February 23, 2017
PK# 3921-17.035
Z 167-205 SM

TRAFFIC IMPACT ANALYSIS

Project:
DISD Solar Preparatory School for Girls
In Dallas, Texas

Prepared for:
City of Dallas

On behalf of:
Dallas Independent School District

Prepared by:

Steve E. Stoner

Steve E. Stoner, P.E., PTOE

Pacheco Koch

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TX. REG: ENGINEERING FIRM F-469
TX. REG. SURVEYING FIRM LS-100080-00

EXECUTIVE SUMMARY

The services of **Pacheco Koch** were retained on behalf of the **Dallas Independent School District** to prepare a Traffic Impact Analysis (TIA) for *Solar Preparatory School for Girls* located at 2617 N. Henderson Avenue in Dallas, Texas. The school currently consists of 198 students in grades Kindergarten-2nd. DISD plans to add one school grade per year up to the 8th grade. At full occupancy the school is expected to serve approximately 900 students. A TIA is required for review by the City of Dallas as part of DISD's request for creation of a Planned Development District.

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.

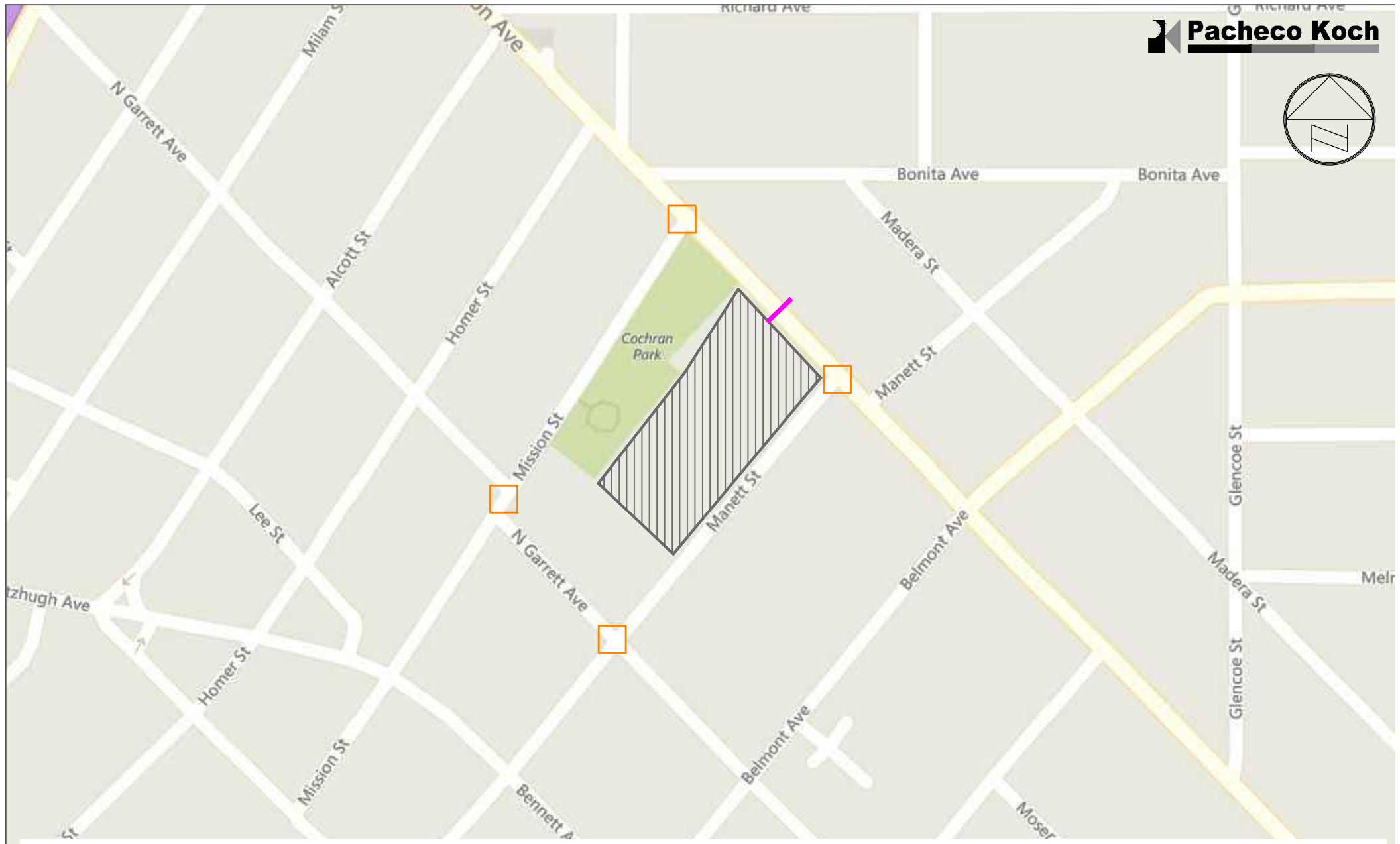
FINDING: The subject site has been used as a public school since 1922. The site contains very limited on-site area to accommodate vehicular traffic; however, these areas are being increased as part of proposed site improvements. Additionally, 23 recessed parallel parking spaces will be constructed adjacent to the school property (12 on Henderson Avenue as part of the City's 'Complete Streets' project, and 11 on Manett as part of the site improvements). The surrounding area has fully developed and some area have undergone redevelopment. Due to the age of the roadway network in the area, most roadways are very narrow and some, including Henderson Avenue, operate over capacity.

FINDING: Due to the nature of Solar Preparatory School for Girls (being a specialty academy serving the entire school district), a higher percentage of students than usual do rely on the school bus system for transportation. Based upon on-site observations, approximately 35% of students currently utilize the school bus in the afternoons on seven (7) buses. At full buildout, DISD indicates that fourteen (14) school buses serve the school.

- RECOMMENDATION: In order to minimize private vehicle traffic impact at the school, it is recommended that the School encourage and maximize school bus ridership. The TMP prepared by Pacheco Koch indicates the site is functional if the current 35% busing is maintained. However, achieving a higher percentage of travel by school bus is desirable.

- RECOMMENDATION: Comply with the recommendations of the latest Traffic Management Plan. (See separate TMP prepared by Pacheco Koch in concert with this TIA.)

END

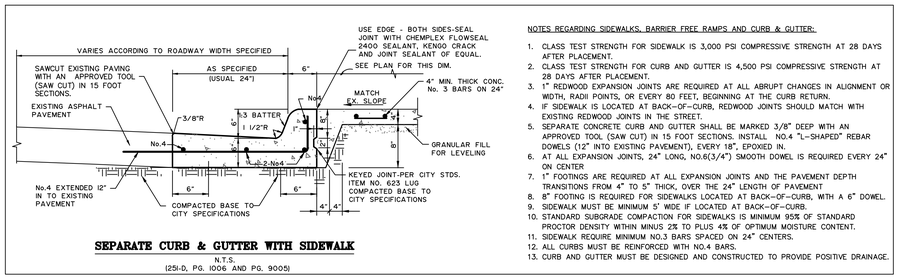


Site Location Map

DISD Solar Preparatory for Girls, Dallas, Texas

PK #3921-17.035 (HWL: 02/03/17)

EXHIBIT 1



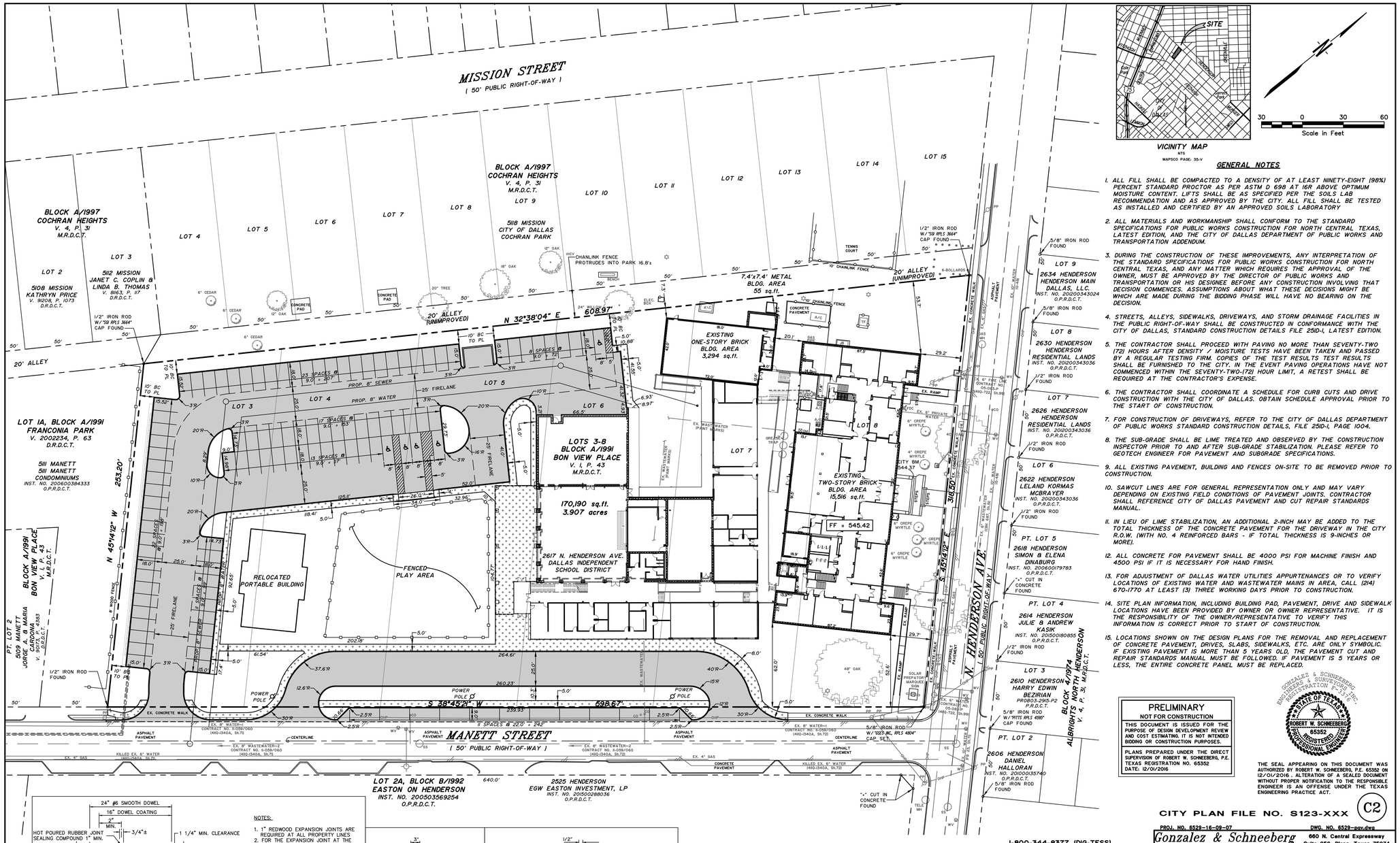
SEPARATE CURB & GUTTER WITH SIDEWALK

N.T.S.

(251-D, PG. 1006 AND PG. 9005)

NOTES REGARDING SIDEWALKS, BARRIER FREE RAMPS AND CURB & GUTTER:

1. CLASS TEST STRENGTH FOR SIDEWALK IS 3,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS AFTER PLACEMENT.
2. CLASS TEST STRENGTH FOR CURB AND GUTTER IS 4,500 PSI COMPRESSIVE STRENGTH AT 28 DAYS AFTER PLACEMENT.
3. 1" REDWOOD EXPANSION JOINTS ARE REQUIRED AT ALL ABRUPT CHANGES IN ALIGNMENT OR WIDTH, RADII POINTS, OR EVERY 80 FEET, BEGINNING AT THE CURB RETURN.
4. IF SIDEWALK IS LOCATED AT BACK-OF-CURB, REDWOOD JOINTS SHOULD MATCH WITH EXISTING REDWOOD JOINTS IN THE STREET.
5. SEPARATE CONCRETE CURB AND GUTTER SHALL BE MARKED 3/8" DEEP WITH AN APPROVED TOOL (SAW CUT) IN 15 FOOT SECTIONS. INSTALL NO.4 "L-SHAPED" REBAR DOWELS (12" INTO EXISTING PAVEMENT), EVERY 18", EPOXIED IN.
6. AT ALL EXPANSION JOINTS, 24" LONG, NO.6(3/4") SMOOTH DOWEL IS REQUIRED EVERY 24" ON CENTER
7. 1' FOOTINGS ARE REQUIRED AT ALL EXPANSION JOINTS AND THE PAVEMENT DEPTH TRANSITIONS FROM 4" TO 5" THICK, OVER THE 24" LENGTH OF PAVEMENT
8. 8" FOOTING IS REQUIRED FOR SIDEWALKS LOCATED AT BACK-OF-CURB, WITH A 6" DOWEL.
9. SIDEWALK MUST BE MINIMUM 5' WIDE IF LOCATED AT BACK-OF-CURB.
10. STANDARD SUBGRADE COMPACTION FOR SIDEWALKS IS MINIMUM 95% OF STANDARD PROCTOR DENSITY WITHIN MINUS 2% TO PLUS 4% OF OPTIMUM MOISTURE CONTENT.
11. SIDEWALK REQUIRE MINIMUM NO.3 BARS SPACED ON 24" CENTERS.
12. ALL CURBS MUST BE REINFORCED WITH NO.4 BARS.
13. CURB AND GUTTER MUST BE DESIGNED AND CONSTRUCTED TO PROVIDE POSITIVE DRAINAGE.



