

January 31, 2019

PK# 3859-17.399

TRAFFIC IMPACT ANALYSIS

Project:

Villages at Soho Square

In Dallas, Texas

Prepared for:

City of Dallas

On behalf of:

Lenart Development Company, LLC

Prepared by:

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EXECUTIVE SUMMARY

The services of **Pacheco Koch** were retained by **Lenart Development Company, LLC** to prepare a Traffic Impact Analysis (TIA) for the proposed residential development known as *Villages at Soho Square* (the "Project"). The subject site is located on the south side of Singleton Boulevard, east of Vilbig Road, in Dallas, Texas. For purposes of this analysis, buildout of the Project is estimated to occur by 2023. A TIA is required for review by the City of Dallas as part of the Owner's request for rezoning of the subject property.

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 City and are consistent with the standard industry practices used in similar studies.

Based upon the analyses performed herein, Pacheco Koch developed the following findings and recommendations.

FINDING: Under typical-day peak traffic periods, the traffic operations at the signalized and unsignalized intersections within the study area currently operate efficiently and achieve acceptable Levels of Service, though some individual traffic maneuvers are beginning to approach unacceptable conditions.

With the addition of estimated background traffic growth and the net increase in site-generated traffic from the proposed development, some individual traffic movements will experience a slight increase in average delay. However, the traffic-signal-controlled intersection of Singleton Boulevard and Vilbig Road will continue to operate at acceptable operational conditions (Level of Service D, or better).

FINDING: At the intersection of W Commerce Street and Vilbig Road, the northbound shared through-right maneuver (not the entire intersection) operates at Level of Service "E" in the background conditions and remains at Level of Service "E" with the addition of site traffic. The single-lane southbound approach (not the entire intersection) operates at a Level of Service "D" in the background condition and is projected to degrade to Level of Service "E", and ultimately "F", with the addition of projected background growth and site-generated traffic. However, the cross-sections of both W Commerce Street and Vilbig Road are not constructed to the current City of Dallas Thoroughfare Plan designations, so additional roadway capacity will be provided when the ultimate thoroughfare network is built out. Traffic operations can be re-evaluated at that point.

- ❖ **RECOMMENDATION:** For interim mitigation of the intersection of W Commerce Street and Vilbig Road, the option of converting the

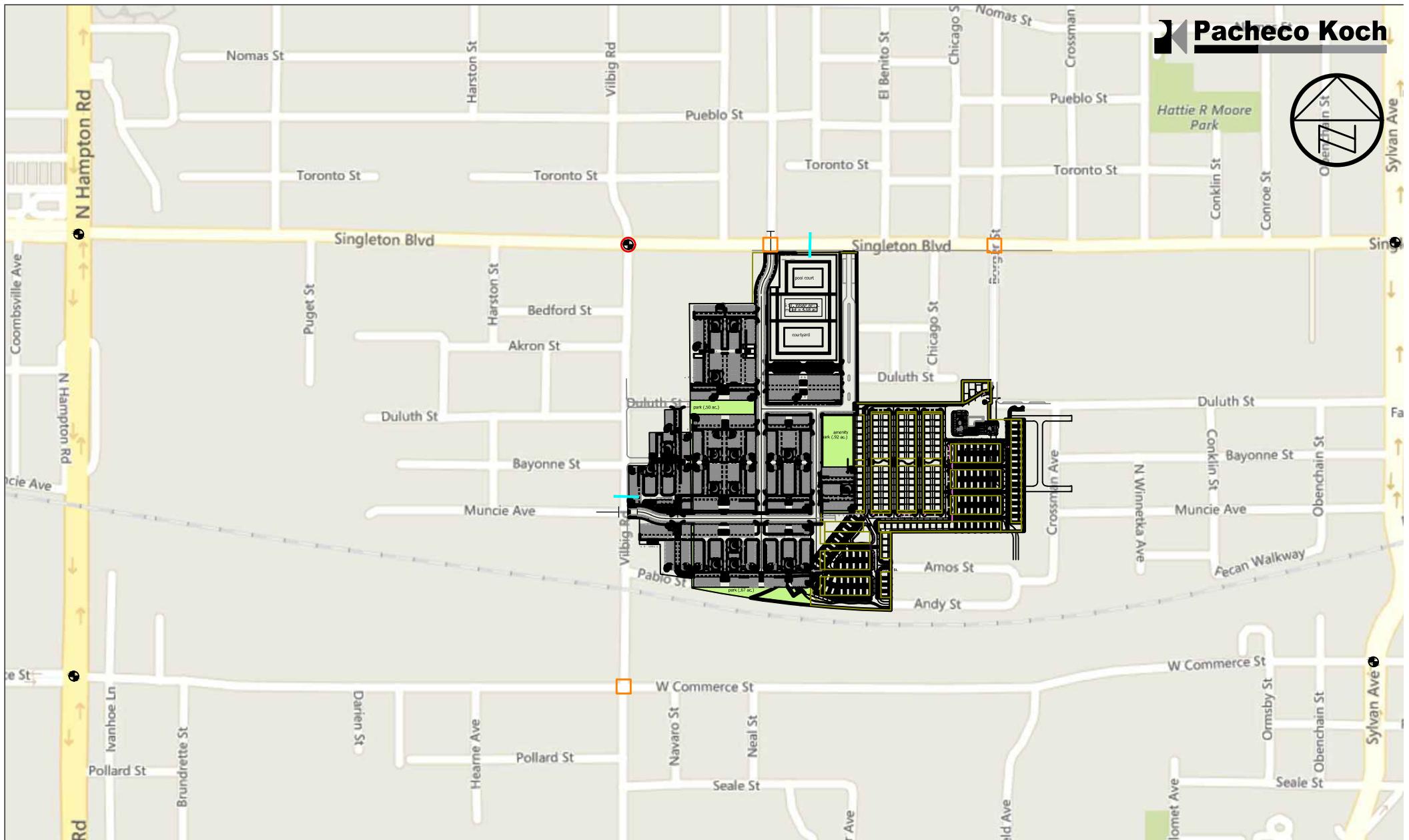
intersection to All-way STOP-Controlled may be considered until the roadways are improved. [NOTE: This recommendation is

FINDING: Within the next year or two of continued development on the adjacent properties, traffic delays on the northbound approach of the intersection of Singleton Boulevard and Borger Street are projected to increase due to increasing volumes on Borger and currently heavy traffic volumes on Singleton Boulevard. Based upon cursory traffic signal warrant analysis performed by Pacheco Koch, it was determined that a traffic signal is not warranted under existing conditions. However, as the currently-planned-and-approved developments on the nearby parcels continue to build out and traffic volumes increase, the intersection is anticipated to (marginally) satisfy the warrants for installation of a traffic signal prior to full buildout.

- ❖ RECOMMENDATION: Install a traffic signal at the intersection of Singleton Boulevard and Borger Street prior to completion of the development phases that are now under construction. [NOTE: This recommendation is, in part, precipitated by developments other than those associated with the Applicant.]

FINDING: At full buildout of the Project, traffic operations on the minor street approaches at the intersection of Single Boulevard and Chihuahua Avenue are anticipated to marginally reach poor Levels of Service during peak hour conditions. Though the conditions are typical of similar intersections, identification of potential mitigation measures are required by the City. Such operations cannot be mitigated without the addition of a traffic signal; however, the projected volumes are not sufficient to meet traffic signal warrants for the intersection. Although, no action is considered necessary, a contingency strategy would be to prohibit left-turns from the minor street approaches at the intersection if such is ultimately warranted by excessive delays or safety hazard.

END

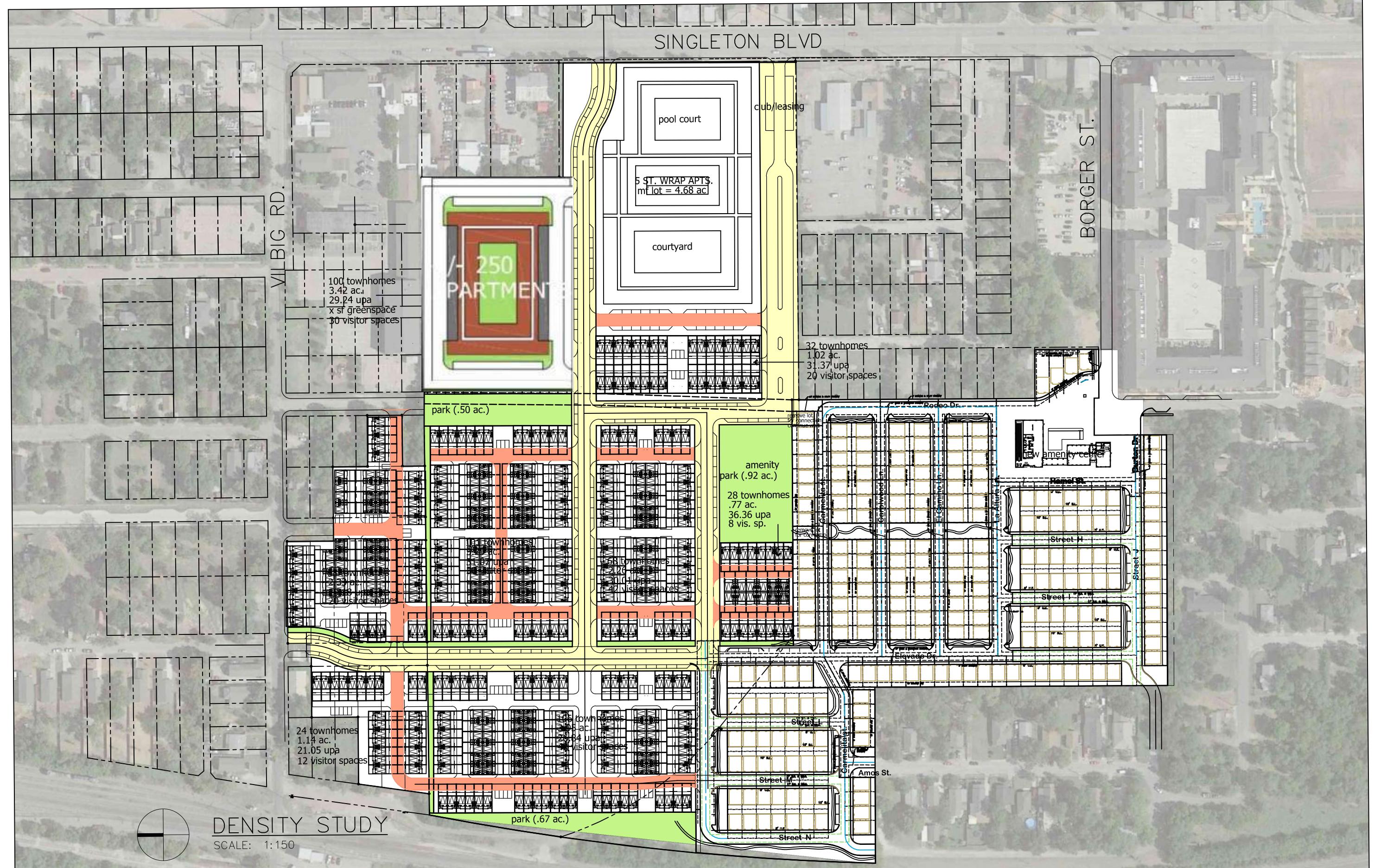


Site Location Map

Villages at Soho, Dallas, Texas

PK #3859-17.399 (HWL: 12/26/18)

EXHIBIT 1



TRAFFIC IMPACT ANALYSIS Villages at Soho Square Dallas, Texas

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INTRODUCTION

The services of **Pacheco Koch** (PK) were retained by **Lenart Development Company, LLC** to prepare a Traffic Impact Analysis (TIA) for a proposed residential development referred to herein as Villages at Soho Square. The subject site is located on the south side of Singleton Boulevard, east of Vilbig Road, in Dallas, Texas. A preliminary site plan for the Project, prepared by **HLR 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, **Lenart Development Company, LLC** (the "Applicant") has made a request to the City of Dallas (the "Approving Agency") for rezoning of the subject property. As part of application process for this request, 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

A Traffic Impact Analysis (TIA) is an engineering study used to provide information on the projected off-site impacts produced by a specific Project on the traffic operations of public traffic facilities. Commissioning a TIA may be required by an Approving Agency when an Applicant is seeking approvals or entitlements for the Project. Using standardized analysis methodologies, the findings of the TIA are used to gage the direct impacts on the transportation system that are attributable to the Project. Under certain circumstances and within legal parameters, the Approving Agency may require the Applicant to fund the improvement(s) needed to mitigate the impacts.

A TIA should be prepared by a licensed Engineer skilled in the principles of traffic and transportation engineering and planning. The general methodologies, processes, and guidelines used in a TIA are established by industry standards—which are maintained by organizations such as the Institute of Transportation Engineers (ITE) and others—although, the project-specific parameters of the study (e.g., study locations, analysis scenarios, analytical assumptions, etc.) may be established by local ordinances or technical staff of the Approving Agency.

Based upon the findings of the analysis, the Engineer may suggest or recommend modifications to the transportation system that, in the Engineer's opinion, could improve overall traffic operations, safety, site access, circulation, etc. Such proposals may or may not be directly related to the traffic impacts of the Project. Implementation of any modifications to the transportation system are subject to the discretion and approval of the respective agency that is responsible for the

operation of the facilities. Also, the Engineer's proposals should not be considered mandatory and are not intended to assign or imply funding responsibility.

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

Project Description

The Project will consist of townhouse and apartment units, multiple park areas, and an internal street grid. An adjacent parcel of single-family homes was previously approved by the City of Dallas (Planned Development District No. 944) and will be integrated into the proposed development. The project will be constructed in several phases based upon market demand, but full buildout of the Project is estimated to occur within five years for purposes of this analysis. A summary of the proposed development program is provided in **Table 1**.

Table 1. Development Program Summary

USE	PHASE 1 (EST. BUILDOUT YEAR 2019)	PHASE 2 (EST. BUILDOUT YEAR 2020)	FULL BUILDOUT (EST. BUILDOUT YEAR 2023)	TOTAL AMOUNT
Single Family Homes	183 DU*	--	45 DU	228 DU
Apartments	--	450 DU	250 DU**	700 DU
Townhomes	--	128 DU	265 DU	393 DU

NOTE: The information contained in the table above is based upon the most current and complete information available at the time of this study publication. Slight changes to the program are not uncommon as the Project continues to get refined; however, such changes are not anticipated to have any significant effect on the overall findings presented in this report.

