | 979 | 0 | 9 | 1245 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | Prot | NA | | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 13.1 | 11.7 | | 14.5 | 12.4 | | 3.0 | 29.6 | | 0.7 | 27.3 | |
| Effective Green, g (s) | 13.1 | 11.7 | | 14.5 | 12.4 | | 3.0 | 29.6 | | 0.7 | 27.3 | |
| Actuated g/C Ratio | 0.22 | 0.19 | | 0.24 | 0.21 | | 0.05 | 0.49 | | 0.01 | 0.45 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 308 | 308 | | 185 | 326 | | 171 | 1733 | | 39 | 1602 | |
| v/s Ratio Prot | 0.00 | c0.12 | | c0.01 | 0.00 | | c0.04 | 0.28 | | 0.00 | c0.35 | |
| v/s Ratio Perm | 0.03 | | | 0.08 | | | | | | | | |
| v/c Ratio | 0.14 | 0.60 | | 0.41 | 0.02 | | 0.71 | 0.57 | | 0.23 | 0.78 | |
| Uniform Delay, d1 | 18.8 | 22.1 | | 18.7 | 19.0 | | 28.1 | 10.7 | | 29.4 | 13.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 3.1 | | 1.5 | 0.0 | | 13.2 | 0.4 | | 3.0 | 2.4 | |
| Delay (s) | 19.0 | 25.2 | | 20.1 | 19.0 | | 41.3 | 11.2 | | 32.5 | 16.3 | |
| Level of Service | B | C | | C | B | | D | B | | C | B | |
| Approach Delay (s) | | 24.5 | | | 19.8 | | | 14.5 | | | 16.4 | |
| Approach LOS | | C | | | B | | | B | | | B | |

Intersection Summary

| | | | | | |
|---|---|---|---|---|---|
| HCM 2000 Control Delay | 16.9 | HCM 2000 Level of Service | | B | |
| HCM 2000 Volume to Capacity ratio | 0.69 | | | | |
| Actuated Cycle Length (s) | 60.1 | Sum of lost time (s) | | 16.0 | |
| Intersection Capacity Utilization | 72.5% | ICU Level of Service | | C | |
| Analysis Period (min) | 15 | | | | |

c Critical Lane Group

2020 with PPGN AM Peak Hour

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 14 | 0 | 35 | 15 | 0 | 17 | 38 | 986 | 19 | 27 | 1447 | 43 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 15 | 0 | 38 | 16 | 0 | 18 | 41 | 1072 | 21 | 29 | 1573 | 47 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | 570 | | | 460 | |
| pX, platoon unblocked | 0.73 | 0.73 | 0.70 | 0.73 | 0.73 | 0.93 | 0.70 | | | 0.93 | | |
| vC, conflicting volume | 2292 | 2830 | 810 | 2048 | 2843 | 546 | 1620 | | | 1092 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1600 | 2336 | 0 | 1266 | 2354 | 361 | 1016 | | | 949 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 66 | 100 | 95 | 79 | 100 | 97 | 91 | | | 96 | | |
| cM capacity (veh/h) | 45 | 23 | 755 | 79 | 22 | 591 | 472 | | | 669 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 15 | 38 | 16 | 18 | 41 | 714 | 378 | 29 | 1049 | 571 |
| Volume Left | 15 | 0 | 16 | 0 | 41 | 0 | 0 | 29 | 0 | 0 |
| Volume Right | 0 | 38 | 0 | 18 | 0 | 0 | 21 | 0 | 0 | 47 |
| cSH | 45 | 755 | 79 | 591 | 472 | 1700 | 1700 | 669 | 1700 | 1700 |
| Volume to Capacity | 0.34 | 0.05 | 0.21 | 0.03 | 0.09 | 0.42 | 0.22 | 0.04 | 0.62 | 0.34 |
| Queue Length 95th (ft) | 29 | 4 | 18 | 2 | 7 | 0 | 0 | 3 | 0 | 0 |
| Control Delay (s) | 120.4 | 10.0 | 62.3 | 11.3 | 13.4 | 0.0 | 0.0 | 10.6 | 0.0 | 0.0 |
| Lane LOS | F | B | F | B | B | | | B | | |
| Approach Delay (s) | 41.6 | | 35.2 | | 0.5 | | | 0.2 | | |
| Approach LOS | E | | E | | | | | | | |

| Intersection Summary | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Average Delay | | | 1.5 | | | | | | | |
| Intersection Capacity Utilization | | | 55.5% | | ICU Level of Service | | | | B | |
| Analysis Period (min) | | | 15 | | | | | | | |





