**March 8, 2016**
PK# 3784-16-076

# TRAFFIC IMPACT ANALYSIS

*Project:*
**Congress-Welborn Multifamily**
*In Dallas, Texas*

*Prepared for:*
***City of Dallas***

*On behalf of:*
**Toll Brothers**


3/8/16

*Prepared by:*
Pacheco Koch

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# EXECUTIVE SUMMARY

The services of **Pacheco Koch** were retained by **Toll Brothers** to conduct a Traffic Impact Analysis (TIA) for the proposed multifamily development referred to herein as *Congress-Welborn Multifamily* (the "Project") located at 2728 Welborn Street in Dallas, Texas. The Project will contain approximately 304 dwelling units and is estimated to be completed in 2018. A TIA is required for review by the City of Dallas as part of the Owner's request for creation of a PD subdistrict.

The purpose of this report is to estimate the incremental impact on the background traffic operational conditions caused by the proposed development within a specific study area as determined by standardized engineering analyses. The study parameters used in this TIA are based upon the requirements of the City and are consistent with the standard industry practices used in similar studies.

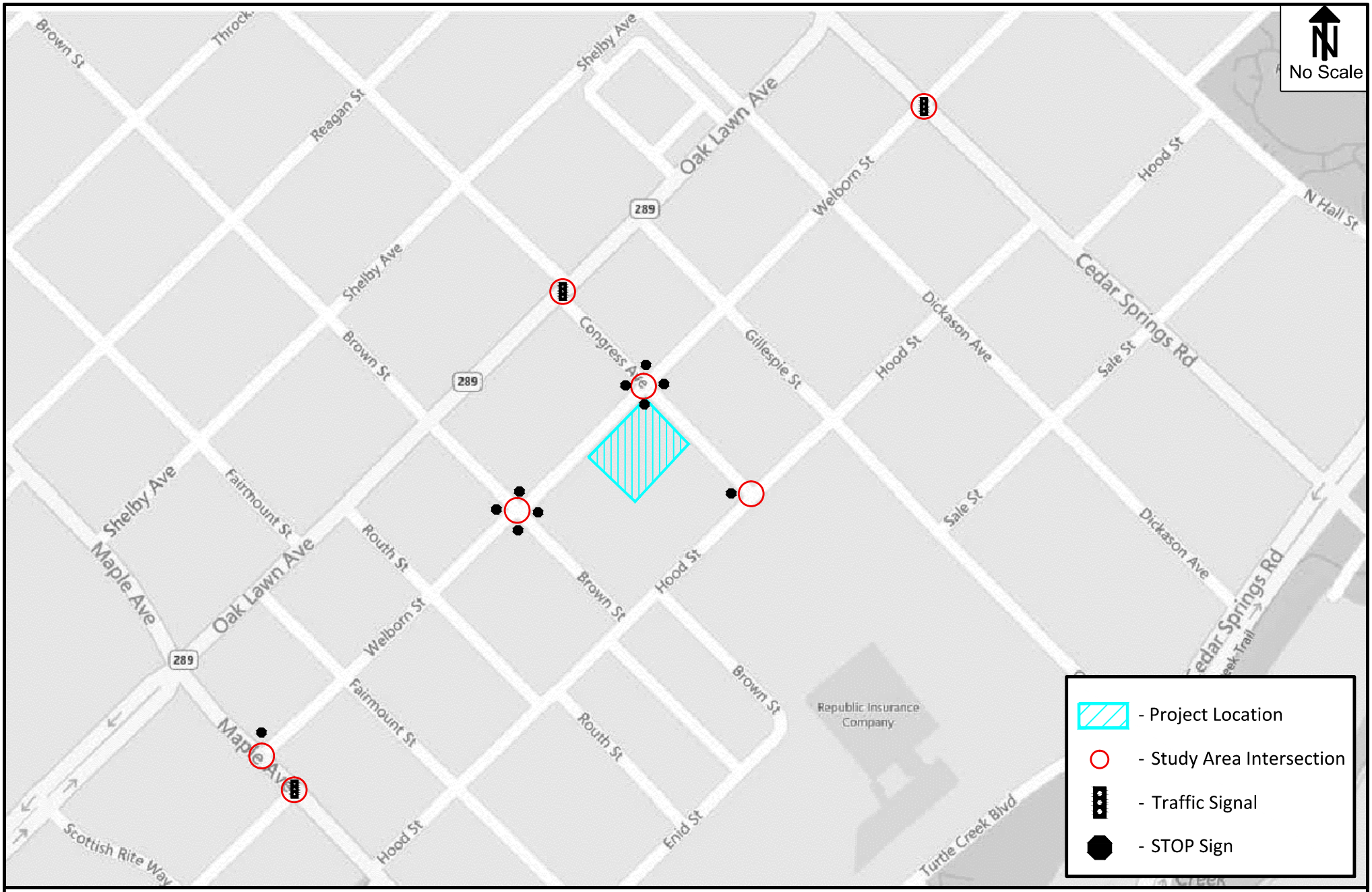
Based upon the analyses performed herein, the following findings and recommendations were determined by PK.

FINDING: Due to the low traffic volumes on the local streets -- including, Welborn Street and Congress Avenue -- the intersection Levels of Service during peak hour traffic periods are good throughout the study area for all analysis scenarios. No mitigation measures are required to achieve acceptable operational conditions.

FINDING: Local streets in the neighborhood -- including, Welborn Street and Congress Avenue -- are very narrow. While on-street parking is important for residential developments in the area, carefully managing on-street parking and enforcing restrictions is important in order to achieve proper safety (e.g., visibility at driveway and street intersections) and to provide mobility (e.g., street width to accommodate two-way traffic, turning maneuvers, etc.).

- RECOMMENDATION: On-street parking provisions in the neighborhood should be regularly reviewed to ensure an optimal balance of need, safety, and mobility. [NOTE: The City of Dallas establishes all on-street parking restrictions.]

*END*




# Site Location Map

*PK #3784-16.076 (HWL: 03/07/2016)*

*Congress-Welborn Multifamily*
*Dallas, Texas*

Pacheco Koch

EXHIBIT **1**

## 2728 WELBORN

| LEVEL | RESIDENTIAL AMENITY | SERVICE / MECH | STAIR & ELEVATOR | NET LOW-RISE UNITS | NET HIGH-RISE UNITS | TOTAL NET RESIDENTIAL | CORRIDOR | GROSS RESIDENTIAL | GROSS FLOOR AREA* | EFF. % | RESIDENTIAL UNITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GROUND LEVEL | 3,500 sf | 1,979 sf | 976 sf | 7,500 sf | 0 sf | 7,500 sf | 1,266 sf | 12,266 sf | 15,221 sf | 49% | 9 Units |
| LEVEL 2 | 1,700 sf | 290 sf | 976 sf | 8,500 sf | 0 sf | 8,500 sf | 1,470 sf | 9,970 sf | 12,936 sf | 66% | 10 Units |
| LEVEL 3 | | 290 sf | 976 sf | 8,500 sf | 3,500 sf | 12,000 sf | 2,139 sf | 14,139 sf | 15,405 sf | 78% | 14 Units |
| LEVEL 4 | | 290 sf | 976 sf | 8,500 sf | 3,500 sf | 12,000 sf | 2,139 sf | 14,139 sf | 15,405 sf | 78% | 14 Units |
| LEVEL 5 | | 290 sf | 976 sf | 7,540 sf | 3,500 sf | 11,040 sf | 2,139 sf | 13,179 sf | 14,445 sf | 76% | 13 Units |
| LEVEL 6 | | 290 sf | 734 sf | | 3,500 sf | 3,500 sf | 669 sf | 4,169 sf | 5,193 sf | 67% | 4 Units |
| LEVEL 7 | | 290 sf | 734 sf | | 3,500 sf | 3,500 sf | 669 sf | 4,169 sf | 5,193 sf | 67% | 4 Units |
| LEVEL 8 (DECK) | 2,900 sf | 398 sf | 734 sf | | 15,000 sf | 15,000 sf | 2,271 sf | 17,271 sf | 21,303 sf | 70% | 18 Units |
| LEVEL 9 | | 158 sf | 734 sf | | 15,000 sf | 15,000 sf | 2,271 sf | 17,271 sf | 18,163 sf | 83% | 18 Units |
| LEVEL 10 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| LEVEL 11 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| LEVEL 12 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| LEVEL 13 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| LEVEL 14 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| LEVEL 15 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| LEVEL 16 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| LEVEL 17 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| LEVEL 18 | | 158 sf | 734 sf | | 18,500 sf | 18,500 sf | 2,271 sf | 20,771 sf | 21,663 sf | 85% | 22 Units |
| **TOTALS** | **8,100 sf** | **5,697 sf** | **14,422 sf** | **40,540 sf** | **214,000 sf** | **254,540 sf** | **35,472 sf** | **293,512 sf** | **318,231 sf** | **78%** | **299 Units** |

* Does not include Garage Area

| PARKING | REQUIRED | PROVIDED |
|---|---|---|
| | 1.5 / UNIT | 1.4 / UNIT |
| GROUND LEVEL | | 61 spaces |
| LEVEL 2 | | 68 spaces |
| LEVEL 3 | | 68 spaces |
| LEVEL 4 | | 68 spaces |
| LEVEL 5 | | 68 spaces |
| LEVEL 6 | | 68 spaces |
| LEVEL 7 | | 17 spaces |
| | | |
| TOTALS | **449 spaces** | **418 spaces** |

**LOT AREA:** 58,830 sf
**LOT COVERAGE:** 40,297 sf 68.50%
**F.A.R:** 5.41 : 1


1 SITE PLAN
SCALE: 1" = 50'-0"

Scale : 1" = 50'-0"

2001 Bryan Street :: Suite 3100 :: Dallas TX 75201 :: tel 214.969.5311

SITE PLAN

**2728 WELBORN STUDY** | **DALLAS, TEXAS**
DA15016 | 02/09/2016

Toll Brothers America's Luxury Home Builder® | WDG

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# INTRODUCTION

The services of **Pacheco Koch** (PK) were retained by **Toll Brothers** to conduct a Traffic Impact Analysis (TIA) for the proposed multifamily development referred to herein as *Congress-Welborn Multifamily* (the "Project") located at 2728 Welborn Street in Dallas, Texas. A preliminary site plan prepared by WDG Architecture and a site location map (**Exhibit *1***) are provided following the EXECUTIVE SUMMARY.

Toll Brothers is seeking creation of a PD subdistrict from the City to facilitate development of the Project. Submittal of a TIA, prepared by a registered professional engineer experienced and skilled in the field of traffic/transportation engineering, is one of the requirements of the City's application process. This TIA was prepared in accordance with industry and local standards by registered professional engineers employed by Pacheco Koch. Pacheco Koch is a licensed engineering firm based in Dallas, Texas, that provides professional services in traffic engineering, transportation planning, and related fields.

## *Purpose*

A TIA is an investigation of existing and projected future traffic conditions in a pre-determined local area relative to a specific proposed development. A TIA is not a substitute for area-wide or regional transportation planning, which are responsibilities of the local and regional governmental agencies.

The purpose of this TIA is to estimate the incremental impact associated with the proposed development. Where applicable and feasible, recommendations may be made by PK to improve the adjacent transportation system to attain a satisfactory level of service, achieve an acceptable level of safety, and/or provide appropriate circulation and access. Some recommended measures may be attributable, in part or in whole, to the proposed development, while some recommendations may be solely related to improving background traffic conditions. Implementation of any recommendations is a subject to applicable legal precedents and other customary steps in the approval process of the City of Dallas.

## *Project Description*

The Project is a high-rise residential development the will contain approximately 304 dwelling units. Buildout of the Project is estimated to occur by 2018. The 1.33-acre subject site is currently zoned PD 193 (MF-3). A creation of a PD subdistrict is being requested as part of the Project's development process.

The prior use on the site is also multifamily. [NOTE: No trip ends were deducted for existing uses.]

## *Study Parameters*

The study parameters used in this TIA are based upon the requirements of the City of Dallas and are consistent with the standard industry practices used in similar

studies. Specific study parameters were reviewed with the City staff at the outset of the study.

This TIA analyzed the day-to-day traffic operations at time periods that were considered representative of the overall most critical conditions on the public roadway system with some effect from the proposed Project. Based upon the prevailing background traffic conditions and the trip generation characteristics of the proposed development, the following periods were analyzed:

- traditional weekday AM and PM peak hours of adjacent street traffic
  - at existing conditions ("Existing" scenario)
  - at site buildout year without site-generated traffic ("Background" scenario)
  - at site buildout year with site-generated traffic ("Buildout" scenario)
  - at 10-year horizon period with site-generated traffic ("Horizon" scenario)

*NOTE: Analyses of all future conditions scenarios utilize projected traffic volume data derived by Pacheco Koch using reasonable and customary assumptions that are based upon existing conditions where available. Industry publications appropriately point out that the margin of error for projecting traffic volumes is directly related to the length of time of the projection, and projections beyond five years from current conditions should take into consideration that natural changes in traffic characteristics will occur that cannot be anticipated.*

## *Study Area*

The study area for a TIA is typically defined to allow an assessment of the most relevant traffic impacts to the local area. The extent of the study area is discretionary but is generally commensurate with the scale of the proposed development. Special localized factors may also be considered. The specific locations included in the study area of this TIA are listed below and depicted in **Exhibit *1***.

Intersections:

(a) Maple Avenue and Welborn Street: *STOP-controlled on Welborn Street*
(b) Maple Avenue and Welborn Street: *traffic-signal-controlled*
(c) Brown Street and Welborn Street: *all-way STOP-controlled*
(d) Congress Avenue and Oak Lawn Avenue: *traffic-signal-controlled*
(e) Congress Avenue and Welborn Street: *all-way STOP-controlled*
(f) Congress Avenue and Hood Street: *STOP-controlled on Welborn Street*
(g) Cedar Springs Road and Welborn Street: *traffic-signal-controlled*
(h) Major site driveways: *STOP-controlled on driveway*

Roadway Links:

(A) Welborn Street between Brown Street and Congress Avenue
  - Existing operation and cross-section: *two lanes, two-way operation, no median*
  - City of Dallas Thoroughfare Plan Designation: *none (local street)*
  - Current Daily Traffic Volume: 1,029 (February 18, 2016)

(B) Congress Avenue between Welborn Street and Hood Street
- Existing operation and cross-section: *two lanes, two-way operation, no median*
- City of Dallas Thoroughfare Plan Designation: *none (local street)*
- Current Daily Traffic Volume: 568 (February 18, 2016)

# TRAFFIC IMPACT ANALYSIS

Submittal of a Traffic Impact Analysis to the City of Dallas is required as part of the application process for the Project. The study is provided to the Staff for technical review. Staff review comments are provided to the City Planning Commission and City Council for consideration. Approval of any recommendations made in this study are also subject to approval of the respective department(s).

## *Approach*

The TIA presented in this report analyzed the operational conditions for the peak hours and study area as defined above using standardized analytical methodologies where applicable. Current (or recent) traffic volume data were collected on a typical day throughout the study area to represent existing traffic conditions. Where applicable, growth factors were applied to the existing volumes to project future background traffic at the site buildout year conditions. Then, traffic generated by the proposed development was projected using the standard three-step approach: Trip Generation, Trip Distribution, and Traffic Assignment. By adding the site-generated traffic to the background traffic, the resulting site-plus-background traffic impact to operational conditions may be assessed from which approach mitigation measures may be recommended, if needed.

## *Background Traffic Volume Data*

### Existing Volumes

Current traffic volumes were collected during the analysis periods at the study area intersections on Thursday, February 18, 2016. Traffic volumes are graphically summarized in **Appendix A**; detailed data sheets are provided in **Appendix B**.

### Projected Background Traffic Volumes

Background traffic growth is defined as the normal growth of traffic that is not directly related to the subject development of this study. A review of historical traffic volume data can provide an indication of the local traffic growth patterns. **Table 1** provides a comparison of recent traffic volumes with prior traffic volumes in the vicinity of the subject site, from which PK calculated an annual growth rate.

Table 1. Historical Daily Traffic Volume Growth Trend

| ROADWAY SEGMENT | HISTORICAL DAILY VOLUME (DATE) | ANNUAL GROWTH RATE |
|---|---|---|
| Oak Lawn Avenue between Fairmount Street and Routh Street | 34,332 ('09)[A]<br>30,764 ('02)[B] | 1.58% |

*Data Source: A = Texas Department of Transportation; B = City of Dallas*

According to these data, traffic volumes in the vicinity of the subject site appear to be increasing. In order to account for background growth, PK conservatively assumed an annual growth rate of 2.0 percent to determine background traffic volumes.

By applying the assumed growth rate(s) described previously, future background traffic volumes at the Project buildout year were calculated for the study area intersections. These volumes are graphically summarized in **Appendix A.**

## *Site-Related Traffic*

### Trip Generation

Trip generation is calculated in terms of "trip ends" – a trip end is a one-way vehicular trip entering or exiting a site driveway (i.e., a single vehicle entering and exiting a site represents two trip ends). Trip generation for this Project was calculated using the Institute of Transportation Engineers (ITE) *Trip Generation* manual (9th Edition). ITE *Trip Generation* is a compilation of actual, vehicular traffic volume generation data and statistics by land use as collected over several decades by creditable sources across the country. Using the ITE equations and rates is an accepted methodology to calculate the projected site-generated traffic volumes for many land uses (though engineering judgment is strongly advised).

The base trip generation data from ITE generally reflect average conditions for a standalone use on a typical day. However, in some cases, the Engineer may judge that other factors may be of sufficient significance to warrant adjusting the base ITE calculations in order to more accurately reflect Project-specific conditions. For this analysis no adjustments to the base ITE data were applied.

**Table 2** provides a summary of the calculated trip ends generated by the project. Supplemental information used in the trip generation calculations is provided in **Appendix C.**

Table 2. Projected Trip Generation Summary

| LAND USE | QUANTITY | DAILY TRIP ENDS (WEEKDAY) | AM PEAK HOUR TRIP ENDS (ADJACENT STREET PEAK) | | | PM PEAK HOUR TRIP ENDS (ADJACENT STREET PEAK) | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | In | Out | Total | In | Out |
| High-Rise Apartments (ITE Land Use Code 222) | 304 Dwelling Units | 1,401 | **92** | 23 | 69 | **110** | 67 | 43 |

Trip Distribution and Assignment

The distribution and assignment of site-generated trip ends to the surrounding roadway system is determined by proportionally estimating the orientation of travel via various travel routes. This is a subjective exercise based upon professional judgment considering such factors as directional characteristics of existing local traffic; trip attributes (e.g., trip purpose, trip length, travel time, etc.), roadway features (e.g., capacity, operational conditions, character of environment), regional demographics, etc.

Traffic for the proposed redevelopment was distributed and assigned to the study area roadway network based upon consideration of the factors listed above. Detailed trip distribution and traffic assignment calculations and results are summarized in **Appendix C**.

Site-Generated Traffic Volumes

Site-generated traffic is calculated by multiplying the trip generation value (from **Table 2**) by the corresponding traffic assignments (from **Appendix C**). The resulting cumulative (for all uses) peak period site-generated traffic volumes at buildout of the Project are graphically summarized in **Appendix A**.

## *Traffic Operational Analysis — Roadway Intersections*

Description

The level of performance of civil infrastructure can often be measured through an analysis of volume and capacity that considers various physical and operational characteristics of the system. For vehicular traffic an operational analysis of roadway intersection capacity is the most detailed type of analysis. An industry-standardized methodology for this analysis was developed by the Transportation Research Board and is presented in the Highway Capacity Manual (HCM). HCM uses the term "Level of Service" (or, LOS) to qualitatively describe the efficiency using a letter grade of A through F. Generally, LOS can be described as follows:

LOS *A* = free, unobstructed flow
LOS *B* = reasonably free flow
LOS *C* = stable flow
LOS *D* = approaching unstable flow
LOS *E* = unstable flow, operating at design capacity
LOS *F* = operating over design capacity

Traffic operational analysis is typically measured in one-hour periods during day-to-day peak conditions. In most urban settings, LOS *C*, or better, is desirable, although LOS *D* is considered to be acceptable. Nevertheless, periods of LOS *E* or *F* conditions are not uncommon for brief periods of time at major transportation facilities. In some cases measures to add more capacity, either through operational changes and/or physical improvements, can be identified to increase efficiency and sometimes raise Level of Service.

For traffic-signal-controlled ("signalized") intersections and STOP-controlled ("unsignalized") intersections, LOS is determined based upon the calculated average seconds of delay per vehicle. For signalized intersections the average delay per vehicle can be effectively calculated for the entire intersection; however, for unsignalized intersections the average delay per vehicle is calculated only by approach or by individual traffic maneuvers that must stop or yield right-of-way.

*NOTE: The HCM unsignalized intersection analysis methodology was developed and calibrated for low-to-moderate volume intersections. When applied to intersections with one or more high-volume or high-capacity approaches, the analyses often reflect poor results (i.e., low Level of Service). However, the actual delay/operational conditions are typical of similar locations and do not necessarily represent unique conditions. Low-performing, high-volume, unsignalized intersections cannot be analytically mitigated unless a traffic signal is installed. (Traffic signal installation is subject to a detailed analysis of established criteria AND approval of the responsible agency. Neither Level of Service nor vehicle delay is a warrant for traffic signal installation.)*

The following table summarizes the LOS criteria for signalized and unsignalized intersections as defined in the latest edition of the *Highway Capacity Manual*.

| | **Signalized Intersection (Average Delay per Vehicle)** | **Unsignalized Intersection (Average Delay per Vehicle)** |
|---|---|---|
| LOS *A* | ≤ 10 | ≤ 10 |
| LOS *B* | >10 - ≤20 | >10 - ≤15 |
| LOS *C* | >20 - ≤35 | >15 - ≤25 |
| LOS *D* | >35 - ≤55 | >25 - ≤35 |
| LOS *E* | >55 - ≤80 | >35 - ≤50 |
| LOS *F* | >80 | >50 |

## Analysis Traffic Volumes

Determination of the traffic impact associated with the Project is measured by comparing the incremental change in operational conditions during peak periods with and without site-related traffic. **Appendix A** provides exhibits summarizing the following:

- Existing traffic volumes during study peak hours
- Projected Background traffic volumes at the Site Buildout Year during study peak hours
- Projected Site-Generated traffic volumes during study peak hours

- Projected 10-year horizon period traffic volumes, including Site-Generated traffic during study peak hours

A summary of the existing intersection/roadway geometry and traffic control devices is also graphically summarized in **Appendix A**.

Summary of Results

Intersection capacity analyses presented in this study were performed using the *Synchro* software package. **Table 3** and **Table 4** provide a summary of the peak period intersection operational conditions under the analysis conditions presented previously. Detailed software output is provided in **Appendix D**.

NOTE: Traffic signal operational parameters used in this analysis were based upon actual, existing traffic signal operational characteristics observed in the field at the time of traffic data collection.

## *Traffic Operational Analysis —Roadway Links*

Description

A roadway link is a segment of roadway between two intersections. Roadway link capacity analysis is a comparison of actual or forecasted traffic volumes to the theoretically optimum roadway capacity. The capacity of the roadway link is predominantly a function of the roadway's cross-section (i.e., number of lanes, lane widths, type of center divider, etc.). However, other more theoretical factors also apply, such as the character of environment and the functional classification of the roadway. Generally, roadway link capacity is less critical than intersection capacity; however, it can provide a gage of the utilization of given roadway.

A specific industry standard for roadway link capacity does not exist, but the typical concept is derived from a base saturation flow rate (i.e., the maximum theoretical rate of continuous flow under ideal, unobstructed conditions -- in the traffic engineering industry, this value is generally considered to range between 1,900-2,100 vehicles per lane per hour). A series of adjustment factors are then applied to the saturation flow rate to reflect the characteristics of a given location.

The North Central Texas Council of Governments (NCTCOG) – the metropolitan planning agency for the Dallas-Fort Worth region – has derived internal "hourly service volume" guidelines used for transportation modelling purposes. The NCTCOG values were based upon the principals presented in the *Highway Capacity Manual* with "regional calibration" factors applied. Though these per-lane capacities, or "Service Volumes" (summarized in the table below), are intended for modelling purposes, they do provide a reasonable gage of theoretical capacity.

Table 4. Peak Hour Intersection Capacity Analysis Results Summary
(Signalized Intersections)

| INTERSECTION | EXISTING CONDITIONS | | BACKGROUND CONDITIONS | | BUILDOUT CONDITIONS | | REGIONAL CONDITIONS | |
|---|---|---|---|---|---|---|---|---|
| | AM | PM | AM | PM | AM | PM | AM | PM |
| Oak Lawn Avenue @ Congress Avenue | A (5.9) | A (8.9) | A (6.1) | A (9.1) | A (7.0) | A (9.5) | A (8.5) | B (10.8) |
| Cedar Springs Road @ Welborn Street | A (8.9) | B (13.6) | A (9.1) | B (14.0) | A (9.2) | B (14.2) | A (9.9) | B (17.1) |
| Maple Avenue @ Welborn Street | A (5.4) | A (5.7) | A (5.7) | A (5.9) | A (5.8) | A (5.9) | A (8.5) | A (6.6) |

*NOTE: Traffic signal operational parameters used in this analysis were based upon actual traffic signal operational characteristics observed in the field at the time of data collection.*

Table 5. Peak Hour Intersection Capacity Analysis Results Summary
(Unsignalized Intersections)

| INTERSECTION | TRAFFIC MANEUVER | EXISTING CONDITIONS | | BACKGROUND CONDITIONS | | BUILDOUT CONDITIONS | | REGIONAL CONDITIONS | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM | PM | AM | PM | AM | PM | AM | PM |
| Maple Avenue @ Welborn Street | WBLTR | C (15.5) | C (19.4) | C (16.1) | C (21.0) | C (19.0) | C (24.3) | D (25.4) | F (>100) |
| | SBL | B (11.0) | B (10.1) | B (11.2) | B (10.3) | B (11.3) | B (10.4) | B (12.6) | B (11.4) |
| Congress Avenue @ Hood Street | EBL | A (7.4) | A (7.5) | A (7.4) | A (7.5) | A (7.5) | A (7.5) | A (7.5) | A (7.6) |
| | SBLTR | A (9.2) | A (9.3) | A (9.2) | A (9.4) | A (9.6) | A (9.7) | A (9.8) | A (10.0) |
| Welborn Street @ Brown Street | NBL | A (7.2) | A (7.5) | A (7.2) | A (7.5) | A (7.3) | A (7.5) | A (7.3) | A (7.6) |
| | EBL | A (7.2) | A (7.5) | A (7.2) | A (7.6) | A (7.2) | A (7.7) | A (7.3) | A (7.8) |
| | WBL | A (7.2) | A (7.6) | A (7.2) | A (7.6) | A (7.3) | A (7.7) | A (7.3) | A (7.8) |
| | SBL | A (7.1) | A (7.4) | A (7.1) | A (7.4) | A (7.2) | A (7.6) | A (7.2) | A (7.6) |
| Congress Avenue @ Welborn Street | NBL | A (7.3) | A (7.5) | A (7.3) | A (7.6) | A (7.6) | A (7.8) | A (7.7) | A (8.0) |
| | EBL | A (7.3) | A (7.7) | A (7.4) | A (7.7) | A (7.4) | A (7.8) | A (7.5) | A (8.0) |
| | WBL | A (7.2) | A (7.6) | A (7.2) | A (7.7) | A (7.4) | A (8.0) | A (7.5) | A (8.3) |
| | SBL | A (7.2) | A (7.8) | A (7.2) | A (7.8) | A (7.3) | A (8.1) | A (7.4) | A (8.2) |
| American Blvd. @ Elm Street | EBL | - | - | - | - | A (7.3) | A (7.4) | A (7.3) | A (7.4) |
| | WBL | - | - | - | - | A (9.1) | A (9.2) | A (9.1) | A (9.3) |

KEY:

*A, B, C, D, E, F = Level-of-Service*
*NB-, SB-, EB-, WB- = intersection approach*
*AM = AM Peak Hour of Adjacent Street*
*(##.#) = Average Seconds of Delay Per Vehicle*
*-L, -T, -R = Left, Through, Right turning movement*
*PM = PM Peak Hour of Adjacent Street*

| Area Type | Hourly Service Volumes By Roadway Function | | | | | |
|---|---|---|---|---|---|---|
| | Principal Arterial | | Minor Arterial & Frontage Road | | Collector & Local Street | |
| | Median-Divided or One-Way | Undivided Two-Way | Median-Divided or One-Way | Undivided Two-Way | Median-Divided or One-Way | Undivided Two-Way |
| CBD | 725 | 650 | 725 | 650 | 475 | 425 |
| Urban/ Commercial | 850 | 775 | 825 | 750 | 525 | 475 |
| Suburban Residential | 925 | 875 | 900 | 825 | 575 | 525 |
| Rural | 1,025 | 925 | 975 | 875 | 600 | 550 |

To determine the utilization of a roadway, the volume:capacty ratio can be calculated – a v/c ratio of less than 1.0 indicates that the roadway is operating under capacity. NCTCOG's Level of Service denominations are as follows:

Volume:Capacity Ratio ≤ 45% is LOS *A/B*,
Volume:Capacity Ratio > 45% and ≤ 65% is LOS *C*,
Volume:Capacity Ratio > 65% and ≤ 80% is LOS *D*,
Volume:Capacity Ratio < 80% and ≤ 100% is LOS *E*,
Volume:Capacity Ratio ≥ 100% is LOS *F*

## Summary of Results

For roadways adjacent to or in the vicinity of the subject site, the volume/capacity ratio was calculated for existing and site buildout conditions. A summary of the link capacity analysis is provided in **Table 5**. See specific recommendations in the *Recommendations* section of this report.

Table 5. Roadway Link Capacity Analysis Results Summary

| ROADWAY/ SCENARIO | DAILY VOLUME | THEORETICAL DAILY CAPACITY | V:C RATIO/ LEVEL OF SERVICE |
|---|---|---|---|
| Congress Avenue | | | |
| Existing | 568 | 9,500 | 0.06 – *A* |
| Background | 591 | 9,500 | 0.06 – *A* |
| Background+Site | 1,151 | 9,500 | 0.12 – *A* |
| Regional | 1,253 | 9,500 | 0.13 – *A* |
| Welborn Street | | | |
| Existing | 1,029 | 9,500 | 0.11 – *A/B* |
| Background | 1,071 | 9,500 | 0.11 – *A/B* |
| Background+Site | 1,351 | 9,500 | 0.14 – *A/B* |
| Regional | 1,535 | 9,500 | 0.16 – *A/B* |

# SUMMARY OF FINDINGS AND RECOMMENDATIONS

*NOTE: Recommendations presented in this report reflect the opinion of Pacheco Koch based solely upon technical analysis and professional judgment but are not intended to infer mandates or funding responsibility. Any proposed improvements in the public right-of-way are subject to approval of the responsible agency(-ies). Should the approving agency determine that any off-site improvements are required for approval of the Project, legal precedents apply with regard to jurisdiction and funding allocation.*

The following findings and recommendations are based upon buildout of the subject property in accordance with the hypothetical development scenario outlined in the *Project Description* section of this report.

FINDING: Due to the low traffic volumes on the local streets -- including, Welborn Street and Congress Avenue -- the intersection Levels of Service during peak hour traffic periods are good throughout the study area for all analysis scenarios. No mitigation measures are required to achieve acceptable operational conditions.