GENERAL NOTES

1. ALL FILL SHALL BE COMPACTED TO A DENSITY OF AT LEAST NINETY-EIGHT (98%) PERCENT STANDARD PROCTOR AS PER ASTM D 698 AT I6R ABOVE OPTIMUM MOISTURE CONTENT. LIFTS SHALL BE AS SPECIFIED PER THE SOILS LAB RECOMMENDATION AND AS APPROVED BY THE CITY. ALL FILL SHALL BE TESTED AS INSTALLED AND CERTIFIED BY AN APPROVED SOILS LABORATORY
2. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION FOR NORTH CENTRAL TEXAS, LATEST EDITION, AND THE CITY OF DALLAS DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION ADDENDUM.
3. DURING THE CONSTRUCTION OF THESE IMPROVEMENTS, ANY INTERPRETATION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION FOR NORTH CENTRAL TEXAS, AND ANY MATTER WHICH REQUIRES THE APPROVAL OF THE OWNER, MUST BE APPROVED BY THE DIRECTOR OF PUBLIC WORKS AND TRANSPORTATION OR HIS DESIGNEE BEFORE ANY CONSTRUCTION INVOLVING THAT DECISION COMMENCES. ASSUMPTIONS ABOUT WHAT THESE DECISIONS MIGHT BE WHICH ARE MADE DURING THE BIDDING PHASE WILL HAVE NO BEARING ON THE DECISION.
4. STREETS, ALLEYS, SIDEWALKS, DRIVEWAYS, AND STORM DRAINAGE FACILITIES IN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CITY OF DALLAS, STANDARD CONSTRUCTION DETAILS FILE 250-I, LATEST EDITION.
5. THE CONTRACTOR SHALL PROCEED WITH PAVING NO MORE THAN SEVENTY-TWO (72) HOURS AFTER DENSITY / MOISTURE TESTS HAVE BEEN TAKEN AND PASSED BY A REGULAR TESTING FIRM. COPIES OF THE TEST RESULTS TEST RESULTS SHALL BE FURNISHED TO THE CITY. IN THE EVENT PAVING OPERATIONS HAVE NOT COMMENCED WITHIN THE SEVENTY-TWO-(72) HOUR LIMIT, A RETEST SHALL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR SHALL COORDINATE A SCHEDULE FOR CURB CUTS AND DRIVE CONSTRUCTION WITH THE CITY OF DALLAS. OBTAIN SCHEDULE APPROVAL PRIOR TO THE START OF CONSTRUCTION.
7. FOR CONSTRUCTION OF DRIVEWAYS, REFER TO THE CITY OF DALLAS DEPARTMENT OF PUBLIC WORKS STANDARD CONSTRUCTION DETAILS, FILE 250-I, PAGE 1004.
8. THE SUB-GRADE SHALL BE LIME TREATED AND OBSERVED BY THE CONSTRUCTION INSPECTOR PRIOR TO AND AFTER SUB-GRADE STABILIZATION. PLEASE REFER TO GEOTECH ENGINEER FOR PAVEMENT AND SUBGRADE SPECIFICATIONS.
9. ALL EXISTING PAVEMENT, BUILDING AND FENCES ON-SITE TO BE REMOVED PRIOR TO CONSTRUCTION.
10. SAWCUT LINES ARE FOR GENERAL REPRESENTATION ONLY AND MAY VARY DEPENDING ON EXISTING FIELD CONDITIONS OF PAVEMENT JOINTS. CONTRACTOR SHALL REFERENCE CITY OF DALLAS PAVEMENT AND CUT REPAIR STANDARDS MANUAL.
11. IN LIEU OF LIME STABILIZATION, AN ADDITIONAL 2-INCH MAY BE ADDED TO THE TOTAL THICKNESS OF THE CONCRETE PAVEMENT FOR THE DRIVEWAY IN THE CITY R.O.W. (WITH NO. 4 REINFORCED BARS - IF TOTAL THICKNESS IS 9-INCHES OR MORE).
12. ALL CONCRETE FOR PAVEMENT SHALL BE 4000 PSI FOR MACHINE FINISH AND 4500 PSI IF IT IS NECESSARY FOR HAND FINISH.
13. FOR ADJUSTMENT OF DALLAS WATER UTILITIES APPURTENANCES OR TO VERIFY LOCATIONS OF EXISTING WATER AND WASTEWATER MAINS IN AREA, CALL (214) 670-1770 AT LEAST (3) THREE WORKING DAYS PRIOR TO CONSTRUCTION.
14. SITE PLAN INFORMATION, INCLUDING BUILDING PAD, PAVEMENT, DRIVE AND SIDEWALK LOCATIONS HAVE BEEN PROVIDED BY OWNER OR OWNER REPRESENTATIVE. IT IS THE RESPONSIBILITY OF THE OWNER/REPRESENTATIVE TO VERIFY THIS INFORMATION IS CORRECT PRIOR TO START OF CONSTRUCTION.
15. LOCATIONS SHOWN ON THE DESIGN PLANS FOR THE REMOVAL AND REPLACEMENT OF CONCRETE PAVEMENT, DRIVES, SLABS, SIDEWALKS, ETC. ARE ONLY SYMBOLIC. IF EXISTING PAVEMENT IS MORE THAN 5 YEARS OLD, THE PAVEMENT CUT AND REPAIR STANDARDS MANUAL MUST BE FOLLOWED. IF PAVEMENT IS 5 YEARS OR LESS, THE ENTIRE CONCRETE PANEL MUST BE REPLACED.

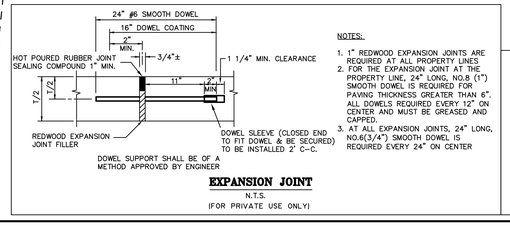
PRELIMINARY
NOT FOR CONSTRUCTION

THIS DOCUMENT IS ISSUED FOR THE PURPOSE OF DESIGN DEVELOPMENT REVIEW AND COST ESTIMATING. IT IS NOT INTENDED BIDDING OR CONSTRUCTION PURPOSES.

PLANS PREPARED UNDER THE DIRECT SUPERVISION OF ROBERT W. SCHNEEBERG, P.E. TEXAS REGISTRATION NO. 65352
DATE: 12/01/2016

GONZALEZ & SCHNEEBERG ENGINEERS & SURVEYORS, INC. REGISTRATION # 335-716
STATE OF TEXAS
ROBERT W. SCHNEEBERG
65352
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY ROBERT W. SCHNEEBERG, P.E. 65352 ON 12/01/2016 ; ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.



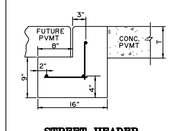
EXPANSION JOINT

N.T.S.

(FOR PRIVATE USE ONLY)

NOTES:

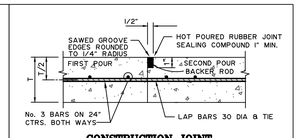
1. 1" REDWOOD EXPANSION JOINTS ARE REQUIRED AT ALL PROPERTY LINES
2. FOR THE EXPANSION JOINT AT THE PROPERTY LINE, 24" LONG, NO.8 (1") SMOOTH DOWEL IS REQUIRED FOR PAVING THICKNESS GREATER THAN 6". ALL DOWELS REQUIRED EVERY 12" ON CENTER AND MUST BE GREASED AND CAPPED.
3. AT ALL EXPANSION JOINTS, 24" LONG, NO.6(3/4") SMOOTH DOWEL IS REQUIRED EVERY 24" ON CENTER



STREET HEADER

N.T.S.

(251-D, PG. 9002)



CONSTRUCTION JOINT

N.T.S.

(251-D, PG. 1003)

ADA COMPLIANCE:

Contractor shall be responsible for insuring that all sidewalks and accessible routes are constructed with a maximum running slope of less than 5% and a maximum side slope of less than 2%. Additionally the contractor shall insure that all applicable rules and requirements of the ADA accessibility standards are met.

I-800-344-8377 (DIG-TESS)

Contractor shall contact Dig-tess or other utility locator service no earlier than 14 days and no later than 48 hours prior to construction activity. Gonzalez & Schneeberg Engineers & Surveyors, Inc. is not responsible for knowing all existing utilities or depicting exact location of utilities on drawing.

NO.	DATE	REVISION

CITY PLAN FILE NO. S123-XXX C2

PROJ. NO. 6529-16-09-07 DWG. NO. 6529-pav.dwg

Gonzalez & Schneeberg
engineers ▪ surveyors
660 N. Central Expressway
Suite 250, Plano, Texas 75074
(972) 516-8855 Fax:(972) 516-8901

SITE AND PAVING PLAN

SOLAR PREPARATORY ACADEMY FOR GIRLS

BON VIEW PLACE, LOTS 3-8, BLOCK A/1991

CITY OF DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
GSES	GSES	DECEMBER 2016	1"=30'		311T	

BWA ARCHITECTS
Boynton Williams & Associates
ARCHITECTURE
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INTERIORS
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bwaarchitects.com
A Professional Corporation
Member: American Institute of Architects

Solar Preparatory School for Girls (Org 306)
2617 N. Henderson Avenue
Dallas, TX 75206
SITE AND PAVING PLAN

REVISIONS

NO.	DESCRIPTION	DATE

ISSUE DATE 00.00.00

PROJECT NO. D16032

SHEET NO. **C2**

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TRAFFIC MANAGEMENT PLAN
DISD Solar Preparatory School for Girls

Dallas, Texas

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INTRODUCTION

The services of **Pacheco Koch** (PK) were retained on behalf of the **Dallas Independent School District** (DISD) to prepare a Traffic Impact Analysis (TIA) for *Solar Preparatory School for Girls* (the "Project") located at 2617 N. Henderson Avenue in Dallas, Texas. A proposed site plan for the Project, prepared by BWA Architects, and a site location map (**Exhibit *1***) are provided following the EXECUTIVE SUMMARY section of this report.

In order to facilitate development of the Project, Dallas Independent School District (the "Applicant") has made a request to the City of Dallas (the "Approving Agency") for creation of a Planned Development District. As part of application process, submittal of a TIA by the Applicant to the Approving Agency is required.

This TIA was prepared by traffic engineers at Pacheco Koch (the "Engineer") in accordance with industry and local standards. Pacheco Koch is a licensed engineering firm based in Dallas, Texas, that provides professional engineering and related services.

Purpose

The Approving Agency may require the Applicant to commission and submit a TIA to assist the technical staff of that agency in the review of certain aspects of the Applicant's request (for rezoning, site plan approval, etc.). A TIA is an engineering study prepared for a specific project under the supervision of a licensed engineer skilled in the principles of traffic and transportation engineering and planning. The study is an objective presentation of analytical findings based upon an investigation of existing and future traffic operations in the immediate vicinity of a Project. Typically, TIAs are specifically designed to measure the traffic operational impact of a Project during critical periods on a typical day. The TIA results are then used to identify occasions where the project may have undue impact on local traffic operations.[1] Under certain circumstances, the Applicant may, within established legal parameters, be required to mitigate such undue impacts. While a TIA may also identify pre-existing or anticipated problem areas that are unrelated to the project, the Applicant is not responsible for mitigation of such instances.

Where appropriate and feasible, the Engineer may recommend measures that are specifically intended to mitigate project-related impacts. The Engineer may also make general recommendations, either related or unrelated to the Project, to improve overall traffic operations, safety, site access, circulation, etc. All recommendations are the opinion of the Engineer and are subject to the acceptance and customary review/approval processes of the respective agency.

[1] Undue impact is a subjective interpretation but is generally characterized when traffic operations degrade from conditions that are generally considered "acceptable" to conditions that are generally considered "unacceptable". Typically, in urban areas, "acceptable" conditions are categorized as Level of Service *D*, or better; while in rural areas, "acceptable" conditions may be categorized as Level of Service *C*, or better.

A TIA is not a detailed site plan review nor a substitute for local or regional transportation planning.

Project Description

The Project consists of an existing elementary school. Currently, the school serves grades Kindergarten through 2nd with an enrollment of 198 students. DISD plans to add one grade per year through 2022. At full occupancy, the school will serve grades Kindergarten through 8th with an enrollment of approximately 900 students. A summary of the proposed development program is provided in **Table 1.**

Table 1. Development Program Summary

USE	EXISTING CONDITIONS	FUTURE CONDITIONS
Elementary School	198 Students Grades: K-2nd School Buses: 7	900 Students Grades: K-8th School Buses: 14

NOTE: The development program provided above is based upon the most current and complete information available at the time of this study publication.

The 3.907-acre subject site is currently zoned TH-3(A) (townhouse) and MF-2(A) (multifamily). A public school requires an SUP in a residential zoning district.

The property has operated as a public school since 1922. The school, James B. Bonham Elementary, closed for a brief time in 2012 and reopened in August 2016 as a Choice School that is an all-girls STEAM (science, technology, engineering, arts, and math) academy.

As depicted on the site plan, proposed improvements include constructing a new loading area on Manett Street and expanding the on-site parking lot. All vehicular site access will be on Manett Street.

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 site generated 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)

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.

The following technical assumptions were also made in this analysis.

- Background traffic on Henderson Avenue were increased at a higher rate than usual in order to account for proposed and potential future development in the corridor. Anticipated projects include a 190,000 SF mixed-use development by Open Realty Advisors that is located within 0.5 miles to the east of the subject site.

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) Henderson Avenue and Mission Street: *STOP-controlled on Mission Street*
(b) Henderson Avenue and Manett Street: *STOP-controlled on Manett Street*
(c) Mission Street and Garrett Avenue: *STOP-controlled on Garrett Avenue*
(d) Manett Street and Garrett Avenue: *all-way STOP-controlled*
(e) Major site driveways: *STOP-controlled on driveway*

Roadway Links:

(A) Henderson Avenue adjacent to site
- 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: 14,769 (Wednesday, January 18th, 2016)
- Other: A 'Henderson Avenue Complete Street' project is currently under design by the City of Dallas. The project limits are US 75/N. Central Expressway to the west and Ross Avenue to the east. The scope of work includes restriping the existing roadway (no widening) to provide two, narrowed travel lanes with on-street parking and curb extension at various locations. The project is expected to begin in Fall 2017 and take approximately one year to complete.[2]

[2] Information obtained from City of Dallas, Mobility and Street Services Department.

Surrounding land uses include multifamily on the east (across Manett Street), mixed residential uses to the immediate south and north (across Henderson Avenue), and a public park (Cochran Park) immediately west of the site.

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 Wednesday, January 18th, 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 2** 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 2. Historical Daily Traffic Volume Data

ROADWAY SEGMENT	HISTORICAL DAILY VOLUME (DATE)	ANNUAL GROWTH RATE
Henderson Avenue, west of Manett Street	14,769 ('16)[A] 14,769 ('09)[B] 14,115 ('02)[C]	0.65% -0.17%

Data Source: A = PK; B = TxDOT; C = City of Dallas

According to these data, traffic volumes in the vicinity of the subject site appear to generally be relatively stable. Although no consistent growth factor is evident, PK conservatively assumed an annual growth rate of 2.0 percent on Henderson Avenue and 1.0 percent on other local streets to determine background traffic growth.

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 modified results obtained from 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; however, engineering judgment is required when published data is insufficient or unavailable.

For schools, numerous site-specific variable, such as mode split, etc., can affect the trip generation projects. Local studies, by others, show that local schools with no mode split (i.e., all travelling by parent drop-off/pick-up, such as at some private schools and charter schools) generates more traffic than the default ITE-projected data. Specifically, for schools AM trip generation is approximately 27% higher than ITE data and afternoon trip generation is approximately 11% higher than ITE data. However, what isn't factored into these calculations are the percentages of students who travel by walking, school bus, transit, etc. or who have a consistent, alternative schedule that negates travel during the normal start/end times.

Table 3 provides a summary of the calculated net increase in trip ends generated by the project. Supplemental information used in the trip generation calculations is provided in **Appendix C.**

Table 3. Projected Trip Generation Summary

SCENARIO	DAILY TRIP ENDS* (WEEKDAY)	AM PEAK HOUR TRIP ENDS** (GENERATOR PEAK)	PM PEAK HOUR TRIP ENDS** (GENERATOR PEAK)
		Total (In/Out)	**Total** (In/Out)
Existing Uses	255	**116** (62/54)	**74** (35/39)
Projected at Full Buildout	1,161	**490** (263/226)	**299** (142/158)
Net Increase	906	**374** (201/173)	**226** (106/119)

** ITE values, unadjusted.*

*** Adjusted ITE values.*

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 3**) 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 type of 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 Background-plus-Site-Generated traffic volumes at the Site Buildout Year 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 4** provides a summary of the peak period intersection operational conditions under the analysis conditions presented previously. Detailed software output is provided in **Appendix D**.

See conclusions in the *SUMMARY OF FINDINGS AND RECOMMENDATIONS* section of this report.

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

INTERSECTION	TRAFFIC MANEUVER	EXISTING CONDITIONS		BACKGROUND CONDITIONS		BUILDOUT CONDITIONS	
		AM	PM	AM	PM	AM	PM
Henderson Avenue @ Mission Street	NBLR	C (17.7)	C (18.9)	C (23.9)	C (22.0)	C (24.4)	C (24.4)
	WBL	A (8.0)	A (8.9)	A (8.1)	A (9.2)	A (8.4)	A (9.4)
Henderson Avenue @ Manett Street	NBLR	C (21.9)	C (19.3)	D (26.5)	C (22.6)	F (50.3)	D (27.5)
	WBL	A (8.2)	A (8.9)	A (8.3)	A (9.2)	A (9.0)	A (9.6)
Manett Street @ Garrett Avenue	NBL	A (7.5)	A (7.4)	A (7.5)	A (7.4)	A (7.8)	A (7.6)
	EBLTR	B (10.2)	B (10.6)	B (10.3)	B (10.7)	C (17.6)	B (14.8)
	WBLTR	A (10.0)	B (10.5)	B (10.1)	B (10.6)	B (13.8)	B (13.3)
	SBL	A (7.4)	A (7.4)	A (7.4)	A (7.4)	A (7.7)	A (7.6)
Mission Street @ Garrett Avenue	NB	A (7.3)	A (7.2)	A (7.3)	A (7.3)	A (7.3)	A (7.3)
	EB	A (7.2)	A (7.3)	A (7.3)	A (7.4)	A (7.3)	A (7.4)
	WB	A (7.2)	A (7.2)	A (7.2)	A (7.2)	A (7.3)	A (7.3)
	SB	A (7.1)	A (7.4)	A (7.1)	A (7.4)	A (7.2)	A (7.4)
Manett Street @ Drive 3	NBL	-	-	-	-	A (7.8)	A (7.6)
	EBLR	-	-	-	-	B (10.8)	A (9.8)

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

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.