2020 with PPGN AM Peak Hour

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 1311 | 107 | 0 | 1235 | 43 | 0 | 0 | 52 | 0 | 0 | 31 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 1425 | 116 | 0 | 1342 | 47 | 0 | 0 | 57 | 0 | 0 | 34 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | 370 | | | | | | | |
| pX, platoon unblocked | 0.86 | | | | | | 0.86 | 0.86 | | 0.86 | 0.86 | 0.86 |
| vC, conflicting volume | 1389 | | | 1541 | | | 1906 | 2814 | 475 | 1897 | 2907 | 471 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 890 | | | 1541 | | | 1490 | 2544 | 475 | 1480 | 2651 | 0 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 89 | 100 | 100 | 96 |
| cM capacity (veh/h) | 653 | | | 427 | | | 71 | 23 | 536 | 67 | 19 | 934 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | EB 4 | WB 1 | WB 2 | WB 3 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 475 | 475 | 475 | 116 | 537 | 537 | 315 | 57 | 34 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 116 | 0 | 0 | 47 | 57 | 34 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 536 | 934 |
| Volume to Capacity | 0.28 | 0.28 | 0.28 | 0.07 | 0.32 | 0.32 | 0.19 | 0.11 | 0.04 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 3 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 9.0 |
| Lane LOS | | | | | | | | B | A |
| Approach Delay (s) | 0.0 | | | | 0.0 | | | 12.5 | 9.0 |
| Approach LOS | | | | | | | | B | A |

| Intersection Summary | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Average Delay | | | 0.3 | | | | | | |
| Intersection Capacity Utilization | | | 35.3% | | ICU Level of Service | | | | A |
| Analysis Period (min) | | | 15 | | | | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 449 | 809 | 318 | 294 | 838 | 272 | 151 | 411 | 250 | 191 | 965 | 471 |
| v/c Ratio | 0.83 | 0.67 | 0.51 | 0.58 | 0.74 | 0.39 | 0.61 | 0.44 | 0.32 | 0.46 | 0.87 | 0.54 |
| Control Delay | 43.2 | 27.5 | 16.3 | 32.6 | 29.4 | 11.3 | 43.0 | 23.3 | 9.0 | 32.2 | 33.2 | 11.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 43.2 | 27.5 | 16.3 | 32.6 | 29.4 | 11.3 | 43.0 | 23.3 | 9.0 | 32.2 | 33.2 | 11.6 |
| Queue Length 50th (ft) | 97 | 117 | 77 | 60 | 122 | 50 | 33 | 78 | 42 | 39 | 203 | 100 |
| Queue Length 95th (ft) | #170 | 151 | 118 | 84 | 159 | 104 | #68 | 117 | 29 | 69 | #310 | 179 |
| Internal Link Dist (ft) | | 290 | | | 1 | | | 78 | | | 490 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | 547 | 1199 | 629 | 547 | 1180 | 707 | 249 | 934 | 802 | 448 | 1129 | 875 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.82 | 0.67 | 0.51 | 0.54 | 0.71 | 0.38 | 0.61 | 0.44 | 0.31 | 0.43 | 0.85 | 0.54 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 413 | 704 | 248 | 232 | 737 | 250 | 139 | 378 | 115 | 176 | 888 | 433 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.87 | 0.78 | 0.79 | 0.88 | 0.92 | 0.92 | 0.92 | 0.46 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 449 | 809 | 318 | 294 | 838 | 272 | 151 | 411 | 250 | 191 | 965 | 471 |
| RTOR Reduction (vph) | 0 | 0 | 54 | 0 | 0 | 60 | 0 | 0 | 46 | 0 | 0 | 41 |
| Lane Group Flow (vph) | 449 | 809 | 264 | 294 | 838 | 212 | 151 | 411 | 204 | 191 | 965 | 430 |
| Turn Type | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.9 | 16.3 | 21.3 | 10.1 | 15.5 | 23.8 | 5.0 | 18.3 | 28.4 | 8.3 | 21.6 | 32.5 |
| Effective Green, g (s) | 10.9 | 16.3 | 21.3 | 10.1 | 15.5 | 23.8 | 5.0 | 18.3 | 28.4 | 8.3 | 21.6 | 32.5 |
| Actuated g/C Ratio | 0.16 | 0.24 | 0.31 | 0.15 | 0.22 | 0.34 | 0.07 | 0.27 | 0.41 | 0.12 | 0.31 | 0.47 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 542 | 1201 | 580 | 502 | 1142 | 637 | 248 | 938 | 743 | 412 | 1107 | 837 |
| v/s Ratio Prot | c0.13 | 0.16 | c0.03 | 0.09 | c0.16 | 0.04 | 0.04 | 0.12 | 0.04 | 0.06 | c0.27 | 0.08 |
| v/s Ratio Perm | | | 0.13 | | | 0.09 | | | 0.09 | | | 0.19 |
| v/c Ratio | 0.83 | 0.67 | 0.46 | 0.59 | 0.73 | 0.33 | 0.61 | 0.44 | 0.27 | 0.46 | 0.87 | 0.51 |
| Uniform Delay, d1 | 28.1 | 23.9 | 19.2 | 27.5 | 24.8 | 16.7 | 31.1 | 21.1 | 13.5 | 28.3 | 22.4 | 12.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 10.1 | 1.5 | 0.6 | 1.7 | 2.5 | 0.3 | 4.2 | 0.3 | 0.2 | 0.8 | 7.7 | 0.5 |
| Delay (s) | 38.2 | 25.4 | 19.8 | 29.2 | 27.3 | 17.0 | 35.2 | 21.4 | 13.7 | 29.1 | 30.1 | 13.3 |
| Level of Service | D | C | B | C | C | B | D | C | B | C | C | B |
| Approach Delay (s) | | 27.9 | | | 25.7 | | | 21.6 | | | 25.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