* Previously approved by the City of Dallas under PD 944.

** This portion of the Project may alternatively be developed as approximately 100 townhomes. Analyzing as apartments is a "worst-case" condition (in terms of potential traffic impact).

The new development will ultimately be served by six points of vehicular access:

- Chihuahua Avenue at Singleton Boulevard (new south leg)
- New Site Roadway at Singleton Boulevard
- Borger Street at Singleton Boulevard
- Muncie Avenue at Vilbig Road (new east leg)
- Duluth Street at Vilbig Road (new east leg)
- Duluth Street at Sylvan Avenue

The proposed area of rezoning consists of 30.173 acres that is currently zoned for industrial uses (IM-Industrial Manufacturing and IR-Industrial Research). The property is proposed to be incorporated into Planned Development District 944 (PD #944). The existing PD #944 (15.342 acres) was established in June 2015. The

original site plan for the existing PD #944 site has been adjusted to integrate with the proposed additional land area.

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 City staff at the outset of the study.

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

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

The City staff also requested separate analyses for major increments of the project. As described in **Table 1**, the development program has been divided into three phases.

The following technical assumptions were also made in this analysis.

- Traffic generated by several proposed developments in the immediate vicinity of the subject site were added to the "Background" traffic volumes:
 - A 1,500-unit residential development (now known as "Trinity Green") located on Singleton Boulevard, east of Borger Street and north of Duluth Street (approved Planned Development District No. 933). [Traffic volume data obtained from the Traffic Impact Analysis prepared by DeShazo Group, excerpts provided in **Appendix C**]
 - A 230-unit residential development located on Singleton Blvd. approximately 2.8 miles west of the subject site. [Traffic volume data obtained from the Traffic Impact Analysis prepared by Traffic Impact Group, excerpts provided in **Appendix C**]
 - Expansion of the existing St. Mary of Carmel School from 160 students to 300 students—assumed to be completed by 2023 (zoning change is currently pending). [A Traffic Impact Analysis was not required for the project, but the Traffic Management Plan was prepared by Pacheco Koch. PK developed site-generated volumes for the project based upon direct knowledge of the site.]

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

Study Area

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

Signalized Intersections:

- (a) Singleton Boulevard and Vilbig Road

Unsignalized Intersections:

- (b) Singleton Boulevard and Borger Street: *STOP-controlled on Borger Street*
- (c) Singleton Boulevard and Chihuahua Avenue ("Site Driveway 2")
- (d) Singleton Boulevard and "Site Driveway 3"
- (e) Vilbig Road and Muncie Avenue ("Site Driveway 1")
- (f) W Commerce Street and Vilbig Road

Roadway Links:

- (A) Singleton Boulevard adjacent to site
 - Existing operation and cross-section: *five lanes, with continuous-two-way-center-left-turn lane; two-way operation*
 - City of Dallas Thoroughfare Plan Designation: *Principal Arterial/M-6-D(A)*
 - City of Dallas Bike Plan Designation: *"On-Street" Route*
 - Current Daily Traffic Volume: 17,663 (Thursday, Feb. 8th, 2018)
- (B) Vilbig Road adjacent to site
 - Existing operation and cross-section: *two lanes, two-way operation, rural cross-section (no sidewalk or curb-and-gutter)*
 - City of Dallas Thoroughfare Plan Designation: *Collector/M-4-U*
 - City of Dallas Bike Plan Designation: *"On-Street" Route*
 - Current Daily Traffic Volume: 2,368 (Thursday, Feb. 8th, 2018)
- (C) Borger Street north of Singleton Boulevard
 - Existing operation and cross-section: *two lanes, two-way operation*
 - City of Dallas Thoroughfare Plan Designation: *none (local street)*
 - City of Dallas Bike Plan Designation: *"On-Street" Route*
 - Current Daily Traffic Volume: 370 (Tuesday, Nov. 27th, 2018)

TRAFFIC IMPACT ANALYSIS

The following is a description of the analyses performed as part of this Traffic Impact Analysis.

Approach

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

Background Traffic Volume Data

Existing Volumes

Current traffic volumes were collected during the analysis periods at the study area intersections on Thursday, February 8th, 2018 and Tuesday, November 27, 2018. 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
Singleton Boulevard, west of N Hampton Road	15,847 ('09) ^A 16,560 ('04) ^A	-0.88%
Vilbig Road, between Singleton Boulevard and Commerce Street	1,005 ('09) ^A 1,092 ('04) ^A	-1.65%

Data Source: A = (TxDOT)

According to these data, traffic volumes in the vicinity of the subject site appear to be decreasing slightly. Although no positive growth is evident, Pacheco Koch assumed a growth rate of 1.0 percent per year to estimate future background traffic volumes.

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

Site-Related Traffic

Trip Generation

Trip generation is calculated in terms of "trip ends"—a trip end is a one-way vehicular trip entering or exiting a site driveway (i.e., a single vehicle entering and exiting a site represents two trip ends). Trip generation for this Project was calculated using the Institute of Transportation Engineers (ITE) *Trip Generation* manual (10th Edition). ITE *Trip Generation* is a compilation of actual, vehicular traffic volume generation data and statistics by land use as collected over several decades by creditable sources across the country. Using the ITE equations and rates is an accepted methodology to calculate the projected site-generated traffic volumes for many land uses (though engineering judgment is strongly advised).

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

Table 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 (ADJACENT STREET PEAK)	PM PEAK HOUR TRIP ENDS (ADJACENT STREET PEAK)
		Total (In/Out)	Total (In/Out)
Proposed Uses – Phase 1	1,813	135 (34/101)	181 (114/67)
Proposed Uses – Phase 2	5,191	344 (87/257)	443 (276/167)
Proposed Uses – Full Buildout	8,962	572 (142/430)	711 (442/269)

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 buildup 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 over a 60-minute period 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 in urban conditions; LOS E indicates a facility or maneuver is approaching capacity, while LOS F is theoretically an over-capacity condition. On highly-utilized transportation facilities, brief periods of LOS E or F conditions are not uncommon for during peak periods. In some cases measures to increase capacity, either through operational changes and/or physical improvements, can be identified to improve 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	$> 10 - \leq 20$	$> 10 - \leq 15$
LOS C	$> 20 - \leq 35$	$> 15 - \leq 25$
LOS D	$> 35 - \leq 55$	$> 25 - \leq 35$
LOS E	$> 55 - \leq 80$	$> 35 - \leq 50$
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
- Projected Horizon traffic volumes, including Site-Generated traffic during study peak hours

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

Summary of Results

Intersection capacity analyses presented in this study were performed using the *Synchro* software package. **Table 4** and **Table 5** provide a summary of the peak period intersection operational conditions under the analysis conditions presented previously. Detailed software output is provided in **Appendix E**.

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

INTERSECTION	EXISTING		PHASE 1 BACKGROUND		PHASE 1 BUILDOUT		PHASE 2 BACKGROUND		PHASE 2 BUILDOUT		BACKGROUND		FULL BUILDOUT		HORIZON	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Singleton Boulevard @ Vilbig Road	B (17.8)	B (13.2)	C (24.4)	B (14.0)	C (24.8)	B (14.7)	C (25.5)	B (15.3)	C (26.1)	B (16.8)	C (27.6)	B (17.6)	D (41.5)	B (19.0)	D (46.6)	C (20.8)
- w/ Improvement ¹ -	-	-	B (15.9)	B (12.0)	B (15.5)	B (11.7)	B (15.4)	B (11.5)	B (14.9)	B (11.8)	B (14.7)	B (11.8)	B (14.5)	B (11.9)	B (14.3)	B (12.2)

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

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

INTERSECTION	TRAFFIC MANEUVER	EXISTING		PHASE 1 BACKGROUND		PHASE 1 BUILDOUT		PHASE 2 BACKGROUND		PHASE 2 BUILDOUT		BACKGROUND		FULL BUILDOUT	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Vilbig Road @ Muncie Avenue /Site Driveway 1	NBL	A (7.3)	A (8.0)	A (7.5)	B (8.1)	A (7.5)	B (8.1)	A (7.5)	B (8.1)	A (7.6)	B (8.1)	A (7.6)	B (8.2)	A (7.5)	B (8.1)
	EB	B (11.6)	B (10.8)	B (12.6)	B (11.3)	B (12.8)	B (11.5)	B (12.8)	B (11.5)	B (13.2)	B (11.8)	B (13.4)	B (11.9)	C (15.1)	B (13.0)
	WB	--	--	--	--	--	--	--	--	--	--	--	--	B (14.2)	B (12.9)
	SBL	--	--	--	--	--	--	--	--	--	--	--	--	A (8.4)	A (7.6)
Borger Street @ Singleton Boulevard	NB	D (26.5)	D (27.2)	E (47.0)	F (50.9)	F <td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F (47.5)</td><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/></td></td></td></td></td></td></td></td>	F <td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F (47.5)</td><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/></td></td></td></td></td></td></td>	F <td>F<br (>100)<="" td=""/><td>F (47.5)</td><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/></td></td></td></td></td></td>	F <td>F (47.5)</td> <td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/></td></td></td></td></td>	F (47.5)	F <td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/></td></td></td></td>	F <td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/></td></td></td>	F <td>F<br (>100)<="" td=""/><td>F<br (>100)<="" td=""/></td></td>	F <td>F<br (>100)<="" td=""/></td>	F
	EBL	A (8.1)	B (10.4)	A (8.4)	B (10.8)	A (8.4)	B (10.8)	A (8.4)	B (10.9)	A (8.5)	B (11.4)	A (8.6)	B (11.5)	A (8.6)	B (11.9)
	WBL	A (9.8)	A (8.8)	B (10.2)	A (9.5)	B (10.4)	A (10.0)	B (10.5)	A (10.0)	B (10.8)	B (8.5)	A (11.0)	B (10.1)	B (11.4)	B (10.4)
	SB	C (15.7)	C (19.3)	C (19.6)	C (23.8)	C (21.1)	C (27.8)	C (21.3)	C (28.5)	C (23.2)	C (23.2)	C (24.0)	C (31.7)	D (26.8)	E (38.7)
W Commerce Street @ Vilbig Road	NB	D (31.8)	B (13.6)	E (41.3)	C (15.2)	E (43.2)	C (15.8)	E (45.7)	C (15.9)	E (49.2)	C (16.9)	F (56.7)	C (18.1)	F (62.2)	C (19.8)
	EBL	A (8.0)	A (7.4)	A (8.1)	A (7.4)	A (8.1)	A (7.4)	A (8.1)	A (7.4)	A (8.1)	A (8.1)	A (7.5)	A (8.1)	A (8.1)	A (7.5)
	WBL	A (7.5)	A (7.7)	A (7.5)	A (7.7)	A (7.5)	A (7.7)	A (7.5)	A (7.7)	A (7.5)	A (7.7)	A (7.6)	A (7.7)	A (7.6)	A (7.7)
	SB	C (18.2)	C (23.1)	C (24.2)	D (32.2)	D (28.8)	E (36.3)	D (30.5)	E (38.0)	G (43.7)	E (47.5)	F (58.2)	F (54.6)	F <td>F (70.7)</td>	F (70.7)
- w/ Improvement ² -	NB	--	--	B (14.2)	A (9.3)	B (14.6)	A (9.5)	B (14.8)	A (9.5)	C (15.5)	A (9.8)	C (16.2)	A (10.0)	C (16.9)	C (10.2)
	EB	--	--	B (14.4)	B (11.3)	B (14.8)	B (11.7)	C (15.3)	B (11.8)	C (16.0)	B (12.3)	C (16.8)	B (12.6)	C (17.8)	C (13.3)
	WB	--	--	B (12.5)	A (9.9)	B (12.9)	B (10.1)	B (13.1)	B (10.1)	B (13.6)	B (10.4)	B (14.2)	B (10.6)	B (14.8)	B (10.9)
	SB	--	--	B (11.3)	B (14.8)	B (11.8)	B (15.6)	B (11.9)	B (15.8)	B (12.7)	B (17.1)	B (13.0)	B (18.2)	B (14.1)	C (20.0)
Singleton Boulevard @ Chihuahua Avenue /Site Driveway 2	NB	--	--	--	--	--	--	--	--	C (17.5)	D (28.8)	C (18.9)	D (33.3)	C (20.6)	E (42.4)
	EBL	A (8.2)	B (10.1)	A (8.6)	B (10.6)	A (8.8)	B (10.8)	A (8.8)	B (10.9)	A (9.0)	B (11.0)	A (9.0)	B (11.2)	A (8.9)	B (11.1)
	WBL	--	--	--	--	--	--	--	--	A (8.8)	A (8.6)	A (8.8)	A (8.7)	A (8.8)	A (8.8)
	SB	B (10.2)	B (12.9)	B (10.6)	B (13.7)	B (10.9)	B (14.0)	B (11.0)	B (14.1)	B (11.5)	B (17.4)	B (11.8)	B (18.1)	B (11.6)	C (18.4)
Singleton Boulevard @ Site Driveway 3	NB	--	--	--	--	--	--	--	--	C (24.2)	C (25.3)	D (25.3)	C (21.6)	C (20.8)	C (18.4)
	WBL	--	--	--	--	--	--	--	--	B (11.3)	B (8.6)	B (11.5)	B (10.6)	B (11.7)	B (10.8)

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

POTENTIAL MITIGATION MEASURES:
1 - Install Traffic Signal
2 - Add Multi-Way Stop.

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:capacity 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 \leq 25% is LOS A,
- Volume:Capacity Ratio $>$ 25% and \leq 45% is LOS B,
- Volume:Capacity Ratio $>$ 45% and \leq 65% is LOS C,

Volume:Capacity Ratio > 65% and \leq 80% is LOS *D*,
 Volume:Capacity Ratio > 80% and \leq 100% is LOS *E*,
 Volume:Capacity Ratio \geq 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 6**. See specific recommendations in the *Recommendations* section of this report.