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
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 ≤ 25% is LOS *A*,
Volume:Capacity Ratio > 25% and ≤ 45% is LOS *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 conclusions 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
Henderson Avenue Existing Conditions	14,769	9,500	1.55 – *F*
Site Buildout Conditions	16,623	9,500	1.75 – *F*

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: The subject site has been used as a public school since 1922. The site contains very limited on-site area to accommodate vehicular traffic; however, these areas are being increased as part of proposed site improvements. Additionally, 23 recessed parallel parking spaces will be constructed adjacent to the school property (12 on Henderson Avenue as part of the City's 'Complete Streets' project, and 11 on Manett as part of the site improvements). The surrounding area has fully developed and some area have undergone redevelopment. Due to the age of the roadway network in the area, most roadways are very narrow and some, including Henderson Avenue, operate over capacity.

FINDING: Due to the nature of Solar Preparatory School for Girls (being a specialty academy serving the entire school district), a higher percentage of students than usual do rely on the school bus system for transportation. Based upon on-site observations, approximately 35% of students currently utilize the school bus in the afternoons on seven (7) buses. At full buildout, DISD indicates that fourteen (14) school buses serve the school.

- RECOMMENDATION: In order to minimize private vehicle traffic impact at the school, it is recommended that the School encourage and maximize school bus ridership. The TMP prepared by Pacheco Koch indicates the site is functional if the current 35% busing is maintained. However, achieving a higher percentage of travel by school bus is desirable.

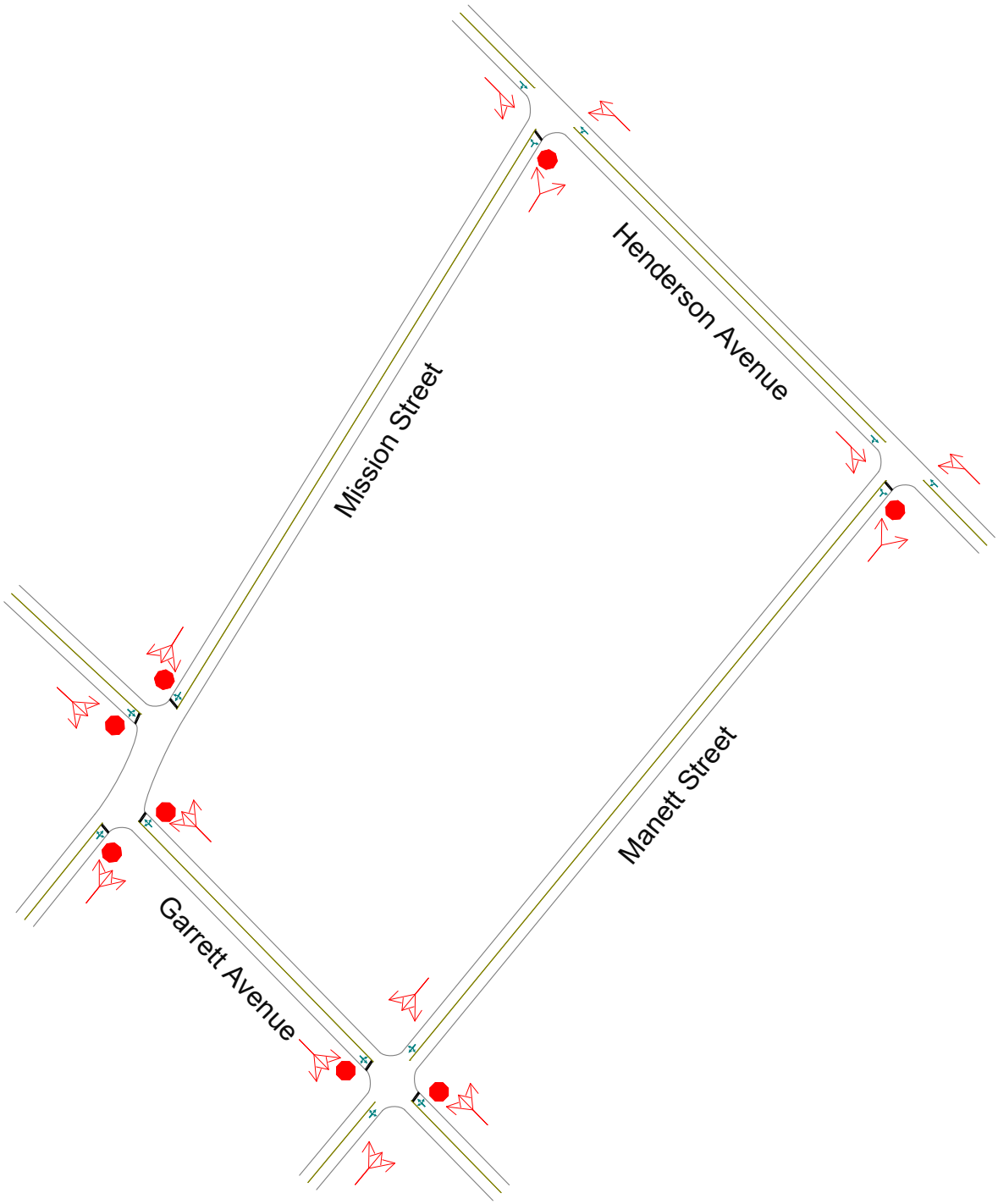
- RECOMMENDATION: Comply with the recommendations of the latest Traffic Management Plan. (See separate TMP prepared by Pacheco Koch in concert with this TIA.)

END OF MEMO

Appendix A. Traffic Volume Exhibits

Appendix A1 - Roadway Geometry

North ^
Not to Scale

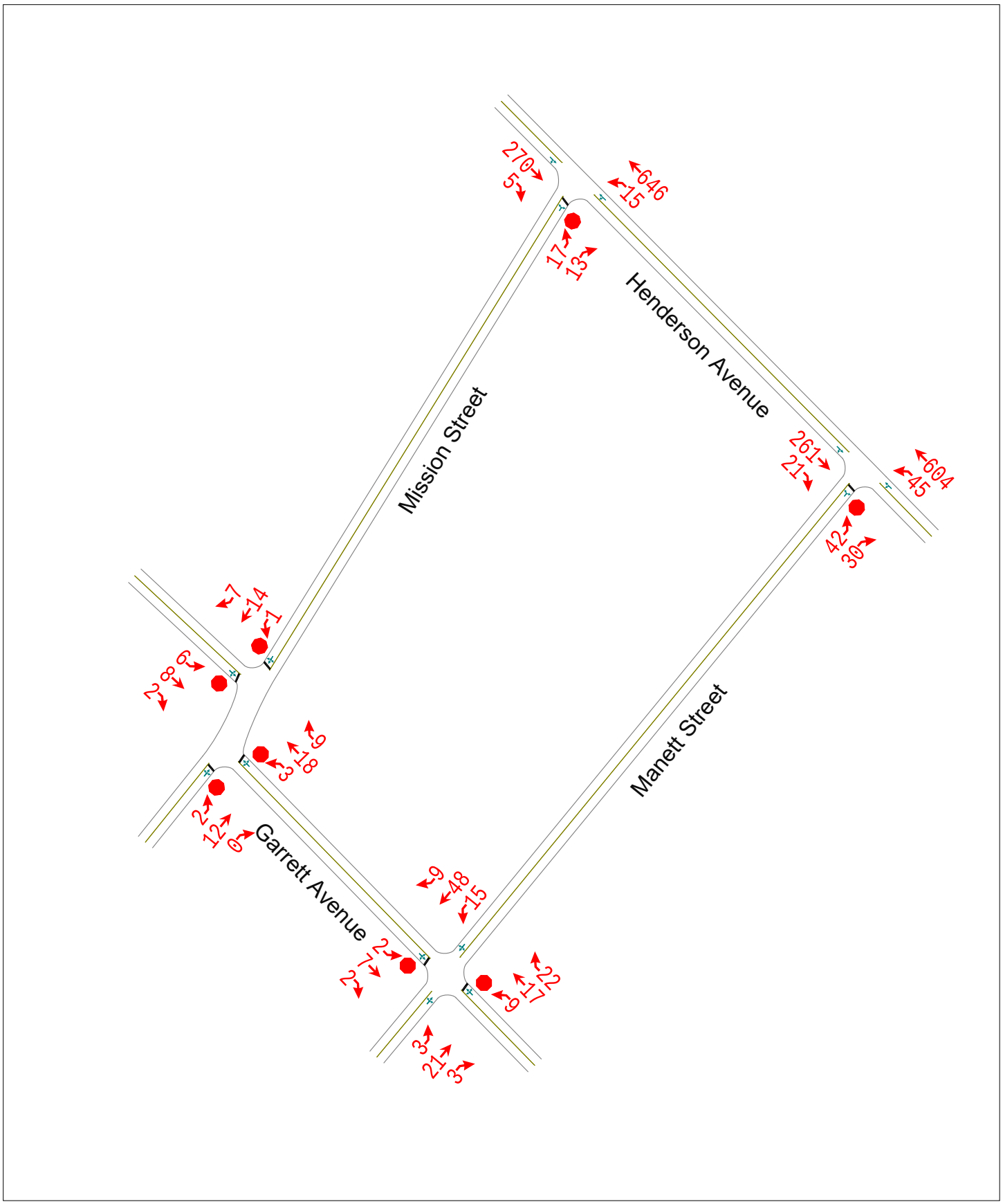


3921-17.035
HWL

01/31/2017
Pacheco Koch

Appendix A2 - Existing AM Peak Hour Traffic Volumes

North ^
Not to Scale



3921-17.035
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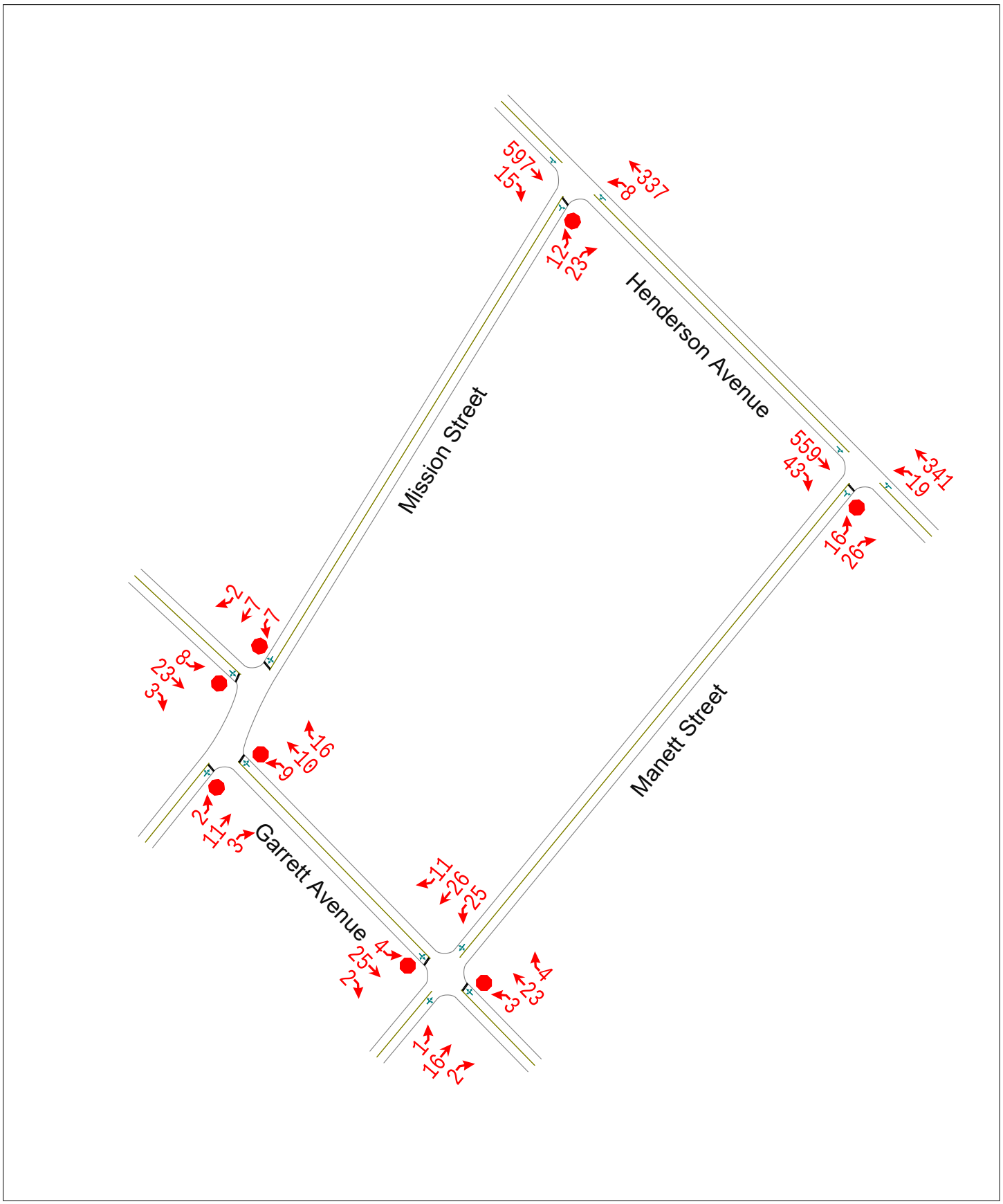
Appendix A3 - Existing PM Peak Hour Traffic Volumes

North ^
Not to Scale



3921-17.035
HWL

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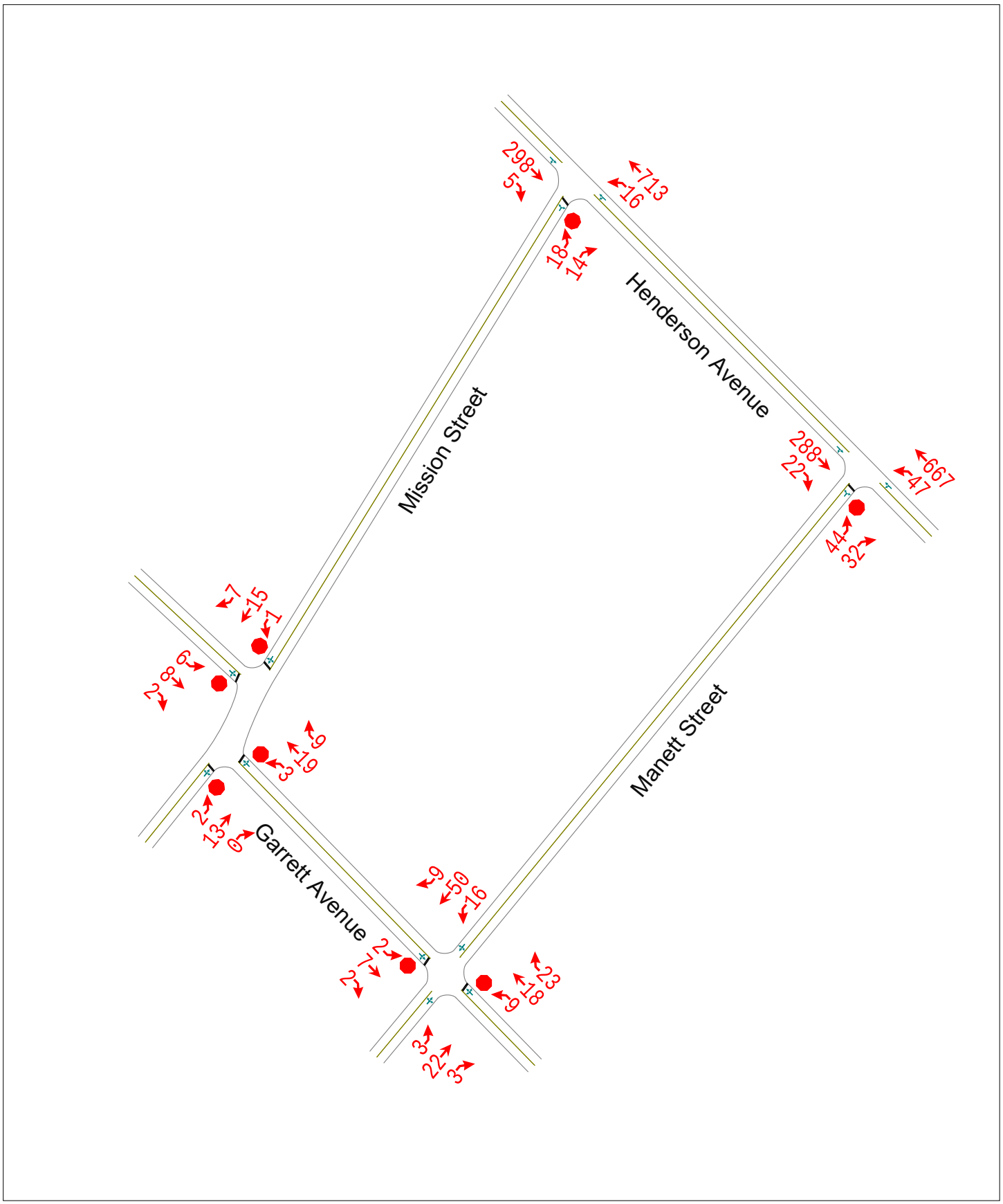
Appendix A4 - Background AM Peak Hour Traffic Volumes