Intersection Summary

| | | | | | | |
|---|---|---|---|---|---|---|
| HCM 2000 Control Delay | 25.6 | HCM 2000 Level of Service | C | | | |
| HCM 2000 Volume to Capacity ratio | 0.80 | | | | | |
| Actuated Cycle Length (s) | 69.0 | Sum of lost time (s) | 16.0 | | | |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C | | | |
| Analysis Period (min) | 15 | | | | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 91 | 783 | 120 | 43 | 938 | 23 | 54 | 0 | 27 | 34 | 0 | 225 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 99 | 851 | 130 | 47 | 1020 | 25 | 59 | 0 | 29 | 37 | 0 | 245 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 510 | | | | | | | | | | |
| pX, platoon unblocked | | | | 0.91 | | | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | |
| vC, conflicting volume | 1045 | | | 982 | | | 1792 | 2252 | 349 | 1636 | 2305 | 352 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1045 | | | 641 | | | 1530 | 2035 | 0 | 1359 | 2092 | 352 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 85 | | | 95 | | | 0 | 100 | 97 | 54 | 100 | 62 |
| cM capacity (veh/h) | 662 | | | 857 | | | 38 | 41 | 989 | 81 | 38 | 644 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | EB 4 | WB 1 | WB 2 | WB 3 | WB 4 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 99 | 340 | 340 | 301 | 47 | 408 | 408 | 229 | 59 | 29 | 37 | 245 |
| Volume Left | 99 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 59 | 0 | 37 | 0 |
| Volume Right | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 25 | 0 | 29 | 0 | 245 |
| cSH | 662 | 1700 | 1700 | 1700 | 857 | 1700 | 1700 | 1700 | 38 | 989 | 81 | 644 |
| Volume to Capacity | 0.15 | 0.20 | 0.20 | 0.18 | 0.05 | 0.24 | 0.24 | 0.13 | 1.53 | 0.03 | 0.46 | 0.38 |
| Queue Length 95th (ft) | 13 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 153 | 2 | 47 | 44 |
| Control Delay (s) | 11.4 | 0.0 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 0.0 | 497.4 | 8.8 | 82.9 | 14.0 |
| Lane LOS | B | | | | A | | | | F | A | F | B |
| Approach Delay (s) | 1.0 | | | | 0.4 | | | | 334.5 | | 23.0 | |
| Approach LOS | | | | | | | | | F | | C | |

| Intersection Summary | | | | | | |
|---|---|---|---|---|---|---|
| Average Delay | 14.8 | | | | | |
| Intersection Capacity Utilization | 54.3% | ICU Level of Service | | A | | |
| Analysis Period (min) | 15 | | | | | |





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 25 | 0 | 88 | 20 | 0 | 44 | 32 | 562 | 32 | 46 | 1220 | 100 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 27 | 0 | 96 | 22 | 0 | 48 | 35 | 611 | 35 | 50 | 1326 | 109 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | 680 | |
| pX, platoon unblocked | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | | 0.76 | | | | | |
| vC, conflicting volume | 1903 | 2196 | 717 | 1557 | 2233 | 323 | 1435 | | | 646 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1556 | 1941 | 0 | 1099 | 1990 | 323 | 939 | | | 646 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 45 | 100 | 88 | 79 | 100 | 93 | 94 | | | 95 | | |
| cM capacity (veh/h) | 49 | 43 | 824 | 102 | 40 | 673 | 551 | | | 936 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 27 | 96 | 22 | 48 | 35 | 407 | 238 | 50 | 884 | 551 |
| Volume Left | 27 | 0 | 22 | 0 | 35 | 0 | 0 | 50 | 0 | 0 |
| Volume Right | 0 | 96 | 0 | 48 | 0 | 0 | 35 | 0 | 0 | 109 |
| cSH | 49 | 824 | 102 | 673 | 551 | 1700 | 1700 | 936 | 1700 | 1700 |
| Volume to Capacity | 0.55 | 0.12 | 0.21 | 0.07 | 0.06 | 0.24 | 0.14 | 0.05 | 0.52 | 0.32 |
| Queue Length 95th (ft) | 52 | 10 | 19 | 6 | 5 | 0 | 0 | 4 | 0 | 0 |
| Control Delay (s) | 145.3 | 9.9 | 49.4 | 10.8 | 12.0 | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 |
| Lane LOS | F | A | E | B | B | | | A | | |
| Approach Delay (s) | 39.9 | | 22.8 | | 0.6 | | | 0.3 | | |
| Approach LOS | E | | C | | | | | | | |