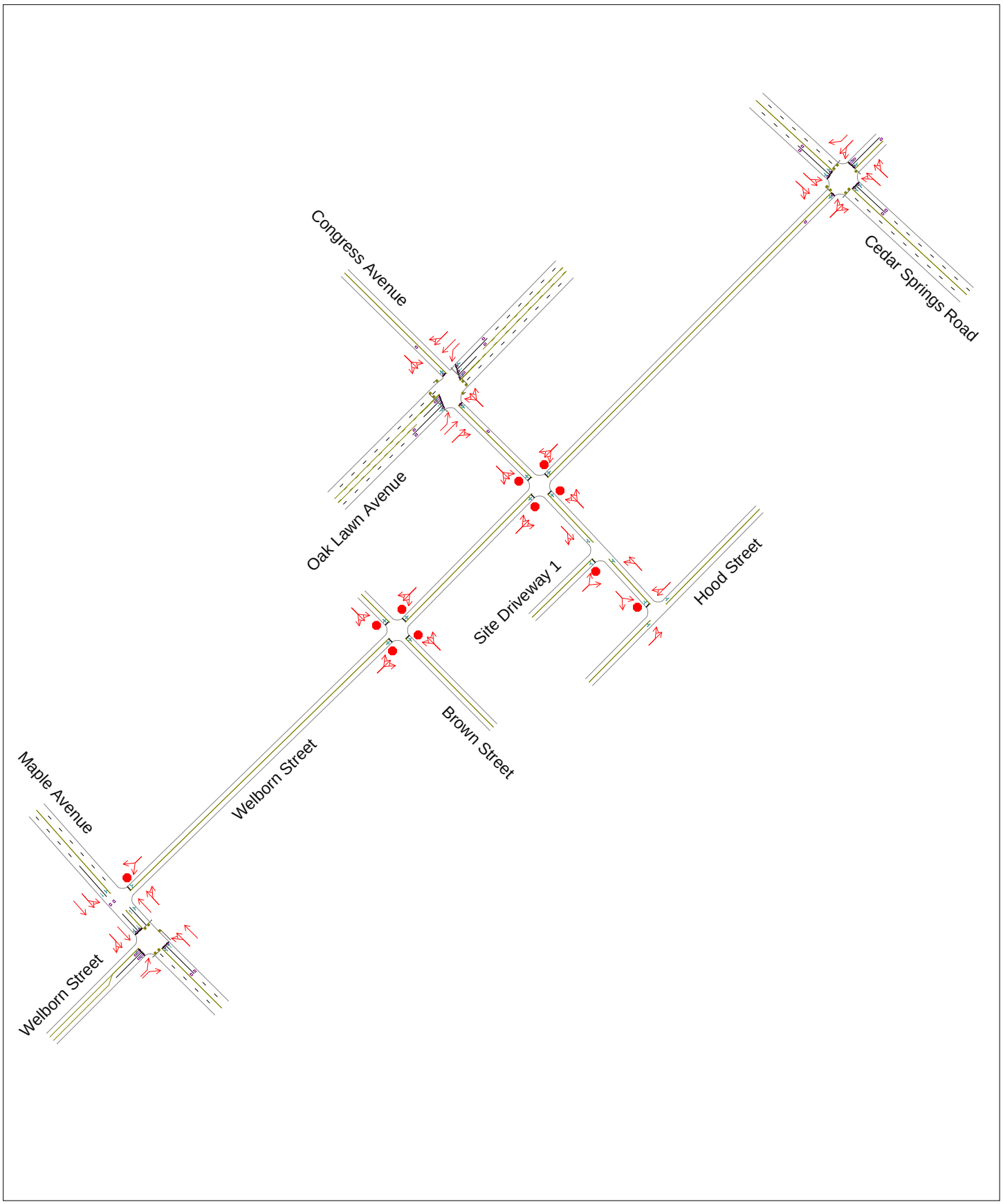
FINDING: Local streets in the neighborhood -- including, Welborn Street and Congress Avenue -- are very narrow. While on-street parking is important for residential developments in the area, carefully managing on-street parking and enforcing restrictions is important in order to achieve proper safety (e.g., visibility at driveway and street intersections) and to provide mobility (e.g., street width to accommodate two-way traffic, turning maneuvers, etc.).

- RECOMMENDATION: On-street parking provisions in the neighborhood should be regularly reviewed to ensure an optimal balance of need, safety, and mobility. [NOTE: The City of Dallas establishes all on-street parking restrictions.]

*END OF MEMO*

Appendix A.  Traffic Volume Exhibits

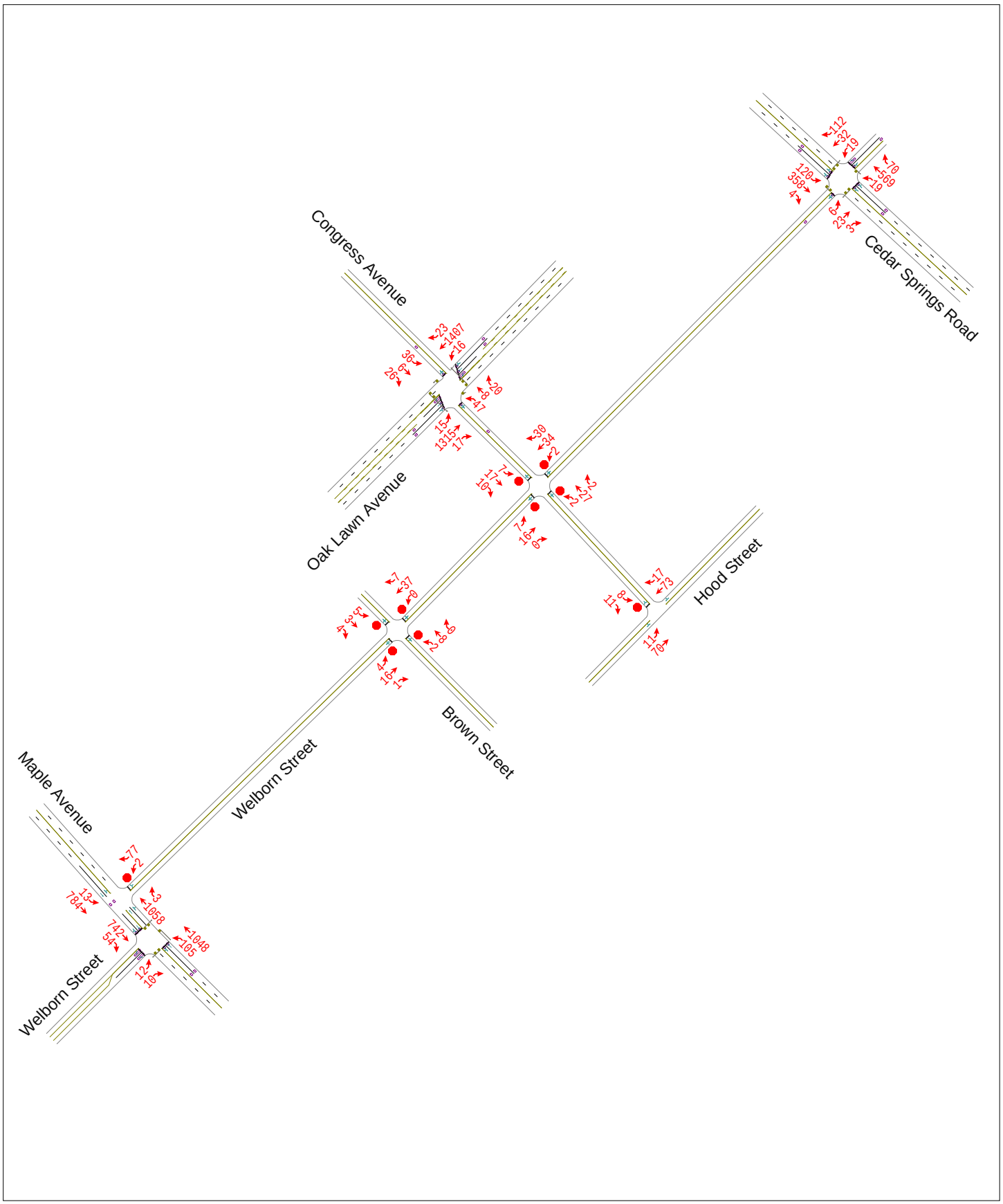
**Exhibit A1. Roadway Geometry**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

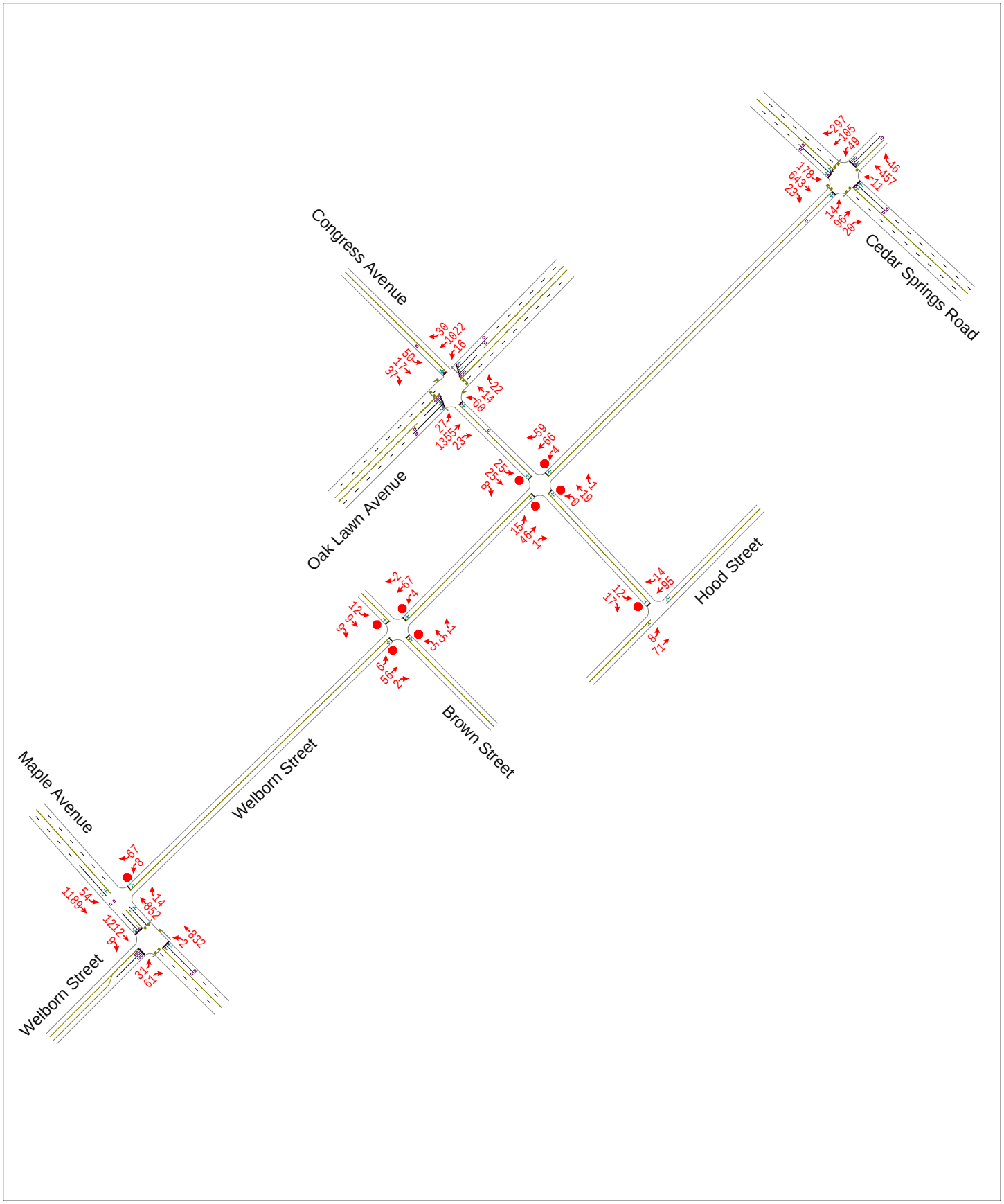
**Exhibit A2. Existing AM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

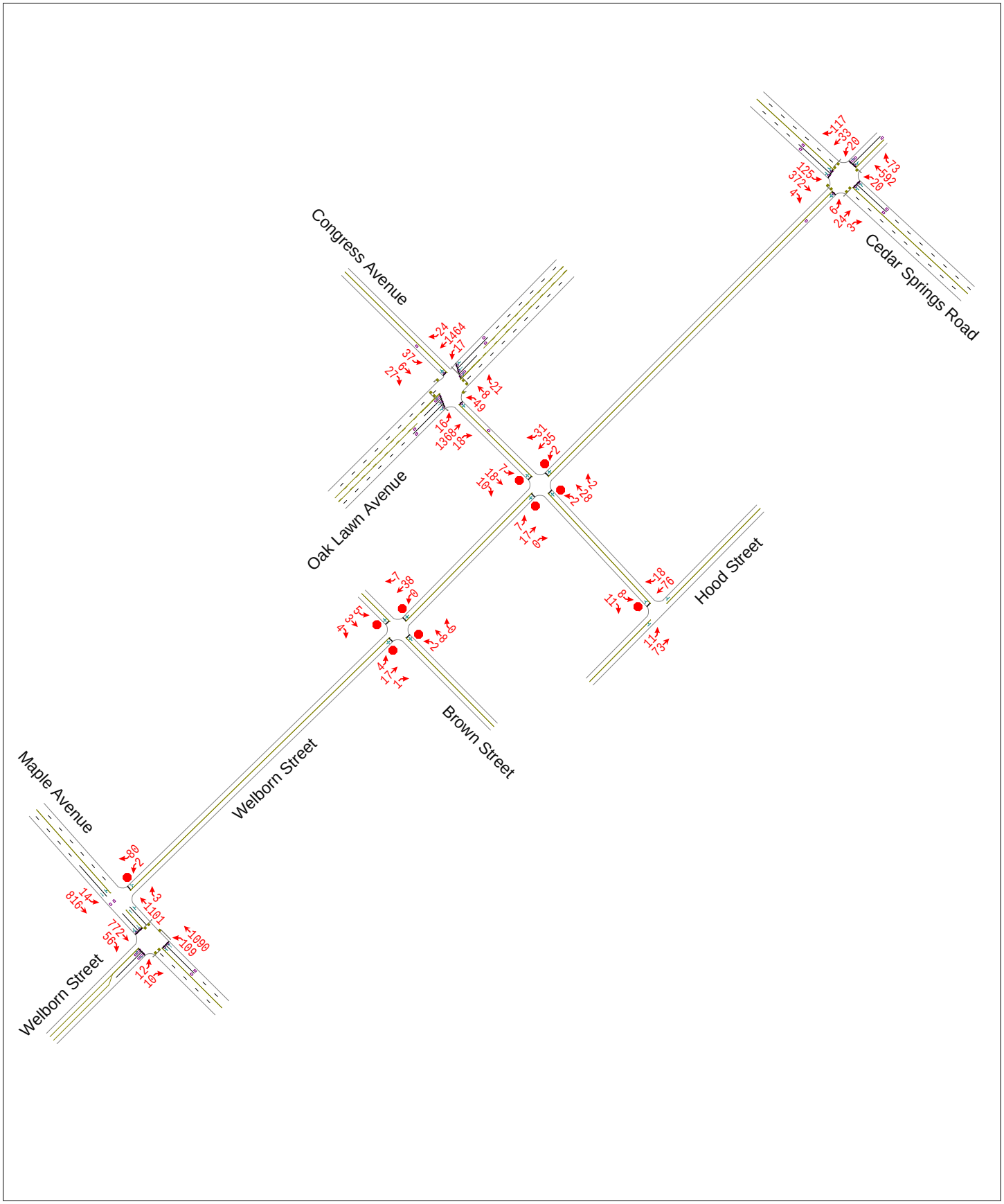
**Exhibit A3. Existing PM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

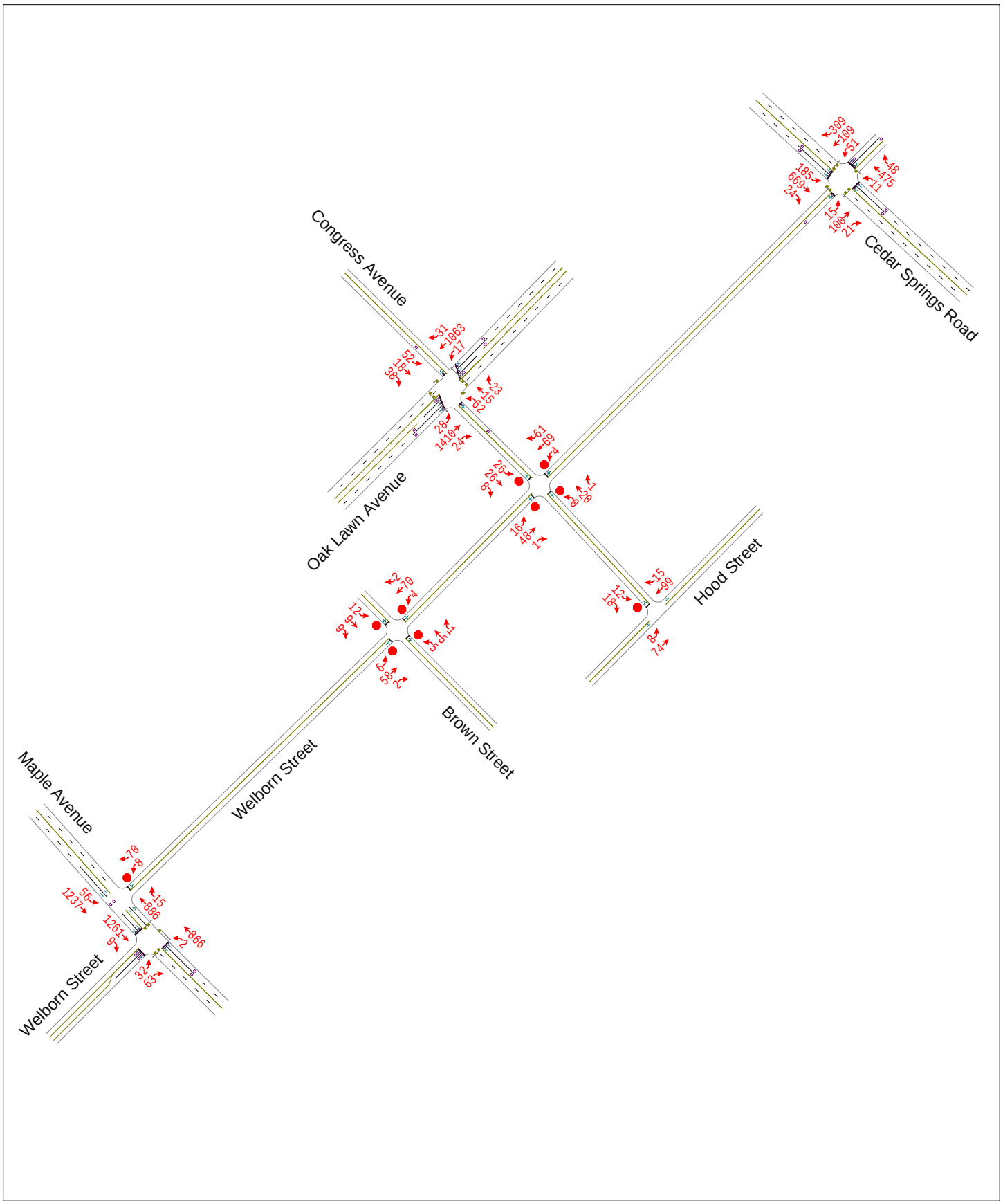
**Exhibit A4. Background AM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

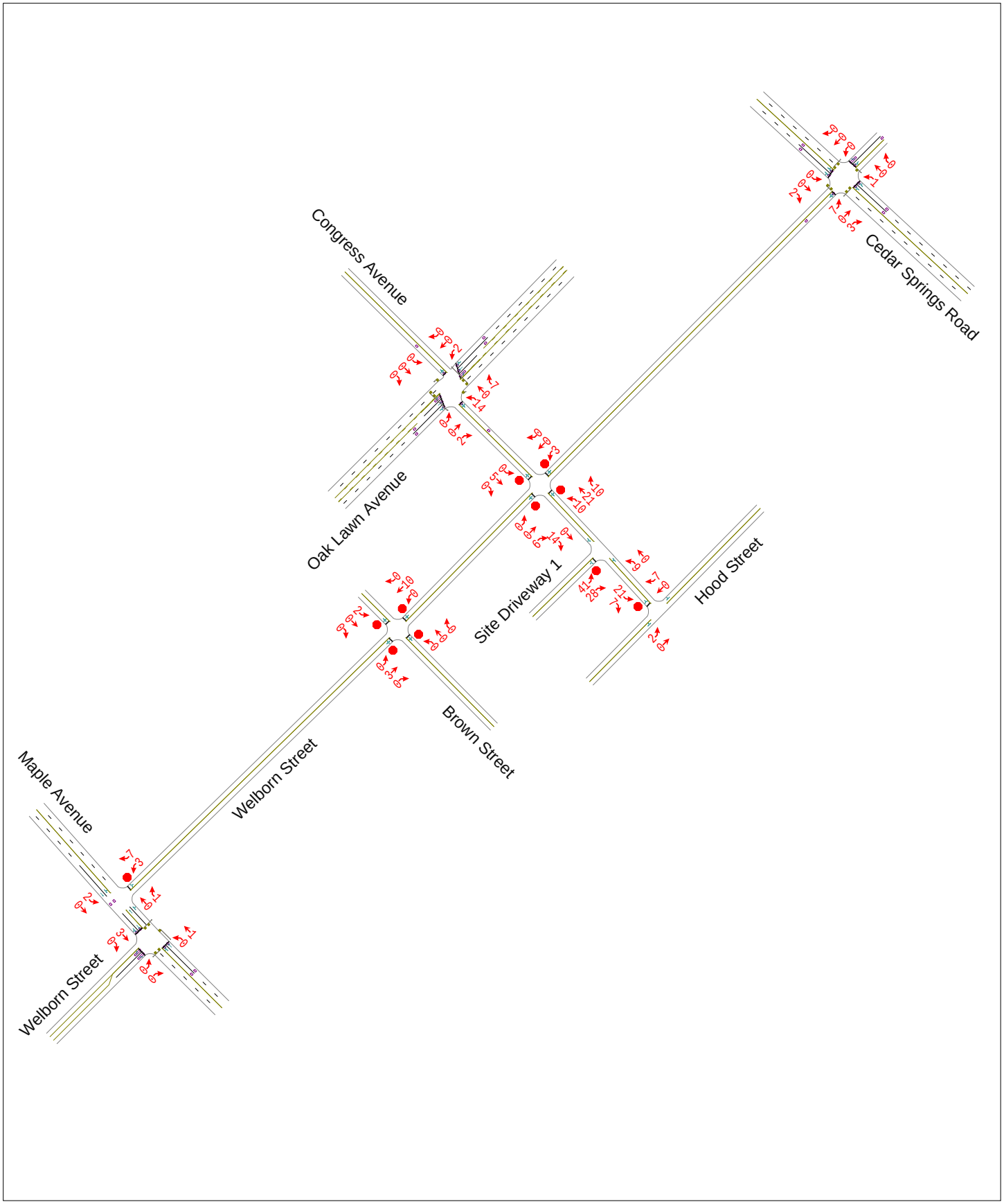
**Exhibit A5. Background PM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

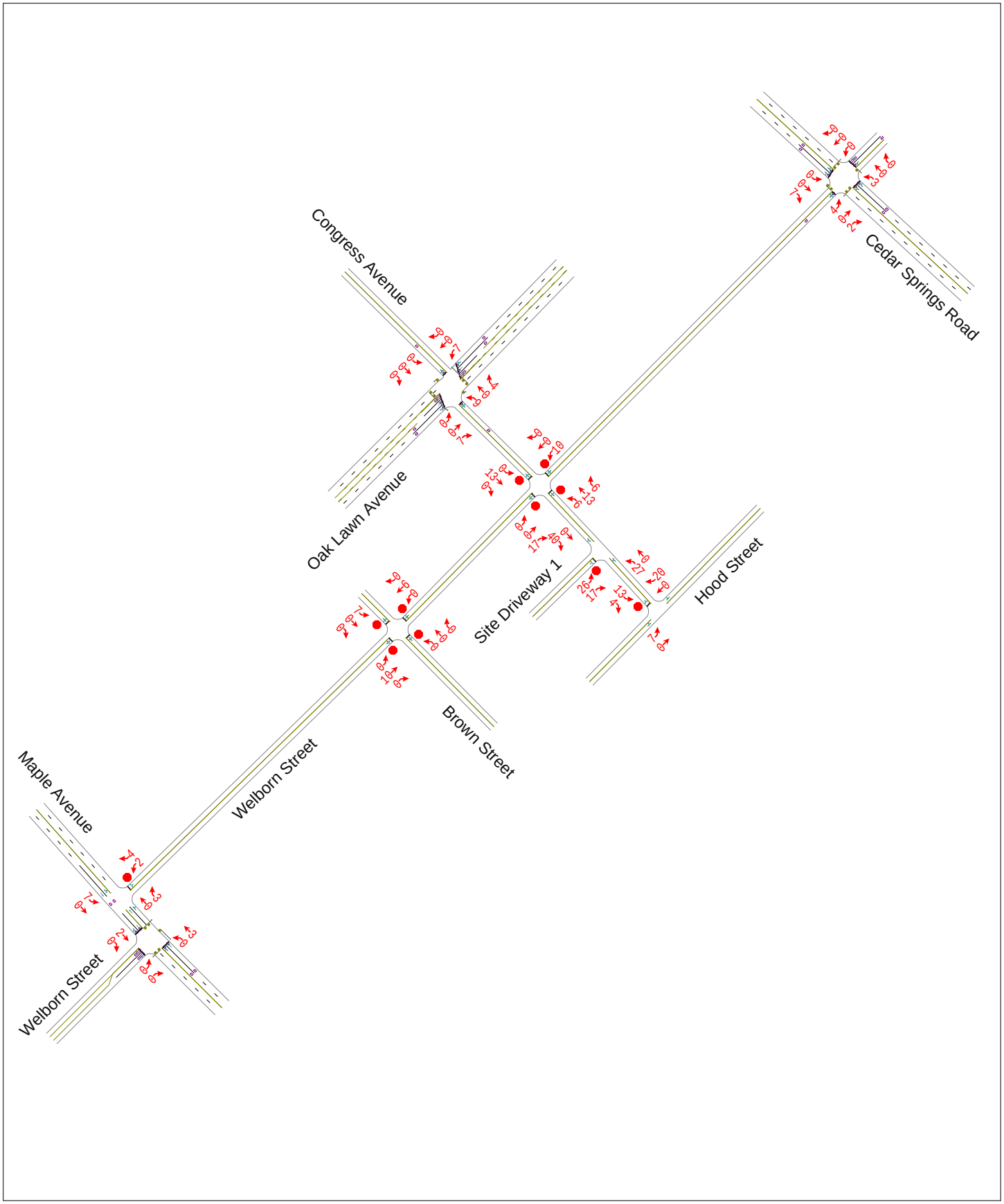
**Exhibit A6. Site Generated AM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

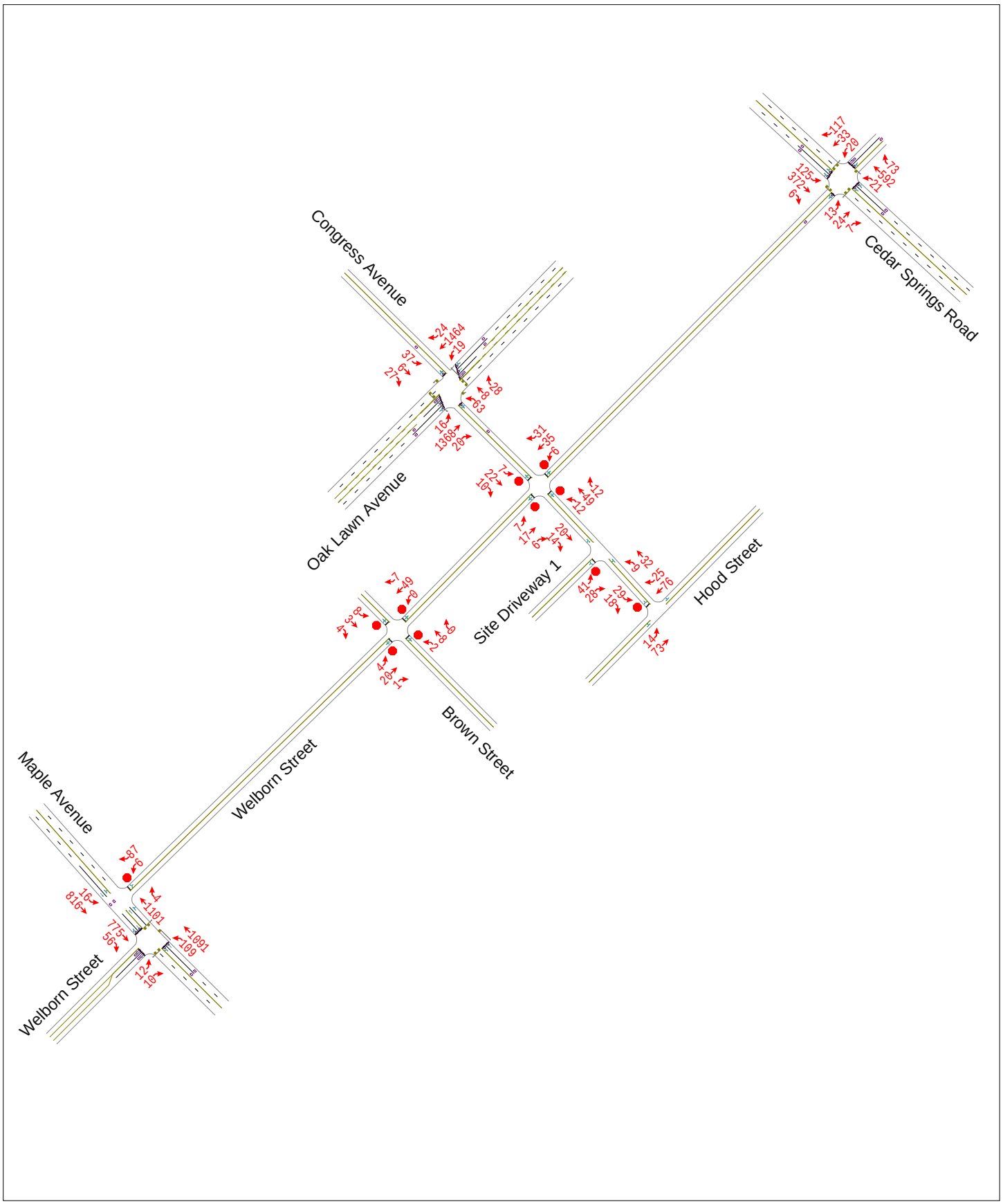
**Exhibit A7. Site Generated PM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