North ^
Not to Scale



3921-17.035
HWL

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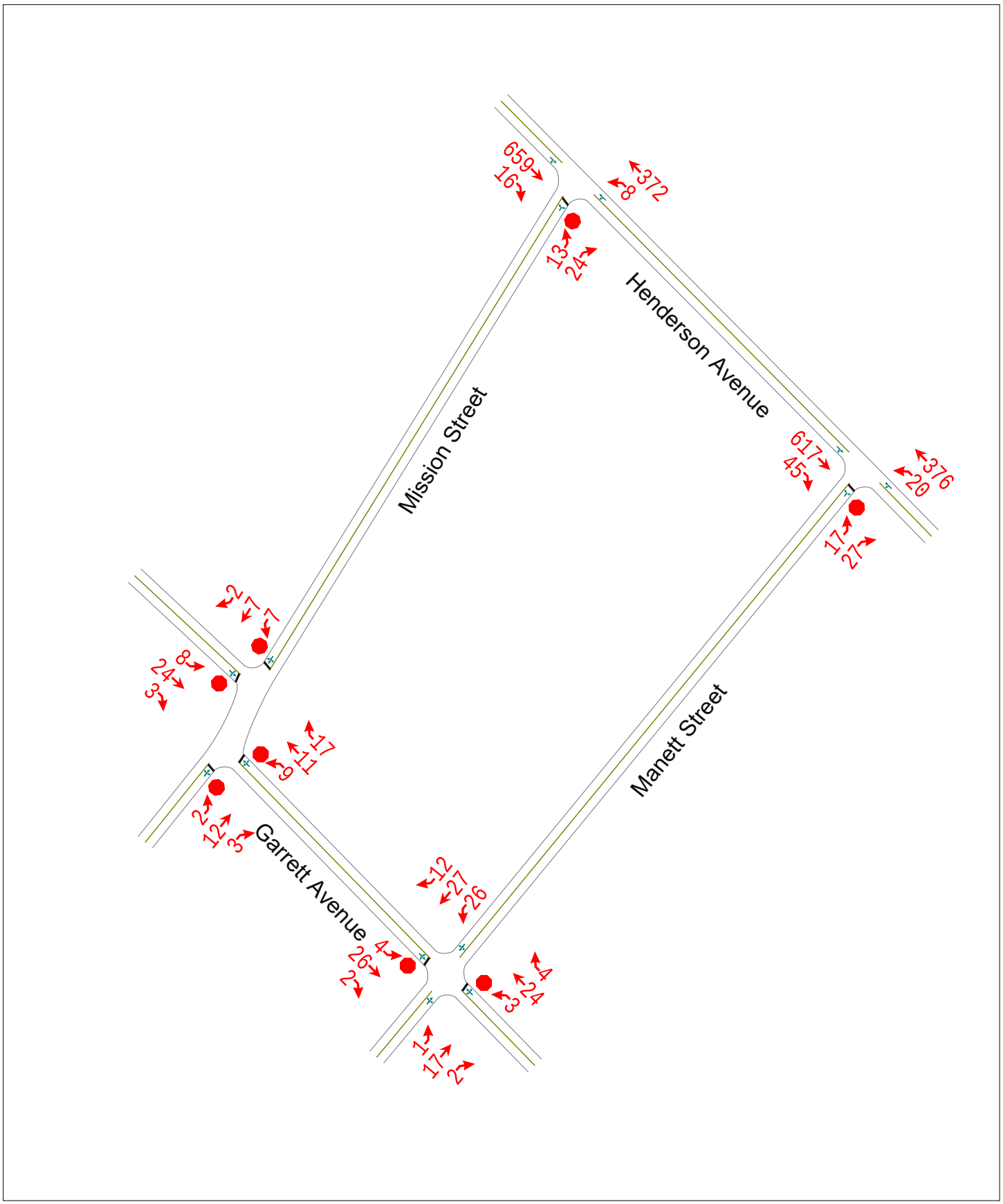
Appendix A5 - Background PM Peak Hour Traffic Volumes

North ^
Not to Scale



3921-17.035
HWL

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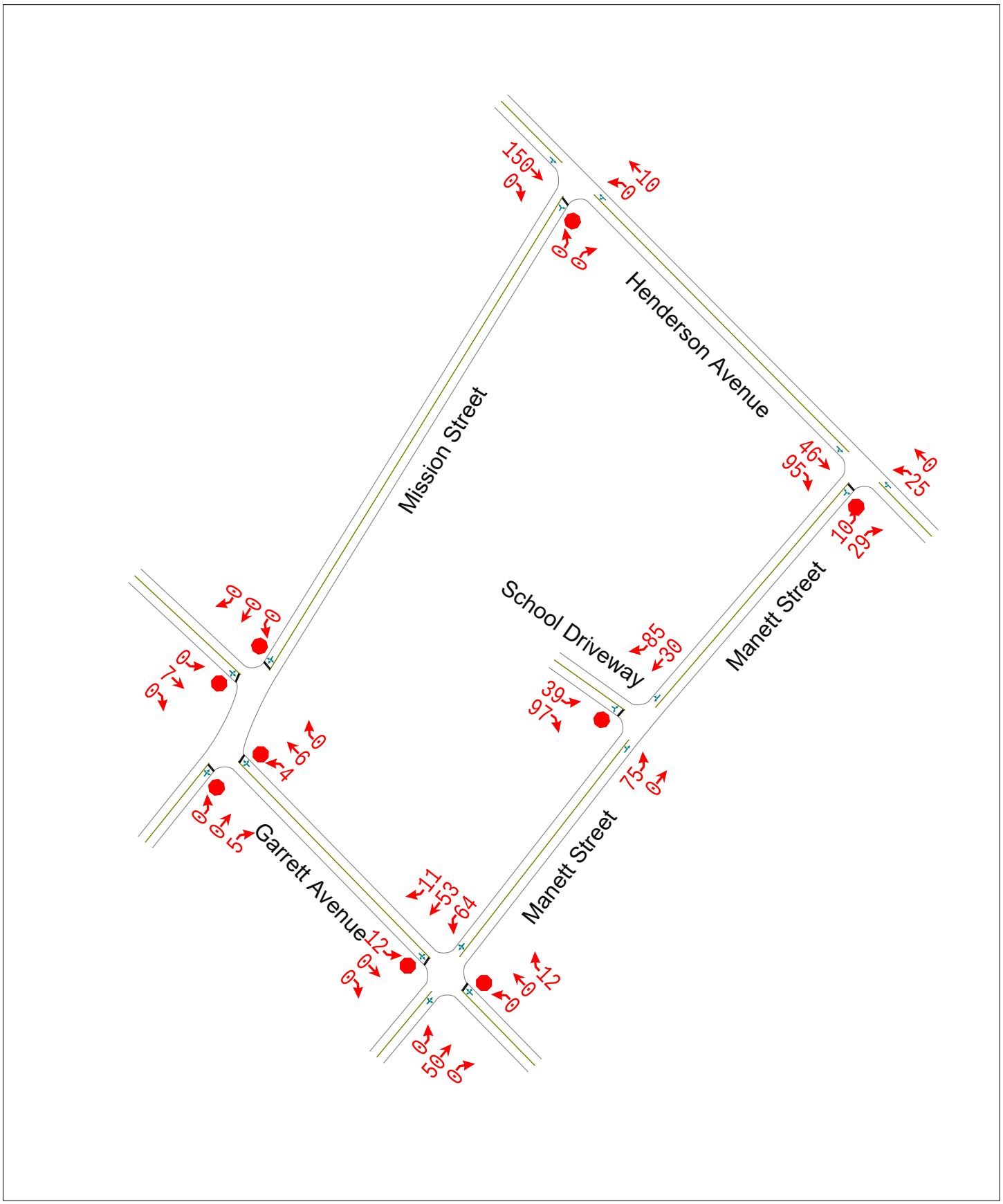
Appendix A6 - Site Generated AM Peak Hour Traffic Volumes

North ^
Not to Scale



3921-17.035
HWL

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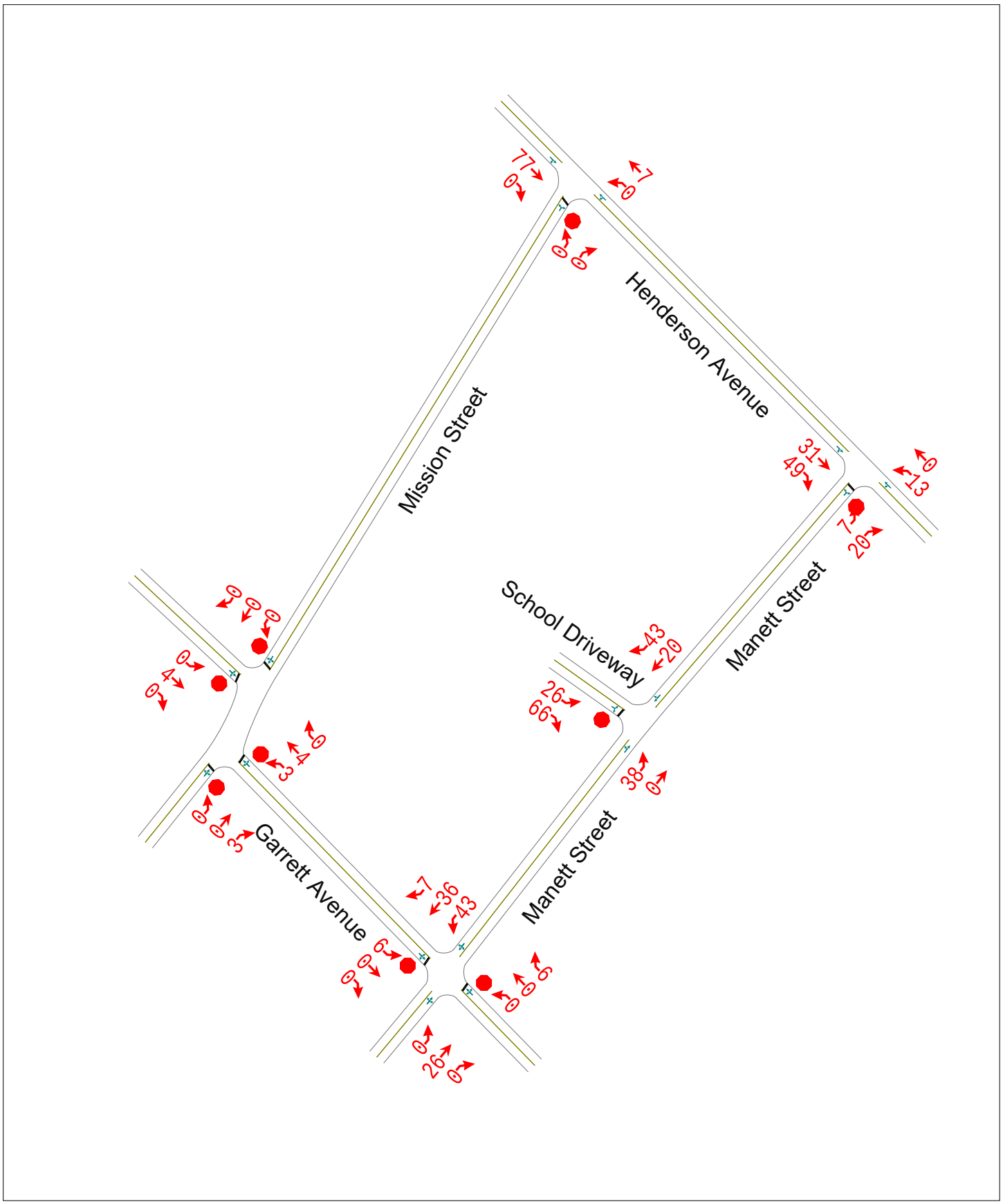
Appendix A7 - Site Generated PM Peak Hour Traffic Volumes

North ^
Not to Scale



3921-17.035
HWL

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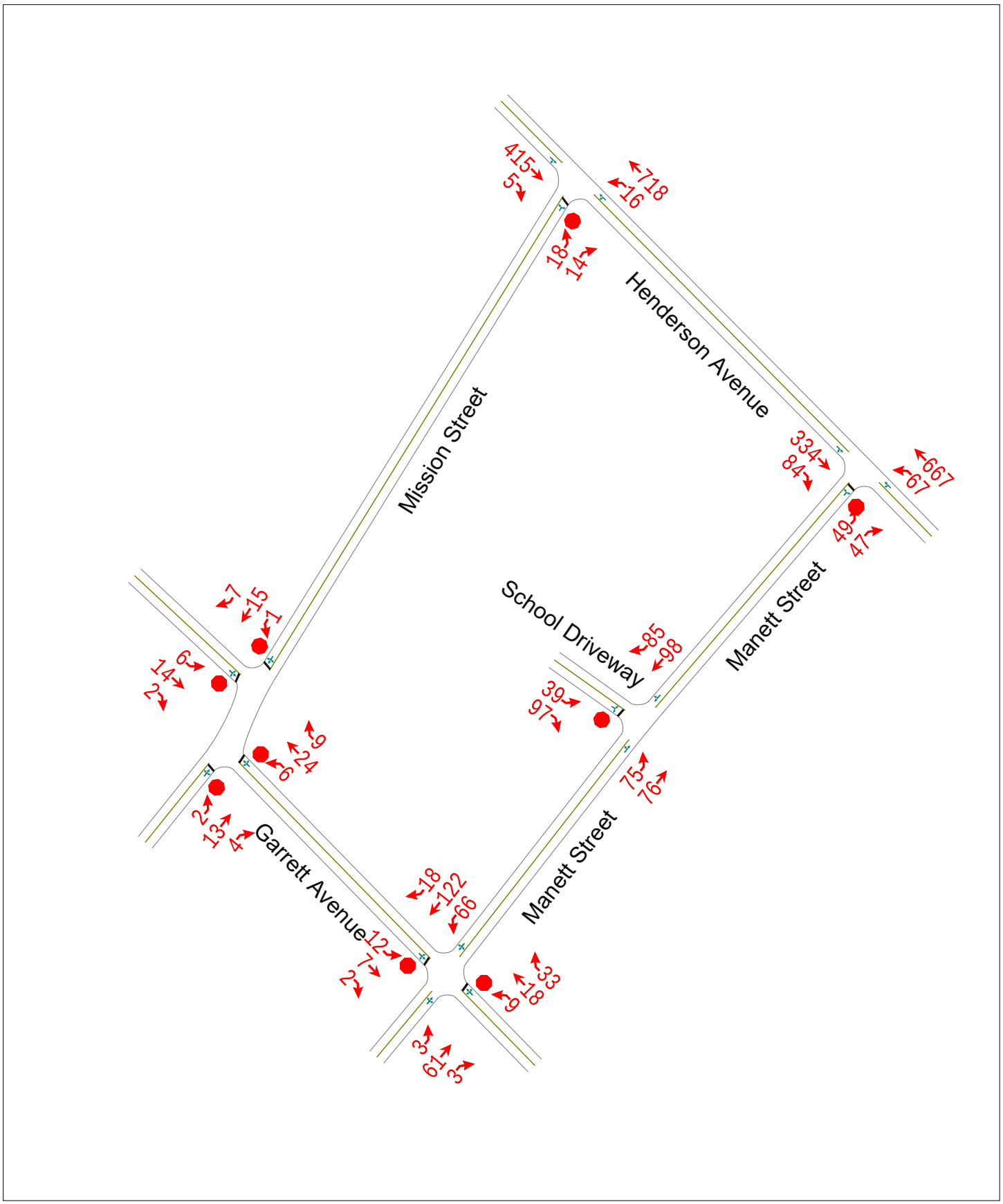
Appendix A8 - Background Plus Site Generated AM Peak Hour Traffic Volumes