| Intersection Summary | | | | | | |
|---|---|---|---|---|---|---|
| Average Delay | 3.1 | | | | | |
| Intersection Capacity Utilization | 52.9% | ICU Level of Service | | A | | |
| Analysis Period (min) | 15 | | | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 247 | 561 | 136 | 131 | 1346 | 277 | 288 | 935 | 139 | 195 | 633 | 307 |
| v/c Ratio | 1.05 | 0.33 | 0.22 | 0.42 | 0.79 | 0.40 | 0.67 | 0.68 | 0.25 | 0.85 | 0.61 | 0.62 |
| Control Delay | 116.2 | 29.5 | 6.1 | 30.7 | 38.1 | 7.6 | 41.6 | 38.9 | 2.3 | 71.3 | 42.6 | 18.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 116.2 | 29.5 | 6.1 | 30.7 | 38.1 | 7.6 | 41.6 | 38.9 | 2.3 | 71.3 | 42.6 | 18.0 |
| Queue Length 50th (ft) | ~144 | 110 | 0 | 64 | 314 | 17 | 141 | 221 | 0 | 90 | 152 | 54 |
| Queue Length 95th (ft) | #319 | 160 | 40 | 107 | 364 | 80 | 195 | 268 | 0 | #146 | 172 | 147 |
| Internal Link Dist (ft) | | 95 | | | 310 | | | 1 | | | 1640 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | 236 | 1702 | 620 | 333 | 1764 | 707 | 435 | 1764 | 674 | 235 | 1486 | 616 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.05 | 0.33 | 0.22 | 0.39 | 0.76 | 0.39 | 0.66 | 0.53 | 0.21 | 0.83 | 0.43 | 0.50 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 215 | 522 | 117 | 105 | 1104 | 244 | 245 | 860 | 85 | 158 | 513 | 276 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 5085 | 1583 | 1770 | 5085 | 1583 | 1770 | 5085 | 1583 | 1770 | 5085 | 1583 |
| Flt Permitted | 0.15 | 1.00 | 1.00 | 0.31 | 1.00 | 1.00 | 0.32 | 1.00 | 1.00 | 0.18 | 1.00 | 1.00 |
| Satd. Flow (perm) | 288 | 5085 | 1583 | 575 | 5085 | 1583 | 596 | 5085 | 1583 | 331 | 5085 | 1583 |
| Peak-hour factor, PHF | 0.87 | 0.93 | 0.86 | 0.80 | 0.82 | 0.88 | 0.85 | 0.92 | 0.61 | 0.81 | 0.81 | 0.90 |
| Adj. Flow (vph) | 247 | 561 | 136 | 131 | 1346 | 277 | 288 | 935 | 139 | 195 | 633 | 307 |
| RTOR Reduction (vph) | 0 | 0 | 91 | 0 | 0 | 161 | 0 | 0 | 102 | 0 | 0 | 173 |
| Lane Group Flow (vph) | 247 | 561 | 45 | 131 | 1346 | 116 | 288 | 935 | 37 | 195 | 633 | 134 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 38.5 | 36.5 | 36.5 | 36.7 | 36.7 | 36.7 | 46.3 | 29.6 | 29.6 | 32.2 | 22.5 | 22.5 |
| Effective Green, g (s) | 38.5 | 36.5 | 36.5 | 36.7 | 36.7 | 36.7 | 46.3 | 29.6 | 29.6 | 32.2 | 22.5 | 22.5 |
| Actuated g/C Ratio | 0.35 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.42 | 0.27 | 0.27 | 0.29 | 0.20 | 0.20 |
| Clearance Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 236 | 1685 | 524 | 303 | 1695 | 527 | 429 | 1367 | 425 | 223 | 1039 | 323 |
| v/s Ratio Prot | c0.10 | 0.11 | | 0.04 | c0.26 | | c0.10 | 0.18 | | c0.08 | 0.12 | |
| v/s Ratio Perm | c0.27 | | 0.03 | 0.10 | | 0.07 | 0.18 | | 0.02 | c0.18 | | 0.08 |
| v/c Ratio | 1.05 | 0.33 | 0.09 | 0.43 | 0.79 | 0.22 | 0.67 | 0.68 | 0.09 | 0.87 | 0.61 | 0.41 |
| Uniform Delay, d1 | 38.1 | 27.7 | 25.3 | 26.7 | 33.3 | 26.4 | 30.6 | 36.1 | 30.1 | 43.2 | 39.8 | 38.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 71.3 | 0.1 | 0.1 | 1.0 | 2.7 | 0.2 | 4.1 | 1.4 | 0.1 | 29.3 | 1.0 | 0.9 |
| Delay (s) | 109.4 | 27.8 | 25.4 | 27.7 | 35.9 | 26.6 | 34.7 | 37.5 | 30.2 | 72.5 | 40.8 | 38.9 |
| Level of Service | F | C | C | C | D | C | C | D | C | E | D | D |
| Approach Delay (s) | | 48.8 | | | 33.8 | | | 36.2 | | | 45.8 | |
| Approach LOS | | D | | | C | | | D | | | D | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 39.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 110.1 | Sum of lost time (s) | 24.0 |
| Intersection Capacity Utilization | 78.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 4 | 172 | 12 | 11 | 471 | 2 | 36 | 0 | 33 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 187 | 13 | 12 | 512 | 2 | 39 | 0 | 36 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 514 | 0 | 0 | 200 | 0 | 0 | 745 | 740 | 193 |
| Stage 1 | - | - | - | - | - | - | 202 | 202 | - |
| Stage 2 | - | - | - | - | - | - | 543 | 538 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1052 | - | - | 1372 | - | - | 330 | 345 | 849 |
| Stage 1 | - | - | - | - | - | - | 800 | 734 | - |
| Stage 2 | - | - | - | - | - | - | 524 | 522 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1052 | - | - | 1372 | - | - | 319 | 339 | 849 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 319 | 339 | - |
| Stage 1 | - | - | - | - | - | - | 797 | 731 | - |
| Stage 2 | - | - | - | - | - | - | 507 | 516 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.2 | 14.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 455 | 1052 | - | - | 1372 | - | - | 424 |
| HCM Lane V/C Ratio | 0.165 | 0.004 | - | - | 0.009 | - | - | 0.046 |
| HCM Control Delay (s) | 14.5 | 8.4 | 0 | - | 7.6 | 0 | - | 13.9 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.6 | 0 | - | - | 0 | - | - | 0.1 |