Table 6. Roadway Link Capacity Analysis Results Summary

ROADWAY/ SCENARIO	DAILY VOLUME	THEORETICAL DAILY CAPACITY	V:C RATIO/ LEVEL OF SERVICE
<u>Singleton Boulevard</u> Existing Conditions	17,663	30,000	0.59 – <i>C</i>
	18,564	30,000	0.62 – <i>C</i>
	21,935	30,000	0.73 – <i>D</i>
<u>Vilbig Road</u> Existing Conditions	2,368	10,500	0.23 – <i>A</i>
	2,440	10,500	0.23 – <i>A</i>
	3,451	10,500	0.33 – <i>B</i>

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 development of the subject property in accordance with the hypothetical development scenario outlined in the Project Description section of this report.

FINDING: Under typical-day peak traffic periods, the traffic operations at the signalized and unsignalized intersections within the study area currently operate efficiently and achieve acceptable Levels of Service, though

some individual traffic maneuvers are beginning to approach unacceptable conditions.

With the addition of estimated background traffic growth and the net increase in site-generated traffic from the proposed development, some individual traffic movements will experience a slight increase in average delay. However, the traffic-signal-controlled intersection of Singleton Boulevard and Vilbig Road will continue to operate at acceptable operational conditions (Level of Service D, or better).

FINDING: At the intersection of W Commerce Street and Vilbig Road, the northbound shared through-right maneuver (not the entire intersection) operates at Level of Service "E" in the background conditions and remains at Level of Service "E" with the addition of site traffic. The single-lane southbound approach (not the entire intersection) operates at a Level of Service "D" in the background condition and is projected to degrade to Level of Service "E", and ultimately "F", with the addition of projected background growth and site-generated traffic. However, the cross-sections of both W Commerce Street and Vilbig Road are not constructed to the current City of Dallas Thoroughfare Plan designations, so additional roadway capacity will be provided when the ultimate thoroughfare network is built out. Traffic operations can be re-evaluated at that point.

- ❖ **RECOMMENDATION:** For interim mitigation of the intersection of W Commerce Street and Vilbig Road, the option of converting the intersection to All-way STOP-Controlled may be considered until the roadways are improved.

FINDING: Within the next year or two of continued development on the adjacent properties, traffic delays on the northbound approach of the intersection of Singleton Boulevard and Borger Street are projected to increase due to increasing volumes on Borger and currently heavy traffic volumes on Singleton Boulevard. Based upon cursory traffic signal warrant analysis performed by Pacheco Koch, it was determined that a traffic signal is not warranted under existing conditions. However, as the currently-planned-and-approved developments on the nearby parcels continue to build out and traffic volumes increase, the intersection is anticipated to (marginally) satisfy the warrants for installation of a traffic signal prior to full buildout.

- ❖ **RECOMMENDATION:** Install a traffic signal at the intersection of Singleton Boulevard and Borger Street prior to completion of the development phases that are now under construction. [NOTE: This recommendation is, in part, precipitated by developments other than those associated with the Applicant.]

FINDING: At full buildout of the Project, traffic operations on the minor street approaches at the intersection of Single Boulevard and Chihuahua Avenue are anticipated to marginally reach poor Levels of Service during peak hour conditions. Though the conditions are typical of similar intersections, identification of potential mitigation measures are required by the City.

January 31, 2019

Such operations cannot be mitigated without the addition of a traffic signal; however, the projected volumes are not sufficient to meet traffic signal warrants for the intersection. Although, no action is considered necessary, a contingency strategy would be to prohibit left-turns from the minor street approaches at the intersection if such is ultimately warranted by excessive delays or safety hazard.