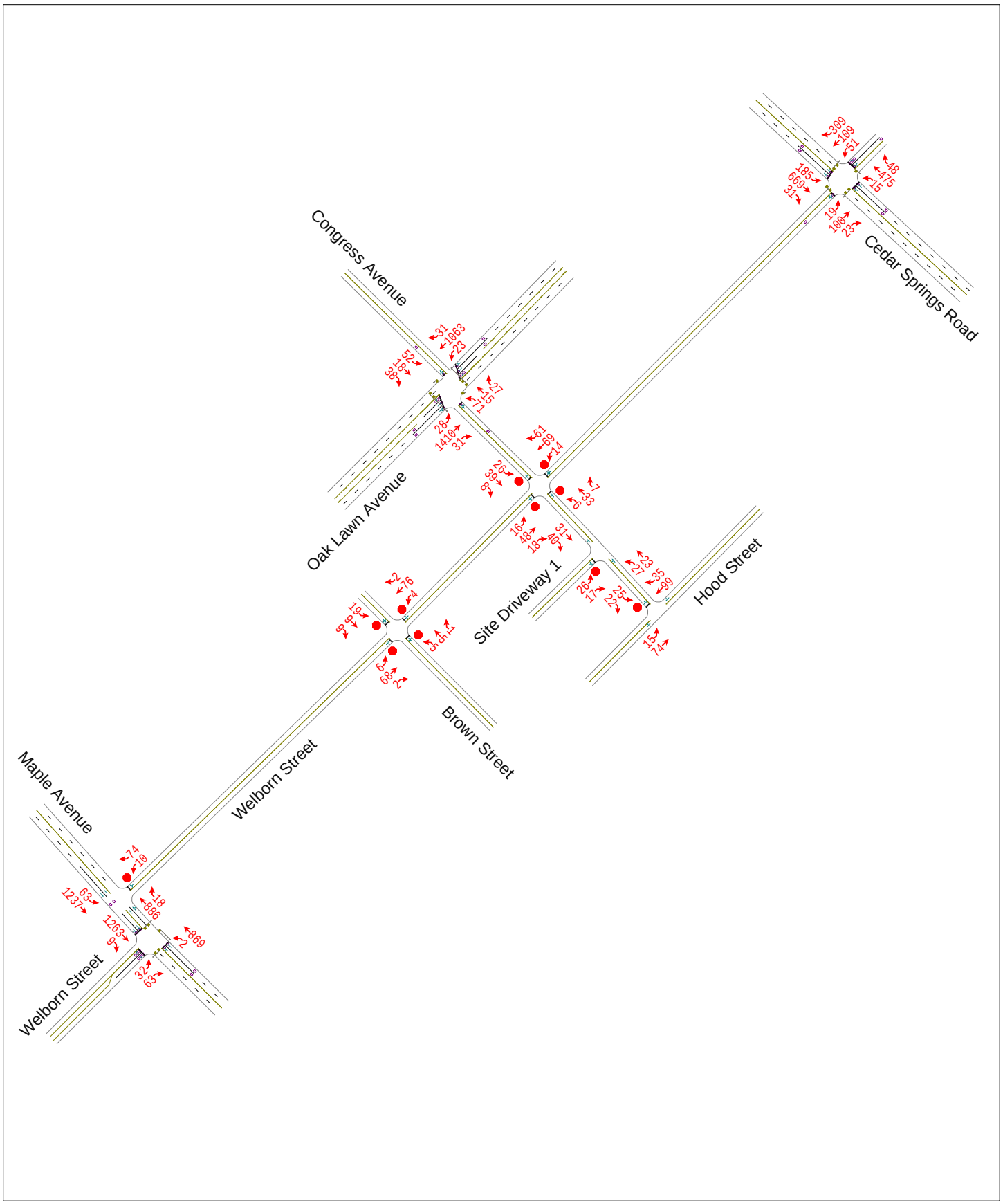
**Exhibit A8. Background Plus Site Generated AM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

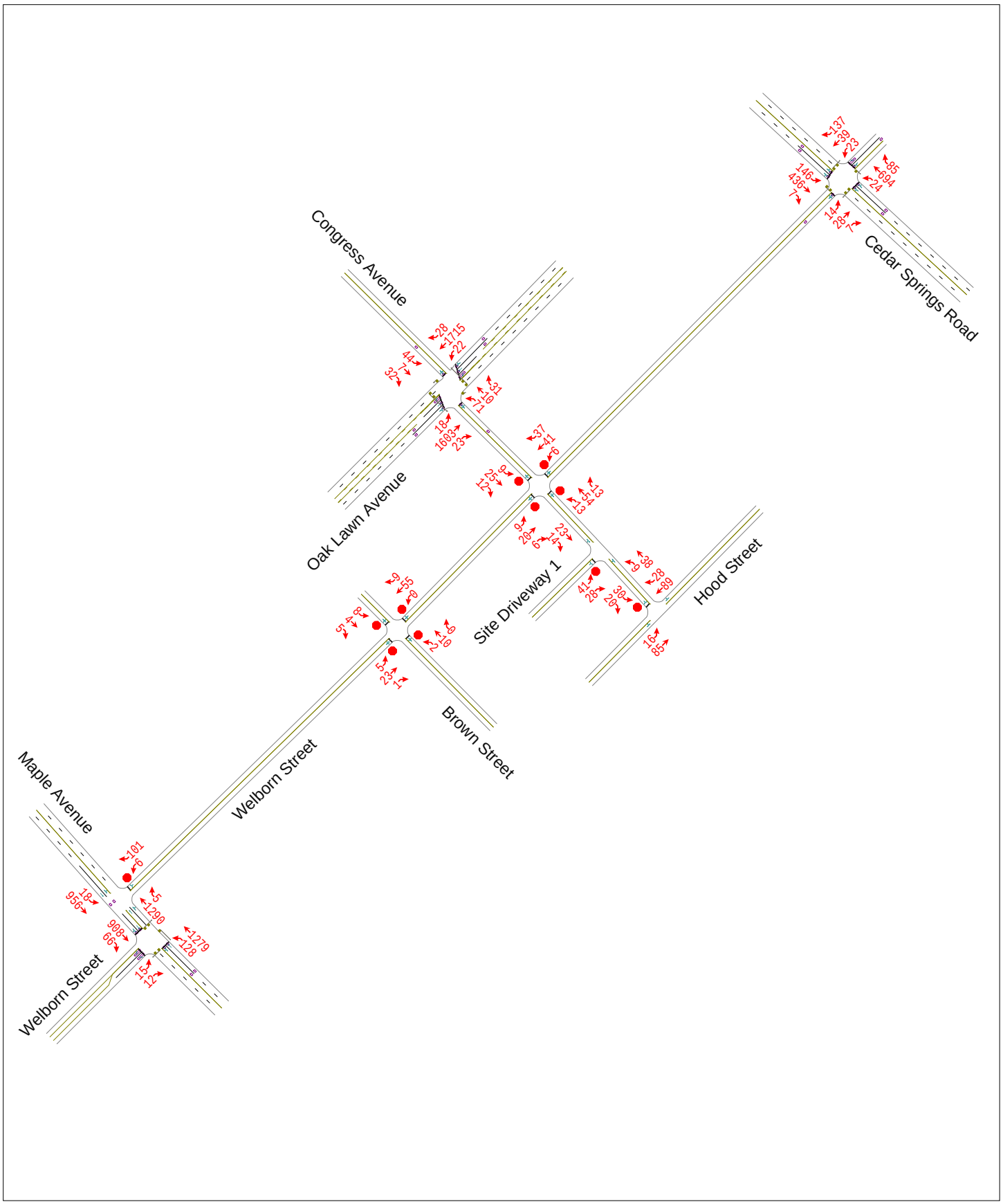
**Exhibit A9. Background Plus Site Generated PM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

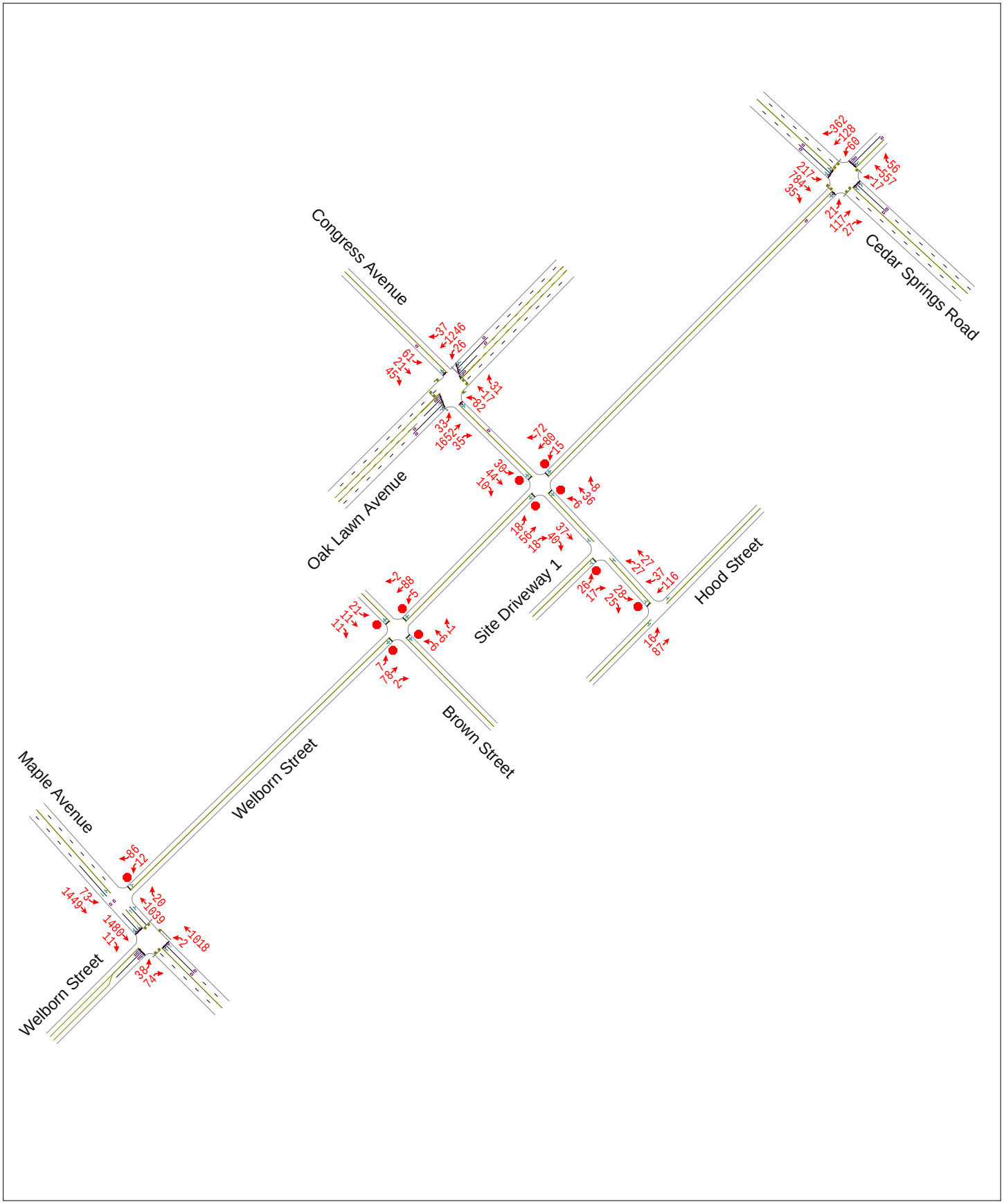
**Exhibit A10. Regional AM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

**Exhibit A11. Regional PM Peak Hour Traffic Volumes**




**3784-16.076**
**HWL**

**2/25/2016**
**Pacheco Koch**

Appendix B.  Detailed Traffic Volume Data

**Intersection Turning Movement Counts**

| | | | | NORTH LEG | | | | | | | | SOUTH LEG | | | | | | WEST LEG | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Southbound Approach on MAPLE AVENUE | | | | | | | | Northbound Approach on MAPLE AVENUE | | | | | | Eastbound Approach on WELBORN STREET | | | | | |
| | | | | Vehicles | | | | Peds | | | | Vehicles | | | | Peds | | Vehicles | | | | Peds | |
| | | START | END | U | L | T | R | CCW | CW | | | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW |
| City: | *Dallas* | 6:30 AM | 6:45 AM | | - | 107 | 9 | 0 | 0 | | | | 14 | 114 | - | 0 | 1 | | 0 | - | 0 | 0 | 0 |
| State: | *Texas* | 6:45 AM | 7:00 AM | | - | 125 | 6 | 1 | 0 | | | | 10 | 148 | - | 0 | 2 | | 0 | - | 1 | 0 | 0 |
| Day: | *Thursday* | 7:00 AM | 7:15 AM | | - | 122 | 5 | 1 | 0 | | | | 17 | 214 | - | 0 | 3 | | 1 | - | 2 | 0 | 0 |
| Date: | *February 18th* | 7:15 AM | 7:30 AM | | - | 124 | 10 | 0 | 0 | | | | 22 | 237 | - | 0 | 0 | | 2 | - | 3 | 0 | 0 |
| Year: | *2016* | ***7:30 AM*** | ***7:45 AM*** | | ***-*** | ***142*** | ***11*** | ***1*** | ***0*** | | | | ***32*** | ***243*** | ***-*** | ***2*** | ***4*** | | ***3*** | ***-*** | ***4*** | ***0*** | ***0*** |
| Data Collector: | *Camera* | ***7:45 AM*** | ***8:00 AM*** | | ***-*** | ***206*** | ***20*** | ***0*** | ***0*** | | | | ***34*** | ***262*** | ***-*** | ***0*** | ***2*** | | ***3*** | ***-*** | ***4*** | ***0*** | ***0*** |
| Traffic Control: | *Traffic Signal* | ***8:00 AM*** | ***8:15 AM*** | | ***-*** | ***188*** | ***10*** | ***0*** | ***0*** | | | | ***27*** | ***280*** | ***-*** | ***5*** | ***2*** | | ***4*** | ***-*** | ***1*** | ***4*** | ***0*** |
| Observations: | | ***8:15 AM*** | ***8:30 AM*** | | ***-*** | ***206*** | ***13*** | ***0*** | ***0*** | | | | ***12*** | ***263*** | ***-*** | ***3*** | ***1*** | | ***2*** | ***-*** | ***1*** | ***0*** | ***0*** |
| | | 4:00 PM | 4:15 PM | | - | 196 | 3 | 0 | 0 | | | | 4 | 187 | - | 0 | 0 | | 9 | - | 12 | 1 | 0 |
| | | 4:15 PM | 4:30 PM | | - | 206 | 1 | 0 | 0 | | | | 3 | 153 | - | 0 | 0 | | 14 | - | 30 | 0 | 0 |
| | | 4:30 PM | 4:45 PM | | - | 229 | 4 | 0 | 0 | | | | 1 | 207 | - | 1 | 0 | | 32 | - | 56 | 0 | 0 |
| | | 4:45 PM | 5:00 PM | | - | 278 | 0 | 0 | 0 | | | | 3 | 174 | - | 0 | 0 | | 14 | - | 18 | 0 | 1 |
| | | ***5:00 PM*** | ***5:15 PM*** | | ***-*** | ***286*** | ***3*** | ***0*** | ***0*** | | | | ***1*** | ***248*** | ***-*** | ***0*** | ***1*** | | ***15*** | ***-*** | ***25*** | ***1*** | ***0*** |
| | | ***5:15 PM*** | ***5:30 PM*** | | ***-*** | ***265*** | ***3*** | ***0*** | ***0*** | | | | ***0*** | ***206*** | ***-*** | ***0*** | ***0*** | | ***9*** | ***-*** | ***11*** | ***0*** | ***0*** |
| | | ***5:30 PM*** | ***5:45 PM*** | | ***-*** | ***346*** | ***2*** | ***0*** | ***0*** | | | | ***0*** | ***210*** | ***-*** | ***2*** | ***1*** | | ***4*** | ***-*** | ***14*** | ***0*** | ***0*** |
| | | ***5:45 PM*** | ***6:00 PM*** | | ***-*** | ***315*** | ***1*** | ***0*** | ***0*** | | | | ***1*** | ***168*** | ***-*** | ***0*** | ***0*** | | ***3*** | ***-*** | ***11*** | ***0*** | ***0*** |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak Hour | *Intersection PHF:* | *0.93* | *Intersection PHV:* | *0* | *742* | *54* | | | | | | *105* | *1,048* | *0* | | | | *12* | *0* | *10* | | | |
| | *Peak Hour* | *7:30 AM - 8:30 AM* | *PHF:* | *0.00* | *0.90* | *0.68* | | | | | | *0.77* | *0.94* | *0.00* | | | | *0.75* | *0.00* | *0.63* | | | |
| | Study Area PHF: | 0.93 | Study Area PHV: | **0** | **742** | **54** | | | | | | **105** | **1,048** | **0** | | | | **12** | **0** | **10** | | | |
| | Peak Hour: | 7:30 AM - 8:30 AM | PHF: | **0.00** | **0.90** | **0.68** | | | | | | **0.77** | **0.94** | **0.00** | | | | **0.75** | **0.00** | **0.63** | | | |
| PM Peak Hour | *Intersection PHF:* | *0.93* | *Intersection PHV:* | *0* | *1,212* | *9* | | | | | | *2* | *832* | *0* | | | | *31* | *0* | *61* | | | |
| | *Peak Hour* | *5:00 PM - 6:00 PM* | *PHF:* | *0.00* | *0.88* | *0.75* | | | | | | *0.50* | *0.84* | *0.00* | | | | *0.52* | *0.00* | *0.61* | | | |
| | Study Area PHF: | *0.93* | Study Area PHV: | **0** | **1,212** | **9** | | | | | | **2** | **832** | **0** | | | | **31** | **0** | **61** | | | |
| | Peak Hour: | 5:00 PM - 6:00 PM | PHF: | **0.00** | **0.88** | **0.75** | | | | | | **0.50** | **0.84** | **0.00** | | | | **0.52** | **0.00** | **0.61** | | | |

Pacheco Koch

PK# 3784-16.076

# MAPLE AVENUE at WELBORN STREET

**Intersection Turning Movement Counts**

| | | | | NORTH LEG | | | | | | EAST LEG | | | | | | SOUTH LEG | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Southbound Approach on MAPLE AVENUE | | | | | | Westbound Approach on WELBORN STREET | | | | | | Northbound Approach on MAPLE AVENUE | | | | | |
| | | | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | |
| | | START | END | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW |
| City: | *Dallas* | 6:30 AM | 6:45 AM | | 0 | 115 | - | 0 | 0 | | 1 | - | 2 | 0 | 0 | | - | 104 | 1 | 0 | 0 |
| State: | *Texas* | 6:45 AM | 7:00 AM | | 1 | 127 | - | 0 | 0 | | 1 | - | 7 | 0 | 2 | | - | 142 | 0 | 0 | 0 |
| Day: | *Thursday* | 7:00 AM | 7:15 AM | | 7 | 125 | - | 0 | 0 | | 0 | - | 6 | 0 | 1 | | - | 200 | 1 | 0 | 0 |
| Date: | *February 18th* | 7:15 AM | 7:30 AM | | 1 | 128 | - | 0 | 0 | | 0 | - | 16 | 0 | 0 | | - | 248 | 1 | 0 | 0 |
| Year: | *2016* | ***7:30 AM*** | ***7:45 AM*** | | ***0*** | ***154*** | ***-*** | ***0*** | ***0*** | | ***2*** | ***-*** | ***24*** | ***1*** | ***1*** | | ***-*** | ***240*** | ***1*** | ***0*** | ***0*** |
| Data Collector: | *Camera* | ***7:45 AM*** | ***8:00 AM*** | | ***1*** | ***216*** | ***-*** | ***0*** | ***0*** | | ***0*** | ***-*** | ***24*** | ***0*** | ***2*** | | ***-*** | ***258*** | ***1*** | ***0*** | ***0*** |
| Traffic Control: | *Minor Approach Stop* | ***8:00 AM*** | ***8:15 AM*** | | ***4*** | ***193*** | ***-*** | ***0*** | ***0*** | | ***0*** | ***-*** | ***16*** | ***0*** | ***1*** | | ***-*** | ***287*** | ***1*** | ***0*** | ***0*** |
| Observations: | | ***8:15 AM*** | ***8:30 AM*** | | ***8*** | ***221*** | ***-*** | ***0*** | ***0*** | | ***0*** | ***-*** | ***13*** | ***1*** | ***0*** | | ***-*** | ***273*** | ***0*** | ***0*** | ***0*** |
| | | 4:00 PM | 4:15 PM | | 14 | 195 | - | 0 | 0 | | 0 | - | 11 | 1 | 2 | | - | 197 | 2 | 0 | 0 |
| | | 4:15 PM | 4:30 PM | | 9 | 203 | - | 0 | 0 | | 3 | - | 10 | 2 | 0 | | - | 162 | 6 | 0 | 0 |
| | | 4:30 PM | 4:45 PM | | 12 | 219 | - | 0 | 0 | | 6 | - | 13 | 0 | 0 | | - | 229 | 1 | 0 | 0 |
| | | 4:45 PM | 5:00 PM | | 18 | 281 | - | 0 | 0 | | 2 | - | 10 | 0 | 0 | | - | 205 | 3 | 0 | 0 |
| | | ***5:00 PM*** | ***5:15 PM*** | | ***4*** | ***272*** | ***-*** | ***0*** | ***0*** | | ***4*** | ***-*** | ***16*** | ***0*** | ***0*** | | ***-*** | ***250*** | ***5*** | ***0*** | ***0*** |
| | | ***5:15 PM*** | ***5:30 PM*** | | ***15*** | ***270*** | ***-*** | ***0*** | ***0*** | | ***0*** | ***-*** | ***22*** | ***0*** | ***1*** | | ***-*** | ***215*** | ***2*** | ***0*** | ***0*** |
| | | ***5:30 PM*** | ***5:45 PM*** | | ***14*** | ***321*** | ***-*** | ***0*** | ***0*** | | ***4*** | ***-*** | ***17*** | ***0*** | ***2*** | | ***-*** | ***204*** | ***4*** | ***0*** | ***0*** |
| | | ***5:45 PM*** | ***6:00 PM*** | | ***21*** | ***326*** | ***-*** | ***0*** | ***0*** | | ***0*** | ***-*** | ***12*** | ***0*** | ***1*** | | ***-*** | ***183*** | ***3*** | ***0*** | ***0*** |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak Hour | *Intersection PHF:* | *0.94* | *Intersection PHV:* | *0* | *13* | *784* | *0* | | | *0* | *2* | *0* | *77* | | | *0* | *0* | *1,058* | *3* | | |
| | *Peak Hour* | *7:30 AM - 8:30 AM* | *PHF:* | | *0.41* | *0.89* | *0.00* | | | | *0.25* | *0.00* | *0.80* | | | | *0.00* | *0.92* | *0.75* | | |
| | Study Area PHF: | 0.94 | Study Area PHV: | **0** | **13** | **784** | **0** | | | **0** | **2** | **0** | **77** | | | **0** | **0** | **1,058** | **3** | | |
| | Peak Hour: | 7:30 AM - 8:30 AM | PHF: | | **0.41** | **0.89** | **0.00** | | | | **0.25** | **0.00** | **0.80** | | | | **0.00** | **0.92** | **0.75** | | |
| PM Peak Hour | *Intersection PHF:* | *0.97* | *Intersection PHV:* | | *54* | *1,189* | *0* | | | | *8* | *0* | *67* | | | | *0* | *852* | *14* | | |
| | *Peak Hour* | *5:00 PM - 6:00 PM* | *PHF:* | | *0.64* | *0.91* | *0.00* | | | | *0.50* | *0.00* | *0.76* | | | | *0.00* | *0.85* | *0.70* | | |
| | Study Area PHF: | 0.97 | Study Area PHV: | **0** | **54** | **1,189** | **0** | | | **0** | **8** | **0** | **67** | | | **0** | **0** | **852** | **14** | | |
| | Peak Hour: | 5:00 PM - 6:00 PM | PHF: | | **0.64** | **0.91** | **0.00** | | | | **0.50** | **0.00** | **0.76** | | | | **0.00** | **0.85** | **0.70** | | |

Pacheco Koch

PK# 3784-16.076

# MAPLE AVENUE at WELBORN STREET

**Intersection Turning Movement Counts**

| | | | | NORTH LEG | | | | | | EAST LEG | | | | | | SOUTH LEG | | | | | | WEST LEG | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Southbound Approach on BROWN STREET | | | | | | Westbound Approach on WELBORN STREET | | | | | | Northbound Approach on BROWN STREET | | | | | | Eastbound Approach on WELBORN STREET | | | | | |
| | | | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | |
| | | START | END | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW |
| City: | Dallas | 6:30 AM | 6:45 AM | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 2 | | 0 | 1 | 0 | 0 | 0 |
| State: | Texas | 6:45 AM | 7:00 AM | | 2 | 3 | 1 | 0 | 0 | | 0 | 2 | 0 | 0 | 0 | | 0 | 2 | 0 | 0 | 2 | | 1 | 2 | 0 | 1 | 0 |
| Day: | Thursday | 7:00 AM | 7:15 AM | | 1 | 1 | 0 | 0 | 0 | | 0 | 4 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 0 | 0 | 0 |
| Date: | February 18th | 7:15 AM | 7:30 AM | | 1 | 1 | 0 | 0 | 0 | | 1 | 6 | 1 | 0 | 0 | | 0 | 2 | 1 | 1 | 0 | | 2 | 1 | 1 | 0 | 0 |
| Year: | 2016 | ***7:30 AM*** | ***7:45 AM*** | | ***0*** | ***0*** | ***0*** | ***0*** | ***0*** | | ***0*** | ***8*** | ***1*** | ***0*** | ***0*** | | ***0*** | ***2*** | ***0*** | ***0*** | ***1*** | | ***1*** | ***4*** | ***0*** | ***0*** | ***0*** |
| Data Collector: | Camera | ***7:45 AM*** | ***8:00 AM*** | | ***1*** | ***1*** | ***1*** | ***0*** | ***0*** | | ***0*** | ***10*** | ***1*** | ***0*** | ***0*** | | ***0*** | ***2*** | ***0*** | ***1*** | ***1*** | | ***1*** | ***2*** | ***0*** | ***0*** | ***0*** |
| Traffic Control: | All-Way Stop | ***8:00 AM*** | ***8:15 AM*** | | ***3*** | ***1*** | ***2*** | ***1*** | ***0*** | | ***0*** | ***7*** | ***2*** | ***0*** | ***0*** | | ***1*** | ***2*** | ***0*** | ***0*** | ***0*** | | ***1*** | ***6*** | ***0*** | ***0*** | ***0*** |
| Observations: | | ***8:15 AM*** | ***8:30 AM*** | | ***1*** | ***1*** | ***1*** | ***0*** | ***0*** | | ***0*** | ***12*** | ***3*** | ***0*** | ***1*** | | ***1*** | ***2*** | ***0*** | ***0*** | ***0*** | | ***1*** | ***4*** | ***1*** | ***1*** | ***0*** |
| | | 4:00 PM | 4:15 PM | | 1 | 2 | 1 | 0 | 0 | | 0 | 10 | 0 | 0 | 0 | | 0 | 2 | 0 | 0 | 0 | | 1 | 10 | 0 | 0 | 0 |
| | | 4:15 PM | 4:30 PM | | 2 | 4 | 2 | 0 | 0 | | 2 | 7 | 1 | 0 | 0 | | 0 | 2 | 0 | 0 | 0 | | 0 | 15 | 2 | 0 | 0 |
| | | 4:30 PM | 4:45 PM | | 1 | 1 | 2 | 0 | 1 | | 0 | 10 | 2 | 0 | 0 | | 0 | 0 | 1 | 0 | 0 | | 3 | 7 | 1 | 1 | 0 |
| | | 4:45 PM | 5:00 PM | | 2 | 6 | 1 | 0 | 0 | | 1 | 6 | 2 | 0 | 0 | | 1 | 1 | 0 | 0 | 0 | | 2 | 10 | 2 | 0 | 1 |
| | | ***5:00 PM*** | ***5:15 PM*** | | ***2*** | ***4*** | ***3*** | ***0*** | ***1*** | | ***1*** | ***16*** | ***0*** | ***0*** | ***0*** | | ***4*** | ***2*** | ***0*** | ***2*** | ***0*** | | ***0*** | ***10*** | ***0*** | ***0*** | ***2*** |
| | | ***5:15 PM*** | ***5:30 PM*** | | ***1*** | ***2*** | ***1*** | ***0*** | ***0*** | | ***1*** | ***19*** | ***0*** | ***1*** | ***0*** | | ***0*** | ***1*** | ***0*** | ***1*** | ***1*** | | ***1*** | ***13*** | ***2*** | ***0*** | ***2*** |
| | | ***5:30 PM*** | ***5:45 PM*** | | ***4*** | ***3*** | ***4*** | ***0*** | ***0*** | | ***2*** | ***15*** | ***1*** | ***0*** | ***0*** | | ***1*** | ***0*** | ***0*** | ***1*** | ***2*** | | ***2*** | ***14*** | ***0*** | ***1*** | ***2*** |
| | | ***5:45 PM*** | ***6:00 PM*** | | ***5*** | ***0*** | ***1*** | ***0*** | ***0*** | | ***0*** | ***17*** | ***1*** | ***0*** | ***1*** | | ***0*** | ***2*** | ***1*** | ***0*** | ***0*** | | ***3*** | ***19*** | ***0*** | ***0*** | ***0*** |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak Hour | *Intersection PHF:* | *0.81* | *Intersection PHV:* | *0* | *5* | *3* | *4* | | | *0* | *0* | *37* | *7* | | | *0* | *2* | *8* | *0* | | | *0* | *4* | *16* | *1* | | |
| | *Peak Hour* | *7:30 AM - 8:30 AM* | *PHF:* | | *0.42* | *0.75* | *0.50* | | | | *0.00* | *0.77* | *0.58* | | | | *0.50* | *1.00* | *0.00* | | | | *1.00* | *0.67* | *0.25* | | |
| | Study Area PHF: | 0.81 | Study Area PHV: | **0** | **5** | **3** | **4** | | | **0** | **0** | **37** | **7** | | | **0** | **2** | **8** | **0** | | | **0** | **4** | **16** | **1** | | |
| | Peak Hour: | 7:30 AM - 8:30 AM | PHF: | | **0.42** | **0.75** | **0.50** | | | | **0.00** | **0.77** | **0.58** | | | | **0.50** | **1.00** | **0.00** | | | | **1.00** | **0.67** | **0.25** | | |
| PM Peak Hour | *Intersection PHF:* | *0.91* | *Intersection PHV:* | | *12* | *9* | *9* | | | | *4* | *67* | *2* | | | | *5* | *5* | *1* | | | | *6* | *56* | *2* | | |
| | *Peak Hour* | *5:00 PM - 6:00 PM* | *PHF:* | | *0.60* | *0.56* | *0.56* | | | | *0.50* | *0.88* | *0.50* | | | | *0.31* | *0.63* | *0.25* | | | | *0.50* | *0.74* | *0.25* | | |
| | Study Area PHF: | 0.91 | Study Area PHV: | **0** | **12** | **9** | **9** | | | **0** | **4** | **67** | **2** | | | **0** | **5** | **5** | **1** | | | **0** | **6** | **56** | **2** | | |
| | Peak Hour: | 5:00 PM - 6:00 PM | PHF: | | **0.60** | **0.56** | **0.56** | | | | **0.50** | **0.88** | **0.50** | | | | **0.31** | **0.63** | **0.25** | | | | **0.50** | **0.74** | **0.25** | | |