14: Collector A & Cadence Boulevard
2020 with PPGN AM Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | |

| Movement | SBL | SBT | SBR |
|---|---|---|---|
| Vol, veh/h | 7 | 0 | 11 |
| Conflicting Peds, #/hr | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop |
| RT Channelized | - | - | None |
| Storage Length | - | - | - |
| Veh in Median Storage, # | - | 0 | - |
| Grade, % | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 |
| Mvmt Flow | 8 | 0 | 12 |

| Major/Minor | Minor2 | | |
|---|---|---|---|
| Conflicting Flow All | 757 | 746 | 513 |
| Stage 1 | 537 | 537 | - |
| Stage 2 | 220 | 209 | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 324 | 342 | 561 |
| Stage 1 | 528 | 523 | - |
| Stage 2 | 782 | 729 | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 307 | 337 | 561 |
| Mov Cap-2 Maneuver | 307 | 337 | - |
| Stage 1 | 526 | 517 | - |
| Stage 2 | 746 | 726 | - |

| Approach | SB |
|---|---|
| HCM Control Delay, s | 13.9 |
| HCM LOS | B |

| Minor Lane/Major Mvmt |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 6 | 199 | 7 | 5 | 444 | 5 | 22 | 0 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 7 | 216 | 8 | 5 | 483 | 5 | 24 | 0 | 16 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 488 | 0 | 0 | 224 | 0 | 0 | 739 | 732 | 220 |
| Stage 1 | - | - | - | - | - | - | 233 | 233 | - |
| Stage 2 | - | - | - | - | - | - | 506 | 499 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1075 | - | - | 1345 | - | - | 333 | 348 | 820 |
| Stage 1 | - | - | - | - | - | - | 770 | 712 | - |
| Stage 2 | - | - | - | - | - | - | 549 | 544 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1075 | - | - | 1345 | - | - | 319 | 344 | 820 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 319 | 344 | - |
| Stage 1 | - | - | - | - | - | - | 765 | 707 | - |
| Stage 2 | - | - | - | - | - | - | 528 | 541 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.1 | 14.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 424 | 1075 | - | - | 1345 | - | - | 427 |
| HCM Lane V/C Ratio | 0.095 | 0.006 | - | - | 0.004 | - | - | 0.084 |
| HCM Control Delay (s) | 14.4 | 8.4 | 0 | - | 7.7 | 0 | - | 14.2 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | 0 | - | - | 0.3 |



15: Collector B & Cadence Boulevard
2020 with PPGN AM Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | |

| Movement | SBL | SBT | SBR |
|---|---|---|---|
| Vol, veh/h | 15 | 0 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop |
| RT Channelized | - | - | None |
| Storage Length | - | - | - |
| Veh in Median Storage, # | - | 0 | - |
| Grade, % | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 |
| Mvmt Flow | 16 | 0 | 20 |

| Major/Minor | Minor2 | | |
|---|---|---|---|
| Conflicting Flow All | 737 | 733 | 485 |
| Stage 1 | 496 | 496 | - |
| Stage 2 | 241 | 237 | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 334 | 348 | 582 |
| Stage 1 | 556 | 545 | - |
| Stage 2 | 762 | 709 | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 324 | 344 | 582 |
| Mov Cap-2 Maneuver | 324 | 344 | - |
| Stage 1 | 552 | 542 | - |
| Stage 2 | 742 | 704 | - |