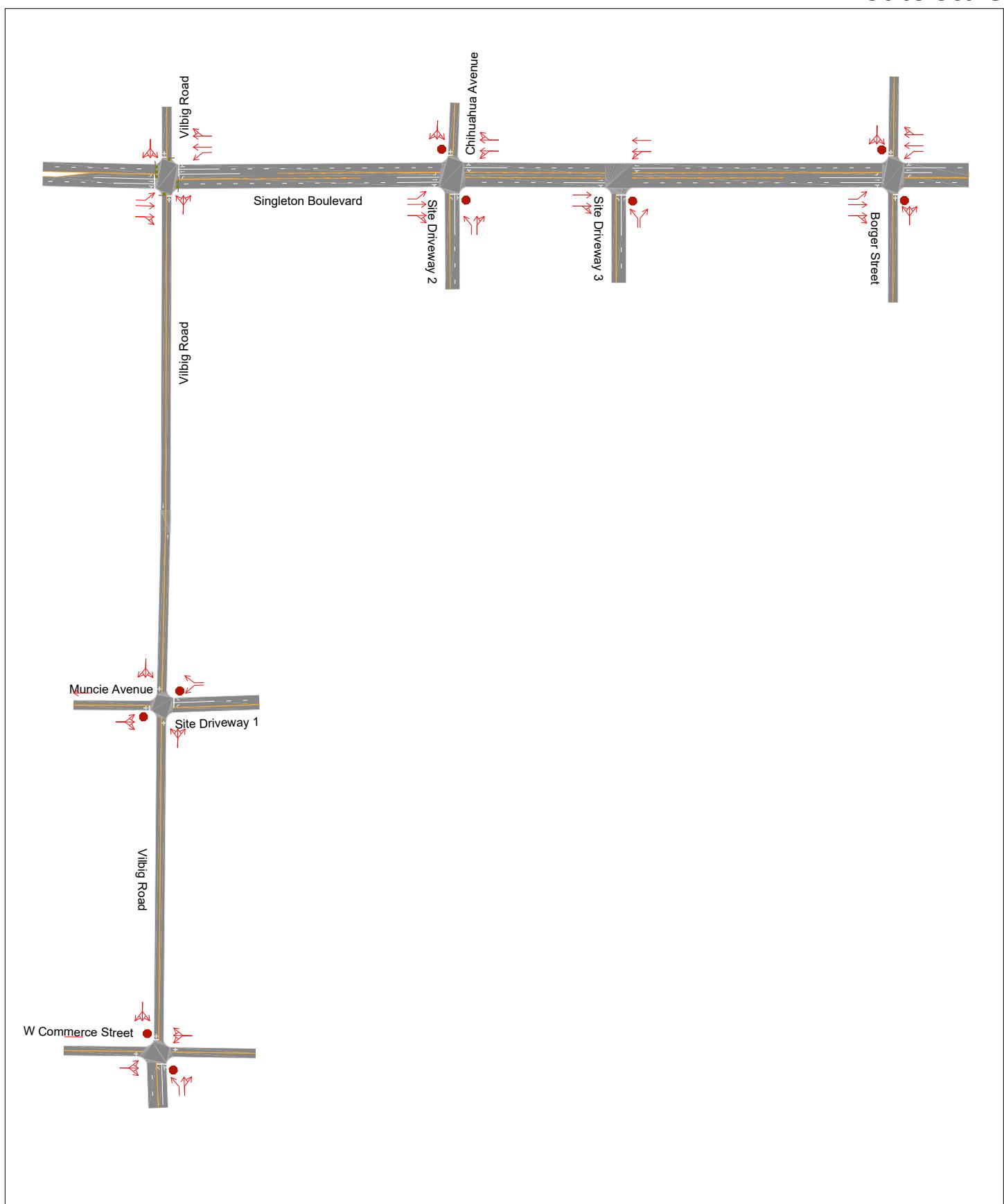
END OF MEMO

Appendix A. Traffic Volume Exhibits

Appendix A1 - Roadway Geometry

North ▲

Not to Scale



3859-17.399

AJV

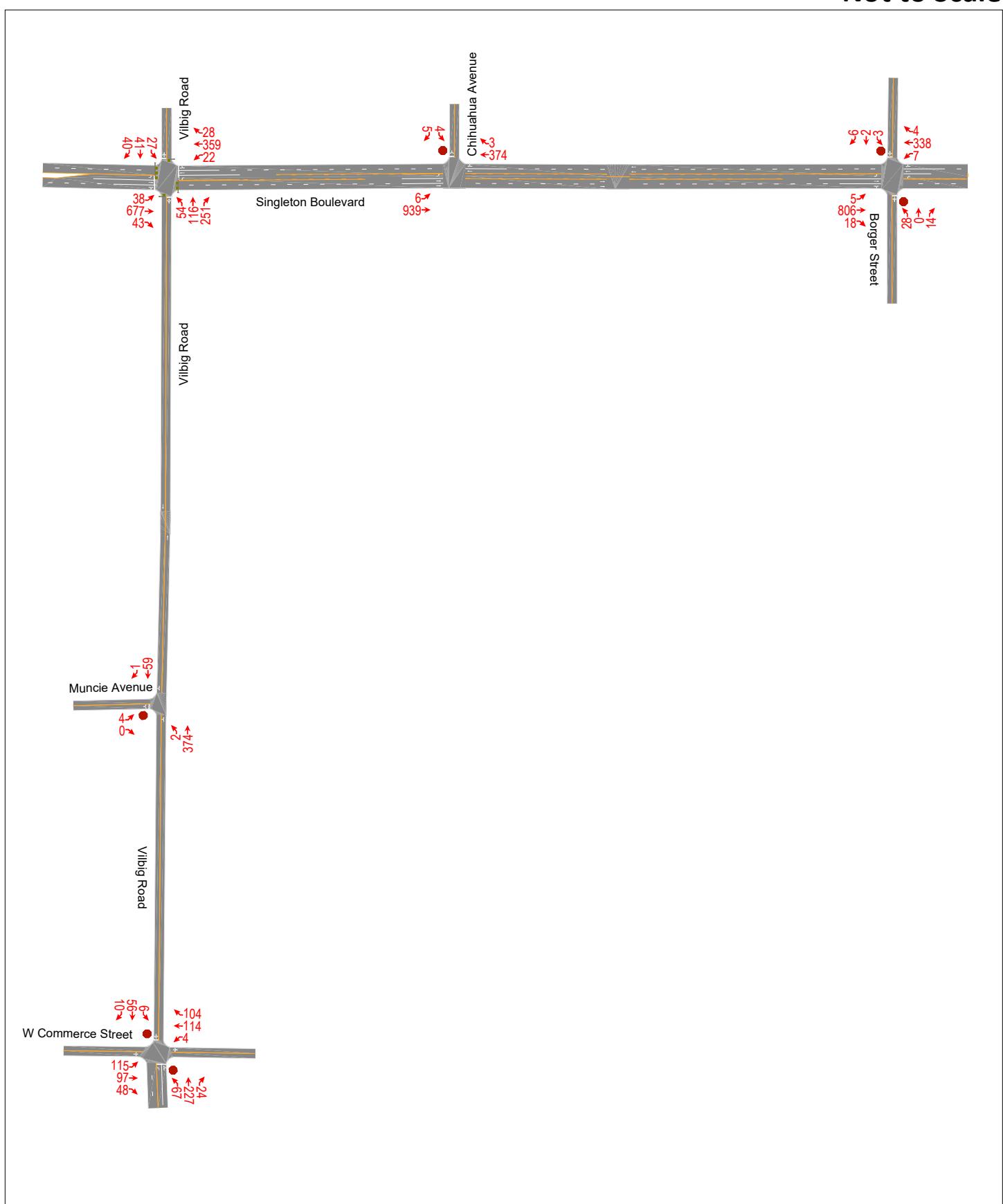
12/05/2018

Pacheco Koch

Appendix A2 - Existing AM Peak Hour Traffic Volumes

North ▲

Not to Scale



3859-17.399

AJV

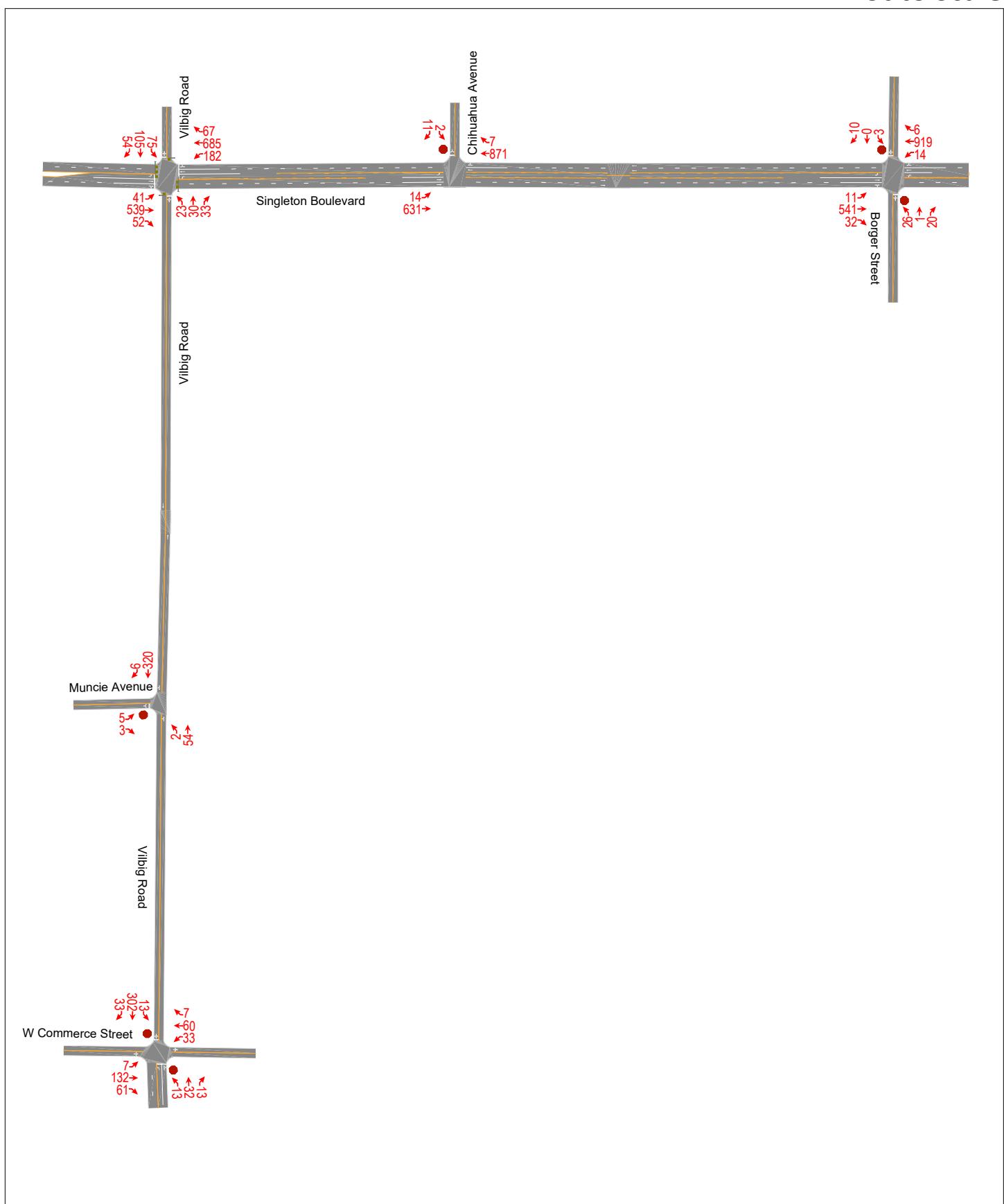
12/10/2018

Pacheco Koch

Appendix A3 - Existing PM Peak Hour Traffic Volumes

North ▲

Not to Scale



3859-17.399

AJV

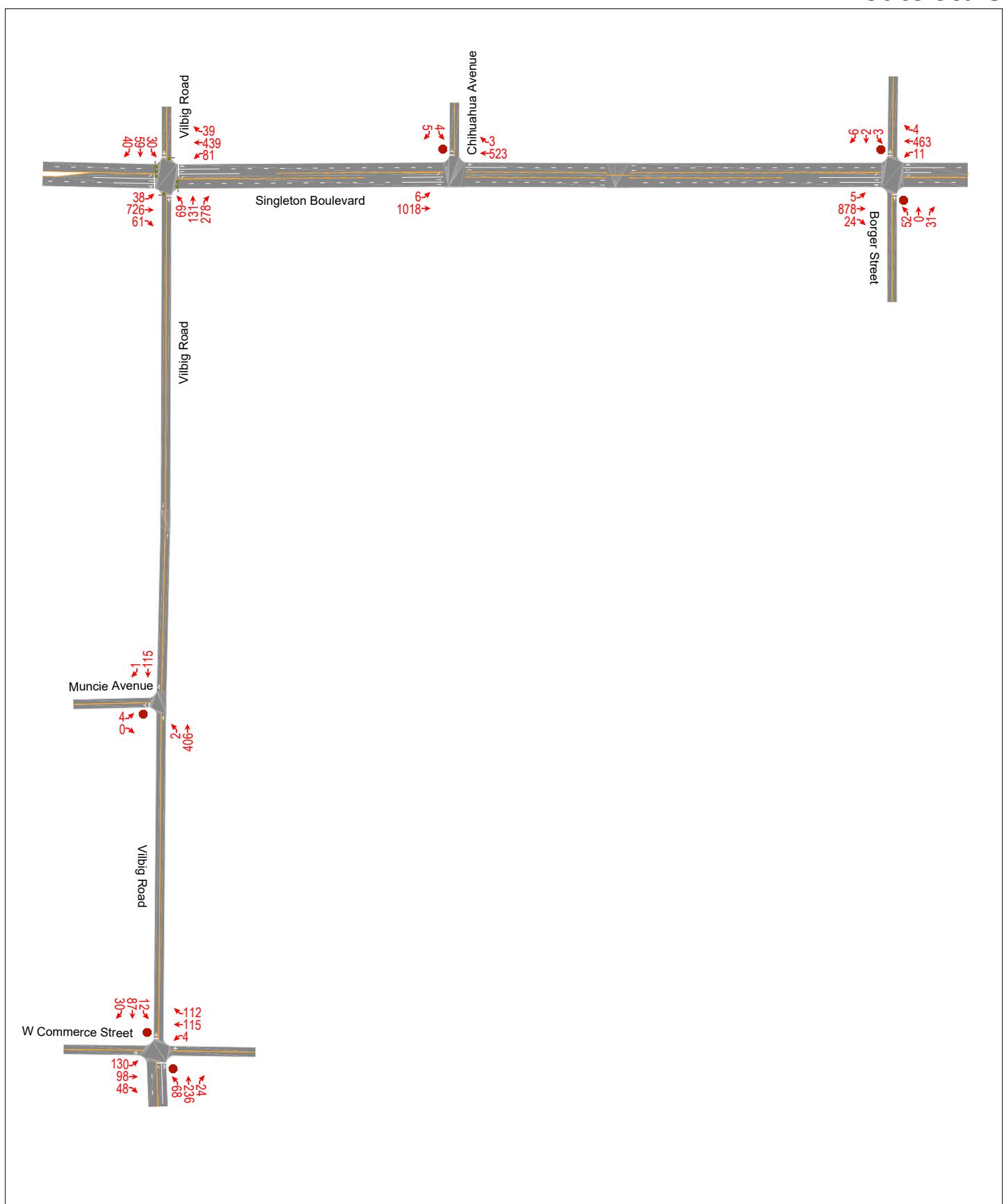
12/10/2018

Pacheco Koch

Appendix A4 - Phase 1 Background AM

North ▲

Not to Scale