North ^
Not to Scale



3921-17.035
HWL

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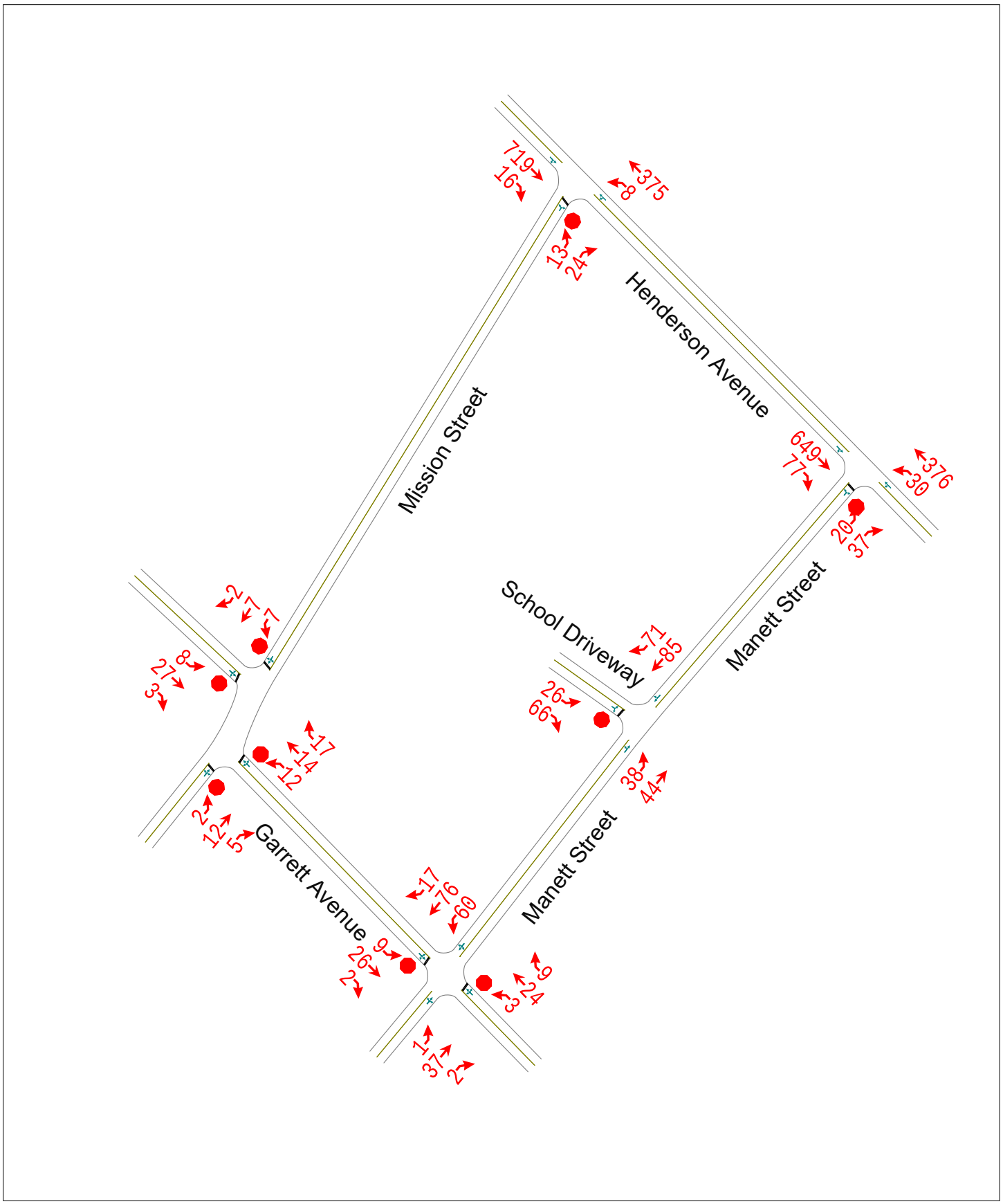
Appendix A9 - Background Plus Site Generated PM Peak Hour Traffic Volumes

North ^
Not to Scale



3921-17.035
HWL

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Appendix B. Detailed Traffic Volume Data

Intersection Turning Movement Counts

										EAST LEG								**SOUTH LEG**								**WEST LEG**					
										Westbound Approach on Henderson Avenue								Northbound Approach on Mission Street								Eastbound Approach on Henderson 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***		***8:00 AM***	***8:15 AM***							***3***	***170***	***-***	***0***	***0***			***8***	***-***	***6***	***1***	***0***			***-***	***78***	***0***	***0***	***0***
State:	***Texas***		***8:15 AM***	***8:30 AM***							***7***	***146***	***-***	***0***	***0***			***5***	***-***	***3***	***0***	***1***			***-***	***61***	***2***	***0***	***0***
Day:	***Wednesday***		***8:30 AM***	***8:45 AM***							***2***	***161***	***-***	***0***	***0***			***1***	***-***	***2***	***0***	***0***			***-***	***58***	***2***	***0***	***0***
Date:	***January 18th***		***8:45 AM***	***9:00 AM***							***3***	***169***	***-***	***0***	***0***			***3***	***-***	***2***	***1***	***0***			***-***	***73***	***1***	***0***	***0***
Year:	***2016***		9:00 AM	9:15 AM							0	156	-	0	0			5	-	0	0	1			-	65	0	0	0
Data Collector:	***Camera***		9:15 AM	9:30 AM							2	123	-	0	0			0	-	0	1	0			-	80	0	0	0
Data Source:	***CJ Hensch***		9:30 AM	9:45 AM							0	103	-	0	0			4	-	0	0	3			-	54	1	0	1
Traffic Control:	***Minor Approach Stop***		9:45 AM	10:00 AM							2	114	-	0	0			2	-	0	0	0			-	83	1	0	0
Observations:																													
			3:00 PM	3:15 PM							1	85	-	0	0			0	-	0	0	0			-	127	1	0	0
			3:15 PM	3:30 PM							0	93	-	0	0			1	-	3	2	0			-	129	1	1	0
			3:30 PM	3:45 PM							2	92	-	0	0			0	-	2	0	0			-	135	2	0	0
			3:45 PM	**4:00 PM**							**1**	**75**	**-**	**0**	**0**			**2**	**-**	**3**	**0**	**0**			**-**	**147**	**1**	**2**	**0**
			4:00 PM	***4:15 PM***							***4***	***74***	***-***	***0***	***0***			***1***	***-***	***4***	***2***	***0***			***-***	***159***	***4***	***0***	***0***
			4:15 PM	***4:30 PM***							***1***	***64***	***-***	***0***	***0***			***8***	***-***	***13***	***0***	***1***			***-***	***137***	***6***	***0***	***0***
			4:30 PM	***4:45 PM***							***2***	***124***	***-***	***0***	***0***			***1***	***-***	***3***	***0***	***0***			***-***	***154***	***4***	***0***	***1***
			4:45 PM	*5:00 PM*							*2*	*89*	-	*0*	*0*			*3*	-	*2*	*0*	*3*			-	*184*	*3*	*0*	*0*
AM Peak Hour	*Intersection PHF:*	*0.91*		*Intersection PHV:*							*15*	*646*	*0*					*17*	*0*	*13*					*0*	*270*	*5*		
	Peak Hour	*8:00 AM - 9:00 AM*		*PHF:*							*0.54*	*0.95*	*0.00*					*0.53*	*0.00*	*0.54*					*0.00*	*0.87*	*0.63*		
	Study Area PHF:	0.91		Study Area PHV:							**15**	**646**	**0**					**17**	**0**	**13**					**0**	**270**	**5**		
	Peak Hour:	8:00 AM - 9:00 AM		PHF:							**0.54**	**0.95**	**0.00**					**0.53**	**0.00**	**0.54**					**0.00**	**0.87**	**0.63**		
PM Peak Hour	*Intersection PHF:*	*0.91*		*Intersection PHV:*							*9*	*351*	*0*					*13*	*0*	*22*					*0*	*634*	*17*		
	Peak Hour	*4:00 PM - 5:00 PM*		*PHF:*							*0.56*	*0.71*	*0.00*					*0.41*	*0.00*	*0.42*					*0.00*	*0.86*	*0.71*		
	Study Area PHF:	0.86		Study Area PHV:							**8**	**337**	**0**					**12**	**0**	**23**					**0**	**597**	**15**		
	Peak Hour:	3:45 PM - 4:45 PM		PHF:							**0.50**	**0.68**	**0.00**					**0.38**	**0.00**	**0.44**					**0.00**	**0.94**	**0.63**		

Pacheco Koch

PK# 3921-17.035

Mission Street at Henderson Avenue

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Manett Street						Westbound Approach on Henderson Avenue						Northbound Approach on Manett Street						Eastbound Approach on Henderson 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***	***8:00 AM***	***8:15 AM***					***0***	***1***		***26***	***155***	***-***	***0***	***0***		***10***	***-***	***16***	***1***	***0***		***-***	***72***	***14***	***2***	***3***
State:	***Texas***	***8:15 AM***	***8:30 AM***					***0***	***0***		***8***	***140***	***-***	***0***	***0***		***8***	***-***	***10***	***0***	***0***		***-***	***59***	***3***	***0***	***0***
Day:	***Wednesday***	***8:30 AM***	***8:45 AM***					***0***	***0***		***3***	***154***	***-***	***0***	***0***		***10***	***-***	***2***	***2***	***0***		***-***	***61***	***3***	***0***	***0***
Date:	***January 18th***	***8:45 AM***	***9:00 AM***					***0***	***0***		***8***	***155***	***-***	***0***	***0***		***14***	***-***	***2***	***1***	***0***		***-***	***69***	***1***	***0***	***0***
Year:	***2016***	9:00 AM	9:15 AM					0	0		4	146	-	0	0		8	-	5	0	1		-	69	0	0	0
Data Collector:	***Camera***	9:15 AM	9:30 AM					0	0		2	116	-	0	0		11	-	5	0	0		-	76	3	0	0
Data Source:	***CJ Hensch***	9:30 AM	9:45 AM					1	0		2	101	-	0	0		4	-	2	0	0		-	51	2	0	0
Traffic Control:	***Minor Approach Stop***	9:45 AM	10:00 AM					0	0		1	114	-	0	0		3	-	2	0	0		-	80	3	0	0
Observations:																											
		3:00 PM	3:15 PM					1	1		3	79	-	0	0		7	-	4	1	1		-	121	2	0	0
		3:15 PM	3:30 PM					1	0		5	86	-	0	0		6	-	1	3	0		-	125	6	0	0
		3:30 PM	3:45 PM					2	0		4	93	-	0	0		1	-	1	0	2		-	128	13	0	2
		3:45 PM	**4:00 PM**					**0**	**1**		**7**	**80**	**-**	**0**	**0**		**2**	**-**	**1**	**0**	**1**		**-**	**143**	**8**	**0**	**0**
		4:00 PM	***4:15 PM***					***4***	***0***		***4***	***76***	***-***	***0***	***0***		***3***	***-***	***2***	***0***	***1***		***-***	***144***	***12***	***4***	***0***
		4:15 PM	***4:30 PM***					***3***	***11***		***2***	***60***	***-***	***0***	***0***		***7***	***-***	***15***	***3***	***1***		***-***	***128***	***16***	***3***	***13***
		4:30 PM	***4:45 PM***					***0***	***1***		***6***	***125***	***-***	***0***	***0***		***4***	***-***	***8***	***5***	***1***		***-***	***144***	***7***	***0***	***1***
		4:45 PM	*5:00 PM*					*0*	*0*		*2*	*86*	-	*0*	*0*		*5*	-	*6*	*1*	*3*		-	*175*	*12*	*0*	*0*

AM Peak Hour	*Intersection PHF:*	*0.86*	*Intersection PHV:*								*45*	*604*	*0*				*42*	*0*	*30*				*0*	*261*	*21*		
	Peak Hour	*8:00 AM - 9:00 AM*	*PHF:*								*0.43*	*0.97*	*0.00*				*0.75*	*0.00*	*0.47*				*0.00*	*0.91*	*0.38*		
	Study Area PHF:	0.86	Study Area PHV:								**45**	**604**	**0**				**42**	**0**	**30**				**0**	**261**	**21**		
	Peak Hour:	8:00 AM - 9:00 AM	PHF:								**0.43**	**0.97**	**0.00**				**0.75**	**0.00**	**0.47**				**0.00**	**0.91**	**0.38**		
PM Peak Hour	*Intersection PHF:*	*0.89*	*Intersection PHV:*								*14*	*347*	*0*				*19*	*0*	*31*				*0*	*591*	*47*		
	Peak Hour	*4:00 PM - 5:00 PM*	*PHF:*								*0.58*	*0.69*	*0.00*				*0.68*	*0.00*	*0.52*				*0.00*	*0.84*	*0.73*		
	Study Area PHF:	0.85	Study Area PHV:								**19**	**341**	**0**				**16**	**0**	**26**				**0**	**559**	**43**		
	Peak Hour:	3:45 PM - 4:45 PM	PHF:								**0.68**	**0.68**	**0.00**				**0.57**	**0.00**	**0.43**				**0.00**	**0.97**	**0.67**		