Pacheco Koch

PK# 3784-16.076

**BROWN STREET at WELBORN STREET**

**Intersection Turning Movement Counts**

| | | | | NORTH LEG | | | | | | EAST LEG | | | | | | SOUTH LEG | | | | | | WEST LEG | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Southbound Approach on CONGRESS AVENUE | | | | | | Westbound Approach on OAK LAWN AVENUE | | | | | | Northbound Approach on CONGRESS AVENUE | | | | | | Eastbound Approach on OAK LAWN AVENUE | | | | | |
| | | | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | |
| | | START | END | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW |
| City: | *Dallas* | 6:30 AM | 6:45 AM | | 0 | 0 | 7 | 0 | 0 | | 2 | 178 | 0 | 0 | 1 | | 3 | 0 | 0 | 0 | 0 | | 1 | 149 | 0 | 0 | 0 |
| State: | *Texas* | 6:45 AM | 7:00 AM | | 0 | 0 | 8 | 0 | 0 | | 1 | 250 | 2 | 0 | 0 | | 5 | 1 | 6 | 0 | 0 | | 7 | 180 | 3 | 0 | 0 |
| Day: | *Thursday* | 7:00 AM | 7:15 AM | | 4 | 0 | 9 | 0 | 0 | | 4 | 269 | 3 | 0 | 1 | | 9 | 0 | 4 | 0 | 1 | | 3 | 227 | 2 | 0 | 0 |
| Date: | *February 18th* | 7:15 AM | 7:30 AM | | 3 | 0 | 11 | 0 | 0 | | 4 | 348 | 1 | 0 | 1 | | 18 | 0 | 4 | 0 | 0 | | 4 | 250 | 1 | 0 | 0 |
| Year: | *2016* | ***7:30 AM*** | ***7:45 AM*** | | ***10*** | ***1*** | ***6*** | ***0*** | ***1*** | | ***5*** | ***369*** | ***3*** | ***1*** | ***0*** | | ***7*** | ***3*** | ***4*** | ***0*** | ***0*** | | ***4*** | ***314*** | ***4*** | ***0*** | ***0*** |
| Data Collector: | *Camera* | ***7:45 AM*** | ***8:00 AM*** | | ***10*** | ***2*** | ***7*** | ***0*** | ***0*** | | ***7*** | ***369*** | ***9*** | ***1*** | ***2*** | | ***19*** | ***1*** | ***5*** | ***0*** | ***1*** | | ***2*** | ***298*** | ***5*** | ***0*** | ***0*** |
| Traffic Control: | *Traffic Signal* | ***8:00 AM*** | ***8:15 AM*** | | ***7*** | ***2*** | ***6*** | ***0*** | ***1*** | | ***2*** | ***320*** | ***6*** | ***0*** | ***1*** | | ***11*** | ***2*** | ***8*** | ***0*** | ***1*** | | ***4*** | ***350*** | ***1*** | ***0*** | ***0*** |
| Observations: | | ***8:15 AM*** | ***8:30 AM*** | | ***9*** | ***1*** | ***7*** | ***0*** | ***0*** | | ***2*** | ***349*** | ***5*** | ***0*** | ***1*** | | ***10*** | ***2*** | ***3*** | ***0*** | ***0*** | | ***5*** | ***353*** | ***7*** | ***0*** | ***0*** |
| | | 4:00 PM | 4:15 PM | | 14 | 1 | 9 | 1 | 0 | | 1 | 254 | 1 | 1 | 0 | | 6 | 1 | 5 | 0 | 0 | | 8 | 297 | 2 | 1 | 0 |
| | | 4:15 PM | 4:30 PM | | 8 | 3 | 3 | 0 | 0 | | 4 | 273 | 5 | 0 | 0 | | 3 | 0 | 6 | 0 | 0 | | 3 | 356 | 6 | 0 | 0 |
| | | 4:30 PM | 4:45 PM | | 8 | 4 | 8 | 0 | 1 | | 3 | 238 | 7 | 2 | 0 | | 15 | 0 | 5 | 0 | 1 | | 7 | 331 | 4 | 0 | 0 |
| | | 4:45 PM | 5:00 PM | | 14 | 3 | 6 | 1 | 0 | | 3 | 243 | 9 | 2 | 1 | | 9 | 2 | 4 | 0 | 0 | | 7 | 343 | 1 | 0 | 0 |
| | | ***5:00 PM*** | ***5:15 PM*** | | ***17*** | ***1*** | ***13*** | ***0*** | ***0*** | | ***2*** | ***237*** | ***3*** | ***3*** | ***0*** | | ***15*** | ***2*** | ***9*** | ***1*** | ***1*** | | ***3*** | ***358*** | ***1*** | ***0*** | ***0*** |
| | | ***5:15 PM*** | ***5:30 PM*** | | ***5*** | ***5*** | ***4*** | ***2*** | ***1*** | | ***3*** | ***248*** | ***13*** | ***0*** | ***2*** | | ***17*** | ***4*** | ***5*** | ***1*** | ***1*** | | ***6*** | ***349*** | ***6*** | ***1*** | ***0*** |
| | | ***5:30 PM*** | ***5:45 PM*** | | ***17*** | ***7*** | ***14*** | ***0*** | ***0*** | | ***5*** | ***278*** | ***5*** | ***0*** | ***1*** | | ***13*** | ***4*** | ***0*** | ***0*** | ***0*** | | ***10*** | ***328*** | ***7*** | ***0*** | ***0*** |
| | | ***5:45 PM*** | ***6:00 PM*** | | ***11*** | ***4*** | ***6*** | ***2*** | ***0*** | | ***6*** | ***259*** | ***9*** | ***0*** | ***0*** | | ***15*** | ***4*** | ***8*** | ***0*** | ***1*** | | ***8*** | ***320*** | ***9*** | ***0*** | ***0*** |
| AM Peak Hour | *Intersection PHF:* | *0.97* | *Intersection PHV:* | *0* | *36* | *6* | *26* | | | *0* | *16* | *1,407* | *23* | | | *0* | *47* | *8* | *20* | | | *0* | *15* | *1,315* | *17* | | |
| | *Peak Hour* | *7:30 AM - 8:30 AM* | *PHF:* | | *0.90* | *0.75* | *0.93* | | | | *0.57* | *0.95* | *0.64* | | | | *0.62* | *0.67* | *0.63* | | | | *0.75* | *0.93* | *0.61* | | |
| | Study Area PHF: | 0.97 | Study Area PHV: | **0** | **36** | **6** | **26** | | | **0** | **16** | **1,407** | **23** | | | **0** | **47** | **8** | **20** | | | **0** | **15** | **1,315** | **17** | | |
| | Peak Hour: | 7:30 AM - 8:30 AM | PHF: | | **0.90** | **0.75** | **0.93** | | | | **0.57** | **0.95** | **0.64** | | | | **0.62** | **0.67** | **0.63** | | | | **0.75** | **0.93** | **0.61** | | |
| PM Peak Hour | *Intersection PHF:* | *0.97* | *Intersection PHV:* | | *50* | *17* | *37* | | | | *16* | *1,022* | *30* | | | | *60* | *14* | *22* | | | | *27* | *1,355* | *23* | | |
| | *Peak Hour* | *5:00 PM - 6:00 PM* | *PHF:* | | *0.74* | *0.61* | *0.66* | | | | *0.67* | *0.92* | *0.58* | | | | *0.88* | *0.88* | *0.61* | | | | *0.68* | *0.95* | *0.64* | | |
| | Study Area PHF: | 0.97 | Study Area PHV: | **0** | **50** | **17** | **37** | | | **0** | **16** | **1,022** | **30** | | | **0** | **60** | **14** | **22** | | | **0** | **27** | **1,355** | **23** | | |
| | Peak Hour: | 5:00 PM - 6:00 PM | PHF: | | **0.74** | **0.61** | **0.66** | | | | **0.67** | **0.92** | **0.58** | | | | **0.88** | **0.88** | **0.61** | | | | **0.68** | **0.95** | **0.64** | | |

Pacheco Koch

PK# 3784-16.076

# CONGRESS AVENUE at OAK LAWN AVENUE

**Intersection Turning Movement Counts**

| | | | | NORTH LEG | | | | | | EAST LEG | | | | | | SOUTH LEG | | | | | | WEST LEG | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Southbound Approach on CONGRESS AVENUE | | | | | | Westbound Approach on WELBORN STREET | | | | | | Northbound Approach on CONGRESS AVENUE | | | | | | Eastbound Approach on WELBORN STREET | | | | | |
| | | | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | |
| | | START | END | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW |
| City: | *Dallas* | 6:30 AM | 6:45 AM | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 0 | 0 | | 0 | 2 | 0 | 0 | 1 | | 1 | 1 | 0 | 0 | 0 |
| State: | *Texas* | 6:45 AM | 7:00 AM | | 1 | 2 | 0 | 2 | 0 | | 0 | 1 | 2 | 1 | 1 | | 1 | 4 | 0 | 0 | 1 | | 0 | 2 | 1 | 1 | 0 |
| Day: | *Thursday* | 7:00 AM | 7:15 AM | | 2 | 2 | 0 | 0 | 0 | | 1 | 3 | 4 | 0 | 2 | | 0 | 5 | 2 | 0 | 1 | | 2 | 0 | 0 | 0 | 0 |
| Date: | *February 18th* | 7:15 AM | 7:30 AM | | 1 | 1 | 2 | 0 | 0 | | 0 | 5 | 12 | 0 | 1 | | 1 | 3 | 0 | 0 | 1 | | 3 | 0 | 0 | 0 | 0 |
| Year: | *2016* | ***7:30 AM*** | ***7:45 AM*** | | ***2*** | ***5*** | ***2*** | ***0*** | ***0*** | | ***0*** | ***6*** | ***9*** | ***0*** | ***1*** | | ***1*** | ***5*** | ***1*** | ***0*** | ***1*** | | ***3*** | ***3*** | ***0*** | ***0*** | ***0*** |
| Data Collector: | *Camera* | ***7:45 AM*** | ***8:00 AM*** | | ***4*** | ***4*** | ***1*** | ***0*** | ***1*** | | ***1*** | ***10*** | ***11*** | ***0*** | ***0*** | | ***1*** | ***5*** | ***0*** | ***0*** | ***0*** | | ***0*** | ***2*** | ***0*** | ***0*** | ***0*** |
| Traffic Control: | *All-Way Stop* | ***8:00 AM*** | ***8:15 AM*** | | ***0*** | ***2*** | ***4*** | ***1*** | ***0*** | | ***1*** | ***6*** | ***3*** | ***0*** | ***0*** | | ***0*** | ***11*** | ***0*** | ***0*** | ***0*** | | ***4*** | ***5*** | ***0*** | ***0*** | ***0*** |
| Observations: | | ***8:15 AM*** | ***8:30 AM*** | | ***1*** | ***6*** | ***3*** | ***0*** | ***0*** | | ***0*** | ***12*** | ***7*** | ***0*** | ***0*** | | ***0*** | ***6*** | ***1*** | ***0*** | ***1*** | | ***0*** | ***6*** | ***0*** | ***1*** | ***1*** |
| | | 4:00 PM | 4:15 PM | | 0 | 4 | 1 | 0 | 0 | | 0 | 10 | 3 | 0 | 0 | | 0 | 8 | 0 | 0 | 0 | | 0 | 9 | 0 | 3 | 1 |
| | | 4:15 PM | 4:30 PM | | 3 | 10 | 0 | 0 | 0 | | 0 | 14 | 4 | 0 | 0 | | 0 | 3 | 1 | 0 | 0 | | 2 | 16 | 0 | 0 | 0 |
| | | 4:30 PM | 4:45 PM | | 2 | 6 | 2 | 1 | 2 | | 3 | 11 | 12 | 0 | 0 | | 2 | 5 | 0 | 0 | 0 | | 2 | 6 | 1 | 0 | 0 |
| | | 4:45 PM | 5:00 PM | | 2 | 5 | 0 | 0 | 0 | | 1 | 10 | 3 | 0 | 1 | | 0 | 7 | 1 | 0 | 1 | | 0 | 14 | 0 | 0 | 0 |
| | | ***5:00 PM*** | ***5:15 PM*** | | ***2*** | ***2*** | ***0*** | ***0*** | ***0*** | | ***1*** | ***19*** | ***17*** | ***0*** | ***0*** | | ***0*** | ***7*** | ***0*** | ***1*** | ***0*** | | ***4*** | ***10*** | ***0*** | ***0*** | ***0*** |
| | | ***5:15 PM*** | ***5:30 PM*** | | ***7*** | ***5*** | ***3*** | ***0*** | ***0*** | | ***0*** | ***16*** | ***15*** | ***0*** | ***0*** | | ***0*** | ***7*** | ***0*** | ***1*** | ***0*** | | ***2*** | ***10*** | ***0*** | ***0*** | ***0*** |
| | | ***5:30 PM*** | ***5:45 PM*** | | ***12*** | ***8*** | ***0*** | ***0*** | ***0*** | | ***2*** | ***19*** | ***13*** | ***0*** | ***1*** | | ***0*** | ***0*** | ***1*** | ***1*** | ***2*** | | ***5*** | ***12*** | ***0*** | ***0*** | ***0*** |
| | | ***5:45 PM*** | ***6:00 PM*** | | ***4*** | ***10*** | ***5*** | ***0*** | ***1*** | | ***1*** | ***12*** | ***14*** | ***0*** | ***0*** | | ***0*** | ***5*** | ***0*** | ***0*** | ***0*** | | ***4*** | ***14*** | ***1*** | ***0*** | ***0*** |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak Hour | *Intersection PHF:* | *0.92* | *Intersection PHV:* | *0* | *7* | *17* | *10* | | | *0* | *2* | *34* | *30* | | | *0* | *2* | *27* | *2* | | | *0* | *7* | *16* | *0* | | |
| | *Peak Hour* | *7:30 AM - 8:30 AM* | *PHF:* | | *0.44* | *0.71* | *0.63* | | | | *0.50* | *0.71* | *0.68* | | | | *0.50* | *0.61* | *0.50* | | | | *0.44* | *0.67* | *0.00* | | |
| | Study Area PHF: | 0.92 | Study Area PHV: | **0** | **7** | **17** | **10** | | | **0** | **2** | **34** | **30** | | | **0** | **2** | **27** | **2** | | | **0** | **7** | **16** | **0** | | |
| | Peak Hour: | 7:30 AM - 8:30 AM | PHF: | | **0.44** | **0.71** | **0.63** | | | | **0.50** | **0.71** | **0.68** | | | | **0.50** | **0.61** | **0.50** | | | | **0.44** | **0.67** | **0.00** | | |
| PM Peak Hour | *Intersection PHF:* | *0.93* | *Intersection PHV:* | | *25* | *25* | *8* | | | | *4* | *66* | *59* | | | | *0* | *19* | *1* | | | | *15* | *46* | *1* | | |
| | *Peak Hour* | *5:00 PM - 6:00 PM* | *PHF:* | | *0.52* | *0.63* | *0.40* | | | | *0.50* | *0.87* | *0.87* | | | | *0.00* | *0.68* | *0.25* | | | | *0.75* | *0.82* | *0.25* | | |
| | Study Area PHF: | 0.93 | Study Area PHV: | **0** | **25** | **25** | **8** | | | **0** | **4** | **66** | **59** | | | **0** | **0** | **19** | **1** | | | **0** | **15** | **46** | **1** | | |
| | Peak Hour: | 5:00 PM - 6:00 PM | PHF: | | **0.52** | **0.63** | **0.40** | | | | **0.50** | **0.87** | **0.87** | | | | **0.00** | **0.68** | **0.25** | | | | **0.75** | **0.82** | **0.25** | | |

Pacheco Koch

PK# 3784-16.076

# CONGRESS AVENUE at WELBORN STREET

**Intersection Turning Movement Counts**

| | |
|---|---|
| City: | ***Dallas*** |
| State: | ***Texas*** |
| Day: | ***Thursday*** |
| Date: | ***February 18th*** |
| Year: | ***2016*** |
| Data Collector: | ***Camera*** |
| Traffic Control: | ***Minor Approach Stop*** |
| Observations: | |

| | | NORTH LEG Southbound Approach on CONGRESS AVENUE | | | | | | EAST LEG Westbound Approach on HOOD STREET | | | | | | | | | | | | WEST LEG Eastbound Approach on HOOD STREET | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | | | | | Vehicles | | | | Peds | |
| START | END | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | | | | | | | U | L | T | R | CCW | CW |
| 6:30 AM | 6:45 AM | | 0 | - | 0 | 0 | 0 | | - | 8 | 1 | 0 | 0 | | | | | | | | 2 | 3 | - | 1 | 0 |
| 6:45 AM | 7:00 AM | | 1 | - | 1 | 0 | 0 | | - | 11 | 3 | 0 | 0 | | | | | | | | 2 | 3 | - | 0 | 0 |
| 7:00 AM | 7:15 AM | | 2 | - | 1 | 0 | 1 | | - | 8 | 5 | 0 | 0 | | | | | | | | 0 | 8 | - | 0 | 0 |
| 7:15 AM | 7:30 AM | | 0 | - | 1 | 1 | 0 | | - | 12 | 0 | 0 | 0 | | | | | | | | 1 | 12 | - | 0 | 0 |
| ***7:30 AM*** | ***7:45 AM*** | | ***3*** | ***-*** | ***2*** | ***0*** | ***1*** | | ***-*** | ***15*** | ***3*** | ***0*** | ***0*** | | | | | | | | ***2*** | ***17*** | ***-*** | ***0*** | ***0*** |
| ***7:45 AM*** | ***8:00 AM*** | | ***1*** | ***-*** | ***4*** | ***0*** | ***0*** | | ***-*** | ***24*** | ***1*** | ***0*** | ***0*** | | | | | | | | ***4*** | ***14*** | ***-*** | ***0*** | ***0*** |
| ***8:00 AM*** | ***8:15 AM*** | | ***0*** | ***-*** | ***3*** | ***0*** | ***1*** | | ***-*** | ***17*** | ***7*** | ***0*** | ***0*** | | | | | | | | ***4*** | ***17*** | ***-*** | ***0*** | ***0*** |
| ***8:15 AM*** | ***8:30 AM*** | | ***4*** | ***-*** | ***2*** | ***0*** | ***0*** | | ***-*** | ***17*** | ***6*** | ***0*** | ***0*** | | | | | | | | ***1*** | ***22*** | ***-*** | ***1*** | ***0*** |
| 4:00 PM | 4:15 PM | | 1 | - | 2 | 1 | 1 | | - | 21 | 7 | 1 | 0 | | | | | | | | 1 | 12 | - | 0 | 0 |
| 4:15 PM | 4:30 PM | | 4 | - | 6 | 0 | 0 | | - | 12 | 5 | 0 | 0 | | | | | | | | 2 | 10 | - | 0 | 0 |
| 4:30 PM | 4:45 PM | | 1 | - | 7 | 0 | 0 | | - | 10 | 2 | 0 | 0 | | | | | | | | 3 | 17 | - | 0 | 0 |
| 4:45 PM | 5:00 PM | | 3 | - | 3 | 0 | 0 | | - | 19 | 2 | 0 | 0 | | | | | | | | 3 | 22 | - | 0 | 0 |
| ***5:00 PM*** | ***5:15 PM*** | | ***2*** | ***-*** | ***1*** | ***0*** | ***0*** | | ***-*** | ***16*** | ***6*** | ***0*** | ***0*** | | | | | | | | ***1*** | ***13*** | ***-*** | ***0*** | ***0*** |
| ***5:15 PM*** | ***5:30 PM*** | | ***2*** | ***-*** | ***3*** | ***0*** | ***0*** | | ***-*** | ***30*** | ***4*** | ***0*** | ***0*** | | | | | | | | ***4*** | ***15*** | ***-*** | ***0*** | ***0*** |
| ***5:30 PM*** | ***5:45 PM*** | | ***3*** | ***-*** | ***5*** | ***0*** | ***0*** | | ***-*** | ***21*** | ***1*** | ***0*** | ***0*** | | | | | | | | ***2*** | ***22*** | ***-*** | ***0*** | ***0*** |
| ***5:45 PM*** | ***6:00 PM*** | | ***5*** | ***-*** | ***8*** | ***0*** | ***2*** | | ***-*** | ***28*** | ***3*** | ***0*** | ***0*** | | | | | | | | ***1*** | ***21*** | ***-*** | ***0*** | ***0*** |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak Hour | *Intersection PHF:* | *0.91* | *Intersection PHV:* | *0* | *8* | *0* | *11* | | | *0* | *0* | *73* | *17* | | | *0* | *0* | *0* | *0* | | | *0* | *11* | *70* | *0* | | |
| | *Peak Hour* | *7:30 AM - 8:30 AM* | *PHF:* | | *0.50* | *0.00* | *0.69* | | | | *0.00* | *0.76* | *0.61* | | | | *0.00* | *0.00* | *0.00* | | | | *0.69* | *0.80* | *0.00* | | |
| | Study Area PHF: | 0.91 | Study Area PHV: | **0** | **8** | **0** | **11** | | | **0** | **0** | **73** | **17** | | | **0** | **0** | **0** | **0** | | | **0** | **11** | **70** | **0** | | |
| | Peak Hour: | 7:30 AM - 8:30 AM | PHF: | | **0.50** | **0.00** | **0.69** | | | | **0.00** | **0.76** | **0.61** | | | | **0.00** | **0.00** | **0.00** | | | | **0.69** | **0.80** | **0.00** | | |
| PM Peak Hour | *Intersection PHF:* | *0.82* | *Intersection PHV:* | | *12* | *0* | *17* | | | | *0* | *95* | *14* | | | | *0* | *0* | *0* | | | | *8* | *71* | *0* | | |
| | *Peak Hour* | *5:00 PM - 6:00 PM* | *PHF:* | | *0.60* | *0.00* | *0.53* | | | | *0.00* | *0.79* | *0.58* | | | | *0.00* | *0.00* | *0.00* | | | | *0.50* | *0.81* | *0.00* | | |
| | Study Area PHF: | 0.82 | Study Area PHV: | **0** | **12** | **0** | **17** | | | **0** | **0** | **95** | **14** | | | **0** | **0** | **0** | **0** | | | **0** | **8** | **71** | **0** | | |
| | Peak Hour: | 5:00 PM - 6:00 PM | PHF: | | **0.60** | **0.00** | **0.53** | | | | **0.00** | **0.79** | **0.58** | | | | **0.00** | **0.00** | **0.00** | | | | **0.50** | **0.81** | **0.00** | | |

Pacheco Koch

PK# 3784-16.076

# CONGRESS AVENUE at HOOD STREET

**Intersection Turning Movement Counts**

| | | | | NORTH LEG | | | | | | EAST LEG | | | | | | SOUTH LEG | | | | | | WEST LEG | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Southbound Approach on CEDAR SPRINGS ROAD | | | | | | Westbound Approach on WELBORN STREET | | | | | | Northbound Approach on CEDAR SPRINGS ROAD | | | | | | Eastbound Approach on WELBORN STREET | | | | | |
| | | | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | | Vehicles | | | | Peds | |
| | | START | END | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW | U | L | T | R | CCW | CW |
| City: | *Dallas* | 6:30 AM | 6:45 AM | | 7 | 41 | 1 | 0 | 0 | | 1 | 4 | 13 | 0 | 0 | | 3 | 56 | 3 | 0 | 0 | | 0 | 1 | 0 | 0 | 0 |
| State: | *Texas* | 6:45 AM | 7:00 AM | | 15 | 47 | 0 | 1 | 0 | | 2 | 4 | 23 | 0 | 0 | | 1 | 66 | 7 | 0 | 0 | | 0 | 1 | 1 | 0 | 0 |
| Day: | *Thursday* | 7:00 AM | 7:15 AM | | 20 | 59 | 0 | 0 | 0 | | 3 | 7 | 26 | 1 | 1 | | 3 | 95 | 6 | 0 | 0 | | 1 | 4 | 2 | 0 | 0 |
| Date: | *February 18th* | 7:15 AM | 7:30 AM | | 21 | 69 | 1 | 0 | 0 | | 1 | 3 | 43 | 0 | 0 | | 3 | 108 | 5 | 0 | 0 | | 1 | 0 | 2 | 0 | 0 |
| Year: | *2016* | ***7:30 AM*** | ***7:45 AM*** | | ***23*** | ***79*** | ***0*** | ***0*** | ***0*** | | ***6*** | ***12*** | ***23*** | ***2*** | ***0*** | | ***6*** | ***134*** | ***17*** | ***0*** | ***0*** | | ***1*** | ***9*** | ***0*** | ***0*** | ***0*** |
| Data Collector: | *Camera* | ***7:45 AM*** | ***8:00 AM*** | | ***34*** | ***84*** | ***2*** | ***1*** | ***1*** | | ***2*** | ***7*** | ***33*** | ***3*** | ***0*** | | ***3*** | ***154*** | ***16*** | ***0*** | ***1*** | | ***1*** | ***4*** | ***0*** | ***0*** | ***2*** |
| Traffic Control: | *Traffic Signal* | ***8:00 AM*** | ***8:15 AM*** | | ***26*** | ***80*** | ***0*** | ***0*** | ***0*** | | ***9*** | ***11*** | ***23*** | ***0*** | ***2*** | | ***5*** | ***140*** | ***16*** | ***0*** | ***0*** | | ***0*** | ***3*** | ***2*** | ***0*** | ***0*** |
| Observations: | | ***8:15 AM*** | ***8:30 AM*** | | ***37*** | ***115*** | ***2*** | ***0*** | ***0*** | | ***2*** | ***2*** | ***33*** | ***0*** | ***0*** | | ***5*** | ***141*** | ***21*** | ***0*** | ***0*** | | ***4*** | ***7*** | ***1*** | ***0*** | ***0*** |
| | | 4:00 PM | 4:15 PM | | 27 | 105 | 8 | 0 | 2 | | 8 | 14 | 70 | 0 | 4 | | 4 | 81 | 6 | 0 | 0 | | 4 | 8 | 6 | 0 | 0 |
| | | 4:15 PM | 4:30 PM | | 18 | 140 | 5 | 1 | 0 | | 4 | 5 | 66 | 0 | 2 | | 4 | 100 | 9 | 0 | 0 | | 3 | 15 | 8 | 0 | 0 |
| | | 4:30 PM | 4:45 PM | | 28 | 129 | 5 | 0 | 0 | | 4 | 17 | 77 | 2 | 0 | | 2 | 96 | 10 | 0 | 0 | | 0 | 18 | 2 | 0 | 0 |
| | | 4:45 PM | 5:00 PM | | 29 | 135 | 4 | 1 | 1 | | 13 | 19 | 53 | 3 | 1 | | 4 | 117 | 11 | 0 | 0 | | 4 | 18 | 8 | 0 | 0 |
| | | ***5:00 PM*** | ***5:15 PM*** | | ***36*** | ***158*** | ***7*** | ***0*** | ***0*** | | ***16*** | ***34*** | ***69*** | ***3*** | ***1*** | | ***4*** | ***134*** | ***11*** | ***1*** | ***1*** | | ***3*** | ***26*** | ***2*** | ***1*** | ***1*** |
| | | ***5:15 PM*** | ***5:30 PM*** | | ***52*** | ***152*** | ***9*** | ***2*** | ***2*** | | ***11*** | ***25*** | ***67*** | ***4*** | ***2*** | | ***1*** | ***105*** | ***11*** | ***1*** | ***1*** | | ***2*** | ***22*** | ***7*** | ***1*** | ***0*** |
| | | ***5:30 PM*** | ***5:45 PM*** | | ***45*** | ***176*** | ***3*** | ***1*** | ***0*** | | ***11*** | ***29*** | ***88*** | ***1*** | ***5*** | | ***4*** | ***106*** | ***13*** | ***0*** | ***0*** | | ***7*** | ***19*** | ***7*** | ***0*** | ***0*** |
| | | ***5:45 PM*** | ***6:00 PM*** | | ***45*** | ***157*** | ***4*** | ***0*** | ***0*** | | ***11*** | ***17*** | ***73*** | ***1*** | ***2*** | | ***2*** | ***112*** | ***11*** | ***0*** | ***0*** | | ***2*** | ***29*** | ***4*** | ***0*** | ***2*** |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak Hour | *Intersection PHF:* | *0.90* | *Intersection PHV:* | *0* | *120* | *358* | *4* | | | *0* | *19* | *32* | *112* | | | *0* | *19* | *569* | *70* | | | *0* | *6* | *23* | *3* | | |
| | *Peak Hour* | *7:30 AM - 8:30 AM* | *PHF:* | | *0.81* | *0.78* | *0.50* | | | | *0.53* | *0.67* | *0.85* | | | | *0.79* | *0.92* | *0.83* | | | | *0.38* | *0.64* | *0.38* | | |
| | Study Area PHF: | 0.90 | Study Area PHV: | **0** | **120** | **358** | **4** | | | **0** | **19** | **32** | **112** | | | **0** | **19** | **569** | **70** | | | **0** | **6** | **23** | **3** | | |
| | Peak Hour: | 7:30 AM - 8:30 AM | PHF: | | **0.81** | **0.78** | **0.50** | | | | **0.53** | **0.67** | **0.85** | | | | **0.79** | **0.92** | **0.83** | | | | **0.38** | **0.64** | **0.38** | | |
| PM Peak Hour | *Intersection PHF:* | *0.95* | *Intersection PHV:* | | *178* | *643* | *23* | | | | *49* | *105* | *297* | | | | *11* | *457* | *46* | | | | *14* | *96* | *20* | | |
| | *Peak Hour* | *5:00 PM - 6:00 PM* | *PHF:* | | *0.86* | *0.91* | *0.64* | | | | *0.77* | *0.77* | *0.84* | | | | *0.69* | *0.85* | *0.88* | | | | *0.50* | *0.83* | *0.71* | | |
| | Study Area PHF: | 0.95 | Study Area PHV: | **0** | **178** | **643** | **23** | | | **0** | **49** | **105** | **297** | | | **0** | **11** | **457** | **46** | | | **0** | **14** | **96** | **20** | | |
| | Peak Hour: | 5:00 PM - 6:00 PM | PHF: | | **0.86** | **0.91** | **0.64** | | | | **0.77** | **0.77** | **0.84** | | | | **0.69** | **0.85** | **0.88** | | | | **0.50** | **0.83** | **0.71** | | |

Pacheco Koch

PK# 3784-16.076

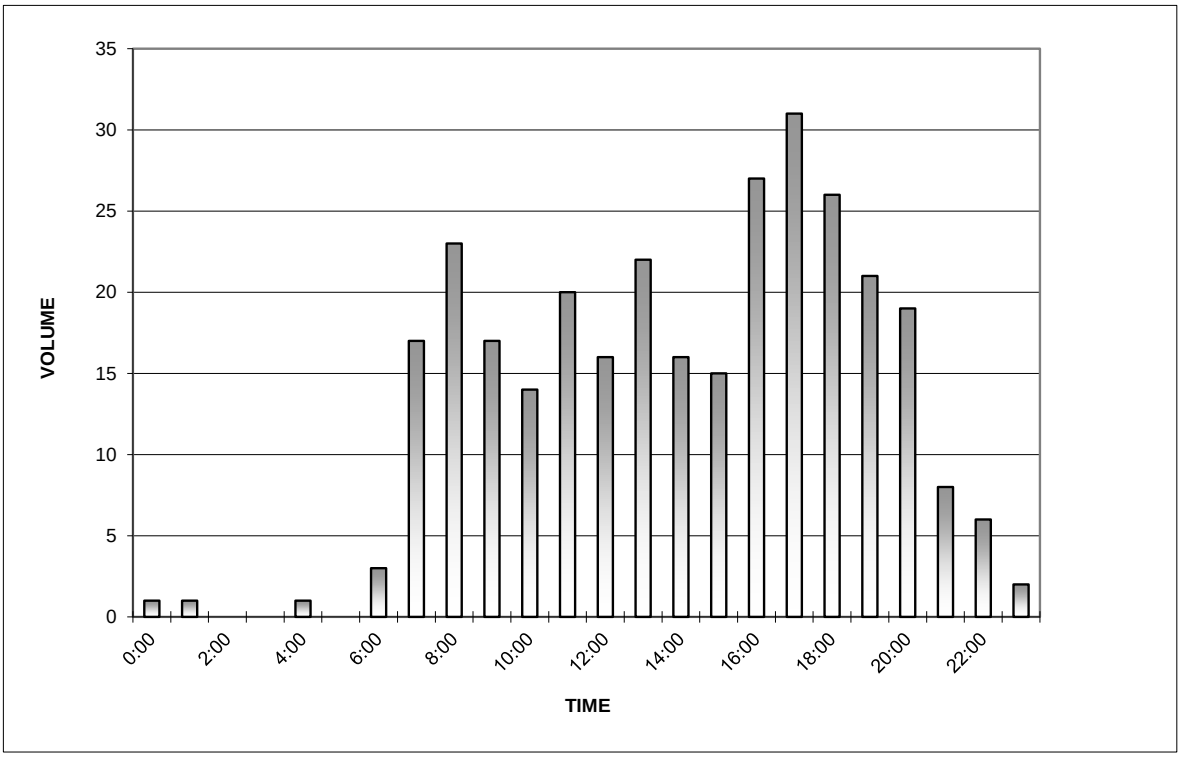
# CEDAR SPRINGS ROAD at WELBORN STREET

**EB Congress Avenue between Welborn Street and Hood Street (Day 1)**

Date Began:
2/18/2016

| TIME | 0:00 | 0:15 | 0:30 | 0:45 | TOTAL |
|---|---|---|---|---|---|
| 0:00 | 0 | 0 | 1 | 0 | 1 |
| 1:00 | 0 | 0 | 1 | 0 | 1 |
| 2:00 | 0 | 0 | 0 | 0 | 0 |
| 3:00 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 0 | 0 | 1 | 1 |
| 5:00 | 0 | 0 | 0 | 0 | 0 |
| 6:00 | 0 | 1 | 0 | 2 | 3 |
| 7:00 | 4 | 1 | 4 | 8 | 17 |
| 8:00 | 3 | 6 | 7 | 7 | 23 |
| 9:00 | 4 | 7 | 3 | 3 | 17 |
| 10:00 | 3 | 2 | 4 | 5 | 14 |
| 11:00 | 3 | 5 | 5 | 7 | 20 |
| 12:00 | 4 | 4 | 5 | 3 | 16 |
| 13:00 | 3 | 4 | 5 | 10 | 22 |
| 14:00 | 6 | 6 | 2 | 2 | 16 |
| 15:00 | 3 | 4 | 6 | 2 | 15 |
| 16:00 | 4 | 10 | 8 | 5 | 27 |
| 17:00 | 4 | 6 | 8 | 13 | 31 |
| 18:00 | 6 | 6 | 4 | 10 | 26 |
| 19:00 | 1 | 7 | 6 | 7 | 21 |
| 20:00 | 3 | 4 | 8 | 4 | 19 |
| 21:00 | 2 | 2 | 1 | 3 | 8 |
| 22:00 | 2 | 2 | 0 | 2 | 6 |
| 23:00 | 0 | 2 | 0 | 0 | 2 |
| | | | | TOTAL: | 306 |

| |
|---|
| The A.M. peak hour from 8:30 to 9:30 is 25 |
| The P.M. peak hour from 17:30 to 18:30 is 33 |