3859-17.399

AJV

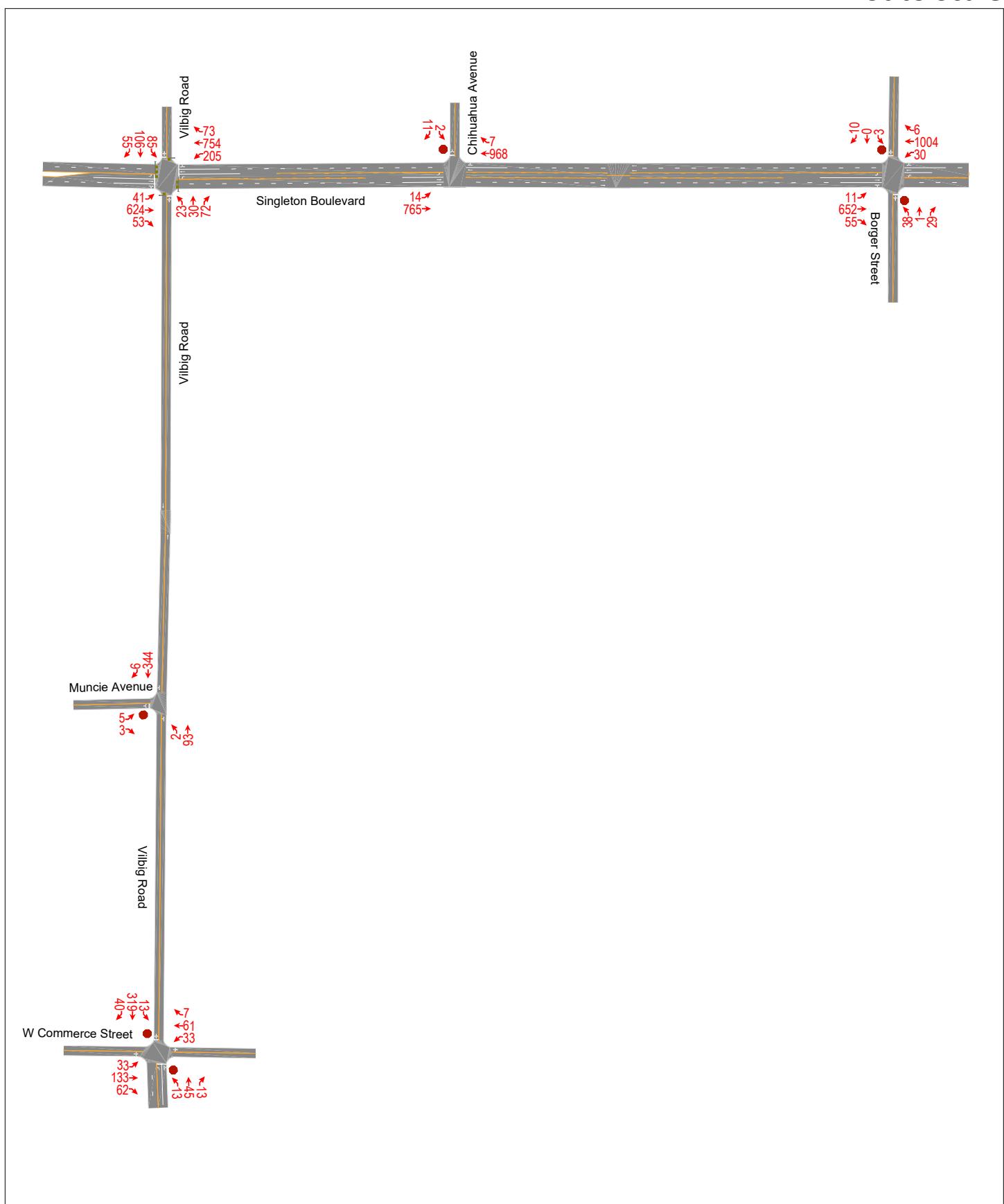
12/26/2018

Pacheco Koch

Appendix A5 - Phase 1 Background PM

North ▲

Not to Scale



3859-17.399

AJV

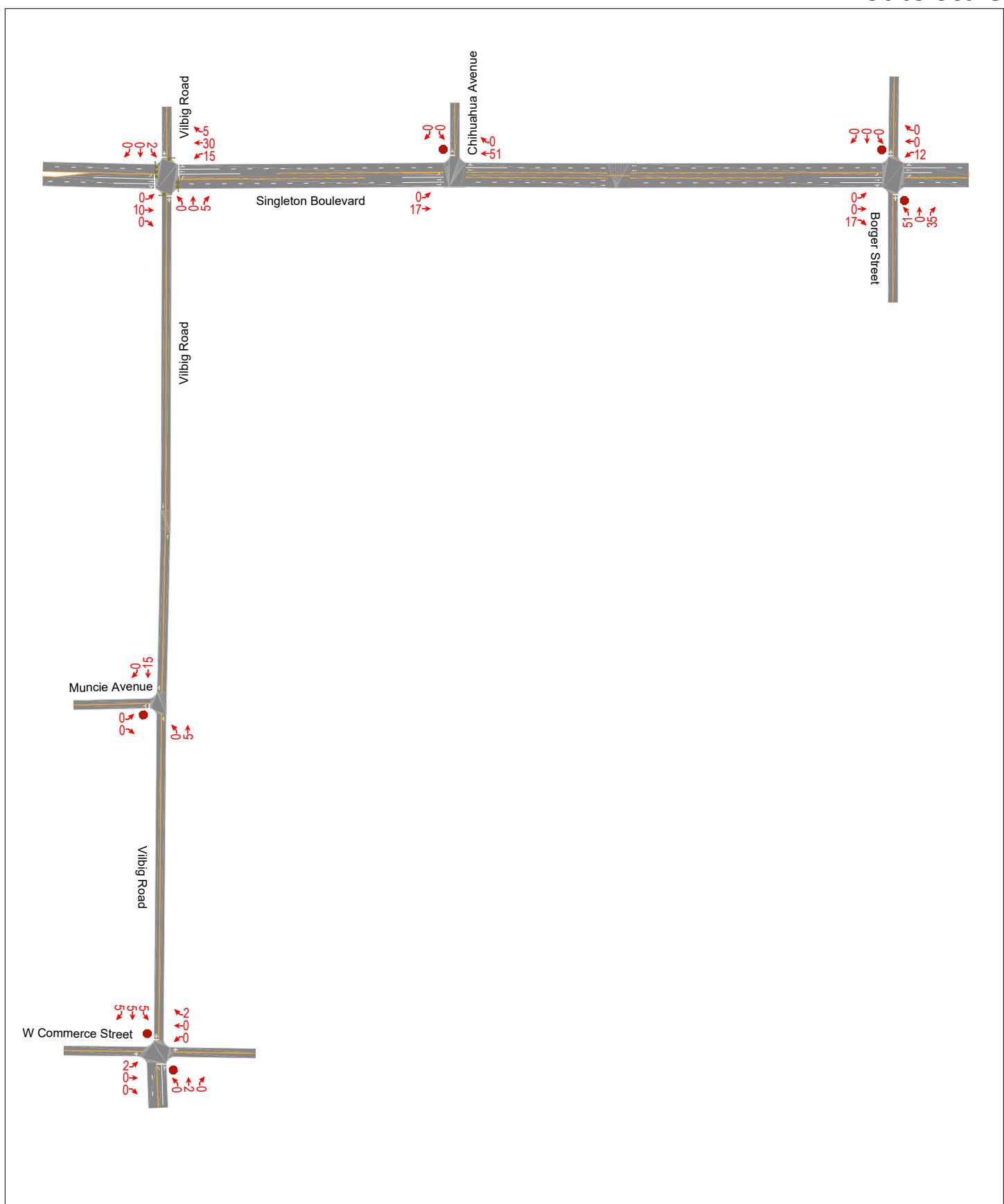
12/10/2018

Pacheco Koch

Appendix A6 - Phase 1 Site Generated AM

North ▲

Not to Scale



3859-17.399

AJV

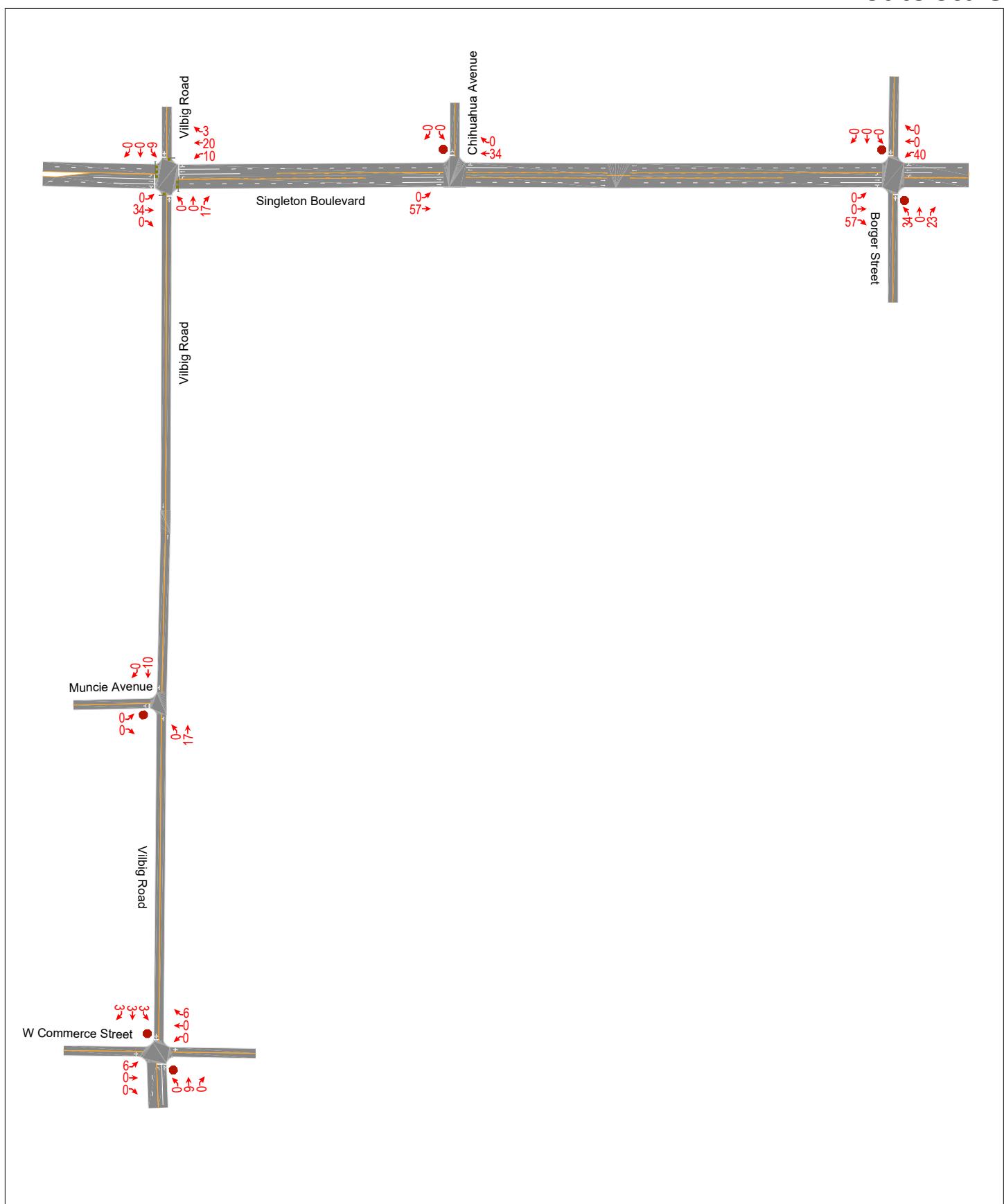
12/05/2018

Pacheco Koch

Appendix A7 - Phase 1 Site Generated PM

North ▲

Not to Scale



3859-17.399

AJV

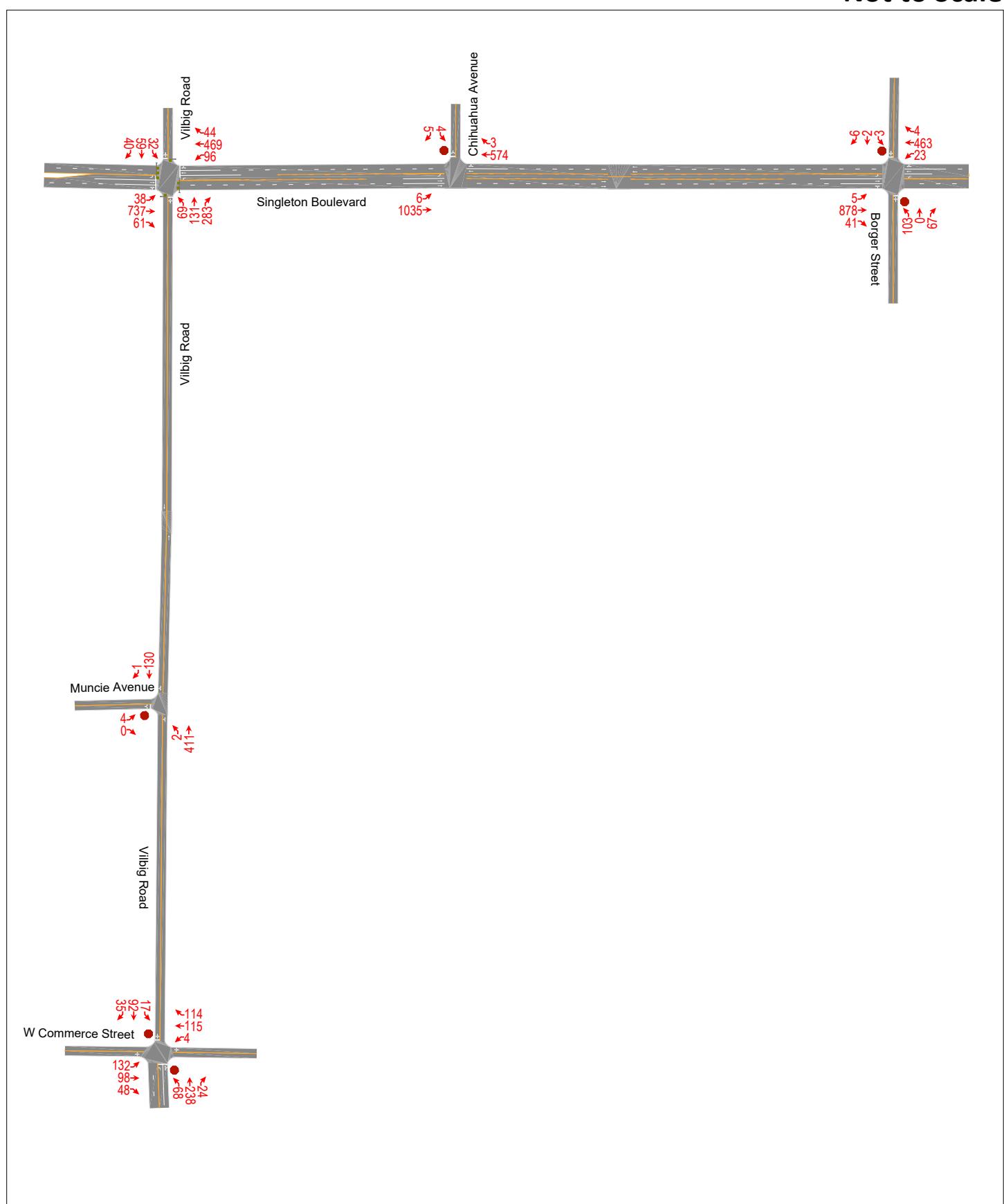
12/05/2018

Pacheco Koch

Appendix A8 - Phase 1 Buildout AM

North ▲

Not to Scale



3859-17.399

AJV