| Approach | SB |
|---|---|
| HCM Control Delay, s | 14.2 |
| HCM LOS | B |

| Minor Lane/Major Mvmt |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 5 | 214 | 8 | 7 | 414 | 4 | 25 | 0 | 22 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 233 | 9 | 8 | 450 | 4 | 27 | 0 | 24 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 454 | 0 | 0 | 241 | 0 | 0 | 724 | 718 | 237 |
| Stage 1 | - | - | - | - | - | - | 248 | 248 | - |
| Stage 2 | - | - | - | - | - | - | 476 | 470 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1107 | - | - | 1326 | - | - | 341 | 355 | 802 |
| Stage 1 | - | - | - | - | - | - | 756 | 701 | - |
| Stage 2 | - | - | - | - | - | - | 570 | 560 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1107 | - | - | 1326 | - | - | 329 | 350 | 802 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 329 | 350 | - |
| Stage 1 | - | - | - | - | - | - | 752 | 697 | - |
| Stage 2 | - | - | - | - | - | - | 550 | 556 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.1 | 13.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 454 | 1107 | - | - | 1326 | - | - | 445 |
| HCM Lane V/C Ratio | 0.113 | 0.005 | - | - | 0.006 | - | - | 0.064 |
| HCM Control Delay (s) | 13.9 | 8.3 | 0 | - | 7.7 | 0 | - | 13.6 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0 | - | - | 0.2 |



16: Collector C & Cadence Boulevard
2020 with PPGN AM Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | |

| Movement | SBL | SBT | SBR |
|---|---|---|---|
| Vol, veh/h | 11 | 0 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop |
| RT Channelized | - | - | None |
| Storage Length | - | - | - |
| Veh in Median Storage, # | - | 0 | - |
| Grade, % | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 |
| Mvmt Flow | 12 | 0 | 16 |

| Major/Minor | Minor2 | | |
|---|---|---|---|
| Conflicting Flow All | 727 | 719 | 452 |
| Stage 1 | 467 | 467 | - |
| Stage 2 | 260 | 252 | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 339 | 354 | 608 |
| Stage 1 | 576 | 562 | - |
| Stage 2 | 745 | 698 | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 326 | 349 | 608 |
| Mov Cap-2 Maneuver | 326 | 349 | - |
| Stage 1 | 573 | 558 | - |
| Stage 2 | 719 | 695 | - |

| Approach | SB |
|---|---|
| HCM Control Delay, s | 13.6 |
| HCM LOS | B |

| Minor Lane/Major Mvmt |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 6.7 |
| Intersection LOS | A |

| Approach | EB | NB | SB |
|---|---|---|---|
| Entry Lanes | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 269 | 443 | 40 |
| Demand Flow Rate, veh/h | 274 | 452 | 40 |
| Vehicles Circulating, veh/h | 16 | 8 | 447 |
| Vehicles Exiting, veh/h | 471 | 282 | 13 |
| Follow-Up Headway, s | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 5.6 | 7.5 | 5.6 |
| Approach LOS | A | A | A |

| Lane | Left | Left | Left |
|---|---|---|---|
| Designated Moves | LR | LT | TR |
| Assumed Moves | LR | LT | TR |
| RT Channelized | | | |
| Lane Util | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 274 | 452 | 40 |
| Cap Entry Lane, veh/h | 1112 | 1121 | 723 |
| Entry HV Adj Factor | 0.982 | 0.980 | 0.992 |
| Flow Entry, veh/h | 269 | 443 | 40 |
| Cap Entry, veh/h | 1092 | 1098 | 717 |
| V/C Ratio | 0.246 | 0.403 | 0.055 |
| Control Delay, s/veh | 5.6 | 7.5 | 5.6 |
| LOS | A | A | A |
| 95th %tile Queue, veh | 1 | 2 | 0 |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Vol, veh/h | 47 | 51 | 357 | 16 | 17 | 237 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 51 | 55 | 388 | 17 | 18 | 258 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 692 | 397 | 0 | 0 | 405 | 0 |
| Stage 1 | 397 | - | - | - | - | - |
| Stage 2 | 295 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 410 | 652 | - | - | 1154 | - |
| Stage 1 | 679 | - | - | - | - | - |
| Stage 2 | 755 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 403 | 652 | - | - | 1154 | - |
| Mov Cap-2 Maneuver | 403 | - | - | - | - | - |
| Stage 1 | 679 | - | - | - | - | - |
| Stage 2 | 741 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 14.1 | 0 | 0.5 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 503 | 1154 | - |
| HCM Lane V/C Ratio | - | - | 0.212 | 0.016 | - |
| HCM Control Delay (s) | - | - | 14.1 | 8.2 | 0 |
| HCM Lane LOS | - | - | B | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.8 | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 12 | 536 | 41 | 37 | 325 | 8 | 24 | 0 | 22 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 13 | 583 | 45 | 40 | 353 | 9 | 26 | 0 | 24 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 362 | 0 | 0 | 627 | 0 | 0 | 1073 | 1073 | 605 |
| Stage 1 | - | - | - | - | - | - | 631 | 631 | - |
| Stage 2 | - | - | - | - | - | - | 442 | 442 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1197 | - | - | 955 | - | - | 198 | 220 | 498 |
| Stage 1 | - | - | - | - | - | - | 469 | 474 | - |
| Stage 2 | - | - | - | - | - | - | 594 | 576 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1197 | - | - | 955 | - | - | 186 | 205 | 498 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 186 | 205 | - |
| Stage 1 | - | - | - | - | - | - | 461 | 466 | - |
| Stage 2 | - | - | - | - | - | - | 557 | 546 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.9 | 21.6 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 266 | 1197 | - | - | 955 | - | - | 311 |
| HCM Lane V/C Ratio | 0.188 | 0.011 | - | - | 0.042 | - | - | 0.042 |
| HCM Control Delay (s) | 21.6 | 8 | 0 | - | 8.9 | 0 | - | 17.1 |
| HCM Lane LOS | C | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 0.7 | 0 | - | - | 0.1 | - | - | 0.1 |