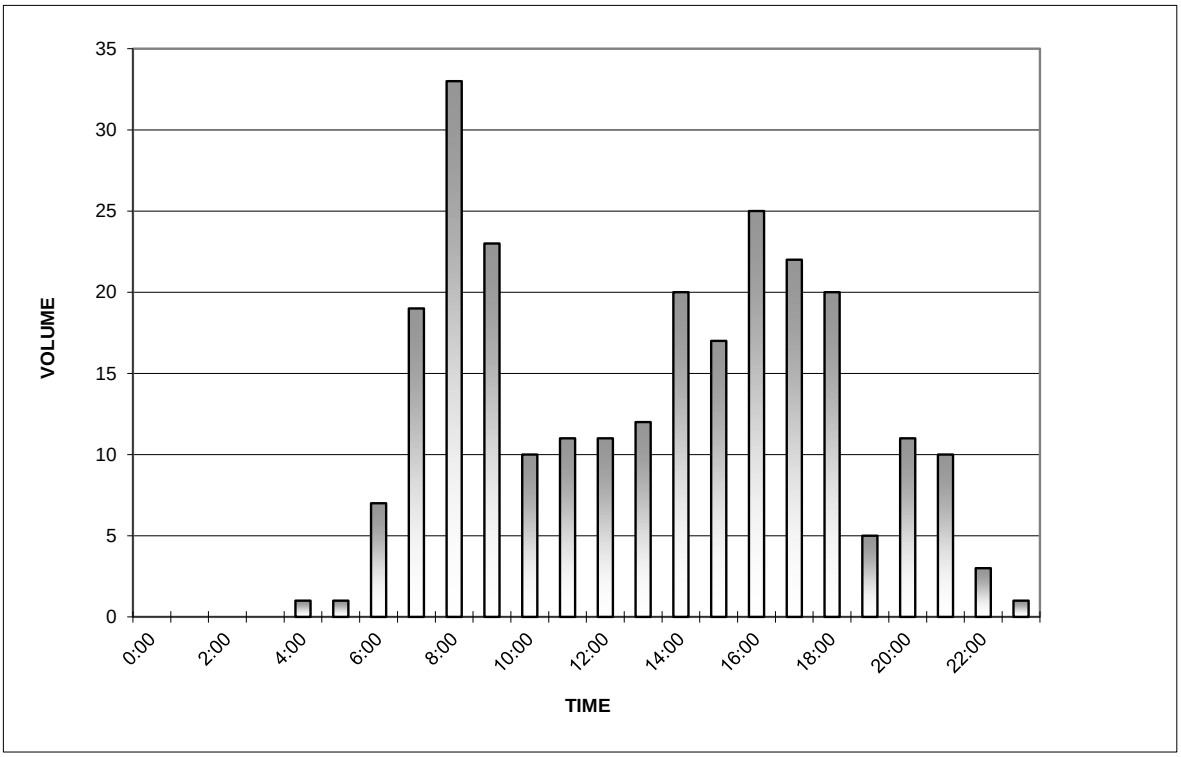


**WB Congress Avenue between Welborn Street and Hood Street (Day 1)**

Date Began:
2/18/2016

| TIME | 0:00 | 0:15 | 0:30 | 0:45 | TOTAL |
|---|---|---|---|---|---|
| 0:00 | 0 | 0 | 0 | 0 | 0 |
| 1:00 | 0 | 0 | 0 | 0 | 0 |
| 2:00 | 0 | 0 | 0 | 0 | 0 |
| 3:00 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 1 | 0 | 0 | 1 |
| 5:00 | 0 | 0 | 0 | 1 | 1 |
| 6:00 | 0 | 0 | 2 | 5 | 7 |
| 7:00 | 6 | 4 | 5 | 4 | 19 |
| 8:00 | 12 | 7 | 8 | 6 | 33 |
| 9:00 | 8 | 4 | 5 | 6 | 23 |
| 10:00 | 2 | 2 | 4 | 2 | 10 |
| 11:00 | 4 | 1 | 3 | 3 | 11 |
| 12:00 | 5 | 0 | 4 | 2 | 11 |
| 13:00 | 3 | 6 | 1 | 2 | 12 |
| 14:00 | 10 | 4 | 1 | 5 | 20 |
| 15:00 | 6 | 3 | 4 | 4 | 17 |
| 16:00 | 8 | 5 | 6 | 6 | 25 |
| 17:00 | 7 | 7 | 2 | 6 | 22 |
| 18:00 | 8 | 5 | 4 | 3 | 20 |
| 19:00 | 0 | 3 | 1 | 1 | 5 |
| 20:00 | 7 | 2 | 0 | 2 | 11 |
| 21:00 | 5 | 0 | 4 | 1 | 10 |
| 22:00 | 0 | 0 | 3 | 0 | 3 |
| 23:00 | 0 | 1 | 0 | 0 | 1 |
| | | | | TOTAL: | 262 |

| |
|---|
| The A.M. peak hour from 8:00 to 9:00 is 33 |
| The P.M. peak hour from 16:30 to 17:30 is 26 |

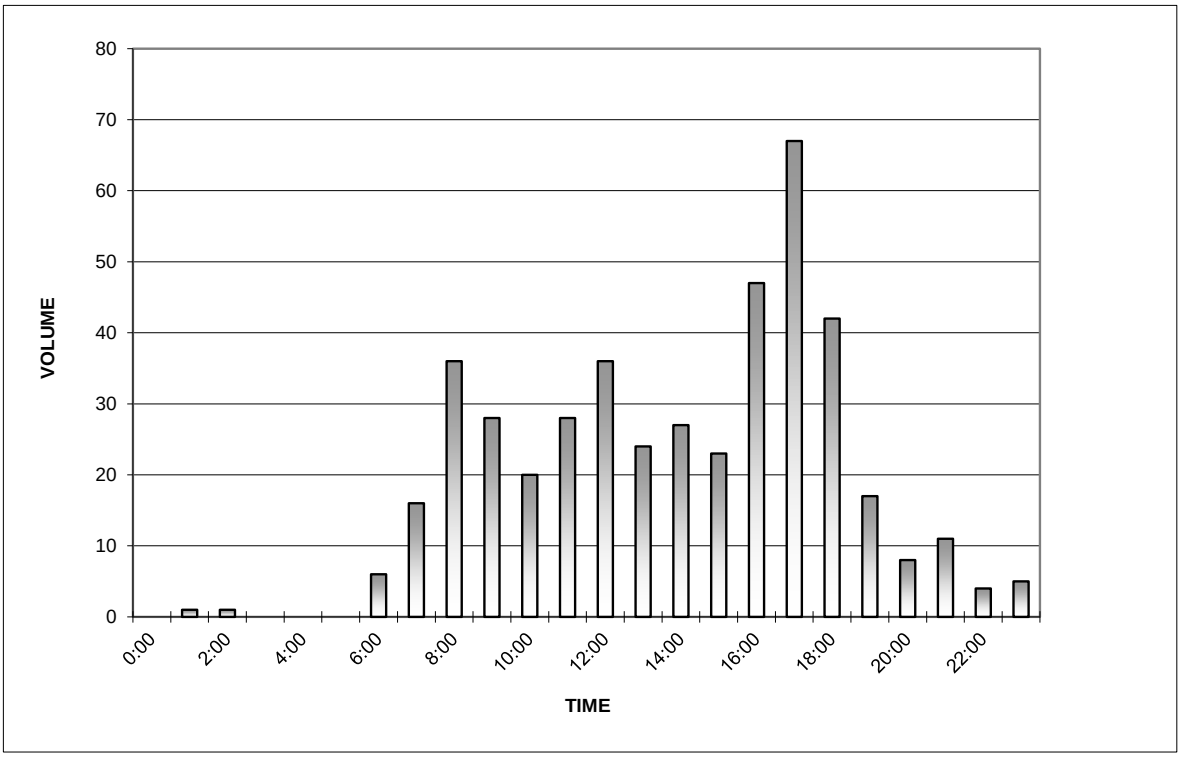


**NB Welborn Street between Brown Street and Congress Avenue (Day 1)**

Date Began:
2/18/2016

| TIME | 0:00 | 0:15 | 0:30 | 0:45 | TOTAL |
|---|---|---|---|---|---|
| 0:00 | 0 | 0 | 0 | 0 | 0 |
| 1:00 | 0 | 1 | 0 | 0 | 1 |
| 2:00 | 0 | 1 | 0 | 0 | 1 |
| 3:00 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 0 | 0 | 0 | 0 |
| 5:00 | 0 | 0 | 0 | 0 | 0 |
| 6:00 | 0 | 1 | 1 | 4 | 6 |
| 7:00 | 4 | 5 | 4 | 3 | 16 |
| 8:00 | 10 | 6 | 9 | 11 | 36 |
| 9:00 | 9 | 4 | 8 | 7 | 28 |
| 10:00 | 9 | 4 | 3 | 4 | 20 |
| 11:00 | 4 | 4 | 9 | 11 | 28 |
| 12:00 | 7 | 9 | 10 | 10 | 36 |
| 13:00 | 6 | 8 | 7 | 3 | 24 |
| 14:00 | 4 | 11 | 8 | 4 | 27 |
| 15:00 | 6 | 6 | 7 | 4 | 23 |
| 16:00 | 10 | 16 | 9 | 12 | 47 |
| 17:00 | 12 | 13 | 18 | 24 | 67 |
| 18:00 | 10 | 14 | 11 | 7 | 42 |
| 19:00 | 4 | 7 | 5 | 1 | 17 |
| 20:00 | 6 | 1 | 1 | 0 | 8 |
| 21:00 | 2 | 0 | 4 | 5 | 11 |
| 22:00 | 2 | 0 | 2 | 0 | 4 |
| 23:00 | 2 | 1 | 2 | 0 | 5 |
| | | | | TOTAL: | 447 |

| |
|---|
| The A.M. peak hour from 8:00 to 9:00 is 36 |
| The P.M. peak hour from 17:00 to 18:00 is 67 |

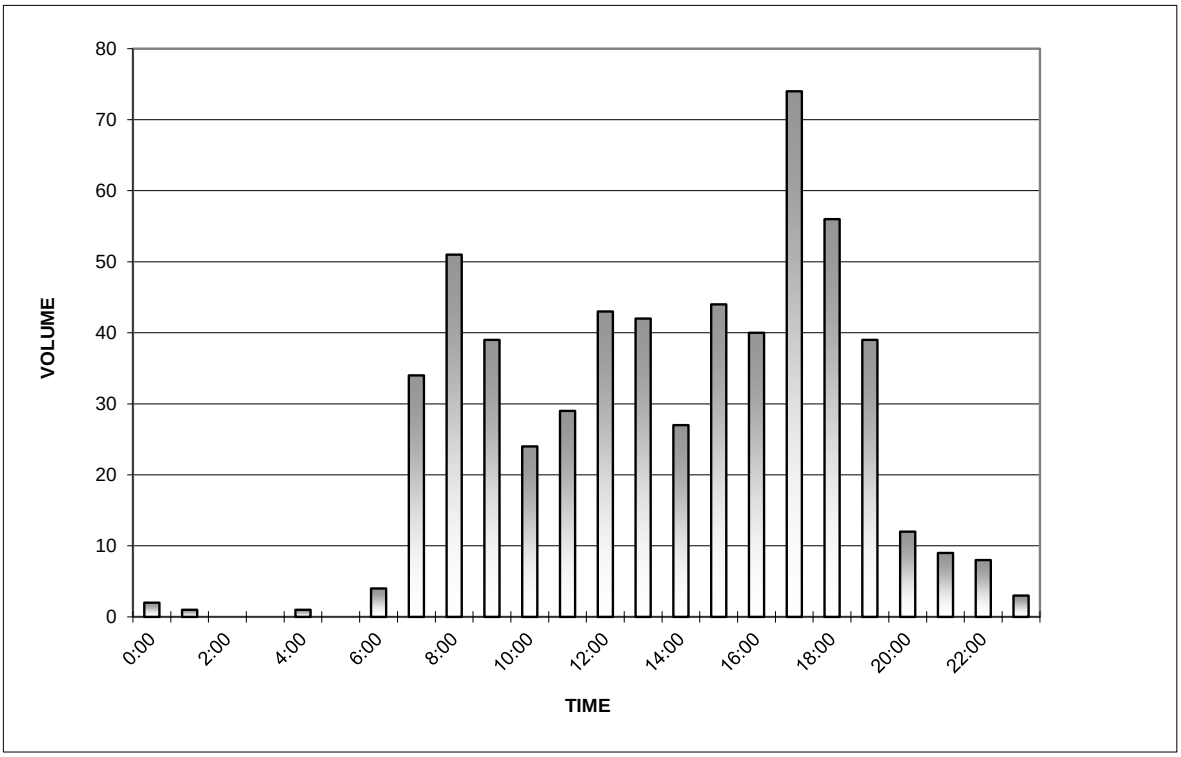


**SB Welborn Street between Brown Street and Congress Avenue (Day 1)**

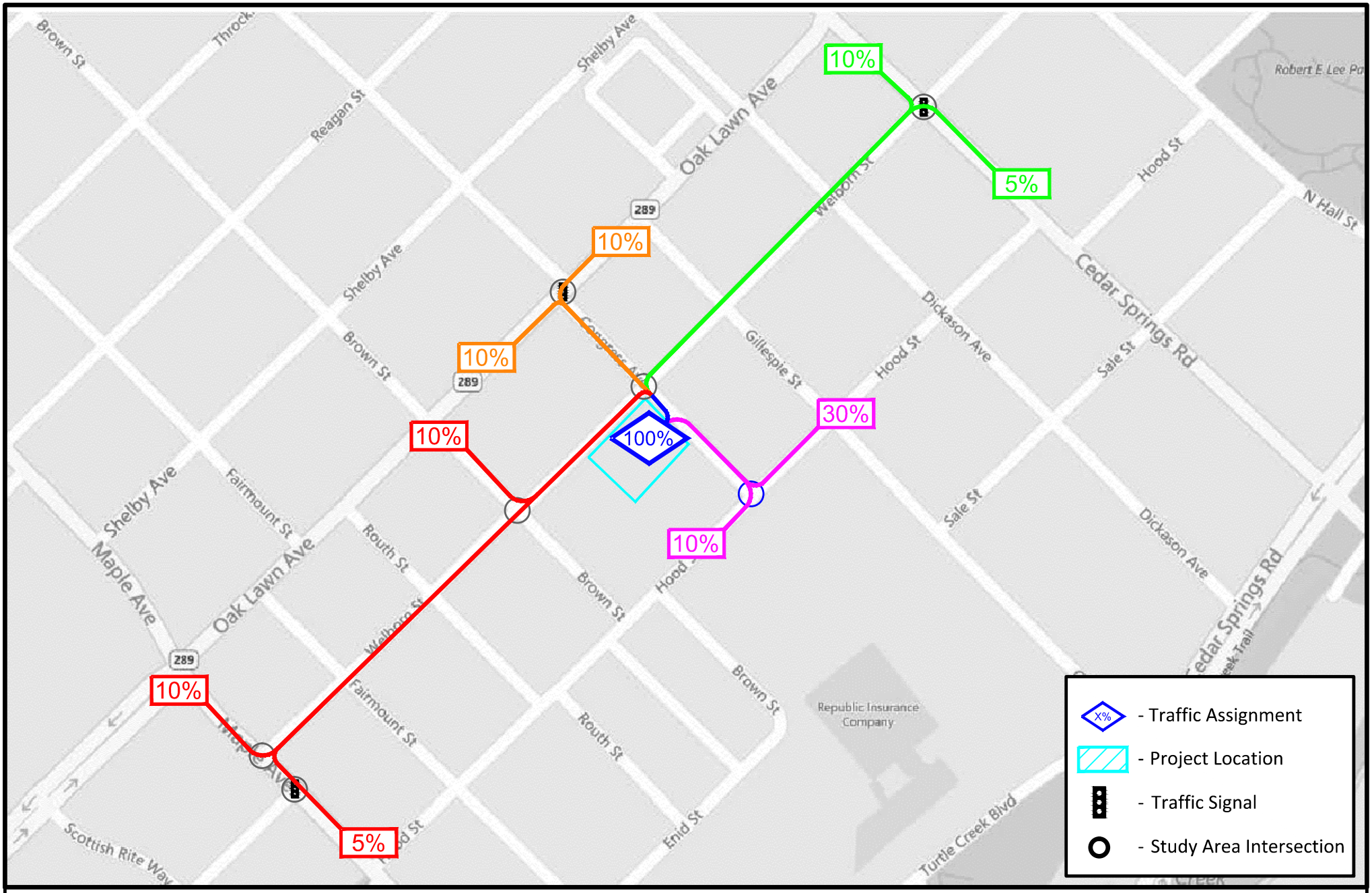
Date Began:
2/18/2016

| TIME | 0:00 | 0:15 | 0:30 | 0:45 | TOTAL |
|---|---|---|---|---|---|
| 0:00 | 0 | 0 | 2 | 0 | 2 |
| 1:00 | 0 | 1 | 0 | 0 | 1 |
| 2:00 | 0 | 0 | 0 | 0 | 0 |
| 3:00 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 1 | 0 | 0 | 1 |
| 5:00 | 0 | 0 | 0 | 0 | 0 |
| 6:00 | 2 | 0 | 0 | 2 | 4 |
| 7:00 | 4 | 10 | 8 | 12 | 34 |
| 8:00 | 10 | 15 | 15 | 11 | 51 |
| 9:00 | 18 | 7 | 3 | 11 | 39 |
| 10:00 | 4 | 7 | 9 | 4 | 24 |
| 11:00 | 4 | 4 | 7 | 14 | 29 |
| 12:00 | 11 | 13 | 8 | 11 | 43 |
| 13:00 | 16 | 12 | 6 | 8 | 42 |
| 14:00 | 7 | 8 | 5 | 7 | 27 |
| 15:00 | 12 | 10 | 11 | 11 | 44 |
| 16:00 | 10 | 9 | 12 | 9 | 40 |
| 17:00 | 17 | 20 | 19 | 18 | 74 |
| 18:00 | 17 | 19 | 15 | 5 | 56 |
| 19:00 | 10 | 8 | 14 | 7 | 39 |
| 20:00 | 2 | 4 | 3 | 3 | 12 |
| 21:00 | 3 | 4 | 0 | 2 | 9 |
| 22:00 | 2 | 3 | 0 | 3 | 8 |
| 23:00 | 2 | 0 | 1 | 0 | 3 |
| | | | | TOTAL: | 582 |

| |
|---|
| The A.M. peak hour from 8:15 to 9:15 is 59 |
| The P.M. peak hour from 17:15 to 18:15 is 74 |



Appendix C.  Site-Generated Traffic Supplement



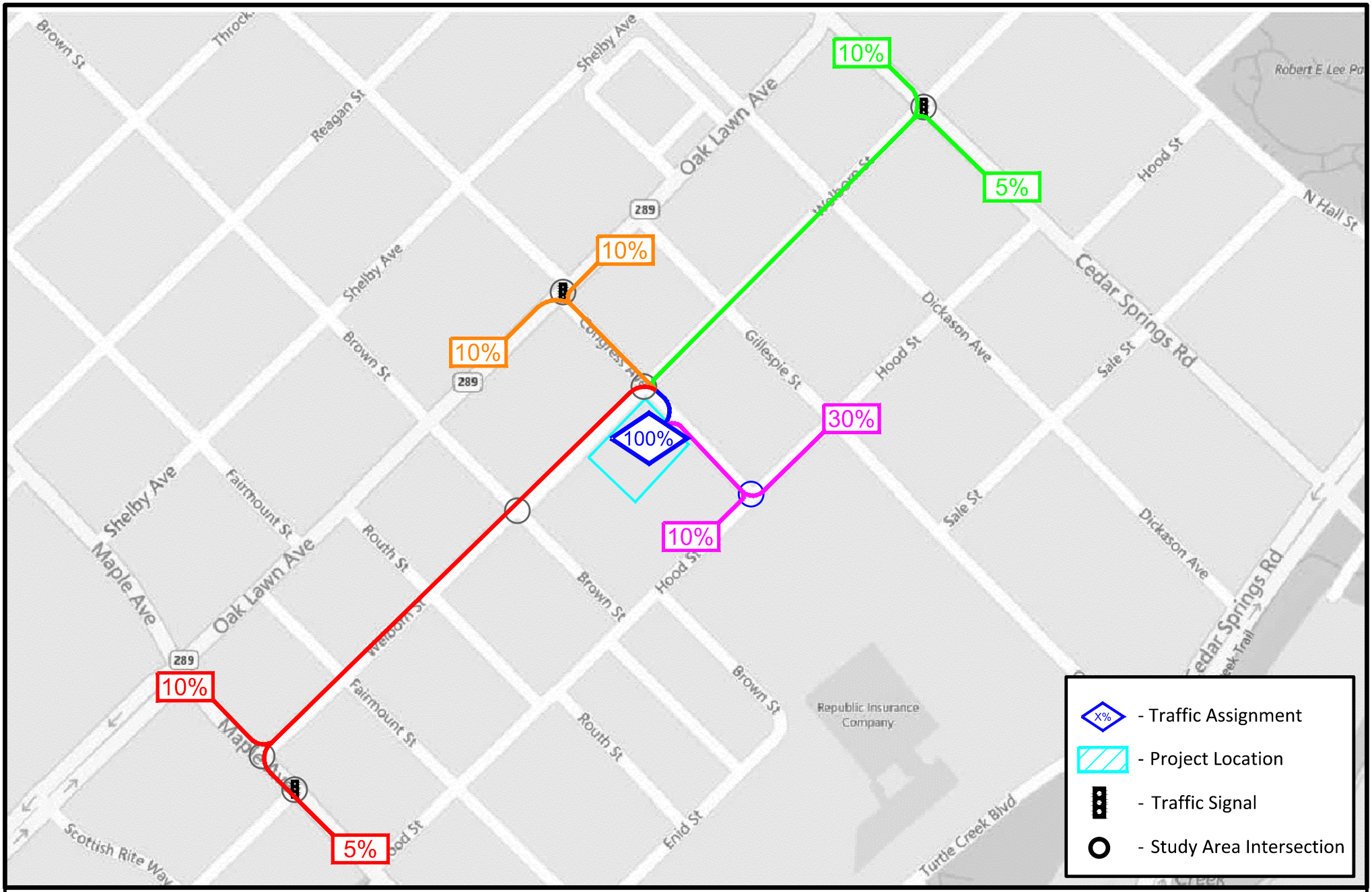

# Site Generated Trip Distribution - Inbound

*PK #3784-16.076 (HWL: 03/07/2016)*

*Congress-Welborn Multifamily*
*Dallas, Texas*

Pacheco Koch

APPENDIX **C1**




# Site Generated Trip Distribution - Outbound

*PK #3784-16.076 (HWL: 03/07/2016)*

*Congress-Welborn Multifamily*
*Dallas, Texas*

Pacheco Koch

APPENDIX **C2**

## Trip Generation Summary

Alternative: Alternative 1
Phase:
Project: Congress-Welborn Multi-Family

Open Date: 2/25/2016
Analysis Date: 2/25/2016

| ITE | Land Use | | Weekday Average Daily Trips | | | Weekday AM Peak Hour of Adjacent Street Traffic | | | Weekday PM Peak Hour of Adjacent Street Traffic | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | * | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total |
| 222 | HRAPT 1 | | 701 | 700 | 1401 | 23 | 69 | 92 | 67 | 43 | 110 |
| | 304 Dwelling Units | | | | | | | | | | |
| Unadjusted Volume | | | 701 | 700 | 1401 | 23 | 69 | 92 | 67 | 43 | 110 |
| Internal Capture Trips | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-By Trips | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Added to Adjacent Streets | | | 701 | 700 | 1401 | 23 | 69 | 92 | 67 | 43 | 110 |

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

Appendix D.  Detailed Intersection Capacity Analysis Results

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 1315 | 17 | 16 | 1407 | 23 | 47 | 8 | 20 | 36 | 6 | 26 |
| Future Volume (vph) | 15 | 1315 | 17 | 16 | 1407 | 23 | 47 | 8 | 20 | 36 | 6 | 26 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 15 | 1356 | 18 | 16 | 1451 | 24 | 48 | 8 | 21 | 37 | 6 | 27 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 15 | 1374 | 0 | 16 | 1475 | 0 | 0 | 77 | 0 | 0 | 70 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 105.0 | 105.0 | | 105.0 | 105.0 | | 15.0 | 15.0 | | 15.0 | 15.0 | |
| Total Split (%) | 87.5% | 87.5% | | 87.5% | 87.5% | | 12.5% | 12.5% | | 12.5% | 12.5% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | 100.5 | 100.5 | | 100.5 | 100.5 | | | 10.5 | | | 10.5 | |
| Actuated g/C Ratio | 0.84 | 0.84 | | 0.84 | 0.84 | | | 0.09 | | | 0.09 | |
| v/c Ratio | 0.06 | 0.46 | | 0.06 | 0.50 | | | 0.59 | | | 0.49 | |
| Control Delay | 2.2 | 3.1 | | 2.1 | 3.4 | | | 63.1 | | | 50.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 2.2 | 3.1 | | 2.1 | 3.4 | | | 63.1 | | | 50.3 | |
| LOS | A | A | | A | A | | | E | | | D | |
| Approach Delay | | 3.1 | | | 3.3 | | | 63.1 | | | 50.3 | |
| Approach LOS | | A | | | A | | | E | | | D | |
| Queue Length 50th (ft) | 2 | 110 | | 2 | 124 | | | 49 | | | 37 | |
| Queue Length 95th (ft) | 5 | 133 | | 5 | 151 | | | #111 | | | 86 | |
| Internal Link Dist (ft) | | 310 | | | 325 | | | 246 | | | 300 | |
| Turn Bay Length (ft) | 50 | | | 50 | | | | | | | | |
| Base Capacity (vph) | 249 | 2958 | | 280 | 2959 | | | 131 | | | 142 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.06 | 0.46 | | 0.06 | 0.50 | | | 0.59 | | | 0.49 | |

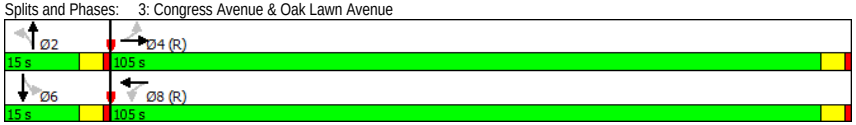
| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.59 | |
| Intersection Signal Delay: 5.9 | Intersection LOS: A |
| Intersection Capacity Utilization 52.7% | ICU Level of Service A |
| Analysis Period (min) 15 | |
| # 95th percentile volume exceeds capacity, queue may be longer. | |





Queue shown is maximum after two cycles.