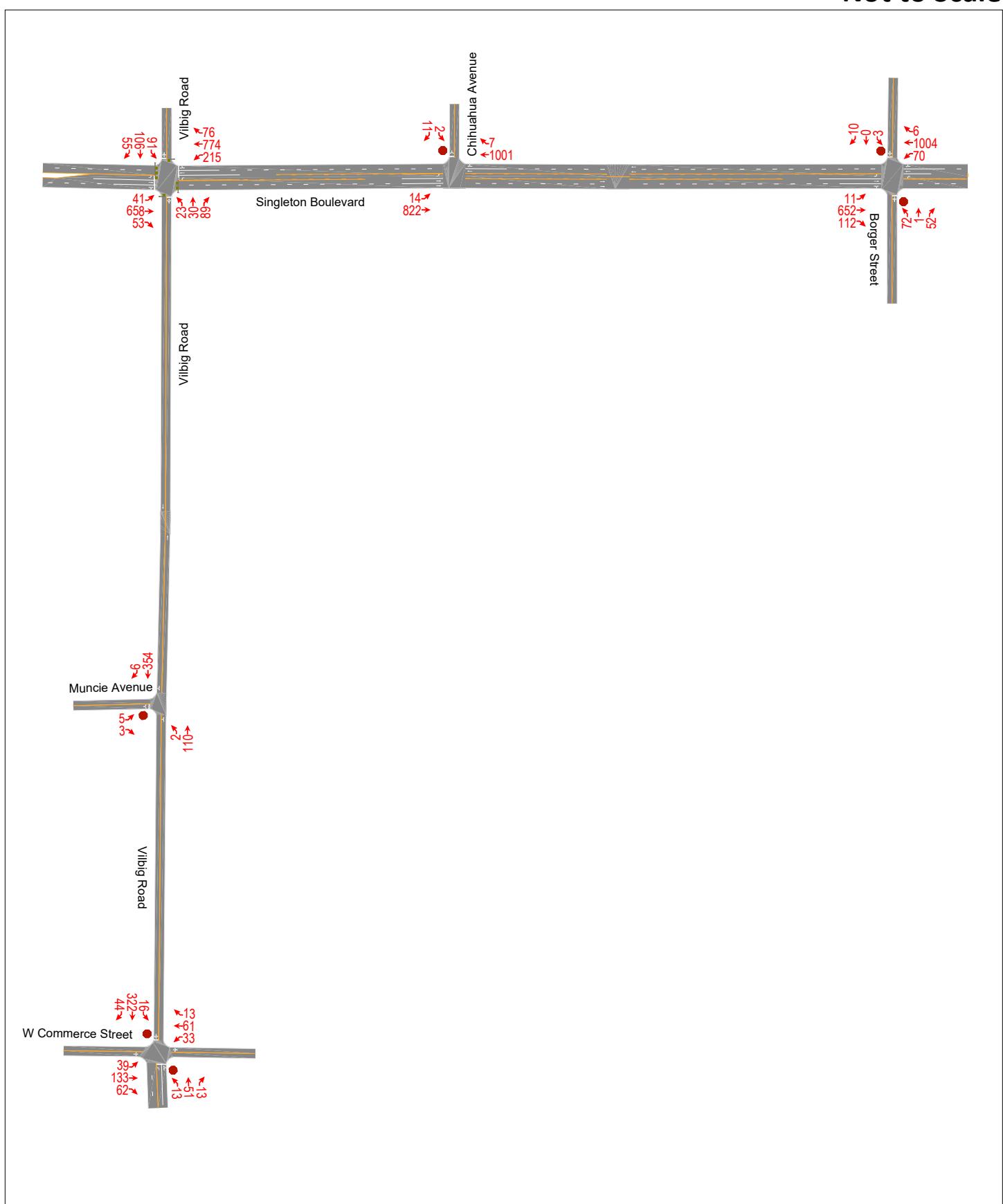
12/26/2018

Pacheco Koch

Appendix A9 - Phase 1 Buildout PM

North ▲

Not to Scale



3859-17.399

AJV

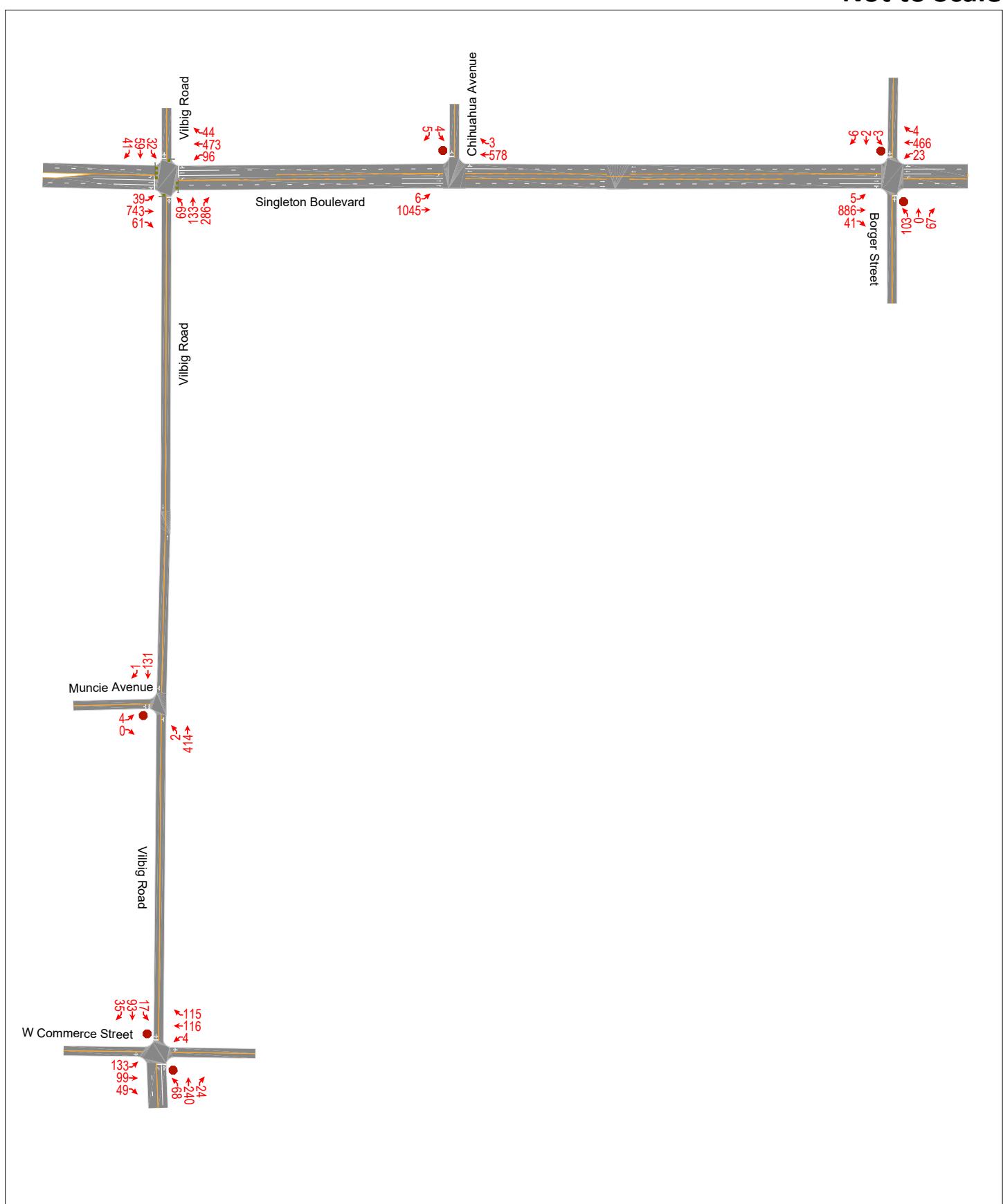
12/10/2018

Pacheco Koch

Appendix A10 - Phase 2 Background AM

North ▲

Not to Scale



3859-17.399

AJV

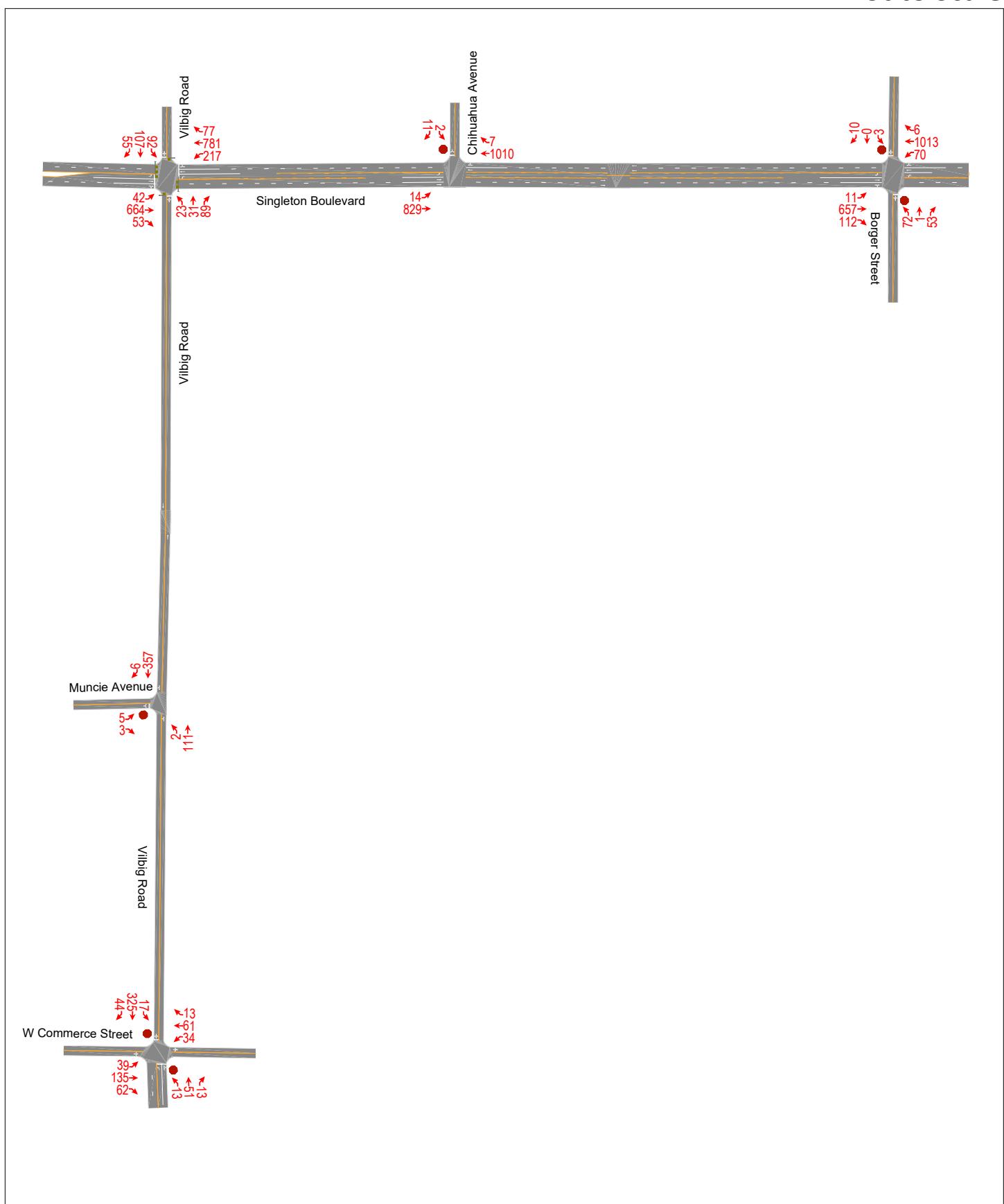
12/26/2018

Pacheco Koch

Appendix A11 - Phase 2 Background PM

North ▲

Not to Scale



3859-17.399

AJV

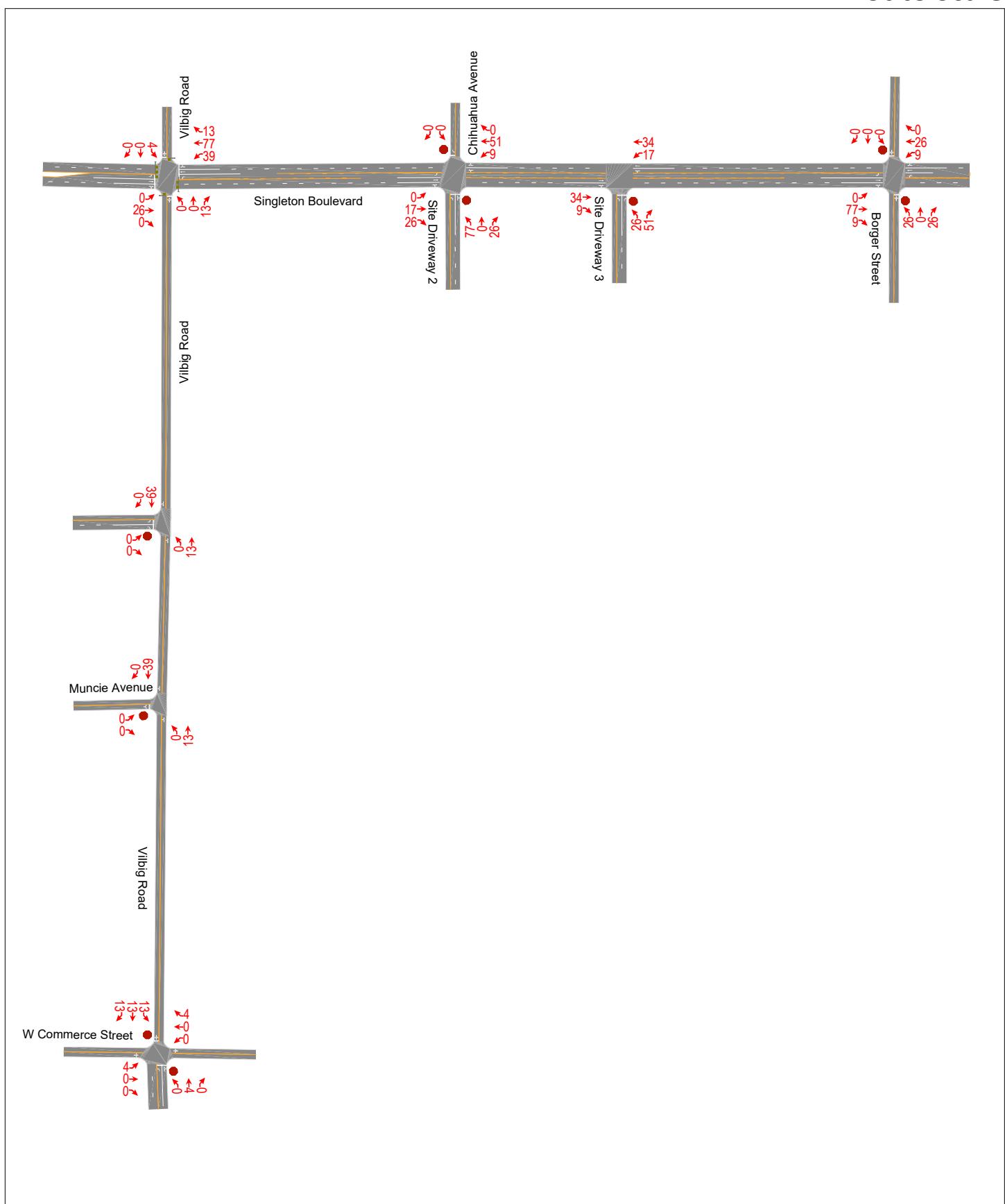
12/10/2018

Pacheco Koch

Appendix A12 - Phase 2 Site Generated AM

North ▲

Not to Scale



3859-17.399

AJV

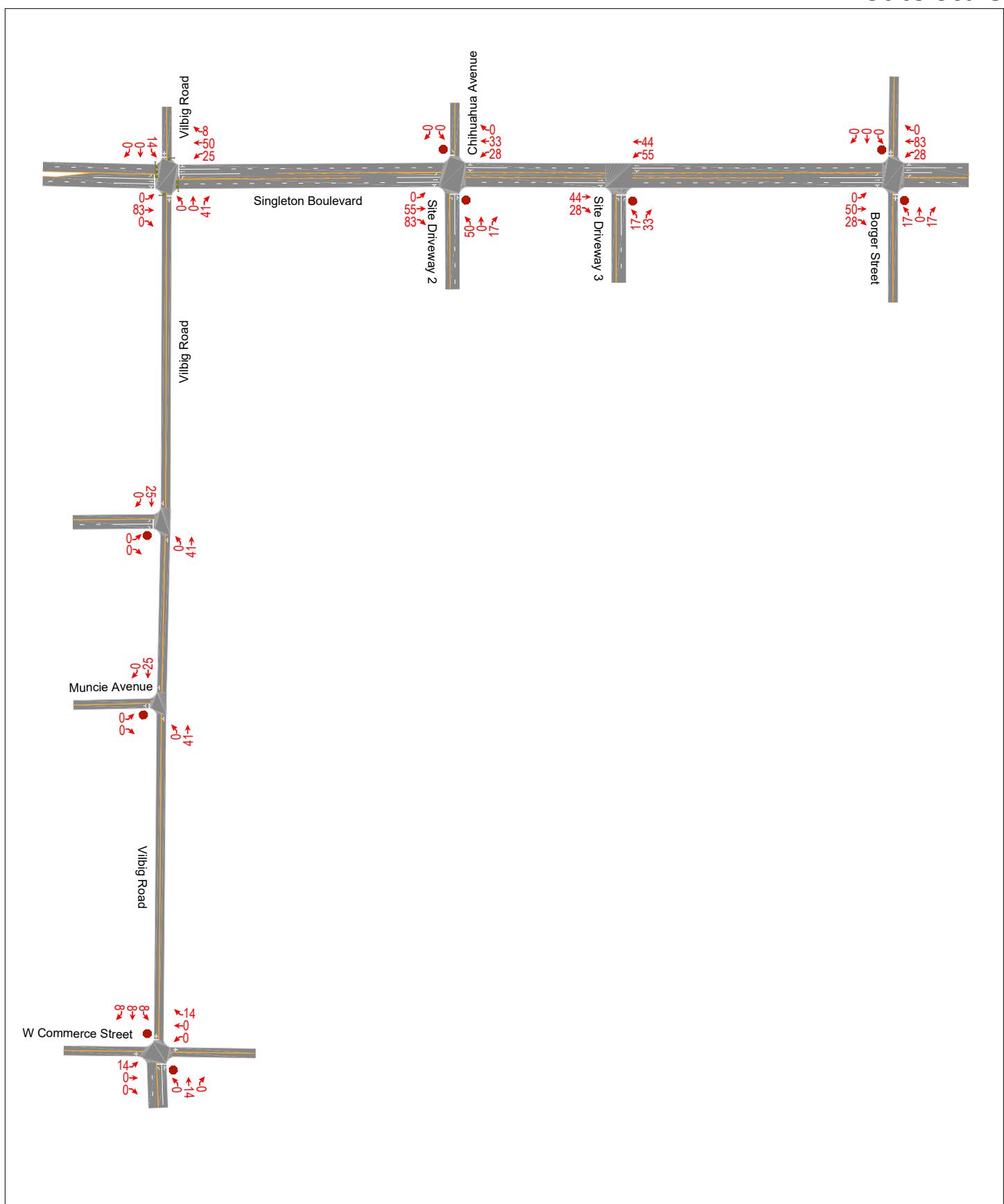