14: Collector A & Cadence Boulevard
2020 with PPGN PM Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | |

| Movement | SBL | SBT | SBR |
|---|---|---|---|
| Vol, veh/h | 5 | 0 | 7 |
| Conflicting Peds, #/hr | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop |
| RT Channelized | - | - | None |
| Storage Length | - | - | - |
| Veh in Median Storage, # | - | 0 | - |
| Grade, % | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 |
| Mvmt Flow | 5 | 0 | 8 |

| Major/Minor | Minor2 | | |
|---|---|---|---|
| Conflicting Flow All | 1081 | 1091 | 358 |
| Stage 1 | 438 | 438 | - |
| Stage 2 | 643 | 653 | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 195 | 215 | 686 |
| Stage 1 | 597 | 579 | - |
| Stage 2 | 462 | 464 | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 176 | 200 | 686 |
| Mov Cap-2 Maneuver | 176 | 200 | - |
| Stage 1 | 587 | 549 | - |
| Stage 2 | 432 | 456 | - |

| Approach | SB |
|---|---|
| HCM Control Delay, s | 17.1 |
| HCM LOS | C |

| Minor Lane/Major Mvmt |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 21 | 517 | 25 | 16 | 344 | 16 | 14 | 0 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 23 | 562 | 27 | 17 | 374 | 17 | 15 | 0 | 11 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 391 | 0 | 0 | 589 | 0 | 0 | 1045 | 1047 | 576 |
| Stage 1 | - | - | - | - | - | - | 621 | 621 | - |
| Stage 2 | - | - | - | - | - | - | 424 | 426 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1168 | - | - | 986 | - | - | 207 | 228 | 517 |
| Stage 1 | - | - | - | - | - | - | 475 | 479 | - |
| Stage 2 | - | - | - | - | - | - | 608 | 586 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1168 | - | - | 986 | - | - | 195 | 217 | 517 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 195 | 217 | - |
| Stage 1 | - | - | - | - | - | - | 461 | 465 | - |
| Stage 2 | - | - | - | - | - | - | 583 | 573 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.3 | 0.4 | 20.2 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 263 | 1168 | - | - | 986 | - | - | 317 |
| HCM Lane V/C Ratio | 0.099 | 0.02 | - | - | 0.018 | - | - | 0.075 |
| HCM Control Delay (s) | 20.2 | 8.1 | 0 | - | 8.7 | 0 | - | 17.3 |
| HCM Lane LOS | C | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 0.3 | 0.1 | - | - | 0.1 | - | - | 0.2 |



15: Collector B & Cadence Boulevard
2020 with PPGN PM Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | |

| Movement | SBL | SBT | SBR |
|---|---|---|---|
| Vol, veh/h | 10 | 0 | 12 |
| Conflicting Peds, #/hr | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop |
| RT Channelized | - | - | None |
| Storage Length | - | - | - |
| Veh in Median Storage, # | - | 0 | - |
| Grade, % | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 |
| Mvmt Flow | 11 | 0 | 13 |

| Major/Minor | Minor2 | | |
|---|---|---|---|
| Conflicting Flow All | 1044 | 1052 | 383 |
| Stage 1 | 417 | 417 | - |
| Stage 2 | 627 | 635 | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 207 | 227 | 664 |
| Stage 1 | 613 | 591 | - |
| Stage 2 | 471 | 472 | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 195 | 216 | 664 |
| Mov Cap-2 Maneuver | 195 | 216 | - |
| Stage 1 | 595 | 578 | - |
| Stage 2 | 448 | 458 | - |

| Approach | SB |
|---|---|
| HCM Control Delay, s | 17.3 |
| HCM LOS | C |

| Minor Lane/Major Mvmt |
|---|

Pacific Proving Grounds North - Internal Roads
EPS Group
Synchro 8 Report
HCM 2010 TWSC