Splits and Phases: 3: Congress Avenue & Oak Lawn Avenue



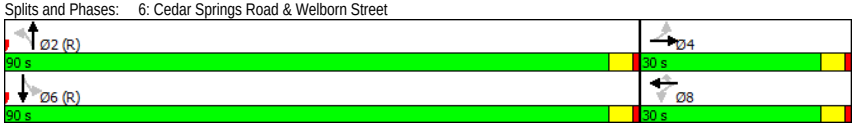
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 6 | 23 | 3 | 19 | 32 | 112 | 19 | 569 | 70 | 120 | 358 | 4 |
| Future Volume (vph) | 6 | 23 | 3 | 19 | 32 | 112 | 19 | 569 | 70 | 120 | 358 | 4 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 7 | 26 | 3 | 21 | 36 | 124 | 21 | 632 | 78 | 133 | 398 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 36 | 0 | 0 | 57 | 124 | 0 | 731 | 0 | 0 | 535 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 90.0 | 90.0 | | 90.0 | 90.0 | |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 75.0% | 75.0% | | 75.0% | 75.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.5 | | | 4.5 | 4.5 | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 25.5 | | | 25.5 | 25.5 | | 85.5 | | | 85.5 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | 0.21 | | 0.71 | | | 0.71 | |
| v/c Ratio | | 0.10 | | | 0.16 | 0.29 | | 0.32 | | | 0.33 | |
| Control Delay | | 36.4 | | | 40.0 | 8.6 | | 6.5 | | | 7.1 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 36.4 | | | 40.0 | 8.6 | | 6.5 | | | 7.1 | |
| LOS | | D | | | D | A | | A | | | A | |
| Approach Delay | | 36.4 | | | 18.5 | | | 6.5 | | | 7.1 | |
| Approach LOS | | D | | | B | | | A | | | A | |
| Queue Length 50th (ft) | | 21 | | | 36 | 0 | | 94 | | | 73 | |
| Queue Length 95th (ft) | | 50 | | | 74 | 50 | | 121 | | | 98 | |
| Internal Link Dist (ft) | | 973 | | | 57 | | | 331 | | | 209 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 378 | | | 359 | 434 | | 2315 | | | 1605 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.10 | | | 0.16 | 0.29 | | 0.32 | | | 0.33 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 45 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.33 | |
| Intersection Signal Delay: 8.9 | Intersection LOS: A |
| Intersection Capacity Utilization 49.9% | ICU Level of Service A |
| Analysis Period (min) 15 | |





Splits and Phases: 6: Cedar Springs Road & Welborn Street



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 12 | 10 | 105 | 1048 | 742 | 54 |
| Future Volume (vph) | 12 | 10 | 105 | 1048 | 742 | 54 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 13 | 11 | 113 | 1127 | 798 | 58 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 13 | 11 | 0 | 1240 | 856 | 0 |
| Turn Type | Prot | Perm | Perm | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Minimum Split (s) | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | |
| Total Split (s) | 13.0 | 13.0 | 47.0 | 47.0 | 47.0 | |
| Total Split (%) | 21.7% | 21.7% | 78.3% | 78.3% | 78.3% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Act Effct Green (s) | 8.5 | 8.5 | | 42.5 | 42.5 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.71 | 0.71 | |
| v/c Ratio | 0.05 | 0.05 | | 0.63 | 0.34 | |
| Control Delay | 22.9 | 13.5 | | 6.4 | 3.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.9 | 13.5 | | 6.4 | 3.7 | |
| LOS | C | B | | A | A | |
| Approach Delay | 18.6 | | | 6.4 | 3.7 | |
| Approach LOS | B | | | A | A | |
| Queue Length 50th (ft) | 4 | 0 | | 94 | 45 | |
| Queue Length 95th (ft) | 17 | 12 | | 142 | 65 | |
| Internal Link Dist (ft) | 266 | | | 161 | 47 | |
| Turn Bay Length (ft) | 90 | | | | | |
| Base Capacity (vph) | 250 | 233 | | 1967 | 2490 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.05 | 0.05 | | 0.63 | 0.34 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 60 | |
| Actuated Cycle Length: 60 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.63 | |
| Intersection Signal Delay: 5.4 | Intersection LOS: A |
| Intersection Capacity Utilization 69.7% | ICU Level of Service C |
| Analysis Period (min) 15 | |





Splits and Phases: 7: Maple Avenue & Welborn Street

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 2 | 77 | 1058 | 3 | 13 | 784 |
| Future Vol, veh/h | 2 | 77 | 1058 | 3 | 13 | 784 |
| 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 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 82 | 1126 | 3 | 14 | 834 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1572 | 564 | 0 | 0 | 1129 | 0 |
| Stage 1 | 1127 | - | - | - | - | - |
| Stage 2 | 445 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 101 | 469 | - | - | 615 | - |
| Stage 1 | 271 | - | - | - | - | - |
| Stage 2 | 613 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 97 | 469 | - | - | 615 | - |
| Mov Cap-2 Maneuver | 97 | - | - | - | - | - |
| Stage 1 | 271 | - | - | - | - | - |
| Stage 2 | 587 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 15.5 | 0 | 0.4 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 427 | 615 | - |
| HCM Lane V/C Ratio | - | - | 0.197 | 0.022 | - |
| HCM Control Delay (s) | - | - | 15.5 | 11 | 0.2 |
| HCM Lane LOS | - | - | C | B | A |
| HCM 95th %tile Q(veh) | - | - | 0.7 | 0.1 | - |





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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 11 | 70 | 73 | 17 | 8 | 11 |
| Future Vol, veh/h | 11 | 70 | 73 | 17 | 8 | 11 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 77 | 80 | 19 | 9 | 12 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 99 | 0 | - | 0 | 191 | 90 |
| Stage 1 | - | - | - | - | 90 | - |
| Stage 2 | - | - | - | - | 101 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1494 | - | - | - | 798 | 968 |
| Stage 1 | - | - | - | - | 934 | - |
| Stage 2 | - | - | - | - | 923 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1494 | - | - | - | 792 | 968 |
| Mov Cap-2 Maneuver | - | - | - | - | 792 | - |
| Stage 1 | - | - | - | - | 934 | - |
| Stage 2 | - | - | - | - | 916 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1 | 0 | 9.2 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1494 | - | - | - | 885 |
| HCM Lane V/C Ratio | 0.008 | - | - | - | 0.024 |
| HCM Control Delay (s) | 7.4 | 0 | - | - | 9.2 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.2 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 4 | 16 | 1 | 0 | 0 | 37 | 7 | 0 | 2 | 8 | 0 |
| Future Vol, veh/h | 0 | 4 | 16 | 1 | 0 | 0 | 37 | 7 | 0 | 2 | 8 | 0 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 5 | 20 | 1 | 0 | 0 | 46 | 9 | 0 | 2 | 10 | 0 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.2 | 7.2 | 7.2 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 20% | 19% | 0% | 42% |
| Vol Thru, % | 80% | 76% | 84% | 25% |
| Vol Right, % | 0% | 5% | 16% | 33% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 10 | 21 | 44 | 12 |
| LT Vol | 2 | 4 | 0 | 5 |
| Through Vol | 8 | 16 | 37 | 3 |
| RT Vol | 0 | 1 | 7 | 4 |
| Lane Flow Rate | 12 | 26 | 54 | 15 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.014 | 0.029 | 0.059 | 0.016 |
| Departure Headway (Hd) | 4.124 | 4.031 | 3.905 | 3.965 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 866 | 889 | 919 | 900 |
| Service Time | 2.159 | 2.052 | 1.922 | 2.001 |
| HCM Lane V/C Ratio | 0.014 | 0.029 | 0.059 | 0.017 |
| HCM Control Delay | 7.2 | 7.2 | 7.2 | 7.1 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0 | 0.1 | 0.2 | 0 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 5 | 3 | 4 |
| Future Vol, veh/h | 0 | 5 | 3 | 4 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 6 | 4 | 5 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.1 |
| HCM LOS | A |

| Lane |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.2 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 7 | 16 | 0 | 0 | 2 | 34 | 30 | 0 | 2 | 27 | 2 |
| Future Vol, veh/h | 0 | 7 | 16 | 0 | 0 | 2 | 34 | 30 | 0 | 2 | 27 | 2 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 8 | 17 | 0 | 0 | 2 | 37 | 33 | 0 | 2 | 29 | 2 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.3 | 7.2 | 7.3 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 6% | 30% | 3% | 21% |
| Vol Thru, % | 87% | 70% | 52% | 50% |
| Vol Right, % | 6% | 0% | 45% | 29% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 31 | 23 | 66 | 34 |
| LT Vol | 2 | 7 | 2 | 7 |
| Through Vol | 27 | 16 | 34 | 17 |
| RT Vol | 2 | 0 | 30 | 10 |
| Lane Flow Rate | 34 | 25 | 72 | 37 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.038 | 0.029 | 0.076 | 0.041 |
| Departure Headway (Hd) | 4.105 | 4.173 | 3.809 | 3.992 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 868 | 855 | 937 | 892 |
| Service Time | 2.149 | 2.215 | 1.846 | 2.036 |
| HCM Lane V/C Ratio | 0.039 | 0.029 | 0.077 | 0.041 |
| HCM Control Delay | 7.3 | 7.3 | 7.2 | 7.2 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.1 | 0.2 | 0.1 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 7 | 17 | 10 |
| Future Vol, veh/h | 0 | 7 | 17 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 8 | 18 | 11 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.2 |
| HCM LOS | A |

| Lane |
|---|

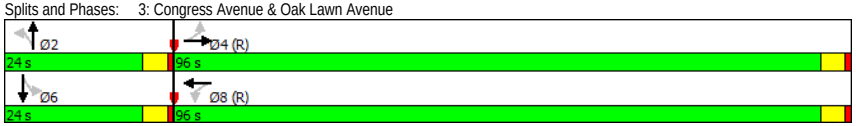
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 27 | 1355 | 23 | 16 | 1022 | 30 | 60 | 14 | 22 | 50 | 17 | 37 |
| Future Volume (vph) | 27 | 1355 | 23 | 16 | 1022 | 30 | 60 | 14 | 22 | 50 | 17 | 37 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 28 | 1397 | 24 | 16 | 1054 | 31 | 62 | 14 | 23 | 52 | 18 | 38 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 28 | 1421 | 0 | 16 | 1085 | 0 | 0 | 99 | 0 | 0 | 108 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 96.0 | 96.0 | | 96.0 | 96.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 80.0% | 80.0% | | 80.0% | 80.0% | | 20.0% | 20.0% | | 20.0% | 20.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | 91.5 | 91.5 | | 91.5 | 91.5 | | | 19.5 | | | 19.5 | |
| Actuated g/C Ratio | 0.76 | 0.76 | | 0.76 | 0.76 | | | 0.16 | | | 0.16 | |
| v/c Ratio | 0.08 | 0.53 | | 0.07 | 0.40 | | | 0.44 | | | 0.43 | |
| Control Delay | 4.3 | 6.5 | | 4.4 | 5.4 | | | 47.3 | | | 43.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 4.3 | 6.5 | | 4.4 | 5.4 | | | 47.3 | | | 43.1 | |
| LOS | A | A | | A | A | | | D | | | D | |
| Approach Delay | | 6.4 | | | 5.3 | | | 47.3 | | | 43.1 | |
| Approach LOS | | A | | | A | | | D | | | D | |
| Queue Length 50th (ft) | 5 | 195 | | 3 | 127 | | | 62 | | | 62 | |
| Queue Length 95th (ft) | 13 | 236 | | 9 | 157 | | | 119 | | | 121 | |
| Internal Link Dist (ft) | | 306 | | | 325 | | | 246 | | | 300 | |
| Turn Bay Length (ft) | 50 | | | 50 | | | | | | | | |
| Base Capacity (vph) | 337 | 2691 | | 220 | 2689 | | | 223 | | | 251 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.08 | 0.53 | | 0.07 | 0.40 | | | 0.44 | | | 0.43 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 24 (20%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.53 | |
| Intersection Signal Delay: 8.9 | Intersection LOS: A |
| Intersection Capacity Utilization 53.3% | ICU Level of Service A |
| Analysis Period (min) 15 | |





Splits and Phases: 3: Congress Avenue & Oak Lawn Avenue



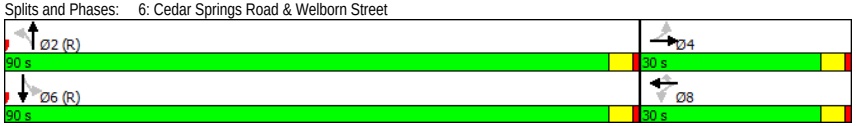
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 14 | 96 | 20 | 49 | 105 | 297 | 11 | 457 | 46 | 178 | 643 | 23 |
| Future Volume (vph) | 14 | 96 | 20 | 49 | 105 | 297 | 11 | 457 | 46 | 178 | 643 | 23 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 16 | 107 | 22 | 54 | 117 | 330 | 12 | 508 | 51 | 198 | 714 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 145 | 0 | 0 | 171 | 330 | 0 | 571 | 0 | 0 | 938 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 90.0 | 90.0 | | 90.0 | 90.0 | |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 75.0% | 75.0% | | 75.0% | 75.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.5 | | | 4.5 | 4.5 | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 25.5 | | | 25.5 | 25.5 | | 85.5 | | | 85.5 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | 0.21 | | 0.71 | | | 0.71 | |
| v/c Ratio | | 0.38 | | | 0.52 | 0.55 | | 0.25 | | | 0.54 | |
| Control Delay | | 42.0 | | | 48.6 | 8.1 | | 6.1 | | | 9.4 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 42.0 | | | 48.6 | 8.1 | | 6.1 | | | 9.4 | |
| LOS | | D | | | D | A | | A | | | A | |
| Approach Delay | | 42.0 | | | 21.9 | | | 6.1 | | | 9.4 | |
| Approach LOS | | D | | | C | | | A | | | A | |
| Queue Length 50th (ft) | | 92 | | | 118 | 0 | | 68 | | | 157 | |
| Queue Length 95th (ft) | | 156 | | | 192 | 79 | | 91 | | | 205 | |
| Internal Link Dist (ft) | | 973 | | | 57 | | | 331 | | | 209 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 377 | | | 326 | 596 | | 2320 | | | 1732 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.38 | | | 0.52 | 0.55 | | 0.25 | | | 0.54 | |

| Intersection Summary | | |
|---|---|---|
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120 | | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | | |
| Natural Cycle: 55 | | |
| Control Type: Pretimed | | |
| Maximum v/c Ratio: 0.55 | | |
| Intersection Signal Delay: 13.6 | Intersection LOS: B | |
| Intersection Capacity Utilization 64.2% | ICU Level of Service C | |
| Analysis Period (min) 15 | | |





Splits and Phases: 6: Cedar Springs Road & Welborn Street



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 31 | 61 | 2 | 832 | 1212 | 9 |
| Future Volume (vph) | 31 | 61 | 2 | 832 | 1212 | 9 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 33 | 66 | 2 | 895 | 1303 | 10 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 33 | 66 | 0 | 897 | 1313 | 0 |
| Turn Type | Prot | Perm | Perm | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Minimum Split (s) | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | |
| Total Split (s) | 22.0 | 22.0 | 98.0 | 98.0 | 98.0 | |
| Total Split (%) | 18.3% | 18.3% | 81.7% | 81.7% | 81.7% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Act Effct Green (s) | 17.5 | 17.5 | | 93.5 | 93.5 | |
| Actuated g/C Ratio | 0.15 | 0.15 | | 0.78 | 0.78 | |
| v/c Ratio | 0.13 | 0.23 | | 0.34 | 0.48 | |
| Control Delay | 46.2 | 12.8 | | 4.4 | 5.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 46.2 | 12.8 | | 4.4 | 5.3 | |
| LOS | D | B | | A | A | |
| Approach Delay | 23.9 | | | 4.4 | 5.3 | |
| Approach LOS | C | | | A | A | |
| Queue Length 50th (ft) | 23 | 0 | | 92 | 156 | |
| Queue Length 95th (ft) | 54 | 41 | | 114 | 190 | |
| Internal Link Dist (ft) | 266 | | | 161 | 47 | |
| Turn Bay Length (ft) | 90 | | | | | |
| Base Capacity (vph) | 258 | 287 | | 2628 | 2755 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.13 | 0.23 | | 0.34 | 0.48 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.48 | |
| Intersection Signal Delay: 5.7 | Intersection LOS: A |
| Intersection Capacity Utilization 45.5% | ICU Level of Service A |
| Analysis Period (min) 15 | |





Splits and Phases: 7: Maple Avenue & Welborn Street

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

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 8 | 67 | 852 | 14 | 54 | 1189 |
| Future Vol, veh/h | 8 | 67 | 852 | 14 | 54 | 1189 |
| 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 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 8 | 69 | 878 | 14 | 56 | 1226 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1610 | 446 | 0 | 0 | 893 | 0 |
| Stage 1 | 886 | - | - | - | - | - |
| Stage 2 | 724 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 95 | 560 | - | - | 755 | - |
| Stage 1 | 363 | - | - | - | - | - |
| Stage 2 | 441 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 73 | 560 | - | - | 755 | - |
| Mov Cap-2 Maneuver | 73 | - | - | - | - | - |
| Stage 1 | 363 | - | - | - | - | - |
| Stage 2 | 338 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 19.4 | 0 | 1.5 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 327 | 755 | - |
| HCM Lane V/C Ratio | - | - | 0.236 | 0.074 | - |
| HCM Control Delay (s) | - | - | 19.4 | 10.1 | 1.1 |
| HCM Lane LOS | - | - | C | B | A |
| HCM 95th %tile Q(veh) | - | - | 0.9 | 0.2 | - |





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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 8 | 71 | 95 | 14 | 12 | 17 |
| Future Vol, veh/h | 8 | 71 | 95 | 14 | 12 | 17 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 9 | 78 | 104 | 15 | 13 | 19 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 120 | 0 | - | 0 | 208 | 112 |
| Stage 1 | - | - | - | - | 112 | - |
| Stage 2 | - | - | - | - | 96 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1468 | - | - | - | 780 | 941 |
| Stage 1 | - | - | - | - | 913 | - |
| Stage 2 | - | - | - | - | 928 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1468 | - | - | - | 775 | 941 |
| Mov Cap-2 Maneuver | - | - | - | - | 775 | - |
| Stage 1 | - | - | - | - | 913 | - |
| Stage 2 | - | - | - | - | 922 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.8 | 0 | 9.3 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1468 | - | - | - | 864 |
| HCM Lane V/C Ratio | 0.006 | - | - | - | 0.037 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9.3 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.5 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 6 | 56 | 2 | 0 | 4 | 67 | 2 | 0 | 5 | 5 | 1 |
| Future Vol, veh/h | 0 | 6 | 56 | 2 | 0 | 4 | 67 | 2 | 0 | 5 | 5 | 1 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 7 | 69 | 2 | 0 | 5 | 83 | 2 | 0 | 6 | 6 | 1 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.5 | 7.6 | 7.5 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 45% | 9% | 5% | 40% |
| Vol Thru, % | 45% | 88% | 92% | 30% |
| Vol Right, % | 9% | 3% | 3% | 30% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 11 | 64 | 73 | 30 |
| LT Vol | 5 | 6 | 4 | 12 |
| Through Vol | 5 | 56 | 67 | 9 |
| RT Vol | 1 | 2 | 2 | 9 |
| Lane Flow Rate | 14 | 79 | 90 | 37 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.016 | 0.09 | 0.102 | 0.043 |
| Departure Headway (Hd) | 4.29 | 4.09 | 4.076 | 4.135 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 822 | 872 | 875 | 854 |
| Service Time | 2.38 | 2.137 | 2.121 | 2.219 |
| HCM Lane V/C Ratio | 0.017 | 0.091 | 0.103 | 0.043 |
| HCM Control Delay | 7.5 | 7.5 | 7.6 | 7.4 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0 | 0.3 | 0.3 | 0.1 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 12 | 9 | 9 |
| Future Vol, veh/h | 0 | 12 | 9 | 9 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 15 | 11 | 11 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.4 |
| HCM LOS | A |

| Lane |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.7 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 15 | 46 | 1 | 0 | 4 | 66 | 59 | 0 | 0 | 19 | 1 |
| Future Vol, veh/h | 0 | 15 | 46 | 1 | 0 | 4 | 66 | 59 | 0 | 0 | 19 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 16 | 50 | 1 | 0 | 4 | 72 | 64 | 0 | 0 | 21 | 1 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.7 | 7.6 | 7.5 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 0% | 24% | 3% | 43% |
| Vol Thru, % | 95% | 74% | 51% | 43% |
| Vol Right, % | 5% | 2% | 46% | 14% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 20 | 62 | 129 | 58 |
| LT Vol | 0 | 15 | 4 | 25 |
| Through Vol | 19 | 46 | 66 | 25 |
| RT Vol | 1 | 1 | 59 | 8 |
| Lane Flow Rate | 22 | 67 | 140 | 63 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.027 | 0.079 | 0.15 | 0.076 |
| Departure Headway (Hd) | 4.416 | 4.227 | 3.864 | 4.312 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 816 | 837 | 917 | 818 |
| Service Time | 2.416 | 2.305 | 1.935 | 2.404 |
| HCM Lane V/C Ratio | 0.027 | 0.08 | 0.153 | 0.077 |
| HCM Control Delay | 7.5 | 7.7 | 7.6 | 7.8 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.3 | 0.5 | 0.2 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 25 | 25 | 8 |
| Future Vol, veh/h | 0 | 25 | 25 | 8 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 27 | 27 | 9 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.8 |
| HCM LOS | A |

| Lane |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 16 | 1368 | 18 | 17 | 1464 | 24 | 49 | 8 | 21 | 37 | 6 | 27 |
| Future Volume (vph) | 16 | 1368 | 18 | 17 | 1464 | 24 | 49 | 8 | 21 | 37 | 6 | 27 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 16 | 1410 | 19 | 18 | 1509 | 25 | 51 | 8 | 22 | 38 | 6 | 28 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 16 | 1429 | 0 | 18 | 1534 | 0 | 0 | 81 | 0 | 0 | 72 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 105.0 | 105.0 | | 105.0 | 105.0 | | 15.0 | 15.0 | | 15.0 | 15.0 | |
| Total Split (%) | 87.5% | 87.5% | | 87.5% | 87.5% | | 12.5% | 12.5% | | 12.5% | 12.5% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | 100.5 | 100.5 | | 100.5 | 100.5 | | | 10.5 | | | 10.5 | |
| Actuated g/C Ratio | 0.84 | 0.84 | | 0.84 | 0.84 | | | 0.09 | | | 0.09 | |
| v/c Ratio | 0.07 | 0.48 | | 0.07 | 0.52 | | | 0.62 | | | 0.51 | |
| Control Delay | 2.4 | 3.3 | | 2.3 | 3.5 | | | 66.2 | | | 51.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 2.4 | 3.3 | | 2.3 | 3.5 | | | 66.2 | | | 51.3 | |
| LOS | A | A | | A | A | | | E | | | D | |
| Approach Delay | | 3.3 | | | 3.5 | | | 66.2 | | | 51.3 | |
| Approach LOS | | A | | | A | | | E | | | D | |
| Queue Length 50th (ft) | 2 | 118 | | 2 | 133 | | | 52 | | | 38 | |
| Queue Length 95th (ft) | 5 | 142 | | 6 | 160 | | | #121 | | | 88 | |
| Internal Link Dist (ft) | | 310 | | | 325 | | | 246 | | | 300 | |
| Turn Bay Length (ft) | 50 | | | 50 | | | | | | | | |
| Base Capacity (vph) | 232 | 2958 | | 263 | 2959 | | | 130 | | | 142 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.07 | 0.48 | | 0.07 | 0.52 | | | 0.62 | | | 0.51 | |

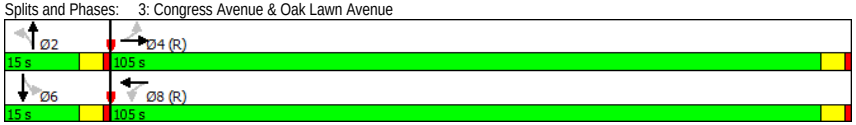
| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.62 | |
| Intersection Signal Delay: 6.1 | Intersection LOS: A |
| Intersection Capacity Utilization 54.6% | ICU Level of Service A |
| Analysis Period (min) 15 | |
| # 95th percentile volume exceeds capacity, queue may be longer. | |





Queue shown is maximum after two cycles.

Splits and Phases: 3: Congress Avenue & Oak Lawn Avenue



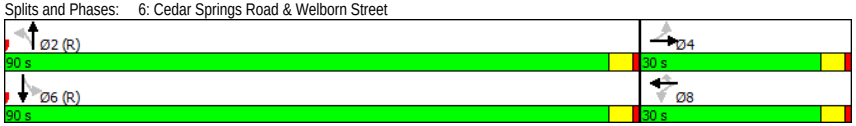
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 6 | 24 | 3 | 20 | 33 | 117 | 20 | 592 | 73 | 125 | 372 | 4 |
| Future Volume (vph) | 6 | 24 | 3 | 20 | 33 | 117 | 20 | 592 | 73 | 125 | 372 | 4 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 7 | 27 | 3 | 22 | 37 | 130 | 22 | 658 | 81 | 139 | 413 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 37 | 0 | 0 | 59 | 130 | 0 | 761 | 0 | 0 | 556 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 90.0 | 90.0 | | 90.0 | 90.0 | |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 75.0% | 75.0% | | 75.0% | 75.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.5 | | | 4.5 | 4.5 | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 25.5 | | | 25.5 | 25.5 | | 85.5 | | | 85.5 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | 0.21 | | 0.71 | | | 0.71 | |
| v/c Ratio | | 0.10 | | | 0.16 | 0.30 | | 0.33 | | | 0.35 | |
| Control Delay | | 36.5 | | | 40.1 | 8.5 | | 6.7 | | | 7.4 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 36.5 | | | 40.1 | 8.5 | | 6.7 | | | 7.4 | |
| LOS | | D | | | D | A | | A | | | A | |
| Approach Delay | | 36.5 | | | 18.4 | | | 6.7 | | | 7.4 | |
| Approach LOS | | D | | | B | | | A | | | A | |
| Queue Length 50th (ft) | | 21 | | | 38 | 0 | | 99 | | | 77 | |
| Queue Length 95th (ft) | | 51 | | | 76 | 52 | | 127 | | | 104 | |
| Internal Link Dist (ft) | | 973 | | | 57 | | | 331 | | | 209 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 378 | | | 358 | 438 | | 2312 | | | 1572 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.10 | | | 0.16 | 0.30 | | 0.33 | | | 0.35 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 45 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.35 | |
| Intersection Signal Delay: 9.1 | Intersection LOS: A |
| Intersection Capacity Utilization 51.2% | ICU Level of Service A |
| Analysis Period (min) 15 | |





Splits and Phases: 6: Cedar Springs Road & Welborn Street



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 12 | 10 | 109 | 1090 | 772 | 56 |
| Future Volume (vph) | 12 | 10 | 109 | 1090 | 772 | 56 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 13 | 11 | 117 | 1172 | 830 | 60 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 13 | 11 | 0 | 1289 | 890 | 0 |
| Turn Type | Prot | Perm | Perm | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Minimum Split (s) | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | |
| Total Split (s) | 13.0 | 13.0 | 47.0 | 47.0 | 47.0 | |
| Total Split (%) | 21.7% | 21.7% | 78.3% | 78.3% | 78.3% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Act Effct Green (s) | 8.5 | 8.5 | | 42.5 | 42.5 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.71 | 0.71 | |
| v/c Ratio | 0.05 | 0.05 | | 0.66 | 0.36 | |
| Control Delay | 22.9 | 13.5 | | 6.9 | 3.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.9 | 13.5 | | 6.9 | 3.8 | |
| LOS | C | B | | A | A | |
| Approach Delay | 18.6 | | | 6.9 | 3.8 | |
| Approach LOS | B | | | A | A | |
| Queue Length 50th (ft) | 4 | 0 | | 102 | 47 | |
| Queue Length 95th (ft) | 17 | 12 | | 154 | 68 | |
| Internal Link Dist (ft) | 266 | | | 161 | 47 | |
| Turn Bay Length (ft) | 90 | | | | | |
| Base Capacity (vph) | 250 | 233 | | 1947 | 2490 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.05 | 0.05 | | 0.66 | 0.36 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 60 | |
| Actuated Cycle Length: 60 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.66 | |
| Intersection Signal Delay: 5.7 | Intersection LOS: A |
| Intersection Capacity Utilization 71.8% | ICU Level of Service C |
| Analysis Period (min) 15 | |





Splits and Phases: 7: Maple Avenue & Welborn Street

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.9 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 2 | 80 | 1101 | 3 | 14 | 816 |
| Future Vol, veh/h | 2 | 80 | 1101 | 3 | 14 | 816 |
| 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 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 85 | 1171 | 3 | 15 | 868 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1637 | 587 | 0 | 0 | 1174 | 0 |
| Stage 1 | 1173 | - | - | - | - | - |
| Stage 2 | 464 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 91 | 453 | - | - | 591 | - |
| Stage 1 | 256 | - | - | - | - | - |
| Stage 2 | 599 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 87 | 453 | - | - | 591 | - |
| Mov Cap-2 Maneuver | 87 | - | - | - | - | - |
| Stage 1 | 256 | - | - | - | - | - |
| Stage 2 | 570 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 16.1 | 0 | 0.5 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 411 | 591 | - |
| HCM Lane V/C Ratio | - | - | 0.212 | 0.025 | - |
| HCM Control Delay (s) | - | - | 16.1 | 11.2 | 0.3 |
| HCM Lane LOS | - | - | C | B | A |
| HCM 95th %tile Q(veh) | - | - | 0.8 | 0.1 | - |





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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 11 | 73 | 76 | 18 | 8 | 11 |
| Future Vol, veh/h | 11 | 73 | 76 | 18 | 8 | 11 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 80 | 84 | 20 | 9 | 12 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 103 | 0 | - | 0 | 197 | 93 |
| Stage 1 | - | - | - | - | 93 | - |
| Stage 2 | - | - | - | - | 104 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1489 | - | - | - | 792 | 964 |
| Stage 1 | - | - | - | - | 931 | - |
| Stage 2 | - | - | - | - | 920 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1489 | - | - | - | 786 | 964 |
| Mov Cap-2 Maneuver | - | - | - | - | 786 | - |
| Stage 1 | - | - | - | - | 931 | - |
| Stage 2 | - | - | - | - | 913 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1 | 0 | 9.2 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1489 | - | - | - | 880 |
| HCM Lane V/C Ratio | 0.008 | - | - | - | 0.024 |
| HCM Control Delay (s) | 7.4 | 0 | - | - | 9.2 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.2 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 4 | 17 | 1 | 0 | 0 | 38 | 7 | 0 | 2 | 8 | 0 |
| Future Vol, veh/h | 0 | 4 | 17 | 1 | 0 | 0 | 38 | 7 | 0 | 2 | 8 | 0 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 5 | 21 | 1 | 0 | 0 | 47 | 9 | 0 | 2 | 10 | 0 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.2 | 7.2 | 7.2 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 20% | 18% | 0% | 42% |
| Vol Thru, % | 80% | 77% | 84% | 25% |
| Vol Right, % | 0% | 5% | 16% | 33% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 10 | 22 | 45 | 12 |
| LT Vol | 2 | 4 | 0 | 5 |
| Through Vol | 8 | 17 | 38 | 3 |
| RT Vol | 0 | 1 | 7 | 4 |
| Lane Flow Rate | 12 | 27 | 56 | 15 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.014 | 0.03 | 0.06 | 0.016 |
| Departure Headway (Hd) | 4.128 | 4.031 | 3.908 | 3.969 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 865 | 889 | 918 | 899 |
| Service Time | 2.163 | 2.053 | 1.925 | 2.005 |
| HCM Lane V/C Ratio | 0.014 | 0.03 | 0.061 | 0.017 |
| HCM Control Delay | 7.2 | 7.2 | 7.2 | 7.1 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0 | 0.1 | 0.2 | 0 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 5 | 3 | 4 |
| Future Vol, veh/h | 0 | 5 | 3 | 4 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 6 | 4 | 5 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.1 |
| HCM LOS | A |

| Lane |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.3 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 7 | 17 | 0 | 0 | 2 | 35 | 31 | 0 | 2 | 28 | 2 |
| Future Vol, veh/h | 0 | 7 | 17 | 0 | 0 | 2 | 35 | 31 | 0 | 2 | 28 | 2 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 8 | 18 | 0 | 0 | 2 | 38 | 34 | 0 | 2 | 30 | 2 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.4 | 7.2 | 7.3 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 6% | 29% | 3% | 20% |
| Vol Thru, % | 88% | 71% | 51% | 51% |
| Vol Right, % | 6% | 0% | 46% | 29% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 32 | 24 | 68 | 35 |
| LT Vol | 2 | 7 | 2 | 7 |
| Through Vol | 28 | 17 | 35 | 18 |
| RT Vol | 2 | 0 | 31 | 10 |
| Lane Flow Rate | 35 | 26 | 74 | 38 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.04 | 0.03 | 0.078 | 0.042 |
| Departure Headway (Hd) | 4.112 | 4.176 | 3.813 | 4.003 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 867 | 854 | 936 | 890 |
| Service Time | 2.156 | 2.22 | 1.852 | 2.048 |
| HCM Lane V/C Ratio | 0.04 | 0.03 | 0.079 | 0.043 |
| HCM Control Delay | 7.3 | 7.4 | 7.2 | 7.2 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.1 | 0.3 | 0.1 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 7 | 18 | 10 |
| Future Vol, veh/h | 0 | 7 | 18 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 8 | 20 | 11 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.2 |
| HCM LOS | A |

| Lane |
|---|

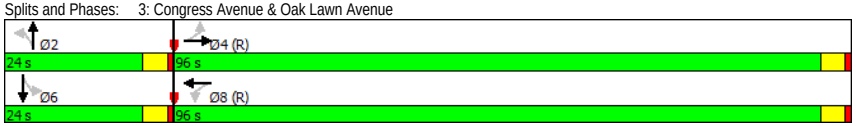
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 1410 | 24 | 17 | 1063 | 31 | 62 | 15 | 23 | 52 | 18 | 38 |
| Future Volume (vph) | 28 | 1410 | 24 | 17 | 1063 | 31 | 62 | 15 | 23 | 52 | 18 | 38 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 29 | 1454 | 25 | 18 | 1096 | 32 | 64 | 15 | 24 | 54 | 19 | 39 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 29 | 1479 | 0 | 18 | 1128 | 0 | 0 | 103 | 0 | 0 | 112 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 96.0 | 96.0 | | 96.0 | 96.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 80.0% | 80.0% | | 80.0% | 80.0% | | 20.0% | 20.0% | | 20.0% | 20.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | 91.5 | 91.5 | | 91.5 | 91.5 | | | 19.5 | | | 19.5 | |
| Actuated g/C Ratio | 0.76 | 0.76 | | 0.76 | 0.76 | | | 0.16 | | | 0.16 | |
| v/c Ratio | 0.09 | 0.55 | | 0.09 | 0.42 | | | 0.47 | | | 0.45 | |
| Control Delay | 4.4 | 6.7 | | 4.8 | 5.5 | | | 48.3 | | | 43.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 4.4 | 6.7 | | 4.8 | 5.5 | | | 48.3 | | | 43.9 | |
| LOS | A | A | | A | A | | | D | | | D | |
| Approach Delay | | 6.7 | | | 5.5 | | | 48.3 | | | 43.9 | |
| Approach LOS | | A | | | A | | | D | | | D | |
| Queue Length 50th (ft) | 5 | 208 | | 3 | 135 | | | 65 | | | 65 | |
| Queue Length 95th (ft) | 13 | 252 | | 10 | 166 | | | 124 | | | 125 | |
| Internal Link Dist (ft) | | 306 | | | 325 | | | 246 | | | 300 | |
| Turn Bay Length (ft) | 50 | | | 50 | | | | | | | | |
| Base Capacity (vph) | 321 | 2691 | | 204 | 2689 | | | 221 | | | 250 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.09 | 0.55 | | 0.09 | 0.42 | | | 0.47 | | | 0.45 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 24 (20%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.55 | |
| Intersection Signal Delay: 9.1 | Intersection LOS: A |
| Intersection Capacity Utilization 55.1% | ICU Level of Service B |
| Analysis Period (min) 15 | |