12/05/2018

Pacheco Koch

Appendix A13 - Phase 2 Site Generated PM

North ▲

Not to Scale



3859-17.399

AJV

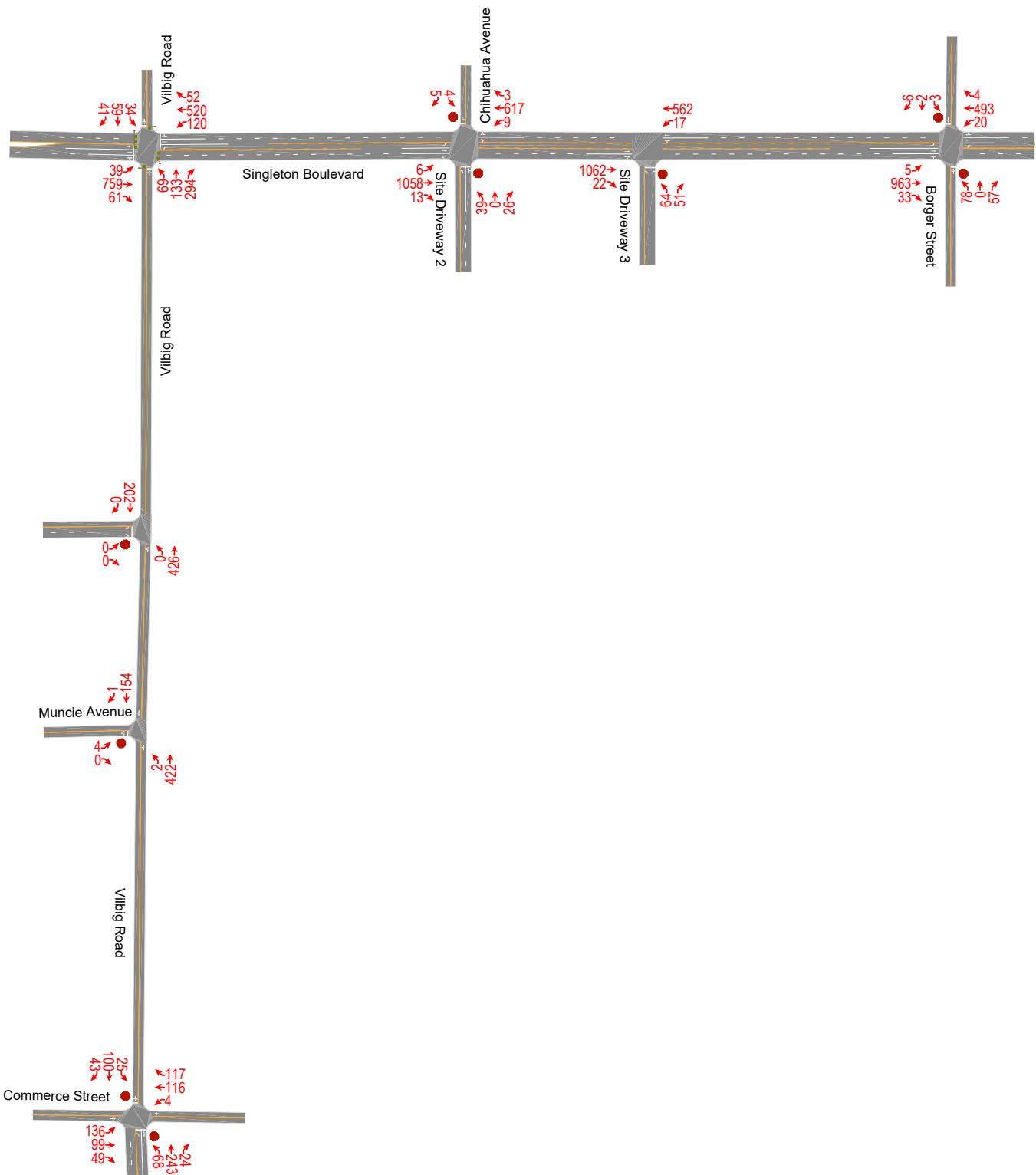
12/05/2018

Pacheco Koch

Appendix A14 - Phase 2 Buildout AM

North ▲

Not to Scale



3859-17.399

AJV

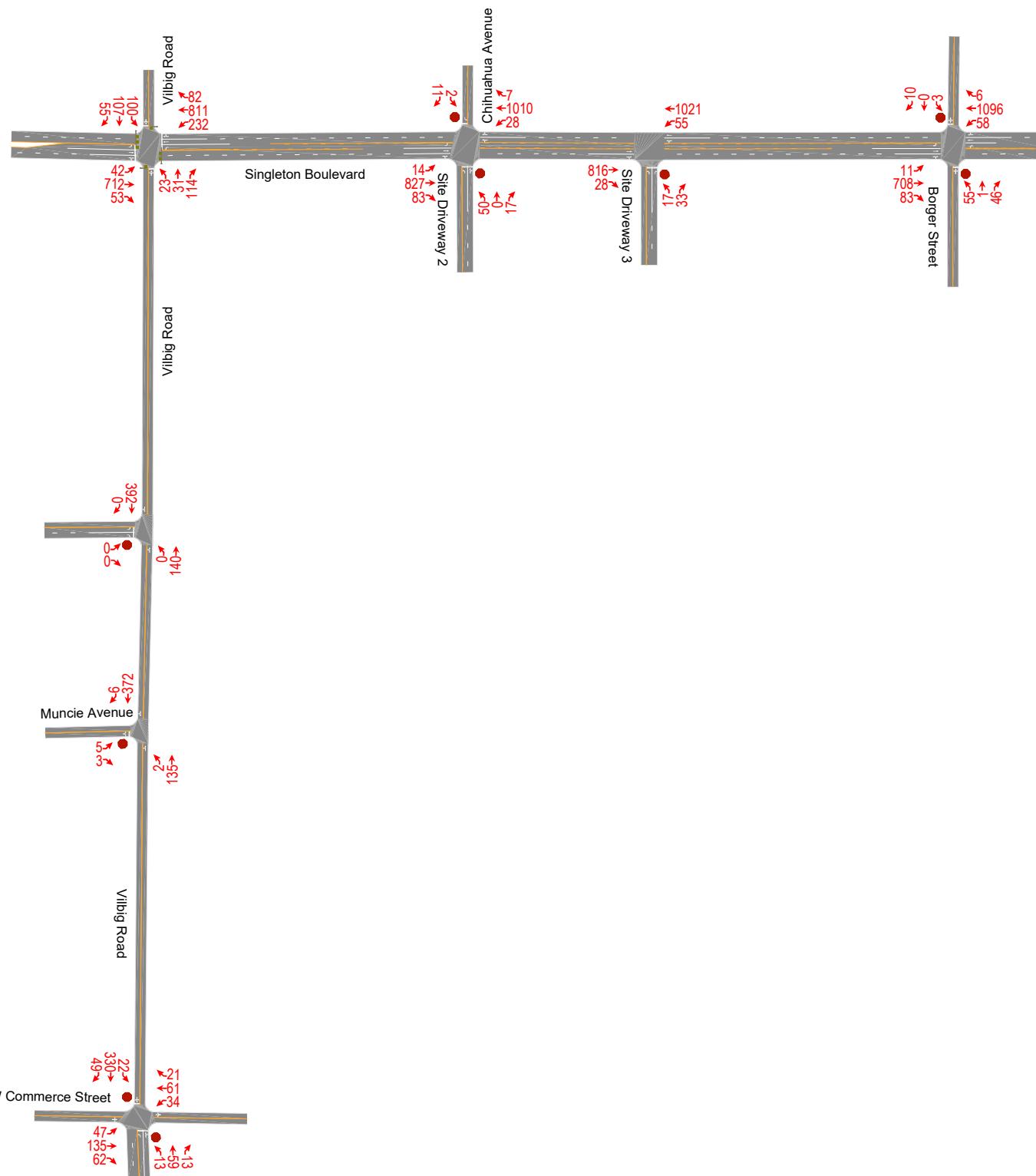
12/26/2018

Pacheco Koch

Appendix A15 - Phase 2 Buildout PM

North ▲

Not to Scale



3859-17.399

AJV

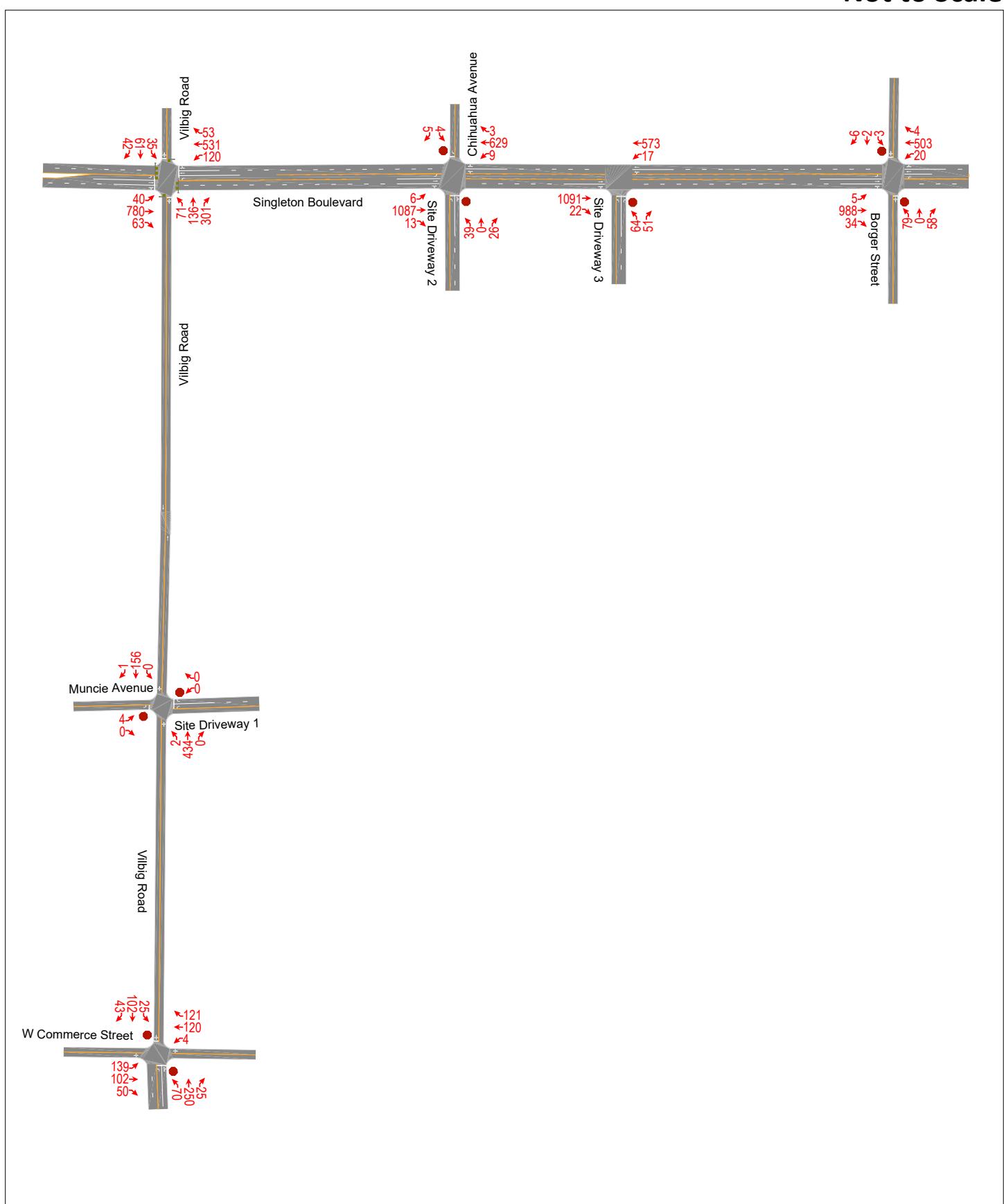
12/10/2018

Pacheco Koch

Appendix A16 - Background AM

North ▲

Not to Scale



3859-17.399

AJV

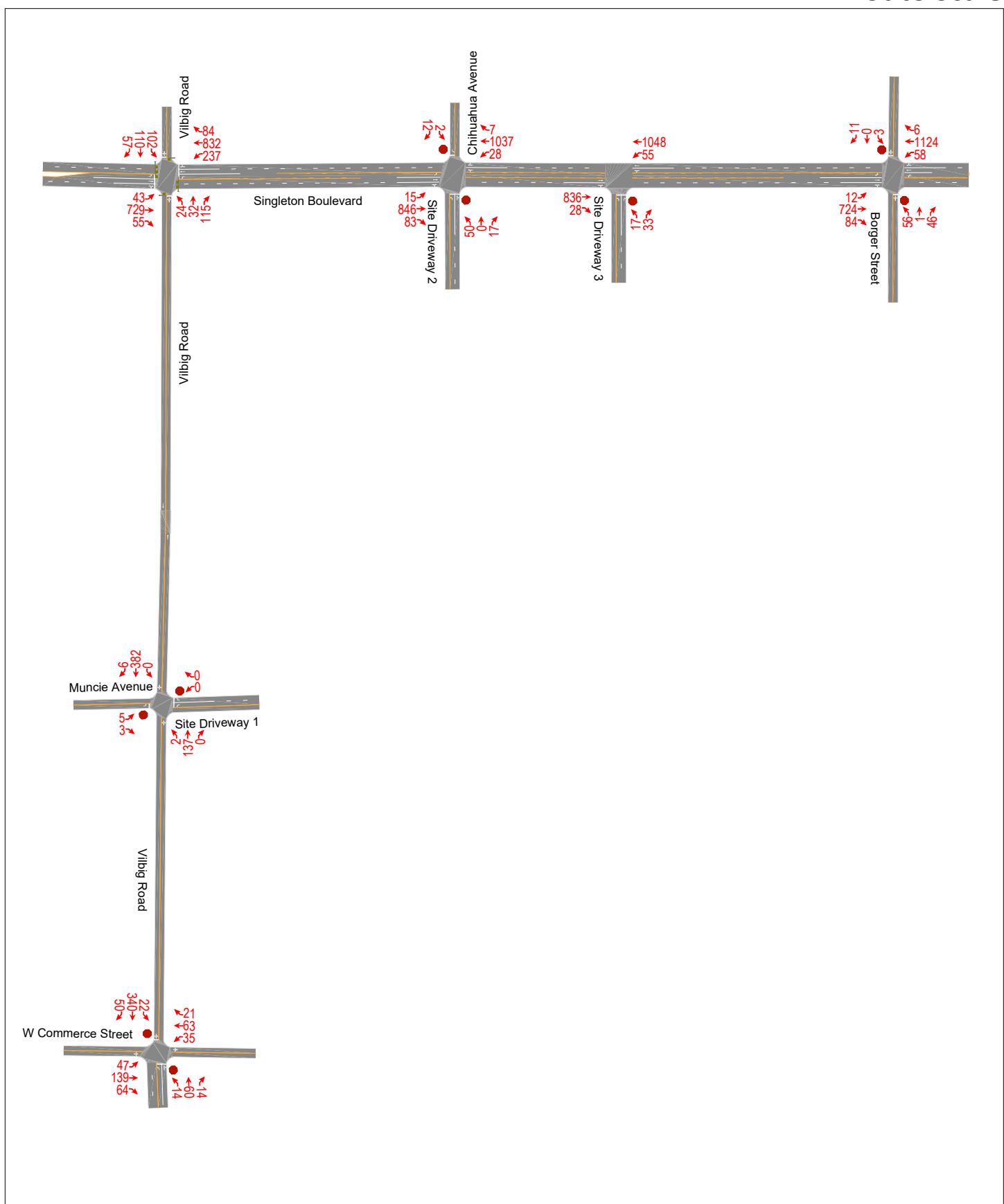
12/26/2018

Pacheco Koch