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Manett Street						Westbound Approach on Garrett Avenue						Northbound Approach on Manett Street						Eastbound Approach on Garrett 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***	***8:00 AM***	***8:15 AM***		***9***	***24***	***6***	***0***	***0***		***6***	***6***	***4***	***1***	***0***		***1***	***15***	***3***	***0***	***0***		***1***	***2***	***0***	***0***	***0***
State:	***Texas***	***8:15 AM***	***8:30 AM***		***2***	***11***	***3***	***1***	***0***		***3***	***4***	***7***	***0***	***0***		***2***	***2***	***0***	***0***	***0***		***1***	***2***	***1***	***1***	***0***
Day:	***Wednesday***	***8:30 AM***	***8:45 AM***		***1***	***6***	***0***	***0***	***0***		***0***	***5***	***3***	***0***	***1***		***0***	***2***	***0***	***0***	***0***		***0***	***1***	***1***	***0***	***0***
Date:	***January 18th***	***8:45 AM***	***9:00 AM***		***3***	***7***	***0***	***0***	***0***		***0***	***2***	***8***	***1***	***0***		***0***	***2***	***0***	***1***	***1***		***0***	***2***	***0***	***0***	***0***
Year:	***2016***	9:00 AM	9:15 AM		1	6	1	0	0		0	2	3	0	1		1	6	0	0	0		1	3	1	0	0
Data Collector:	***Camera***	9:15 AM	9:30 AM		2	0	0	1	0		1	5	3	0	0		1	2	0	0	0		0	4	0	1	0
Data Source:	***CJ Hensch***	9:30 AM	9:45 AM		0	1	2	0	0		0	4	1	0	0		0	6	1	0	2		0	1	0	0	1
Traffic Control:	***Minor Approach Stop***	9:45 AM	10:00 AM		1	2	1	0	0		0	3	0	0	0		2	1	1	0	0		1	1	0	0	0
Observations:																											
		3:00 PM	3:15 PM		0	5	0	2	1		0	3	1	0	1		0	3	0	1	0		0	3	0	2	0
		3:15 PM	3:30 PM		3	3	1	0	0		0	2	0	0	0		0	3	1	0	0		0	9	0	0	0
		3:30 PM	3:45 PM		0	7	0	0	0		0	5	3	0	1		0	0	0	0	0		1	4	0	0	0
		3:45 PM	**4:00 PM**		**0**	**3**	**1**	**0**	**0**		**1**	**3**	**1**	**0**	**1**		**0**	**2**	**0**	**1**	**0**		**0**	**4**	**1**	**0**	**0**
		4:00 PM	***4:15 PM***		***1***	***4***	***3***	***0***	***0***		***1***	***4***	***0***	***0***	***0***		***0***	***4***	***0***	***0***	***1***		***0***	***5***	***0***	***0***	***0***
		4:15 PM	***4:30 PM***		***20***	***15***	***5***	***0***	***0***		***0***	***11***	***1***	***0***	***0***		***0***	***7***	***1***	***0***	***0***		***2***	***11***	***0***	***0***	***0***
		4:30 PM	***4:45 PM***		***4***	***4***	***2***	***0***	***0***		***1***	***5***	***2***	***0***	***0***		***1***	***3***	***1***	***0***	***1***		***2***	***5***	***1***	***0***	***0***
		4:45 PM	*5:00 PM*		*1*	*13*	*0*	*0*	*1*		*2*	*1*	*2*	*1*	*2*		*1*	*7*	*1*	*0*	*3*		*3*	*5*	*0*	*0*	*1*
AM Peak Hour	*Intersection PHF:*	*0.51*		*Intersection PHV:*	*15*	*48*	*9*			*9*	*17*	*22*				*3*	*21*	*3*				*2*	*7*	*2*			
	Peak Hour	*8:00 AM - 9:00 AM*		*PHF:*	*0.42*	*0.50*	*0.38*			*0.38*	*0.71*	*0.69*				*0.38*	*0.35*	*0.25*				*0.50*	*0.88*	*0.50*			
	Study Area PHF:	0.51		Study Area PHV:	**15**	**48**	**9**			**9**	**17**	**22**				**3**	**21**	**3**				**2**	**7**	**2**			
	Peak Hour:	8:00 AM - 9:00 AM		PHF:	**0.42**	**0.50**	**0.38**			**0.38**	**0.71**	**0.69**				**0.38**	**0.35**	**0.25**				**0.50**	**0.88**	**0.50**			
PM Peak Hour	*Intersection PHF:*	*0.55*		*Intersection PHV:*	*26*	*36*	*10*			*4*	*21*	*5*				*2*	*21*	*3*				*7*	*26*	*1*			
	Peak Hour	*4:00 PM - 5:00 PM*		*PHF:*	*0.33*	*0.60*	*0.50*			*0.50*	*0.48*	*0.63*				*0.50*	*0.75*	*0.75*				*0.58*	*0.59*	*0.25*			
	Study Area PHF:	0.49		Study Area PHV:	**25**	**26**	**11**			**3**	**23**	**4**				**1**	**16**	**2**				**4**	**25**	**2**			
	Peak Hour:	3:45 PM - 4:45 PM		PHF:	**0.31**	**0.43**	**0.55**			**0.75**	**0.52**	**0.50**				**0.25**	**0.57**	**0.50**				**0.50**	**0.57**	**0.50**			

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Mission Street						Westbound Approach on Garrett Avenue						Northbound Approach on Mission Street						Eastbound Approach on Garrett 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***	***8:00 AM***	***8:15 AM***		***1***	***2***	***1***	***0***	***0***		***0***	***5***	***4***	***0***	***1***		***0***	***6***	***0***	***0***	***0***		***2***	***2***	***1***	***0***	***0***
State:	***Texas***	***8:15 AM***	***8:30 AM***		***0***	***7***	***3***	***0***	***1***		***1***	***4***	***4***	***1***	***0***		***1***	***2***	***0***	***0***	***0***		***1***	***3***	***0***	***0***	***0***
Day:	***Wednesday***	***8:30 AM***	***8:45 AM***		***0***	***4***	***1***	***0***	***0***		***0***	***6***	***0***	***0***	***0***		***1***	***2***	***0***	***0***	***0***		***2***	***1***	***1***	***0***	***0***
Date:	***January 18th***	***8:45 AM***	***9:00 AM***		***0***	***1***	***2***	***0***	***0***		***2***	***3***	***1***	***0***	***0***		***0***	***2***	***0***	***0***	***1***		***1***	***2***	***0***	***0***	***0***
Year:	***2016***	9:00 AM	9:15 AM		0	1	0	0	0		0	3	0	0	0		0	3	0	0	0		0	4	0	0	0
Data Collector:	***Camera***	9:15 AM	9:30 AM		2	2	0	0	0		0	7	0	0	0		1	1	0	0	0		0	3	0	0	0
Data Source:	***CJ Hensch***	9:30 AM	9:45 AM		0	1	0	0	0		0	3	1	1	0		0	2	1	0	0		1	1	1	0	0
Traffic Control:	***All-Way Stop***	9:45 AM	10:00 AM		0	2	1	0	0		0	4	1	0	0		2	1	0	0	0		0	2	0	0	0
Observations:																											
		3:00 PM	3:15 PM		1	0	0	0	0		0	4	0	0	0		0	1	0	0	0		0	4	1	0	0
		3:15 PM	3:30 PM		1	0	1	0	0		1	1	1	0	1		0	1	0	0	1		1	8	1	0	0
		3:30 PM	3:45 PM		1	2	0	0	0		0	3	1	0	0		1	2	0	0	1		0	4	1	0	1
		3:45 PM	**4:00 PM**		**0**	**1**	**0**	**0**	**0**		**2**	**0**	**3**	**2**	**1**		**0**	**2**	**1**	**0**	**0**		**3**	**3**	**0**	**0**	**0**
		4:00 PM	***4:15 PM***		***1***	***2***	***0***	***0***	***0***		***2***	***1***	***4***	***0***	***0***		***0***	***5***	***0***	***0***	***0***		***0***	***6***	***1***	***0***	***0***
		4:15 PM	***4:30 PM***		***5***	***0***	***1***	***0***	***1***		***2***	***6***	***7***	***0***	***0***		***1***	***2***	***2***	***0***	***0***		***2***	***7***	***1***	***0***	***0***
		4:30 PM	***4:45 PM***		***1***	***4***	***1***	***0***	***1***		***3***	***3***	***2***	***0***	***0***		***1***	***2***	***0***	***0***	***0***		***3***	***7***	***1***	***2***	***0***
		4:45 PM	*5:00 PM*		*1*	*3*	*1*	*0*	*0*		*0*	*1*	*0*	*0*	*2*		*0*	*2*	*0*	*0*	*1*		*3*	*5*	*1*	*0*	*0*

AM Peak Hour	*Intersection PHF:*	*0.79*	*Intersection PHV:*		*1*	*14*	*7*				*3*	*18*	*9*				*2*	*12*	*0*				*6*	*8*	*2*		
	Peak Hour	*8:00 AM - 9:00 AM*	*PHF:*		*0.25*	*0.50*	*0.58*				*0.38*	*0.75*	*0.56*				*0.50*	*0.50*	*0.00*				*0.75*	*0.67*	*0.50*		
	Study Area PHF:	0.79	Study Area PHV:		**1**	**14**	**7**				**3**	**18**	**9**				**2**	**12**	**0**				**6**	**8**	**2**		
	Peak Hour:	8:00 AM - 9:00 AM	PHF:		**0.25**	**0.50**	**0.58**				**0.38**	**0.75**	**0.56**				**0.50**	**0.50**	**0.00**				**0.75**	**0.67**	**0.50**		
PM Peak Hour	*Intersection PHF:*	*0.72*	*Intersection PHV:*		*8*	*9*	*3*				*7*	*11*	*13*				*2*	*11*	*2*				*8*	*25*	*4*		
	Peak Hour	*4:00 PM - 5:00 PM*	*PHF:*		*0.40*	*0.56*	*0.75*				*0.58*	*0.46*	*0.46*				*0.50*	*0.55*	*0.25*				*0.67*	*0.89*	*1.00*		
	Study Area PHF:	0.70	Study Area PHV:		**7**	**7**	**2**				**9**	**10**	**16**				**2**	**11**	**3**				**8**	**23**	**3**		
	Peak Hour:	3:45 PM - 4:45 PM	PHF:		**0.35**	**0.44**	**0.50**				**0.75**	**0.42**	**0.57**				**0.50**	**0.55**	**0.38**				**0.67**	**0.82**	**0.75**		

Pacheco Koch

PK# 3921-17.035

Mission Street at Garrett Avenue

ROADWAY: Henderson Avenue
LOCATION: West of Manett Street
DAY: Wednesday
DATE: January 18th
YEAR: 2016
SOURCE: CJ Hensch

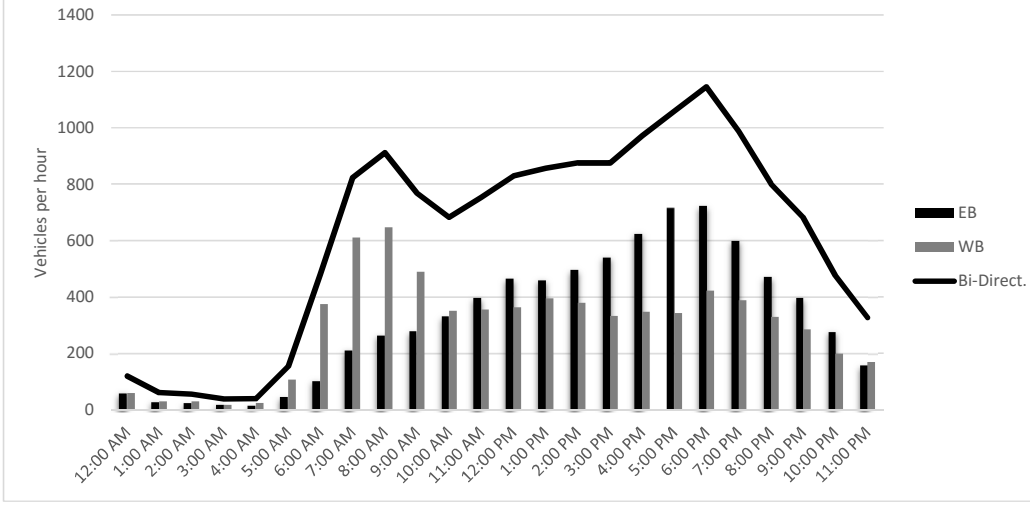
24-HOUR, BI-DIRECTIONAL VOLUME
14,769
(WEEKDAY)

Henderson Avenue

	Eastbound				Westbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	EB	WB	Bi-Direct.
12:00 AM	20	20	13	7	14	20	15	10	60	59	119
1:00 AM	7	7	10	6	11	4	8	7	30	30	60
2:00 AM	3	10	6	6	11	8	6	5	25	30	55
3:00 AM	9	3	5	4	5	2	2	8	21	17	38
4:00 AM	7	1	1	6	5	2	9	8	15	24	39
5:00 AM	2	6	9	30	16	22	30	39	47	107	154
6:00 AM	12	18	26	49	50	90	111	124	105	375	480
7:00 AM	45	45	57	65	142	149	161	159	212	611	823
8:00 AM	74	56	60	75	177	145	164	161	265	647	912
9:00 AM	64	80	55	80	155	122	104	109	279	490	769
10:00 AM	77	77	84	94	92	88	89	82	332	351	683
11:00 AM	99	97	99	102	82	83	98	93	397	356	753
12:00 PM	126	105	126	109	90	80	74	119	466	363	829
1:00 PM	114	120	96	131	87	102	107	99	461	395	856
2:00 PM	129	115	127	125	100	91	99	89	496	379	875
3:00 PM	131	127	138	146	86	84	85	78	542	333	875
4:00 PM	156	143	148	177	76	68	117	87	624	348	972
5:00 PM	176	170	183	187	92	93	66	92	716	343	1059
6:00 PM	195	190	182	155	98	96	106	123	722	423	1145
7:00 PM	143	168	160	129	113	100	86	89	600	388	988
8:00 PM	145	106	119	101	77	89	83	80	471	329	800
9:00 PM	117	104	89	87	77	91	41	76	397	285	682
10:00 PM	76	77	68	56	58	44	45	52	277	199	476
11:00 PM	45	39	37	37	50	49	34	36	158	169	327

			EB	WB	Bi-Direct.
		24-Hour Total:	7,718	7,051	14,769
8:00 AM	9:00 AM	(Bi-Direct.) AM Peak Hour Total:	265	647	912
5:45 PM	6:45 PM	(Bi-Direct.) PM Peak Hour Total:	754	392	1,146
5:30 PM	6:30 PM	Highest By Direction (EB):	755		
8:00 AM	9:00 AM	Highest By Direction (WB):		647	