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 16 | 491 | 29 | 25 | 350 | 12 | 17 | 0 | 14 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 17 | 534 | 32 | 27 | 380 | 13 | 18 | 0 | 15 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 393 | 0 | 0 | 565 | 0 | 0 | 1031 | 1032 | 549 |
| Stage 1 | - | - | - | - | - | - | 584 | 584 | - |
| Stage 2 | - | - | - | - | - | - | 447 | 448 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1166 | - | - | 1007 | - | - | 211 | 233 | 535 |
| Stage 1 | - | - | - | - | - | - | 498 | 498 | - |
| Stage 2 | - | - | - | - | - | - | 591 | 573 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1166 | - | - | 1007 | - | - | 199 | 220 | 535 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 199 | 220 | - |
| Stage 1 | - | - | - | - | - | - | 488 | 488 | - |
| Stage 2 | - | - | - | - | - | - | 562 | 554 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.6 | 19.7 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 278 | 1166 | - | - | 1007 | - | - | 334 |
| HCM Lane V/C Ratio | 0.121 | 0.015 | - | - | 0.027 | - | - | 0.055 |
| HCM Control Delay (s) | 19.7 | 8.1 | 0 | - | 8.7 | 0 | - | 16.4 |
| HCM Lane LOS | C | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0.1 | - | - | 0.2 |



16: Collector C & Cadence Boulevard
2020 with PPGN PM Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | |

| Movement | SBL | SBT | SBR |
|---|---|---|---|
| Vol, veh/h | 7 | 0 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop |
| RT Channelized | - | - | None |
| Storage Length | - | - | - |
| Veh in Median Storage, # | - | 0 | - |
| Grade, % | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 |
| Mvmt Flow | 8 | 0 | 11 |

| Major/Minor | Minor2 | | |
|---|---|---|---|
| Conflicting Flow All | 1033 | 1041 | 387 |
| Stage 1 | 441 | 441 | - |
| Stage 2 | 592 | 600 | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 211 | 230 | 661 |
| Stage 1 | 595 | 577 | - |
| Stage 2 | 493 | 490 | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 196 | 218 | 661 |
| Mov Cap-2 Maneuver | 196 | 218 | - |
| Stage 1 | 583 | 557 | - |
| Stage 2 | 469 | 480 | - |

| Approach | SB |
|---|---|
| HCM Control Delay, s | 16.4 |
| HCM LOS | C |

| Minor Lane/Major Mvmt |
|---|

Pacific Proving Grounds North - Internal Roads
EPS Group
Synchro 8 Report
HCM 2010 TWSC

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.4 |
| Intersection LOS | A |

| Approach | EB | NB | SB |
|---|---|---|---|
| Entry Lanes | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 557 | 422 | 26 |
| Demand Flow Rate, veh/h | 569 | 430 | 26 |
| Vehicles Circulating, veh/h | 11 | 28 | 413 |
| Vehicles Exiting, veh/h | 428 | 552 | 45 |
| Follow-Up Headway, s | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 9.2 | 7.4 | 5.2 |
| Approach LOS | A | A | A |

| Lane | Left | Left | Left |
|---|---|---|---|
| Designated Moves | LR | LT | TR |
| Assumed Moves | LR | LT | TR |
| RT Channelized | | | |
| Lane Util | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 569 | 430 | 26 |
| Cap Entry Lane, veh/h | 1118 | 1099 | 748 |
| Entry HV Adj Factor | 0.979 | 0.981 | 0.992 |
| Flow Entry, veh/h | 557 | 422 | 26 |
| Cap Entry, veh/h | 1094 | 1077 | 741 |
| V/C Ratio | 0.509 | 0.391 | 0.035 |
| Control Delay, s/veh | 9.2 | 7.4 | 5.2 |
| LOS | A | A | A |
| 95th %tile Queue, veh | 3 | 2 | 0 |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.7 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Vol, veh/h | 31 | 34 | 356 | 53 | 58 | 440 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 34 | 37 | 387 | 58 | 63 | 478 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1020 | 416 | 0 | 0 | 445 | 0 |
| Stage 1 | 416 | - | - | - | - | - |
| Stage 2 | 604 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 262 | 637 | - | - | 1115 | - |
| Stage 1 | 666 | - | - | - | - | - |
| Stage 2 | 546 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 242 | 637 | - | - | 1115 | - |
| Mov Cap-2 Maneuver | 242 | - | - | - | - | - |
| Stage 1 | 666 | - | - | - | - | - |
| Stage 2 | 504 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 17.5 | 0 | 1 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 358 | 1115 | - |
| HCM Lane V/C Ratio | - | - | 0.197 | 0.057 | - |
| HCM Control Delay (s) | - | - | 17.5 | 8.4 | 0 |
| HCM Lane LOS | - | - | C | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.7 | 0.2 | - |