Splits and Phases: 3: Congress Avenue & Oak Lawn Avenue



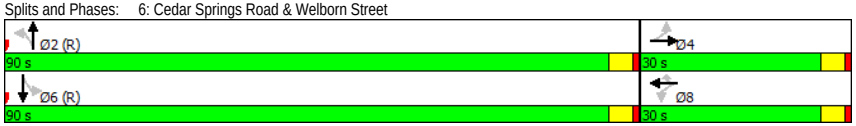
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 15 | 100 | 21 | 51 | 109 | 309 | 11 | 475 | 48 | 185 | 669 | 24 |
| Future Volume (vph) | 15 | 100 | 21 | 51 | 109 | 309 | 11 | 475 | 48 | 185 | 669 | 24 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 17 | 111 | 23 | 57 | 121 | 343 | 12 | 528 | 53 | 206 | 743 | 27 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 151 | 0 | 0 | 178 | 343 | 0 | 593 | 0 | 0 | 976 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 90.0 | 90.0 | | 90.0 | 90.0 | |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 75.0% | 75.0% | | 75.0% | 75.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.5 | | | 4.5 | 4.5 | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 25.5 | | | 25.5 | 25.5 | | 85.5 | | | 85.5 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | 0.21 | | 0.71 | | | 0.71 | |
| v/c Ratio | | 0.40 | | | 0.56 | 0.57 | | 0.26 | | | 0.57 | |
| Control Delay | | 42.5 | | | 50.0 | 8.1 | | 6.1 | | | 9.9 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 42.5 | | | 50.0 | 8.1 | | 6.1 | | | 9.9 | |
| LOS | | D | | | D | A | | A | | | A | |
| Approach Delay | | 42.5 | | | 22.4 | | | 6.1 | | | 9.9 | |
| Approach LOS | | D | | | C | | | A | | | A | |
| Queue Length 50th (ft) | | 97 | | | 124 | 0 | | 72 | | | 170 | |
| Queue Length 95th (ft) | | 163 | | | 201 | 80 | | 95 | | | 221 | |
| Internal Link Dist (ft) | | 973 | | | 57 | | | 331 | | | 209 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 376 | | | 318 | 606 | | 2320 | | | 1714 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.40 | | | 0.56 | 0.57 | | 0.26 | | | 0.57 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.57 | |
| Intersection Signal Delay: 14.0 | Intersection LOS: B |
| Intersection Capacity Utilization 69.5% | ICU Level of Service C |
| Analysis Period (min) 15 | |





Splits and Phases: 6: Cedar Springs Road & Welborn Street



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 32 | 63 | 2 | 866 | 1261 | 9 |
| Future Volume (vph) | 32 | 63 | 2 | 866 | 1261 | 9 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 34 | 68 | 2 | 931 | 1356 | 10 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 34 | 68 | 0 | 933 | 1366 | 0 |
| Turn Type | Prot | Perm | Perm | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Minimum Split (s) | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | |
| Total Split (s) | 22.0 | 22.0 | 98.0 | 98.0 | 98.0 | |
| Total Split (%) | 18.3% | 18.3% | 81.7% | 81.7% | 81.7% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Act Effct Green (s) | 17.5 | 17.5 | | 93.5 | 93.5 | |
| Actuated g/C Ratio | 0.15 | 0.15 | | 0.78 | 0.78 | |
| v/c Ratio | 0.13 | 0.24 | | 0.36 | 0.50 | |
| Control Delay | 46.2 | 12.8 | | 4.5 | 5.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 46.2 | 12.8 | | 4.5 | 5.5 | |
| LOS | D | B | | A | A | |
| Approach Delay | 24.0 | | | 4.5 | 5.5 | |
| Approach LOS | C | | | A | A | |
| Queue Length 50th (ft) | 23 | 0 | | 96 | 166 | |
| Queue Length 95th (ft) | 55 | 42 | | 120 | 202 | |
| Internal Link Dist (ft) | 266 | | | 161 | 47 | |
| Turn Bay Length (ft) | 90 | | | | | |
| Base Capacity (vph) | 258 | 288 | | 2628 | 2755 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.13 | 0.24 | | 0.36 | 0.50 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.50 | |
| Intersection Signal Delay: 5.9 | Intersection LOS: A |
| Intersection Capacity Utilization 46.8% | ICU Level of Service A |
| Analysis Period (min) 15 | |





Splits and Phases: 7: Maple Avenue & Welborn Street

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

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 8 | 70 | 886 | 15 | 56 | 1237 |
| Future Vol, veh/h | 8 | 70 | 886 | 15 | 56 | 1237 |
| 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 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 8 | 72 | 913 | 15 | 58 | 1275 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1674 | 464 | 0 | 0 | 929 | 0 |
| Stage 1 | 921 | - | - | - | - | - |
| Stage 2 | 753 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 86 | 545 | - | - | 732 | - |
| Stage 1 | 348 | - | - | - | - | - |
| Stage 2 | 426 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 63 | 545 | - | - | 732 | - |
| Mov Cap-2 Maneuver | 63 | - | - | - | - | - |
| Stage 1 | 348 | - | - | - | - | - |
| Stage 2 | 310 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 21 | 0 | 1.7 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 305 | 732 | - |
| HCM Lane V/C Ratio | - | - | 0.264 | 0.079 | - |
| HCM Control Delay (s) | - | - | 21 | 10.3 | 1.3 |
| HCM Lane LOS | - | - | C | B | A |
| HCM 95th %tile Q(veh) | - | - | 1 | 0.3 | - |





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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 8 | 74 | 99 | 15 | 12 | 18 |
| Future Vol, veh/h | 8 | 74 | 99 | 15 | 12 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 9 | 81 | 109 | 16 | 13 | 20 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 125 | 0 | - | 0 | 216 | 117 |
| Stage 1 | - | - | - | - | 117 | - |
| Stage 2 | - | - | - | - | 99 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1462 | - | - | - | 772 | 935 |
| Stage 1 | - | - | - | - | 908 | - |
| Stage 2 | - | - | - | - | 925 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1462 | - | - | - | 767 | 935 |
| Mov Cap-2 Maneuver | - | - | - | - | 767 | - |
| Stage 1 | - | - | - | - | 908 | - |
| Stage 2 | - | - | - | - | 919 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.7 | 0 | 9.4 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1462 | - | - | - | 860 |
| HCM Lane V/C Ratio | 0.006 | - | - | - | 0.038 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9.4 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.6 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 6 | 58 | 2 | 0 | 4 | 70 | 2 | 0 | 5 | 5 | 1 |
| Future Vol, veh/h | 0 | 6 | 58 | 2 | 0 | 4 | 70 | 2 | 0 | 5 | 5 | 1 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 7 | 72 | 2 | 0 | 5 | 86 | 2 | 0 | 6 | 6 | 1 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.6 | 7.6 | 7.5 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 45% | 9% | 5% | 40% |
| Vol Thru, % | 45% | 88% | 92% | 30% |
| Vol Right, % | 9% | 3% | 3% | 30% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 11 | 66 | 76 | 30 |
| LT Vol | 5 | 6 | 4 | 12 |
| Through Vol | 5 | 58 | 70 | 9 |
| RT Vol | 1 | 2 | 2 | 9 |
| Lane Flow Rate | 14 | 81 | 94 | 37 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.016 | 0.093 | 0.106 | 0.043 |
| Departure Headway (Hd) | 4.3 | 4.093 | 4.078 | 4.144 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 820 | 871 | 874 | 851 |
| Service Time | 2.394 | 2.14 | 2.124 | 2.232 |
| HCM Lane V/C Ratio | 0.017 | 0.093 | 0.108 | 0.043 |
| HCM Control Delay | 7.5 | 7.6 | 7.6 | 7.4 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0 | 0.3 | 0.4 | 0.1 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 12 | 9 | 9 |
| Future Vol, veh/h | 0 | 12 | 9 | 9 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 15 | 11 | 11 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.4 |
| HCM LOS | A |

| Lane |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.7 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 16 | 48 | 1 | 0 | 4 | 69 | 61 | 0 | 0 | 20 | 1 |
| Future Vol, veh/h | 0 | 16 | 48 | 1 | 0 | 4 | 69 | 61 | 0 | 0 | 20 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 17 | 52 | 1 | 0 | 4 | 75 | 66 | 0 | 0 | 22 | 1 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.7 | 7.7 | 7.6 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 0% | 25% | 3% | 43% |
| Vol Thru, % | 95% | 74% | 51% | 43% |
| Vol Right, % | 5% | 2% | 46% | 13% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 21 | 65 | 134 | 60 |
| LT Vol | 0 | 16 | 4 | 26 |
| Through Vol | 20 | 48 | 69 | 26 |
| RT Vol | 1 | 1 | 61 | 8 |
| Lane Flow Rate | 23 | 71 | 146 | 65 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.028 | 0.083 | 0.157 | 0.078 |
| Departure Headway (Hd) | 4.441 | 4.238 | 3.873 | 4.33 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 811 | 834 | 915 | 814 |
| Service Time | 2.441 | 2.319 | 1.946 | 2.429 |
| HCM Lane V/C Ratio | 0.028 | 0.085 | 0.16 | 0.08 |
| HCM Control Delay | 7.6 | 7.7 | 7.7 | 7.8 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.3 | 0.6 | 0.3 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 26 | 26 | 8 |
| Future Vol, veh/h | 0 | 26 | 26 | 8 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 28 | 28 | 9 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.8 |
| HCM LOS | A |

| Lane |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 16 | 1368 | 20 | 19 | 1464 | 24 | 63 | 8 | 28 | 37 | 6 | 27 |
| Future Volume (vph) | 16 | 1368 | 20 | 19 | 1464 | 24 | 63 | 8 | 28 | 37 | 6 | 27 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 16 | 1410 | 21 | 20 | 1509 | 25 | 65 | 8 | 29 | 38 | 6 | 28 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 16 | 1431 | 0 | 20 | 1534 | 0 | 0 | 102 | 0 | 0 | 72 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 105.0 | 105.0 | | 105.0 | 105.0 | | 15.0 | 15.0 | | 15.0 | 15.0 | |
| Total Split (%) | 87.5% | 87.5% | | 87.5% | 87.5% | | 12.5% | 12.5% | | 12.5% | 12.5% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | 100.5 | 100.5 | | 100.5 | 100.5 | | | 10.5 | | | 10.5 | |
| Actuated g/C Ratio | 0.84 | 0.84 | | 0.84 | 0.84 | | | 0.09 | | | 0.09 | |
| v/c Ratio | 0.07 | 0.48 | | 0.08 | 0.52 | | | 0.78 | | | 0.51 | |
| Control Delay | 2.4 | 3.3 | | 2.4 | 3.5 | | | 83.1 | | | 51.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 2.4 | 3.3 | | 2.4 | 3.5 | | | 83.1 | | | 51.8 | |
| LOS | A | A | | A | A | | | F | | | D | |
| Approach Delay | | 3.3 | | | 3.5 | | | 83.1 | | | 51.8 | |
| Approach LOS | | A | | | A | | | F | | | D | |
| Queue Length 50th (ft) | 2 | 118 | | 2 | 133 | | | 69 | | | 38 | |
| Queue Length 95th (ft) | 5 | 143 | | 6 | 160 | | | #166 | | | 88 | |
| Internal Link Dist (ft) | | 310 | | | 325 | | | 246 | | | 300 | |
| Turn Bay Length (ft) | 50 | | | 50 | | | | | | | | |
| Base Capacity (vph) | 232 | 2958 | | 262 | 2959 | | | 131 | | | 140 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.07 | 0.48 | | 0.08 | 0.52 | | | 0.78 | | | 0.51 | |

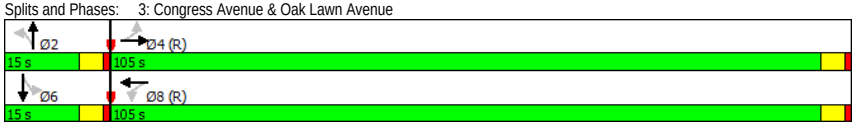
| Intersection Summary | | |
|---|---|---|
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120 | | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | | |
| Natural Cycle: 60 | | |
| Control Type: Pretimed | | |
| Maximum v/c Ratio: 0.78 | | |
| Intersection Signal Delay: 7.0 | Intersection LOS: A | |
| Intersection Capacity Utilization 56.2% | ICU Level of Service B | |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |





Queue shown is maximum after two cycles.

Splits and Phases: 3: Congress Avenue & Oak Lawn Avenue



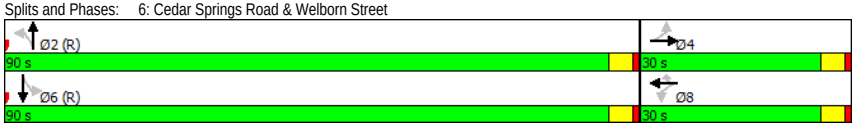
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 13 | 24 | 7 | 20 | 33 | 117 | 21 | 592 | 73 | 125 | 372 | 6 |
| Future Volume (vph) | 13 | 24 | 7 | 20 | 33 | 117 | 21 | 592 | 73 | 125 | 372 | 6 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 14 | 27 | 8 | 22 | 37 | 130 | 23 | 658 | 81 | 139 | 413 | 7 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 49 | 0 | 0 | 59 | 130 | 0 | 762 | 0 | 0 | 559 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 90.0 | 90.0 | | 90.0 | 90.0 | |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 75.0% | 75.0% | | 75.0% | 75.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.5 | | | 4.5 | 4.5 | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 25.5 | | | 25.5 | 25.5 | | 85.5 | | | 85.5 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | 0.21 | | 0.71 | | | 0.71 | |
| v/c Ratio | | 0.13 | | | 0.17 | 0.30 | | 0.33 | | | 0.36 | |
| Control Delay | | 35.1 | | | 40.1 | 8.5 | | 6.7 | | | 7.3 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 35.1 | | | 40.1 | 8.5 | | 6.7 | | | 7.3 | |
| LOS | | D | | | D | A | | A | | | A | |
| Approach Delay | | 35.1 | | | 18.4 | | | 6.7 | | | 7.3 | |
| Approach LOS | | D | | | B | | | A | | | A | |
| Queue Length 50th (ft) | | 26 | | | 38 | 0 | | 99 | | | 77 | |
| Queue Length 95th (ft) | | 61 | | | 76 | 52 | | 127 | | | 105 | |
| Internal Link Dist (ft) | | 973 | | | 57 | | | 331 | | | 209 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 365 | | | 357 | 438 | | 2307 | | | 1574 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.13 | | | 0.17 | 0.30 | | 0.33 | | | 0.36 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 45 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.36 | |
| Intersection Signal Delay: 9.2 | Intersection LOS: A |
| Intersection Capacity Utilization 53.7% | ICU Level of Service A |
| Analysis Period (min) 15 | |





Splits and Phases: 6: Cedar Springs Road & Welborn Street



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 12 | 10 | 109 | 1091 | 775 | 56 |
| Future Volume (vph) | 12 | 10 | 109 | 1091 | 775 | 56 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 13 | 11 | 117 | 1173 | 833 | 60 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 13 | 11 | 0 | 1290 | 893 | 0 |
| Turn Type | Prot | Perm | Perm | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Minimum Split (s) | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | |
| Total Split (s) | 13.0 | 13.0 | 47.0 | 47.0 | 47.0 | |
| Total Split (%) | 21.7% | 21.7% | 78.3% | 78.3% | 78.3% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Act Effct Green (s) | 8.5 | 8.5 | | 42.5 | 42.5 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.71 | 0.71 | |
| v/c Ratio | 0.05 | 0.05 | | 0.66 | 0.36 | |
| Control Delay | 22.9 | 13.5 | | 6.9 | 3.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.9 | 13.5 | | 6.9 | 3.8 | |
| LOS | C | B | | A | A | |
| Approach Delay | 18.6 | | | 6.9 | 3.8 | |
| Approach LOS | B | | | A | A | |
| Queue Length 50th (ft) | 4 | 0 | | 103 | 47 | |
| Queue Length 95th (ft) | 17 | 12 | | 155 | 69 | |
| Internal Link Dist (ft) | 266 | | | 161 | 47 | |
| Turn Bay Length (ft) | 90 | | | | | |
| Base Capacity (vph) | 250 | 233 | | 1945 | 2490 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.05 | 0.05 | | 0.66 | 0.36 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 60 | |
| Actuated Cycle Length: 60 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.66 | |
| Intersection Signal Delay: 5.8 | Intersection LOS: A |
| Intersection Capacity Utilization 71.9% | ICU Level of Service C |
| Analysis Period (min) 15 | |





Splits and Phases: 7: Maple Avenue & Welborn Street

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 6 | 87 | 1101 | 3 | 16 | 816 |
| Future Vol, veh/h | 6 | 87 | 1101 | 3 | 16 | 816 |
| 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 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 6 | 93 | 1171 | 3 | 17 | 868 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1641 | 587 | 0 | 0 | 1174 | 0 |
| Stage 1 | 1173 | - | - | - | - | - |
| Stage 2 | 468 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 91 | 453 | - | - | 591 | - |
| Stage 1 | 256 | - | - | - | - | - |
| Stage 2 | 597 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 86 | 453 | - | - | 591 | - |
| Mov Cap-2 Maneuver | 86 | - | - | - | - | - |
| Stage 1 | 256 | - | - | - | - | - |
| Stage 2 | 564 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 19 | 0 | 0.5 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 355 | 591 | - |
| HCM Lane V/C Ratio | - | - | 0.279 | 0.029 | - |
| HCM Control Delay (s) | - | - | 19 | 11.3 | 0.3 |
| HCM Lane LOS | - | - | C | B | A |
| HCM 95th %tile Q(veh) | - | - | 1.1 | 0.1 | - |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2.4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 14 | 73 | 76 | 25 | 29 | 18 |
| Future Vol, veh/h | 14 | 73 | 76 | 25 | 29 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 15 | 80 | 84 | 27 | 32 | 20 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 111 | 0 | - | 0 | 208 | 97 |
| Stage 1 | - | - | - | - | 97 | - |
| Stage 2 | - | - | - | - | 111 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1479 | - | - | - | 780 | 959 |
| Stage 1 | - | - | - | - | 927 | - |
| Stage 2 | - | - | - | - | 914 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1479 | - | - | - | 771 | 959 |
| Mov Cap-2 Maneuver | - | - | - | - | 771 | - |
| Stage 1 | - | - | - | - | 927 | - |
| Stage 2 | - | - | - | - | 904 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.2 | 0 | 9.6 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1479 | - | - | - | 834 |
| HCM Lane V/C Ratio | 0.01 | - | - | - | 0.062 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9.6 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.8 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 41 | 28 | 9 | 32 | 20 | 14 |
| Future Vol, veh/h | 41 | 28 | 9 | 32 | 20 | 14 |
| 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 | 45 | 30 | 10 | 35 | 22 | 15 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 83 | 29 | 37 | 0 | - | 0 |
| Stage 1 | 29 | - | - | - | - | - |
| Stage 2 | 54 | - | - | - | - | - |
| 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 | 919 | 1046 | 1574 | - | - | - |
| Stage 1 | 994 | - | - | - | - | - |
| Stage 2 | 969 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 913 | 1046 | 1574 | - | - | - |
| Mov Cap-2 Maneuver | 913 | - | - | - | - | - |
| Stage 1 | 994 | - | - | - | - | - |
| Stage 2 | 963 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.1 | 1.6 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1574 | - | 963 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | 0.078 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 9.1 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.3 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 4 | 20 | 1 | 0 | 0 | 49 | 7 | 0 | 2 | 8 | 0 |
| Future Vol, veh/h | 0 | 4 | 20 | 1 | 0 | 0 | 49 | 7 | 0 | 2 | 8 | 0 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 5 | 25 | 1 | 0 | 0 | 60 | 9 | 0 | 2 | 10 | 0 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.2 | 7.3 | 7.3 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 20% | 16% | 0% | 53% |
| Vol Thru, % | 80% | 80% | 88% | 20% |
| Vol Right, % | 0% | 4% | 12% | 27% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 10 | 25 | 56 | 15 |
| LT Vol | 2 | 4 | 0 | 8 |
| Through Vol | 8 | 20 | 49 | 3 |
| RT Vol | 0 | 1 | 7 | 4 |
| Lane Flow Rate | 12 | 31 | 69 | 19 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.014 | 0.035 | 0.076 | 0.021 |
| Departure Headway (Hd) | 4.159 | 4.046 | 3.935 | 4.062 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 856 | 884 | 911 | 876 |
| Service Time | 2.208 | 2.075 | 1.957 | 2.109 |
| HCM Lane V/C Ratio | 0.014 | 0.035 | 0.076 | 0.022 |
| HCM Control Delay | 7.3 | 7.2 | 7.3 | 7.2 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0 | 0.1 | 0.2 | 0.1 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 8 | 3 | 4 |
| Future Vol, veh/h | 0 | 8 | 3 | 4 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 10 | 4 | 5 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.2 |
| HCM LOS | A |

| Lane |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.5 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 7 | 17 | 6 | 0 | 6 | 35 | 31 | 0 | 12 | 49 | 12 |
| Future Vol, veh/h | 0 | 7 | 17 | 6 | 0 | 6 | 35 | 31 | 0 | 12 | 49 | 12 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 8 | 18 | 7 | 0 | 7 | 38 | 34 | 0 | 13 | 53 | 13 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.4 | 7.4 | 7.6 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 16% | 23% | 8% | 18% |
| Vol Thru, % | 67% | 57% | 49% | 56% |
| Vol Right, % | 16% | 20% | 43% | 26% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 73 | 30 | 72 | 39 |
| LT Vol | 12 | 7 | 6 | 7 |
| Through Vol | 49 | 17 | 35 | 22 |
| RT Vol | 12 | 6 | 31 | 10 |
| Lane Flow Rate | 79 | 33 | 78 | 42 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.09 | 0.037 | 0.085 | 0.048 |
| Departure Headway (Hd) | 4.094 | 4.134 | 3.929 | 4.071 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 869 | 857 | 903 | 872 |
| Service Time | 2.148 | 2.204 | 1.992 | 2.133 |
| HCM Lane V/C Ratio | 0.091 | 0.039 | 0.086 | 0.048 |
| HCM Control Delay | 7.6 | 7.4 | 7.4 | 7.3 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.3 | 0.1 | 0.3 | 0.2 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 7 | 22 | 10 |
| Future Vol, veh/h | 0 | 7 | 22 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 8 | 24 | 11 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.3 |
| HCM LOS | A |

| Lane |
|---|

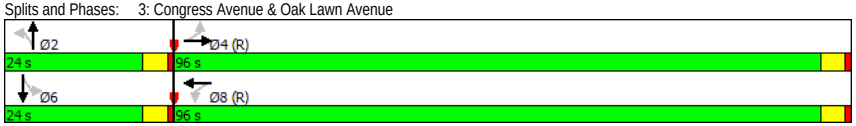
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 1410 | 31 | 23 | 1063 | 31 | 71 | 15 | 27 | 52 | 18 | 38 |
| Future Volume (vph) | 28 | 1410 | 31 | 23 | 1063 | 31 | 71 | 15 | 27 | 52 | 18 | 38 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 29 | 1454 | 32 | 24 | 1096 | 32 | 73 | 15 | 28 | 54 | 19 | 39 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 29 | 1486 | 0 | 24 | 1128 | 0 | 0 | 116 | 0 | 0 | 112 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 96.0 | 96.0 | | 96.0 | 96.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 80.0% | 80.0% | | 80.0% | 80.0% | | 20.0% | 20.0% | | 20.0% | 20.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | 91.5 | 91.5 | | 91.5 | 91.5 | | | 19.5 | | | 19.5 | |
| Actuated g/C Ratio | 0.76 | 0.76 | | 0.76 | 0.76 | | | 0.16 | | | 0.16 | |
| v/c Ratio | 0.09 | 0.55 | | 0.12 | 0.42 | | | 0.53 | | | 0.45 | |
| Control Delay | 4.4 | 6.7 | | 5.2 | 5.5 | | | 51.6 | | | 44.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 4.4 | 6.7 | | 5.2 | 5.5 | | | 51.6 | | | 44.1 | |
| LOS | A | A | | A | A | | | D | | | D | |
| Approach Delay | | 6.7 | | | 5.5 | | | 51.6 | | | 44.1 | |
| Approach LOS | | A | | | A | | | D | | | D | |
| Queue Length 50th (ft) | 5 | 210 | | 4 | 135 | | | 75 | | | 65 | |
| Queue Length 95th (ft) | 13 | 254 | | 12 | 166 | | | 139 | | | 125 | |
| Internal Link Dist (ft) | | 306 | | | 325 | | | 246 | | | 300 | |
| Turn Bay Length (ft) | 50 | | | 50 | | | | | | | | |
| Base Capacity (vph) | 321 | 2692 | | 202 | 2689 | | | 217 | | | 248 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.09 | 0.55 | | 0.12 | 0.42 | | | 0.53 | | | 0.45 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 24 (20%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.55 | |
| Intersection Signal Delay: 9.5 | Intersection LOS: A |
| Intersection Capacity Utilization 56.4% | ICU Level of Service B |
| Analysis Period (min) 15 | |





Splits and Phases: 3: Congress Avenue & Oak Lawn Avenue



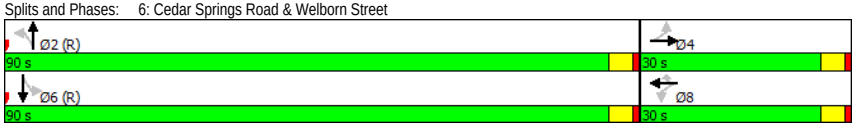
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 19 | 100 | 23 | 51 | 109 | 309 | 15 | 475 | 48 | 185 | 669 | 31 |
| Future Volume (vph) | 19 | 100 | 23 | 51 | 109 | 309 | 15 | 475 | 48 | 185 | 669 | 31 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 21 | 111 | 26 | 57 | 121 | 343 | 17 | 528 | 53 | 206 | 743 | 34 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 158 | 0 | 0 | 178 | 343 | 0 | 598 | 0 | 0 | 983 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 90.0 | 90.0 | | 90.0 | 90.0 | |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 75.0% | 75.0% | | 75.0% | 75.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.5 | | | 4.5 | 4.5 | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 25.5 | | | 25.5 | 25.5 | | 85.5 | | | 85.5 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | 0.21 | | 0.71 | | | 0.71 | |
| v/c Ratio | | 0.42 | | | 0.57 | 0.57 | | 0.26 | | | 0.57 | |
| Control Delay | | 42.9 | | | 50.3 | 8.1 | | 6.2 | | | 10.0 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 42.9 | | | 50.3 | 8.1 | | 6.2 | | | 10.0 | |
| LOS | | D | | | D | A | | A | | | A | |
| Approach Delay | | 42.9 | | | 22.5 | | | 6.2 | | | 10.0 | |
| Approach LOS | | D | | | C | | | A | | | A | |
| Queue Length 50th (ft) | | 101 | | | 124 | 0 | | 73 | | | 172 | |
| Queue Length 95th (ft) | | 169 | | | 201 | 80 | | 96 | | | 224 | |
| Internal Link Dist (ft) | | 973 | | | 57 | | | 331 | | | 209 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 372 | | | 315 | 606 | | 2281 | | | 1710 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.42 | | | 0.57 | 0.57 | | 0.26 | | | 0.57 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.57 | |
| Intersection Signal Delay: 14.2 | Intersection LOS: B |
| Intersection Capacity Utilization 68.1% | ICU Level of Service C |
| Analysis Period (min) 15 | |





Splits and Phases: 6: Cedar Springs Road & Welborn Street



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 32 | 63 | 2 | 869 | 1263 | 9 |
| Future Volume (vph) | 32 | 63 | 2 | 869 | 1263 | 9 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 34 | 68 | 2 | 934 | 1358 | 10 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 34 | 68 | 0 | 936 | 1368 | 0 |
| Turn Type | Prot | Perm | Perm | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Minimum Split (s) | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | |
| Total Split (s) | 22.0 | 22.0 | 98.0 | 98.0 | 98.0 | |
| Total Split (%) | 18.3% | 18.3% | 81.7% | 81.7% | 81.7% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Act Effct Green (s) | 17.5 | 17.5 | | 93.5 | 93.5 | |
| Actuated g/C Ratio | 0.15 | 0.15 | | 0.78 | 0.78 | |
| v/c Ratio | 0.13 | 0.24 | | 0.36 | 0.50 | |
| Control Delay | 46.2 | 12.8 | | 4.5 | 5.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 46.2 | 12.8 | | 4.5 | 5.5 | |
| LOS | D | B | | A | A | |
| Approach Delay | 24.0 | | | 4.5 | 5.5 | |
| Approach LOS | C | | | A | A | |
| Queue Length 50th (ft) | 23 | 0 | | 96 | 166 | |
| Queue Length 95th (ft) | 55 | 42 | | 121 | 202 | |
| Internal Link Dist (ft) | 266 | | | 161 | 47 | |
| Turn Bay Length (ft) | 90 | | | | | |
| Base Capacity (vph) | 258 | 288 | | 2628 | 2755 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.13 | 0.24 | | 0.36 | 0.50 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.50 | |
| Intersection Signal Delay: 5.9 | Intersection LOS: A |
| Intersection Capacity Utilization 46.9% | ICU Level of Service A |
| Analysis Period (min) 15 | |





Splits and Phases: 7: Maple Avenue & Welborn Street

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.9 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 10 | 74 | 886 | 18 | 63 | 1237 |
| Future Vol, veh/h | 10 | 74 | 886 | 18 | 63 | 1237 |
| 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 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 10 | 76 | 913 | 19 | 65 | 1275 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1691 | 466 | 0 | 0 | 932 | 0 |
| Stage 1 | 923 | - | - | - | - | - |
| Stage 2 | 768 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 84 | 543 | - | - | 730 | - |
| Stage 1 | 347 | - | - | - | - | - |
| Stage 2 | 418 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 58 | 543 | - | - | 730 | - |
| Mov Cap-2 Maneuver | 58 | - | - | - | - | - |
| Stage 1 | 347 | - | - | - | - | - |
| Stage 2 | 291 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 24.3 | 0 | 1.8 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 272 | 730 | - |
| HCM Lane V/C Ratio | - | - | 0.318 | 0.089 | - |
| HCM Control Delay (s) | - | - | 24.3 | 10.4 | 1.4 |
| HCM Lane LOS | - | - | C | B | A |
| HCM 95th %tile Q(veh) | - | - | 1.3 | 0.3 | - |