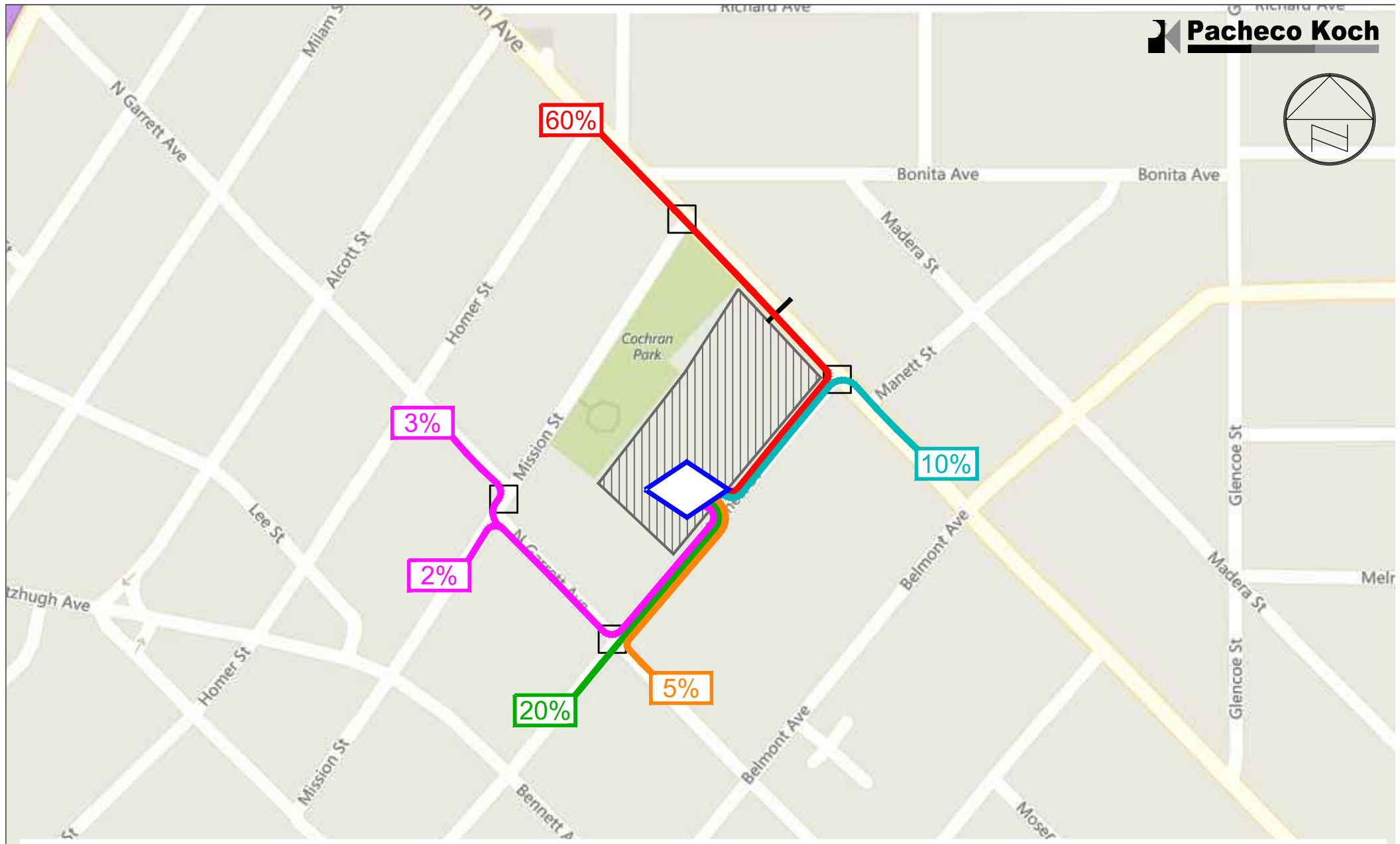
Graph



PK# ####-##.###

Pacheco Koch

Appendix C. Site-Generated Traffic Supplement

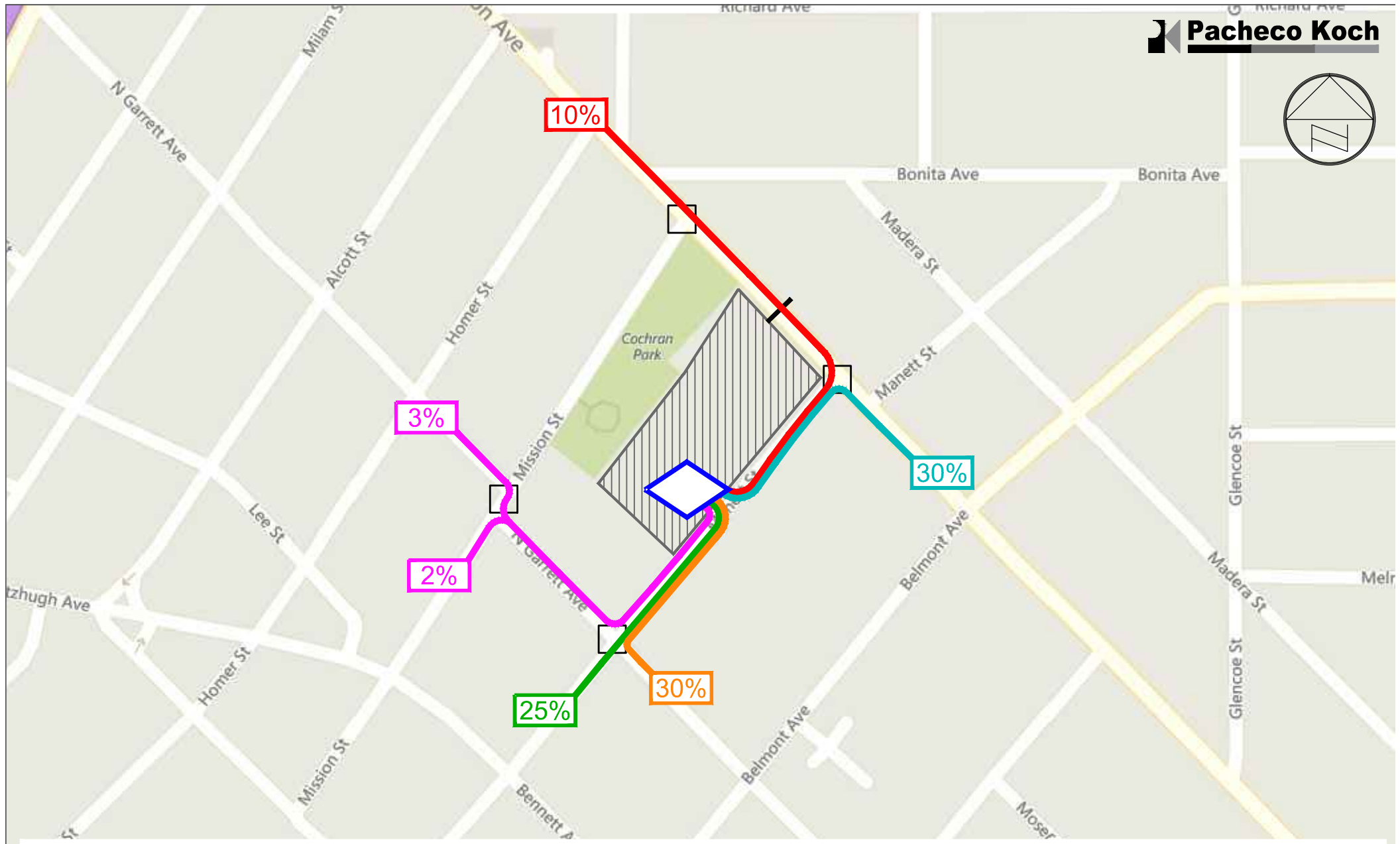


Site Generated Trip Distribution - Inbound

DISD Solar Preparatory for Girls, Dallas, Texas

PK #3921-17.035 (HWL: 02/22/17)

APPENDIX **C1**



- Project Location
- Study Area Intersection (Signalized)
- Road-Tube Counts
- Traffic Signal
- Study Area Intersection (Unsignalized)
- X% - Traffic Assignment

Site Generated Trip Distribution - Outbound

DISD Solar Preparatory for Girls, Dallas, Texas

PK #3921-17.035 (HWL: 02/22/17)

APPENDIX **C2**

900	STUDENTS (K-8)

35%	% BY SCHOOL BUS	14	# BUSES
10%	% BY WALKING		
10%	% OTHER		
55%	TOTAL % ALTERNATE MODE		

TRIP GEN RATES

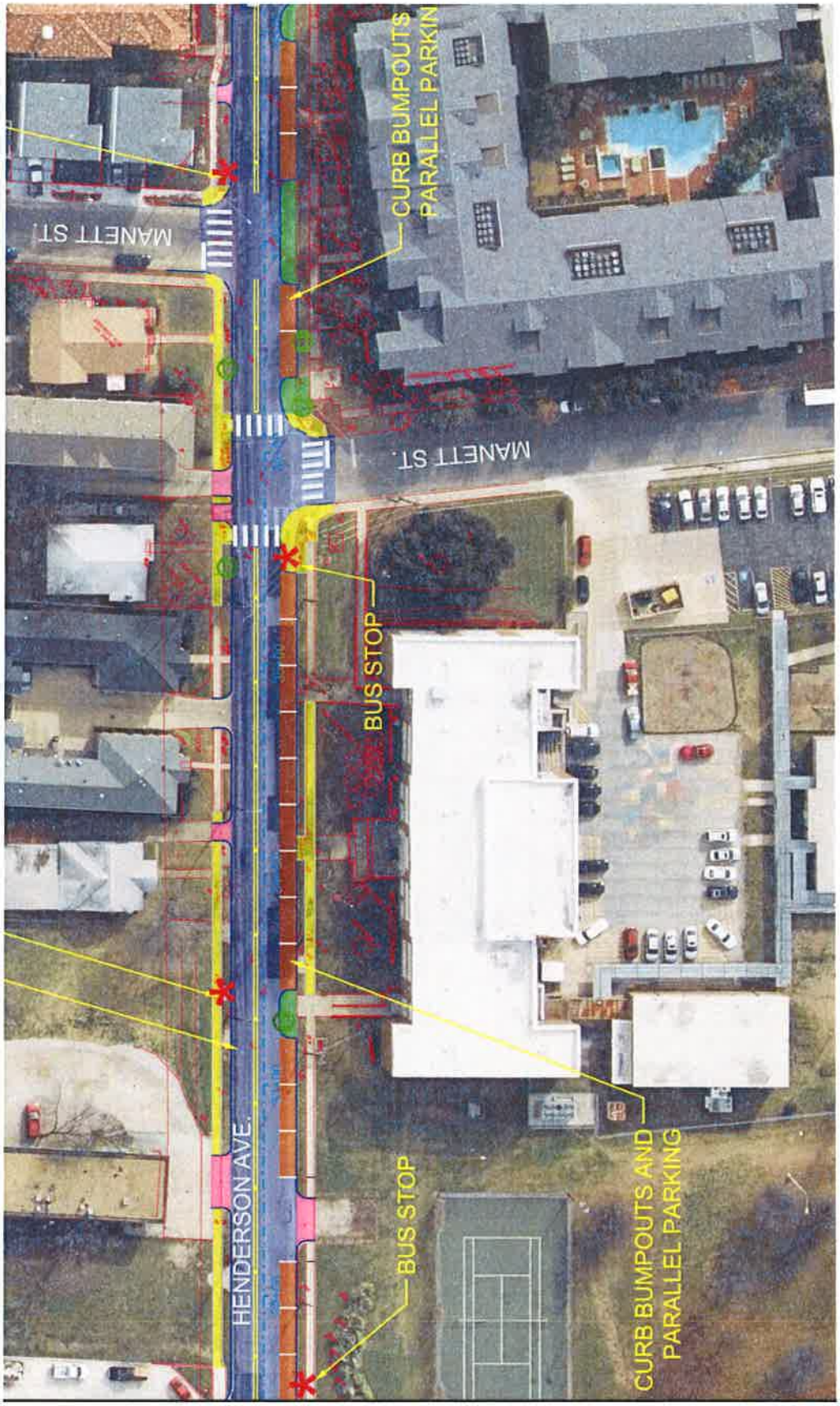
DFW		1.14	AM			0.67	PM			AM				PM		
			IN		OUT		IN		OUT	IN	OUT	TOTAL		IN	OUT	TOTAL
	DIST.		54%		46%		47%		53%	554	472	1026	NET	283	320	603
	PHF		0.58		0.59		0.71		0.57	249	212	462	ADJUSTED	128	144	271
										263	226	490	+BUSES	142	158	299

198	STUDENTS (K-8)

35%	% BY SCHOOL BUS	7	# BUSES
10%	% BY WALKING		
10%	% OTHER		
55%	TOTAL % ALTERNATE MODE		

TRIP GEN RATES

DFW		1.14	AM			0.67	PM				AM				PM		
			IN		OUT		IN		OUT		IN	OUT	TOTAL		IN	OUT	TOTAL
	DIST.		54%		46%		47%		53%		122	104	226	NET	62	70	133
	PHF		0.58		0.59		0.71		0.57		55	47	102	ADJUSTED	28	32	60
											62	54	116	+BUSES	35	39	74



Excerpt from Henderson Avenue Complete Street Project (Conceptual Drawings)
Prepared by Huitt-Zollars
Information provided by City of Dallas

Appendix D. Detailed Intersection Capacity Analysis Results

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	270	5	15	646	17	13
Future Vol, veh/h	270	5	15	646	17	13
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	87	63	54	95	53	54
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	310	8	28	680	32	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	318	0	1050	314
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	736	-
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	-	-	1242	-	252	726
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	474	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1242	-	243	726
Mov Cap-2 Maneuver	-	-	-	-	243	-
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	457	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	340	-	-	1242	-
HCM Lane V/C Ratio	0.165	-	-	0.022	-
HCM Control Delay (s)	17.7	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	261	21	45	604	42	30
Future Vol, veh/h	261	21	45	604	42	30
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	50	50	97	75	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	287	42	90	623	56	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	329	0	1111	308
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	803	-
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	-	-	1231	-	231	732
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	441	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1231	-	205	732
Mov Cap-2 Maneuver	-	-	-	-	205	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	392	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	21.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	327	-	-	1231	-
HCM Lane V/C Ratio	0.355	-	-	0.073	-
HCM Control Delay (s)	21.9	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.6	-	-	0.2	-

Intersection												
Int Delay, s/veh	4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	7	2	9	17	22	3	21	3	15	48	9
Future Vol, veh/h	2	7	2	9	17	22	3	21	3	15	48	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	88	50	50	71	69	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	8	4	18	24	32	6	42	6	30	96	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	250	225	105	228	231	45	114	0	0	48	0	0
Stage 1	165	165	-	57	57	-	-	-	-	-	-	-
Stage 2	85	60	-	171	174	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	703	674	949	727	669	1025	1475	-	-	1559	-	-
Stage 1	837	762	-	955	847	-	-	-	-	-	-	-
Stage 2	923	845	-	831	755	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	650	657	949	704	652	1025	1475	-	-	1559	-	-
Mov Cap-2 Maneuver	650	657	-	704	652	-	-	-	-	-	-	-
Stage 1	834	746	-	951	844	-	-	-	-	-	-	-
Stage 2	865	842	-	801	739	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10	0.8	1.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1475	-	-	710	790	1559	-	-
HCM Lane V/C Ratio	0.004	-	-	0.022	0.093	0.019	-	-
HCM Control Delay (s)	7.5	0	-	10.2	10	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	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
Lane Configurations												
Traffic Vol, veh/h	0	6	8	2	0	3	18	9	0	2	12	0
Future Vol, veh/h	0	6	8	2	0	3	18	9	0	2	12	0
Peak Hour Factor	0.92	0.75	0.67	0.50	0.92	0.50	0.75	0.56	0.92	0.50	0.50	0.50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	8	12	4	0	6	24	16	0	4	24	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	7.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	38%	10%	5%
Vol Thru, %	86%	50%	60%	64%
Vol Right, %	0%	12%	30%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	16	30	22
LT Vol	2	6	3	1
Through Vol	12	8	18	14
RT Vol	0	2	9	7
Lane Flow Rate	28	24	46	42
Geometry Grp	1	1	1	1
Degree of Util (X)	0.032	0.027	0.05	0.046
Departure Headway (Hd)	4.115	4.09	3.913	3.894
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	867	872	912	917
Service Time	2.153	2.129	1.949	1.93
HCM Lane V/C Ratio	0.032	0.028	0.05	0.046
HCM Control Delay	7.3	7.2	7.2	7.1
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
Lane Configurations				
Traffic Vol, veh/h	0	1	14	7
Future Vol, veh/h	0	1	14	7
Peak Hour Factor	0.92	0.50	0.50	0.58
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	2	28	12
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

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	597	15	8	337	12	23
Future Vol, veh/h	597	15	8	337	12	23
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	94	63	50	68	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	635	24	16	496	24	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	659	0	1175	647
Stage 1	-	-	-	-	647	-
Stage 2	-	-	-	-	528	-
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	-	-	929	-	212	471
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	592	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	929	-	207	471
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	578	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	18.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	328	-	-	929	-
HCM Lane V/C Ratio	0.213	-	-	0.017	-
HCM Control Delay (s)	18.9	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	559	43	19	341	16	26
Future Vol, veh/h	559	43	19	341	16	26
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	97	67	68	68	57	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	576	64	28	501	28	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	640	0	1165	608
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	557	-
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	-	-	944	-	215	496
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	944	-	206	496
Mov Cap-2 Maneuver	-	-	-	-	206	-
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	550	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	19.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	332	-	-	944	-
HCM Lane V/C Ratio	0.241	-	-	0.03	-
HCM Control Delay (s)	19.3	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	25	2	3	23	4	1	16	2	25	26	11
Future Vol, veh/h	4	25	2	3	23	4	1	16	2	25	26	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	57	50	75	52	50	50	57	50	50	57	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	44	4	4	44	8	2	28	4	50	46	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	217	193	57	215	202	30	68	0	0	32	0	0
Stage 1	157	157	-	34	34	-	-	-	-	-	-	-
Stage 2	60	36	-	181	168	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	739	702	1009	742	694	1044	1533	-	-	1580	-	-
Stage 1	845	768	-	982	867	-	-	-	-	-	-	-
Stage 2	951	865	-	821	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	678	678	1009	684	670	1044	1533	-	-	1580	-	-
Mov Cap-2 Maneuver	678	678	-	684	670	-	-	-	-	-	-	-
Stage 1	844	743	-	981	866	-	-	-	-	-	-	-
Stage 2	895	864	-	744	734	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	10.5	0.4	3.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	694	707	1580	-	-
HCM Lane V/C Ratio	0.001	-	-	0.08	0.08	0.032	-	-
HCM Control Delay (s)	7.4	0	-	10.6	10.5	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			✣				✣				✣	
Traffic Vol, veh/h	0	8	23	3	0	9	10	16	0	2	11	3
Future Vol, veh/h	0	8	23	3	0	9	10	16	0	2	11	3
Peak Hour Factor	0.92	0.67	0.82	0.75	0.92	0.75	0.50	0.57	0.92	0.50	0.55	0.50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	28	4	0	12	20	28	0	4	20	6
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	7.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	24%	26%	44%
Vol Thru, %	69%	68%	29%	44%
Vol Right, %	19%	9%	46%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	34	35	16
LT Vol	2	8	9	7
Through Vol	11	23	10	7
RT Vol	3	3	16	2
Lane Flow Rate	30	44	60	32
Geometry Grp	1	1	1	1
Degree of Util (X)	0.034	0.05	0.064	0.037
Departure Headway (Hd)	4.05	4.081	3.852	4.149
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	878	874	926	858
Service Time	2.1	2.122	1.892	2.198
HCM Lane V/C Ratio	0.034	0.05	0.065	0.037
HCM Control Delay	7.2	7.3	7.2	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations			✣	
Traffic Vol, veh/h	0	7	7	2
Future Vol, veh/h	0	7	7	2
Peak Hour Factor	0.92	0.50	0.50	0.50
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	14	14	4
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

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	298	5	16	713	18	14
Future Vol, veh/h	298	5	16	713	18	14
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	87	63	54	95	53	54
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	343	8	30	751	34	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	350	0	1156	346
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	810	-
Critical Hdwy	-	-	4.12	-	7.12	6.22
Critical Hdwy Stg 1	-	-	-	-	6.12	-
Critical Hdwy Stg 2	-	-	-	-	6.12	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1209	-	174	697
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	374	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1209	-	168	697
Mov Cap-2 Maneuver	-	-	-	-	168	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	358	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	23.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	250	-	-	1209	-
HCM Lane V/C Ratio	0.24	-	-	0.025	-
HCM Control Delay (s)	23.9	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	288	22	47	667	44	32
Future Vol, veh/h	288	22	47	667	44	32
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	50	50	97	75	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	316	44	94	688	59	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	360	0	1214	338
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	876	-
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	-	-	1199	-	201	704
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	407	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1199	-	175	704
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	355	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	26.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	288	-	-	1199	-
HCM Lane V/C Ratio	0.426	-	-	0.078	-
HCM Control Delay (s)	26.5	-	-	8.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	2	-	-	0.3	-

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	7	2	9	18	23	3	22	3	16	50	9
Future Vol, veh/h	2	7	2	9	18	23	3	22	3	16	50	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	88	50	50	71	69	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	8	4	18	25	33	6	44	6	32	100	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	261	235	109	238	241	47	118	0	0	50	0	0
Stage 1	173	173	-	59	59	-	-	-	-	-	-	-
Stage 2	88	62	-	179	182	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	692	666	945	716	660	1022	1470	-	-	1557	-	-
Stage 1	829	756	-	953	846	-	-	-	-	-	-	-
Stage 2	920	843	-	823	749	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	637	649	945	692	643	1022	1470	-	-	1557	-	-
Mov Cap-2 Maneuver	637	649	-	692	643	-	-	-	-	-	-	-
Stage 1	826	739	-	949	843	-	-	-	-	-	-	-
Stage 2	860	840	-	793	733	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	10.1	0.8	1.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1470	-	-	701	782	1557	-	-
HCM Lane V/C Ratio	0.004	-	-	0.023	0.098	0.021	-	-
HCM Control Delay (s)	7.5	0	-	10.3	10.1	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	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
Lane Configurations			✣				✣				✣	
Traffic Vol, veh/h	0	6	8	2	0	3	19	9	0	2	13	0
Future Vol, veh/h	0	6	8	2	0	3	19	9	0	2	13	0
Peak Hour Factor	0.92	0.75	0.67	0.50	0.92	0.50	0.75	0.56	0.92	0.50	0.50	0.50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	8	12	4	0	6	25	16	0	4	26	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	7.2	7.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	38%	10%	4%
Vol Thru, %	87%	50%	61%	65%
Vol Right, %	0%	12%	29%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	16	31	23
LT Vol	2	6	3	1
Through Vol	13	8	19	15
RT Vol	0	2	9	7
Lane Flow Rate	30	24	47	44
Geometry Grp	1	1	1	1
Degree of Util (X)	0.034	0.027	0.052	0.048
Departure Headway (Hd)	4.117	4.099	3.926	3.906
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	867	870	909	914
Service Time	2.156	2.139	1.962	1.943
HCM Lane V/C Ratio	0.035	0.028	0.052	0.048
HCM Control Delay	7.3	7.3	7.2	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations			✣	
Traffic Vol, veh/h	0	1	15	7
Future Vol, veh/h	0	1	15	7
Peak Hour Factor	0.92	0.50	0.50	0.58
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	2	30	12
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

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	659	16	8	372	13	24
Future Vol, veh/h	659	16	8	372	13	24
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	94	63	50	68	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	701	25	16	547	26	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	726	0	1293	714
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	579	-
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	-	-	877	-	180	431
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	560	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	877	-	175	431
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	545	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	22
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	285	-	-	877	-
HCM Lane V/C Ratio	0.26	-	-	0.018	-
HCM Control Delay (s)	22	-	-	9.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	617	45	20	376	17	27
Future Vol, veh/h	617	45	20	376	17	27
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	97	67	68	68	57	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	636	67	29	553	30	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	703	0	1282	670
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	612	-
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	-	-	895	-	182	457
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	541	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	895	-	173	457
Mov Cap-2 Maneuver	-	-	-	-	173	-
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	516	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	22.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	288	-	-	895	-
HCM Lane V/C Ratio	0.291	-	-	0.033	-
HCM Control Delay (s)	22.6	-	-	9.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	26	2	3	24	4	1	17	2	26	27	12
Future Vol, veh/h	4	26	2	3	24	4	1	17	2	26	27	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	57	50	75	52	50	50	57	50	50	57	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	46	4	4	46	8	2	30	4	52	47	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	226	201	59	224	211	32	71	0	0	34	0	0
Stage 1	163	163	-	36	36	-	-	-	-	-	-	-
Stage 2	63	38	-	188	175	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	729	695	1007	732	686	1042	1529	-	-	1578	-	-
Stage 1	839	763	-	980	865	-	-	-	-	-	-	-
Stage 2	948	863	-	814	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	667	671	1007	673	662	1042	1529	-	-	1578	-	-
Mov Cap-2 Maneuver	667	671	-	673	662	-	-	-	-	-	-	-
Stage 1	838	737	-	979	864	-	-	-	-	-	-	-
Stage 2	890	862	-	735	728	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	10.6	0.4	3.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	686	698	1578	-	-
HCM Lane V/C Ratio	0.001	-	-	0.084	0.083	0.033	-	-
HCM Control Delay (s)	7.4	0	-	10.7	10.6	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			✣				✣				✣	
Traffic Vol, veh/h	0	8	24	3	0	9	11	17	0	2	12	3
Future Vol, veh/h	0	8	24	3	0	9	11	17	0	2	12	3
Peak Hour Factor	0.92	0.67	0.82	0.75	0.92	0.75	0.50	0.57	0.92	0.50	0.55	0.50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	29	4	0	12	22	30	0	4	22	6
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, %	12%	23%	24%	44%
Vol Thru, %	71%	69%	30%	44%
Vol Right, %	18%	9%	46%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	17	35	37	16
LT Vol	2	8	9	7
Through Vol	12	24	11	7
RT Vol	3	3	17	2
Lane Flow Rate	32	45	64	32
Geometry Grp	1	1	1	1
Degree of Util (X)	0.036	0.051	0.068	0.037
Departure Headway (Hd)	4.065	4.086	3.85	4.16
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	875	873	925	856
Service Time	2.115	2.129	1.893	2.209
HCM Lane V/C Ratio	0.037	0.052	0.069	0.037
HCM Control Delay	7.3	7.4	7.2	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations			✣	
Traffic Vol, veh/h	0	7	7	2
Future Vol, veh/h	0	7	7	2
Peak Hour Factor	0.92	0.50	0.50	0.50
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	14	14	4
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

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	415	5	16	718	18	14
Future Vol, veh/h	415	5	16	718	18	14
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	87	63	54	95	53	54
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	477	8	30	756	34	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	485	0	1296	481
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	815	-
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	-	-	1078	-	179	585
Stage 1	-	-	-	-	622	-
Stage 2	-	-	-	-	435	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1078	-	170	585
Mov Cap-2 Maneuver	-	-	-	-	170	-
Stage 1	-	-	-	-	622	-
Stage 2	-	-	-	-	414	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	24.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	245	-	-	1078	-
HCM Lane V/C Ratio	0.244	-	-	0.027	-
HCM Control Delay (s)	24.4	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	334	84	67	667	49	47
Future Vol, veh/h	334	84	67	667	49	47
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	50	50	97	75	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	367	168	134	688	65	94

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	535	0	1407	451
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	956	-
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	-	-	1033	-	153	608
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	373	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1033	-	121	608
Mov Cap-2 Maneuver	-	-	-	-	121	-
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	295	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	50.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	229	-	-	1033	-
HCM Lane V/C Ratio	0.696	-	-	0.13	-
HCM Control Delay (s)	50.3	-	-	9	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	4.5	-	-	0.4	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	7	2	9	18	33	3	61	3	66	122	18
Future Vol, veh/h	12	7	2	9	18	33	3	61	3	66	122	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	88	50	50	71	69	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	8	4	18	25	48	6	122	6	132	244	36

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	700	666	262	669	681	125	280	0	0	128	0	0
Stage 1	526	526	-	137	137	-	-	-	-	-	-	-
Stage 2	174	140	-	532	544	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	354	380	777	371	373	926	1283	-	-	1458	-	-
Stage 1	535	529	-	866	783	-	-	-	-	-	-	-
Stage 2	828	781	-	531	519	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	289	337	777	331	331	926	1283	-	-	1458	-	-
Mov Cap-2 Maneuver	289	337	-	331	331	-	-	-	-	-	-	-
Stage 1	532	472	-	862	779	-	-	-	-	-	-	-
Stage 2	756	777	-	463	463	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.6	13.8	0.4	2.5
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1283	-	-	322	499	1458	-	-
HCM Lane V/C Ratio	0.005	-	-	0.112	0.183	0.091	-	-
HCM Control Delay (s)	7.8	0	-	17.6	13.8	7.7	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.7	0.3	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↕			↕	↕	
Traffic Vol, veh/h	39	97	75	76	98	85
Future Vol, veh/h	39	97	75	76	98	85
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	42	105	82	83	107	92

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	399	153	199	0	-	0
Stage 1	153	-	-	-	-	-
Stage 2	246	-	-	-	-	-
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	607	893	1373	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	569	893	1373	-	-	-
Mov Cap-2 Maneuver	569	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	745	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	3.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1373	-	768	-	-
HCM Lane V/C Ratio	0.059	-	0.192	-	-
HCM Control Delay (s)	7.8	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			✣				✣				✣	
Traffic Vol, veh/h	0	6	14	2	0	6	24	9	0	2	13	4
Future Vol, veh/h	0	6	14	2	0	6	24	9	0	2	13	4
Peak Hour Factor	0.92	0.75	0.67	0.50	0.92	0.50	0.75	0.56	0.92	0.50	0.50	0.50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	8	21	4	0	12	32	16	0	4	26	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	7.3	7.3	7.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	27%	15%	4%
Vol Thru, %	68%	64%	62%	65%
Vol Right, %	21%	9%	23%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	22	39	23
LT Vol	2	6	6	1
Through Vol	13	14	24	15
RT Vol	4	2	9	7
Lane Flow Rate	38	33	60	44
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.038	0.067	0.048
Departure Headway (Hd)	4.022	4.122	3.993	3.949
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	884	864	893	900
Service Time	2.075	2.168	2.034	2.001
HCM Lane V/C Ratio	0.043	0.038	0.067	0.049
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	0.2	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations			✣	
Traffic Vol, veh/h	0	1	15	7
Future Vol, veh/h	0	1	15	7
Peak Hour Factor	0.92	0.50	0.50	0.58
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	2	30	12
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

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	719	16	8	375	13	24
Future Vol, veh/h	719	16	8	375	13	24
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	94	63	50	68	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	765	25	16	551	26	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	790	0	1361	778
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	583	-
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	-	-	830	-	163	396
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	558	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	830	-	158	396
Mov Cap-2 Maneuver	-	-	-	-	158	-
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	542	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	24.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	259	-	-	830	-
HCM Lane V/C Ratio	0.286	-	-	0.019	-
HCM Control Delay (s)	24.4	-	-	9.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	649	77	30	376	20	37
Future Vol, veh/h	649	77	30	376	20	37
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	97	67	68	68	57	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	669	115	44	553	35	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	784	0	1368	727
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	641	-
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	-	-	834	-	162	424
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	525	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	834	-	150	424
Mov Cap-2 Maneuver	-	-	-	-	150	-
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	485	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	27.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	267	-	-	834	-
HCM Lane V/C Ratio	0.409	-	-	0.053	-
HCM Control Delay (s)	27.5	-	-	9.6	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.9	-	-	0.2	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	26	2	3	24	9	1	37	2	60	76	17
Future Vol, veh/h	9	26	2	3	24	9	1	37	2	60	76	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	57	50	75	52	50	50	50	55	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	46	4	4	46	18	2	74	4	120	152	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	521	491	169	514	506	76	186	0	0	78	0	0
Stage 1	409	409	-	80	80	-	-	-	-	-	-	-
Stage 2	112	82	-	434	426	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	466	478	875	471	469	985	1388	-	-	1520	-	-
Stage 1	619	596	-	929	828	-	-	-	-	-	-	-
Stage 2	893	827	-	600	586	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	391	435	875	402	427	985	1388	-	-	1520	-	-
Mov Cap-2 Maneuver	391	435	-	402	427	-	-	-	-	-	-	-
Stage 1	618	544	-	927	826	-	-	-	-	-	-	-
Stage 2	826	825	-	499	534	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.8	13.3	0.2	3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1388	-	-	435	500	1520	-	-
HCM Lane V/C Ratio	0.001	-	-	0.155	0.136	0.079	-	-
HCM Control Delay (s)	7.6	0	-	14.8	13.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.5	0.3	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙			↱	↱	
Traffic Vol, veh/h	26	66	38	44	85	71
Future Vol, veh/h	26	66	38	44	85	71
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	72	41	48	92	77

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	261	131	170	0	-	0
Stage 1	131	-	-	-	-	-
Stage 2	130	-	-	-	-	-
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	728	919	1407	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	706	919	1407	-	-	-
Mov Cap-2 Maneuver	706	-	-	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	869	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	3.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1407	-	847	-	-
HCM Lane V/C Ratio	0.029	-	0.118	-	-
HCM Control Delay (s)	7.6	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			✣				✣				✣	
Traffic Vol, veh/h	0	8	27	3	0	12	14	17	0	2	12	5
Future Vol, veh/h	0	8	27	3	0	12	14	17	0	2	12	5
Peak Hour Factor	0.92	0.67	0.82	0.75	0.92	0.75	0.50	0.57	0.92	0.50	0.55	0.50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	33	4	0	16	28	30	0	4	22	10
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	7.3	7.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	21%	28%	44%
Vol Thru, %	63%	71%	33%	44%
Vol Right, %	26%	8%	40%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	38	43	16
LT Vol	2	8	12	7
Through Vol	12	27	14	7
RT Vol	5	3	17	2
Lane Flow Rate	36	49	74	32
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.056	0.08	0.037
Departure Headway (Hd)	4.033	4.102	3.906	4.187
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	880	869	912	848
Service Time	2.093	2.148	1.951	2.246
HCM Lane V/C Ratio	0.041	0.056	0.081	0.038
HCM Control Delay	7.3	7.4	7.3	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.3	0.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations			✣	
Traffic Vol, veh/h	0	7	7	2
Future Vol, veh/h	0	7	7	2
Peak Hour Factor	0.92	0.50	0.50	0.50
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	14	14	4
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