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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 15 | 74 | 99 | 35 | 25 | 22 |
| Future Vol, veh/h | 15 | 74 | 99 | 35 | 25 | 22 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 16 | 81 | 109 | 38 | 27 | 24 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 147 | 0 | - | 0 | 242 | 128 |
| Stage 1 | - | - | - | - | 128 | - |
| Stage 2 | - | - | - | - | 114 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1435 | - | - | - | 746 | 922 |
| Stage 1 | - | - | - | - | 898 | - |
| Stage 2 | - | - | - | - | 911 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1435 | - | - | - | 737 | 922 |
| Mov Cap-2 Maneuver | - | - | - | - | 737 | - |
| Stage 1 | - | - | - | - | 898 | - |
| Stage 2 | - | - | - | - | 900 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.3 | 0 | 9.7 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1435 | - | - | - | 813 |
| HCM Lane V/C Ratio | 0.011 | - | - | - | 0.064 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9.7 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 26 | 17 | 27 | 23 | 31 | 40 |
| Future Vol, veh/h | 26 | 17 | 27 | 23 | 31 | 40 |
| 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 | 28 | 18 | 29 | 25 | 34 | 43 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 139 | 55 | 77 | 0 | - | 0 |
| Stage 1 | 55 | - | - | - | - | - |
| Stage 2 | 84 | - | - | - | - | - |
| 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 | 854 | 1012 | 1522 | - | - | - |
| Stage 1 | 968 | - | - | - | - | - |
| Stage 2 | 939 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 838 | 1012 | 1522 | - | - | - |
| Mov Cap-2 Maneuver | 838 | - | - | - | - | - |
| Stage 1 | 968 | - | - | - | - | - |
| Stage 2 | 921 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.2 | 4 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1522 | - | 899 | - | - |
| HCM Lane V/C Ratio | 0.019 | - | 0.052 | - | - |
| HCM Control Delay (s) | 7.4 | 0 | 9.2 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.2 | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.7 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 6 | 68 | 2 | 0 | 4 | 76 | 2 | 0 | 5 | 5 | 1 |
| Future Vol, veh/h | 0 | 6 | 68 | 2 | 0 | 4 | 76 | 2 | 0 | 5 | 5 | 1 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 7 | 84 | 2 | 0 | 5 | 94 | 2 | 0 | 6 | 6 | 1 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.7 | 7.7 | 7.5 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 45% | 8% | 5% | 51% |
| Vol Thru, % | 45% | 89% | 93% | 24% |
| Vol Right, % | 9% | 3% | 2% | 24% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 11 | 76 | 82 | 37 |
| LT Vol | 5 | 6 | 4 | 19 |
| Through Vol | 5 | 68 | 76 | 9 |
| RT Vol | 1 | 2 | 2 | 9 |
| Lane Flow Rate | 14 | 94 | 101 | 46 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.017 | 0.107 | 0.115 | 0.054 |
| Departure Headway (Hd) | 4.448 | 4.115 | 4.104 | 4.236 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 810 | 864 | 867 | 831 |
| Service Time | 2.448 | 2.172 | 2.16 | 2.333 |
| HCM Lane V/C Ratio | 0.017 | 0.109 | 0.116 | 0.055 |
| HCM Control Delay | 7.5 | 7.7 | 7.7 | 7.6 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.4 | 0.4 | 0.2 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 19 | 9 | 9 |
| Future Vol, veh/h | 0 | 19 | 9 | 9 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 23 | 11 | 11 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.6 |
| HCM LOS | A |

| Lane |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.9 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 16 | 48 | 18 | 0 | 14 | 69 | 61 | 0 | 6 | 33 | 7 |
| Future Vol, veh/h | 0 | 16 | 48 | 18 | 0 | 14 | 69 | 61 | 0 | 6 | 33 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 17 | 52 | 20 | 0 | 15 | 75 | 66 | 0 | 7 | 36 | 8 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.8 | 8 | 7.8 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 13% | 20% | 10% | 36% |
| Vol Thru, % | 72% | 59% | 48% | 53% |
| Vol Right, % | 15% | 22% | 42% | 11% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 46 | 82 | 144 | 73 |
| LT Vol | 6 | 16 | 14 | 26 |
| Through Vol | 33 | 48 | 69 | 39 |
| RT Vol | 7 | 18 | 61 | 8 |
| Lane Flow Rate | 50 | 89 | 157 | 79 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.062 | 0.107 | 0.178 | 0.1 |
| Departure Headway (Hd) | 4.495 | 4.302 | 4.097 | 4.53 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 799 | 835 | 878 | 793 |
| Service Time | 2.512 | 2.316 | 2.109 | 2.546 |
| HCM Lane V/C Ratio | 0.063 | 0.107 | 0.179 | 0.1 |
| HCM Control Delay | 7.8 | 7.8 | 8 | 8.1 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.4 | 0.6 | 0.3 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 26 | 39 | 8 |
| Future Vol, veh/h | 0 | 26 | 39 | 8 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 28 | 42 | 9 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 8.1 |
| HCM LOS | A |

| Lane |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 18 | 1603 | 23 | 22 | 1715 | 28 | 71 | 10 | 31 | 44 | 7 | 32 |
| Future Volume (vph) | 18 | 1603 | 23 | 22 | 1715 | 28 | 71 | 10 | 31 | 44 | 7 | 32 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 19 | 1653 | 24 | 23 | 1768 | 29 | 73 | 10 | 32 | 45 | 7 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 19 | 1677 | 0 | 23 | 1797 | 0 | 0 | 115 | 0 | 0 | 85 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 105.0 | 105.0 | | 105.0 | 105.0 | | 15.0 | 15.0 | | 15.0 | 15.0 | |
| Total Split (%) | 87.5% | 87.5% | | 87.5% | 87.5% | | 12.5% | 12.5% | | 12.5% | 12.5% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | 100.5 | 100.5 | | 100.5 | 100.5 | | | 10.5 | | | 10.5 | |
| Actuated g/C Ratio | 0.84 | 0.84 | | 0.84 | 0.84 | | | 0.09 | | | 0.09 | |
| v/c Ratio | 0.12 | 0.57 | | 0.12 | 0.61 | | | 0.91 | | | 0.62 | |
| Control Delay | 3.4 | 3.9 | | 3.2 | 4.2 | | | 108.2 | | | 59.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 3.4 | 3.9 | | 3.2 | 4.2 | | | 108.2 | | | 59.4 | |
| LOS | A | A | | A | A | | | F | | | E | |
| Approach Delay | | 3.9 | | | 4.2 | | | 108.2 | | | 59.4 | |
| Approach LOS | | A | | | A | | | F | | | E | |
| Queue Length 50th (ft) | 2 | 156 | | 2 | 180 | | | 80 | | | 48 | |
| Queue Length 95th (ft) | 7 | 190 | | 7 | 217 | | | #198 | | | #116 | |
| Internal Link Dist (ft) | | 310 | | | 325 | | | 246 | | | 300 | |
| Turn Bay Length (ft) | 50 | | | 50 | | | | | | | | |
| Base Capacity (vph) | 164 | 2958 | | 193 | 2959 | | | 126 | | | 138 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.12 | 0.57 | | 0.12 | 0.61 | | | 0.91 | | | 0.62 | |

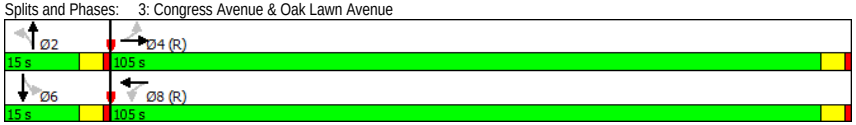
| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.91 | |
| Intersection Signal Delay: 8.5 | Intersection LOS: A |
| Intersection Capacity Utilization 64.2% | ICU Level of Service C |
| Analysis Period (min) 15 | |
| # 95th percentile volume exceeds capacity, queue may be longer. | |





Queue shown is maximum after two cycles.

Splits and Phases: 3: Congress Avenue & Oak Lawn Avenue



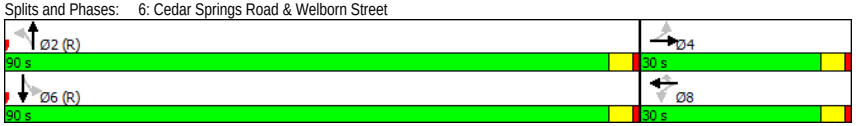
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 14 | 28 | 7 | 23 | 39 | 137 | 24 | 694 | 85 | 146 | 436 | 7 |
| Future Volume (vph) | 14 | 28 | 7 | 23 | 39 | 137 | 24 | 694 | 85 | 146 | 436 | 7 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 16 | 31 | 8 | 26 | 43 | 152 | 27 | 771 | 94 | 162 | 484 | 8 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 55 | 0 | 0 | 69 | 152 | 0 | 892 | 0 | 0 | 654 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 90.0 | 90.0 | | 90.0 | 90.0 | |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 75.0% | 75.0% | | 75.0% | 75.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.5 | | | 4.5 | 4.5 | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 25.5 | | | 25.5 | 25.5 | | 85.5 | | | 85.5 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | 0.21 | | 0.71 | | | 0.71 | |
| v/c Ratio | | 0.15 | | | 0.20 | 0.33 | | 0.39 | | | 0.45 | |
| Control Delay | | 36.0 | | | 40.6 | 8.2 | | 7.2 | | | 8.4 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 36.0 | | | 40.6 | 8.2 | | 7.2 | | | 8.4 | |
| LOS | | D | | | D | A | | A | | | A | |
| Approach Delay | | 36.0 | | | 18.4 | | | 7.2 | | | 8.4 | |
| Approach LOS | | D | | | B | | | A | | | A | |
| Queue Length 50th (ft) | | 31 | | | 44 | 0 | | 124 | | | 100 | |
| Queue Length 95th (ft) | | 68 | | | 87 | 55 | | 156 | | | 135 | |
| Internal Link Dist (ft) | | 973 | | | 57 | | | 331 | | | 209 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 363 | | | 353 | 456 | | 2287 | | | 1460 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.15 | | | 0.20 | 0.33 | | 0.39 | | | 0.45 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 50 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.45 | |
| Intersection Signal Delay: 9.9 | Intersection LOS: A |
| Intersection Capacity Utilization 59.7% | ICU Level of Service B |
| Analysis Period (min) 15 | |





Splits and Phases: 6: Cedar Springs Road & Welborn Street



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 15 | 12 | 128 | 1279 | 908 | 66 |
| Future Volume (vph) | 15 | 12 | 128 | 1279 | 908 | 66 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 16 | 13 | 138 | 1375 | 976 | 71 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 16 | 13 | 0 | 1513 | 1047 | 0 |
| Turn Type | Prot | Perm | Perm | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Minimum Split (s) | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | |
| Total Split (s) | 13.0 | 13.0 | 47.0 | 47.0 | 47.0 | |
| Total Split (%) | 21.7% | 21.7% | 78.3% | 78.3% | 78.3% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Act Effct Green (s) | 8.5 | 8.5 | | 42.5 | 42.5 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.71 | 0.71 | |
| v/c Ratio | 0.06 | 0.06 | | 0.82 | 0.42 | |
| Control Delay | 23.1 | 13.2 | | 11.4 | 4.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 23.1 | 13.2 | | 11.4 | 4.1 | |
| LOS | C | B | | B | A | |
| Approach Delay | 18.7 | | | 11.4 | 4.1 | |
| Approach LOS | B | | | B | A | |
| Queue Length 50th (ft) | 5 | 0 | | 153 | 60 | |
| Queue Length 95th (ft) | 20 | 13 | | 252 | 85 | |
| Internal Link Dist (ft) | 266 | | | 161 | 47 | |
| Turn Bay Length (ft) | 90 | | | | | |
| Base Capacity (vph) | 250 | 235 | | 1837 | 2490 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.06 | | 0.82 | 0.42 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 60 | |
| Actuated Cycle Length: 60 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green | |
| Natural Cycle: 80 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.82 | |
| Intersection Signal Delay: 8.5 | Intersection LOS: A |
| Intersection Capacity Utilization 81.7% | ICU Level of Service D |
| Analysis Period (min) 15 | |





Splits and Phases: 7: Maple Avenue & Welborn Street

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.4 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 6 | 101 | 1290 | 5 | 18 | 956 |
| Future Vol, veh/h | 6 | 101 | 1290 | 5 | 18 | 956 |
| 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 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 6 | 107 | 1372 | 5 | 19 | 1017 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1922 | 689 | 0 | 0 | 1378 | 0 |
| Stage 1 | 1375 | - | - | - | - | - |
| Stage 2 | 547 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 59 | 388 | - | - | 493 | - |
| Stage 1 | 200 | - | - | - | - | - |
| Stage 2 | 544 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 54 | 388 | - | - | 493 | - |
| Mov Cap-2 Maneuver | 54 | - | - | - | - | - |
| Stage 1 | 200 | - | - | - | - | - |
| Stage 2 | 496 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 25.4 | 0 | 0.7 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 288 | 493 | - |
| HCM Lane V/C Ratio | - | - | 0.395 | 0.039 | - |
| HCM Control Delay (s) | - | - | 25.4 | 12.6 | 0.5 |
| HCM Lane LOS | - | - | D | B | A |
| HCM 95th %tile Q(veh) | - | - | 1.8 | 0.1 | - |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 16 | 85 | 89 | 28 | 30 | 20 |
| Future Vol, veh/h | 16 | 85 | 89 | 28 | 30 | 20 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 18 | 93 | 98 | 31 | 33 | 22 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 129 | 0 | - | 0 | 242 | 113 |
| Stage 1 | - | - | - | - | 113 | - |
| Stage 2 | - | - | - | - | 129 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1457 | - | - | - | 746 | 940 |
| Stage 1 | - | - | - | - | 912 | - |
| Stage 2 | - | - | - | - | 897 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1457 | - | - | - | 736 | 940 |
| Mov Cap-2 Maneuver | - | - | - | - | 736 | - |
| Stage 1 | - | - | - | - | 912 | - |
| Stage 2 | - | - | - | - | 885 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.2 | 0 | 9.8 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1457 | - | - | - | 806 |
| HCM Lane V/C Ratio | 0.012 | - | - | - | 0.068 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9.8 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.5 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 41 | 28 | 9 | 38 | 23 | 14 |
| Future Vol, veh/h | 41 | 28 | 9 | 38 | 23 | 14 |
| 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 | 45 | 30 | 10 | 41 | 25 | 15 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 94 | 33 | 40 | 0 | - | 0 |
| Stage 1 | 33 | - | - | - | - | - |
| Stage 2 | 61 | - | - | - | - | - |
| 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 | 906 | 1041 | 1570 | - | - | - |
| Stage 1 | 989 | - | - | - | - | - |
| Stage 2 | 962 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 900 | 1041 | 1570 | - | - | - |
| Mov Cap-2 Maneuver | 900 | - | - | - | - | - |
| Stage 1 | 989 | - | - | - | - | - |
| Stage 2 | 955 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.1 | 1.4 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1570 | - | 952 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | 0.079 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 9.1 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.3 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 5 | 23 | 1 | 0 | 0 | 55 | 9 | 0 | 2 | 10 | 0 |
| Future Vol, veh/h | 0 | 5 | 23 | 1 | 0 | 0 | 55 | 9 | 0 | 2 | 10 | 0 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 6 | 28 | 1 | 0 | 0 | 68 | 11 | 0 | 2 | 12 | 0 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.3 | 7.3 | 7.3 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 17% | 17% | 0% | 47% |
| Vol Thru, % | 83% | 79% | 86% | 24% |
| Vol Right, % | 0% | 3% | 14% | 29% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 12 | 29 | 64 | 17 |
| LT Vol | 2 | 5 | 0 | 8 |
| Through Vol | 10 | 23 | 55 | 4 |
| RT Vol | 0 | 1 | 9 | 5 |
| Lane Flow Rate | 15 | 36 | 79 | 21 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.017 | 0.04 | 0.086 | 0.024 |
| Departure Headway (Hd) | 4.183 | 4.07 | 3.939 | 4.061 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 851 | 878 | 909 | 876 |
| Service Time | 2.233 | 2.101 | 1.964 | 2.111 |
| HCM Lane V/C Ratio | 0.018 | 0.041 | 0.087 | 0.024 |
| HCM Control Delay | 7.3 | 7.3 | 7.3 | 7.2 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.1 | 0.3 | 0.1 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 8 | 4 | 5 |
| Future Vol, veh/h | 0 | 8 | 4 | 5 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 10 | 5 | 6 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.2 |
| HCM LOS | A |

| Lane |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.5 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 9 | 20 | 6 | 0 | 6 | 41 | 37 | 0 | 13 | 54 | 13 |
| Future Vol, veh/h | 0 | 9 | 20 | 6 | 0 | 6 | 41 | 37 | 0 | 13 | 54 | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 10 | 22 | 7 | 0 | 7 | 45 | 40 | 0 | 14 | 59 | 14 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.5 | 7.5 | 7.7 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 16% | 26% | 7% | 20% |
| Vol Thru, % | 68% | 57% | 49% | 54% |
| Vol Right, % | 16% | 17% | 44% | 26% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 80 | 35 | 84 | 46 |
| LT Vol | 13 | 9 | 6 | 9 |
| Through Vol | 54 | 20 | 41 | 25 |
| RT Vol | 13 | 6 | 37 | 12 |
| Lane Flow Rate | 87 | 38 | 91 | 50 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.1 | 0.044 | 0.1 | 0.057 |
| Departure Headway (Hd) | 4.131 | 4.189 | 3.948 | 4.108 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 858 | 842 | 896 | 861 |
| Service Time | 2.199 | 2.277 | 2.027 | 2.185 |
| HCM Lane V/C Ratio | 0.101 | 0.045 | 0.102 | 0.058 |
| HCM Control Delay | 7.7 | 7.5 | 7.5 | 7.4 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.3 | 0.1 | 0.3 | 0.2 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 9 | 25 | 12 |
| Future Vol, veh/h | 0 | 9 | 25 | 12 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 10 | 27 | 13 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.4 |
| HCM LOS | A |

| Lane |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 33 | 1652 | 35 | 26 | 1246 | 37 | 82 | 17 | 31 | 61 | 21 | 45 |
| Future Volume (vph) | 33 | 1652 | 35 | 26 | 1246 | 37 | 82 | 17 | 31 | 61 | 21 | 45 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 34 | 1703 | 36 | 27 | 1285 | 38 | 85 | 18 | 32 | 63 | 22 | 46 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 34 | 1739 | 0 | 27 | 1323 | 0 | 0 | 135 | 0 | 0 | 131 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 96.0 | 96.0 | | 96.0 | 96.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 80.0% | 80.0% | | 80.0% | 80.0% | | 20.0% | 20.0% | | 20.0% | 20.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | 91.5 | 91.5 | | 91.5 | 91.5 | | | 19.5 | | | 19.5 | |
| Actuated g/C Ratio | 0.76 | 0.76 | | 0.76 | 0.76 | | | 0.16 | | | 0.16 | |
| v/c Ratio | 0.14 | 0.65 | | 0.19 | 0.49 | | | 0.64 | | | 0.54 | |
| Control Delay | 5.2 | 8.0 | | 7.6 | 6.1 | | | 58.0 | | | 48.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 5.2 | 8.0 | | 7.6 | 6.1 | | | 58.0 | | | 48.4 | |
| LOS | A | A | | A | A | | | E | | | D | |
| Approach Delay | | 8.0 | | | 6.1 | | | 58.0 | | | 48.4 | |
| Approach LOS | | A | | | A | | | E | | | D | |
| Queue Length 50th (ft) | 6 | 281 | | 5 | 173 | | | 91 | | | 80 | |
| Queue Length 95th (ft) | 16 | 339 | | 17 | 210 | | | #170 | | | 148 | |
| Internal Link Dist (ft) | | 306 | | | 325 | | | 246 | | | 300 | |
| Turn Bay Length (ft) | 50 | | | 50 | | | | | | | | |
| Base Capacity (vph) | 251 | 2692 | | 140 | 2689 | | | 211 | | | 243 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.14 | 0.65 | | 0.19 | 0.49 | | | 0.64 | | | 0.54 | |

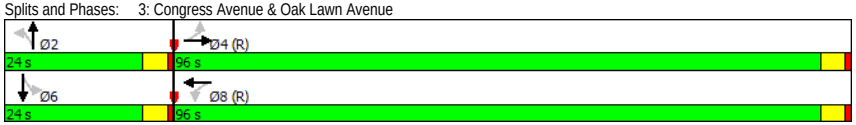
| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 24 (20%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.65 | |
| Intersection Signal Delay: 10.8 | Intersection LOS: B |
| Intersection Capacity Utilization 64.6% | ICU Level of Service C |
| Analysis Period (min) 15 | |
| # 95th percentile volume exceeds capacity, queue may be longer. | |





Queue shown is maximum after two cycles.

Splits and Phases: 3: Congress Avenue & Oak Lawn Avenue



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 21 | 117 | 27 | 60 | 128 | 362 | 17 | 557 | 56 | 217 | 784 | 35 |
| Future Volume (vph) | 21 | 117 | 27 | 60 | 128 | 362 | 17 | 557 | 56 | 217 | 784 | 35 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 23 | 130 | 30 | 67 | 142 | 402 | 19 | 619 | 62 | 241 | 871 | 39 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 183 | 0 | 0 | 209 | 402 | 0 | 700 | 0 | 0 | 1151 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Minimum Split (s) | 22.5 | 22.5 | | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | 22.5 | |
| Total Split (s) | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 90.0 | 90.0 | | 90.0 | 90.0 | |
| Total Split (%) | 25.0% | 25.0% | | 25.0% | 25.0% | 25.0% | 75.0% | 75.0% | | 75.0% | 75.0% | |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.5 | | | 4.5 | 4.5 | | 4.5 | | | 4.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 25.5 | | | 25.5 | 25.5 | | 85.5 | | | 85.5 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | 0.21 | | 0.71 | | | 0.71 | |
| v/c Ratio | | 0.50 | | | 0.72 | 0.65 | | 0.31 | | | 0.71 | |
| Control Delay | | 45.3 | | | 59.3 | 12.5 | | 6.6 | | | 13.0 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 45.3 | | | 59.3 | 12.5 | | 6.6 | | | 13.0 | |
| LOS | | D | | | E | B | | A | | | B | |
| Approach Delay | | 45.3 | | | 28.5 | | | 6.6 | | | 13.0 | |
| Approach LOS | | D | | | C | | | A | | | B | |
| Queue Length 50th (ft) | | 121 | | | 152 | 30 | | 90 | | | 240 | |
| Queue Length 95th (ft) | | 196 | | | #258 | 135 | | 116 | | | 318 | |
| Internal Link Dist (ft) | | 973 | | | 57 | | | 331 | | | 209 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 369 | | | 290 | 615 | | 2253 | | | 1627 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.50 | | | 0.72 | 0.65 | | 0.31 | | | 0.71 | |

**Intersection Summary**

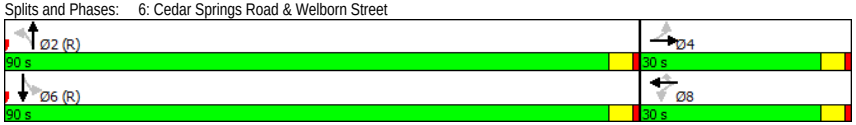
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 17.1 Intersection LOS: B
Intersection Capacity Utilization 80.8% ICU Level of Service D
Analysis Period (min) 15
# 95th percentile volume exceeds capacity, queue may be longer.





Queue shown is maximum after two cycles.

Splits and Phases: 6: Cedar Springs Road & Welborn Street



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 38 | 74 | 2 | 1018 | 1480 | 11 |
| Future Volume (vph) | 38 | 74 | 2 | 1018 | 1480 | 11 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 41 | 80 | 2 | 1095 | 1591 | 12 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 41 | 80 | 0 | 1097 | 1603 | 0 |
| Turn Type | Prot | Perm | Perm | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Minimum Split (s) | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | |
| Total Split (s) | 22.0 | 22.0 | 98.0 | 98.0 | 98.0 | |
| Total Split (%) | 18.3% | 18.3% | 81.7% | 81.7% | 81.7% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Act Effct Green (s) | 17.5 | 17.5 | | 93.5 | 93.5 | |
| Actuated g/C Ratio | 0.15 | 0.15 | | 0.78 | 0.78 | |
| v/c Ratio | 0.16 | 0.27 | | 0.42 | 0.58 | |
| Control Delay | 46.7 | 15.1 | | 4.9 | 6.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 46.7 | 15.1 | | 4.9 | 6.4 | |
| LOS | D | B | | A | A | |
| Approach Delay | 25.8 | | | 4.9 | 6.4 | |
| Approach LOS | C | | | A | A | |
| Queue Length 50th (ft) | 28 | 5 | | 122 | 220 | |
| Queue Length 95th (ft) | 63 | 51 | | 150 | 265 | |
| Internal Link Dist (ft) | 266 | | | 161 | 47 | |
| Turn Bay Length (ft) | 90 | | | | | |
| Base Capacity (vph) | 258 | 292 | | 2628 | 2755 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.16 | 0.27 | | 0.42 | 0.58 | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Pretimed | |
| Maximum v/c Ratio: 0.58 | |
| Intersection Signal Delay: 6.6 | Intersection LOS: A |
| Intersection Capacity Utilization 53.3% | ICU Level of Service A |
| Analysis Period (min) 15 | |





Splits and Phases: 7: Maple Avenue & Welborn Street

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.2 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 12 | 86 | 1039 | 20 | 73 | 1449 |
| Future Vol, veh/h | 12 | 86 | 1039 | 20 | 73 | 1449 |
| 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 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 89 | 1071 | 21 | 75 | 1494 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1978 | 546 | 0 | 0 | 1092 | 0 |
| Stage 1 | 1081 | - | - | - | - | - |
| Stage 2 | 897 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 54 | 482 | - | - | 635 | - |
| Stage 1 | 287 | - | - | - | - | - |
| Stage 2 | 358 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 17 | 482 | - | - | 635 | - |
| Mov Cap-2 Maneuver | 17 | - | - | - | - | - |
| Stage 1 | 287 | - | - | - | - | - |
| Stage 2 | 110 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 134.2 | 0 | 4 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 111 | 635 | - |
| HCM Lane V/C Ratio | - | - | 0.91 | 0.119 | - |
| HCM Control Delay (s) | - | - | 134.2 | 11.4 | 3.6 |
| HCM Lane LOS | - | - | F | B | A |
| HCM 95th %tile Q(veh) | - | - | 5.6 | 0.4 | - |





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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 16 | 87 | 116 | 37 | 28 | 25 |
| Future Vol, veh/h | 16 | 87 | 116 | 37 | 28 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 18 | 96 | 127 | 41 | 31 | 27 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 168 | 0 | - | 0 | 279 | 148 |
| Stage 1 | - | - | - | - | 148 | - |
| Stage 2 | - | - | - | - | 131 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1410 | - | - | - | 711 | 899 |
| Stage 1 | - | - | - | - | 880 | - |
| Stage 2 | - | - | - | - | 895 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1410 | - | - | - | 702 | 899 |
| Mov Cap-2 Maneuver | - | - | - | - | 702 | - |
| Stage 1 | - | - | - | - | 880 | - |
| Stage 2 | - | - | - | - | 883 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.2 | 0 | 10 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1410 | - | - | - | 783 |
| HCM Lane V/C Ratio | 0.012 | - | - | - | 0.074 |
| HCM Control Delay (s) | 7.6 | 0 | - | - | 10 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.4 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 26 | 17 | 27 | 27 | 37 | 40 |
| Future Vol, veh/h | 26 | 17 | 27 | 27 | 37 | 40 |
| 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 | 28 | 18 | 29 | 29 | 40 | 43 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 150 | 62 | 84 | 0 | - | 0 |
| Stage 1 | 62 | - | - | - | - | - |
| Stage 2 | 88 | - | - | - | - | - |
| 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 | 842 | 1003 | 1513 | - | - | - |
| Stage 1 | 961 | - | - | - | - | - |
| Stage 2 | 935 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 826 | 1003 | 1513 | - | - | - |
| Mov Cap-2 Maneuver | 826 | - | - | - | - | - |
| Stage 1 | 961 | - | - | - | - | - |
| Stage 2 | 917 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.3 | 3.7 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1513 | - | 888 | - | - |
| HCM Lane V/C Ratio | 0.019 | - | 0.053 | - | - |
| HCM Control Delay (s) | 7.4 | 0 | 9.3 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.2 | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.8 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 7 | 78 | 2 | 0 | 5 | 88 | 2 | 0 | 6 | 6 | 1 |
| Future Vol, veh/h | 0 | 7 | 78 | 2 | 0 | 5 | 88 | 2 | 0 | 6 | 6 | 1 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 9 | 96 | 2 | 0 | 6 | 109 | 2 | 0 | 7 | 7 | 1 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 7.8 | 7.8 | 7.6 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 46% | 8% | 5% | 41% |
| Vol Thru, % | 46% | 90% | 93% | 30% |
| Vol Right, % | 8% | 2% | 2% | 30% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 13 | 87 | 95 | 37 |
| LT Vol | 6 | 7 | 5 | 15 |
| Through Vol | 6 | 78 | 88 | 11 |
| RT Vol | 1 | 2 | 2 | 11 |
| Lane Flow Rate | 16 | 107 | 117 | 46 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.02 | 0.123 | 0.134 | 0.055 |
| Departure Headway (Hd) | 4.525 | 4.133 | 4.121 | 4.348 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 796 | 859 | 862 | 829 |
| Service Time | 2.526 | 2.199 | 2.185 | 2.348 |
| HCM Lane V/C Ratio | 0.02 | 0.125 | 0.136 | 0.055 |
| HCM Control Delay | 7.6 | 7.8 | 7.8 | 7.6 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.4 | 0.5 | 0.2 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 15 | 11 | 11 |
| Future Vol, veh/h | 0 | 15 | 11 | 11 |
| Peak Hour Factor | 0.92 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 19 | 14 | 14 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 7.6 |
| HCM LOS | A |

| Lane |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.2 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 18 | 56 | 18 | 0 | 15 | 80 | 72 | 0 | 6 | 36 | 8 |
| Future Vol, veh/h | 0 | 18 | 56 | 18 | 0 | 15 | 80 | 72 | 0 | 6 | 36 | 8 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 20 | 61 | 20 | 0 | 16 | 87 | 78 | 0 | 7 | 39 | 9 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 8 | 8.3 | 8 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 12% | 20% | 9% | 36% |
| Vol Thru, % | 72% | 61% | 48% | 52% |
| Vol Right, % | 16% | 20% | 43% | 12% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 50 | 92 | 167 | 84 |
| LT Vol | 6 | 18 | 15 | 30 |
| Through Vol | 36 | 56 | 80 | 44 |
| RT Vol | 8 | 18 | 72 | 10 |
| Lane Flow Rate | 54 | 100 | 182 | 91 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.069 | 0.122 | 0.209 | 0.117 |
| Departure Headway (Hd) | 4.587 | 4.389 | 4.148 | 4.614 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 782 | 818 | 868 | 778 |
| Service Time | 2.61 | 2.407 | 2.164 | 2.634 |
| HCM Lane V/C Ratio | 0.069 | 0.122 | 0.21 | 0.117 |
| HCM Control Delay | 8 | 8 | 8.3 | 8.2 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.4 | 0.8 | 0.4 |





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

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Traffic Vol, veh/h | 0 | 30 | 44 | 10 |
| Future Vol, veh/h | 0 | 30 | 44 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 33 | 48 | 11 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 8.2 |
| HCM LOS | A |

| Lane |
|---|