Appendix A17 - Background PM

North ▲

Not to Scale



3859-17.399

AJV

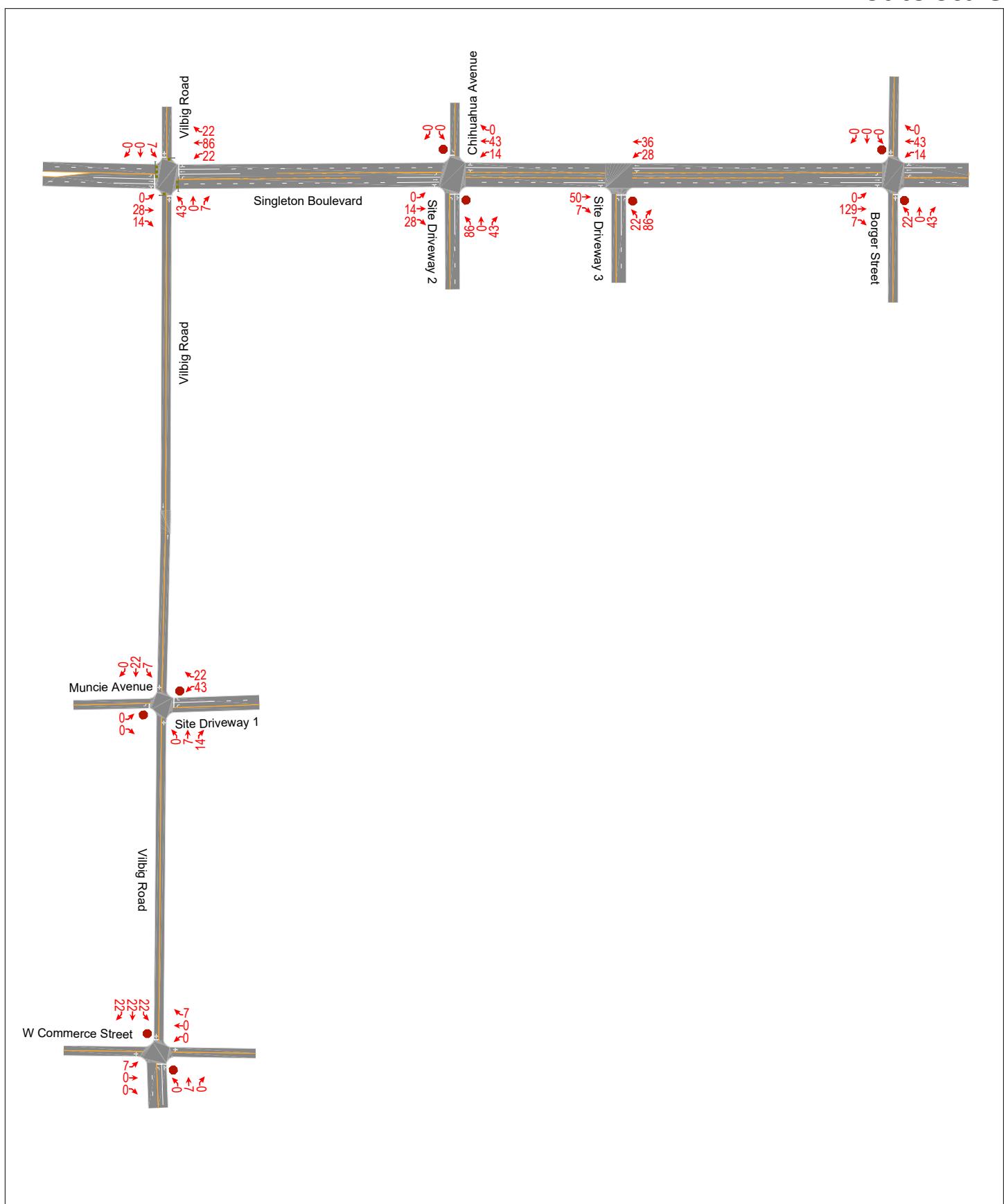
12/10/2018

Pacheco Koch

Appendix A18 - Site Generated AM

North ^

Not to Scale



3859-17.399

AJV

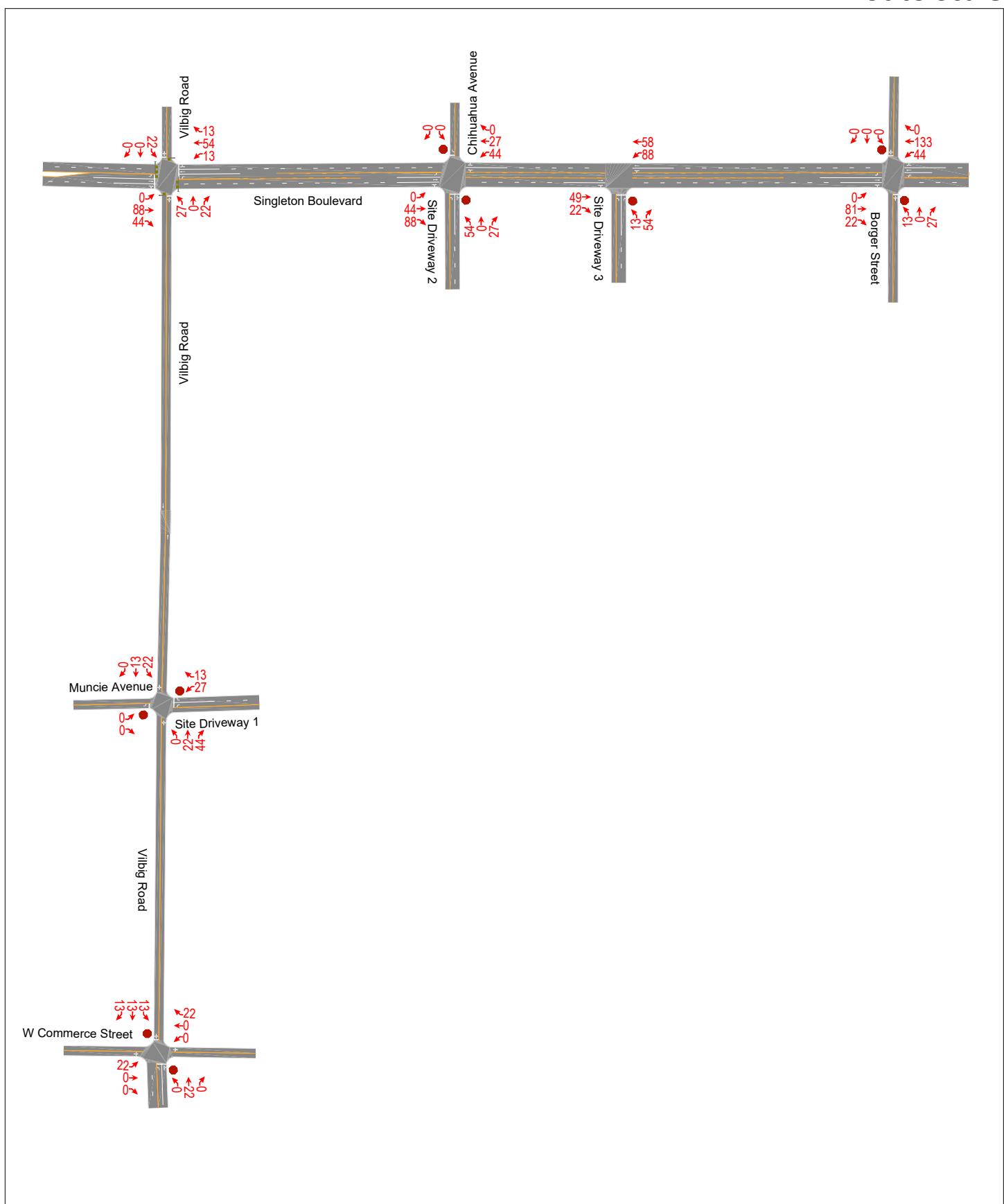
12/05/2018

Pacheco Koch

Appendix A19 - Site Generated PM

North ▲

Not to Scale



3859-17.399

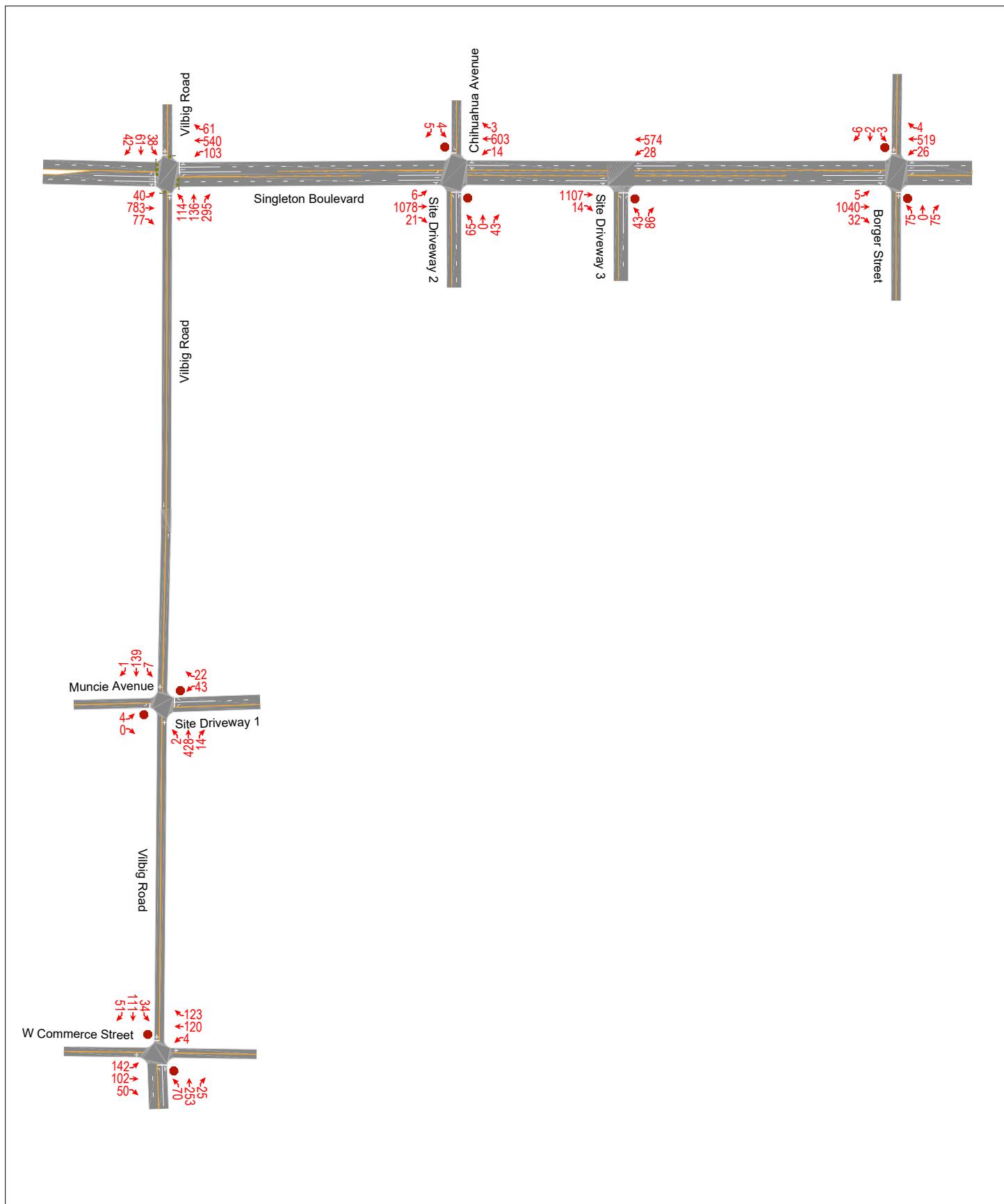
AJV

12/05/2018

Pacheco Koch

Appendix A20 - Buildout AM

North ▲
Not to Scale



3859-17.399

AJV

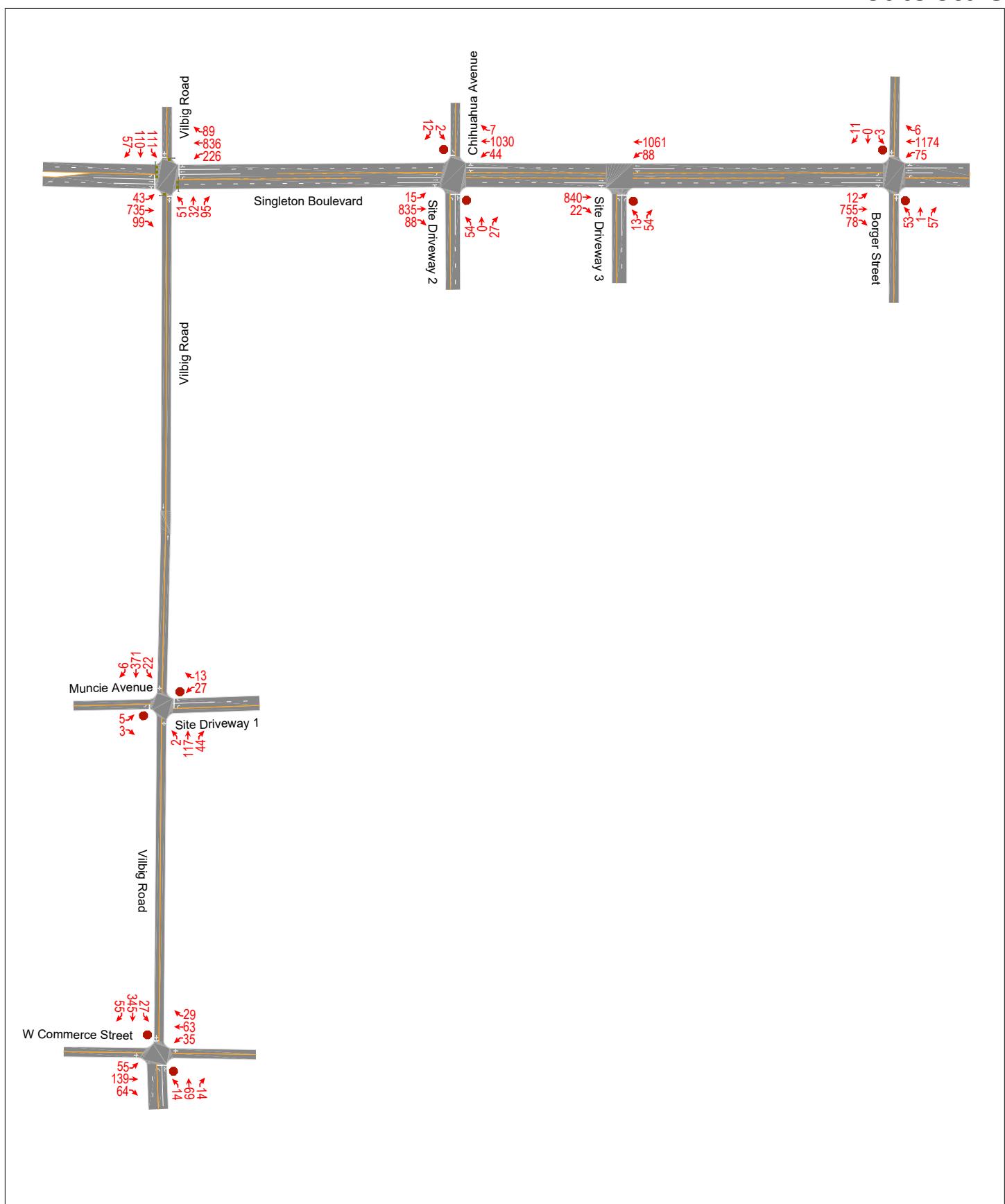
12/26/2018

Pacheco Koch

Appendix A21 - Buildout PM

North ▲

Not to Scale



3859-17.399

AJV

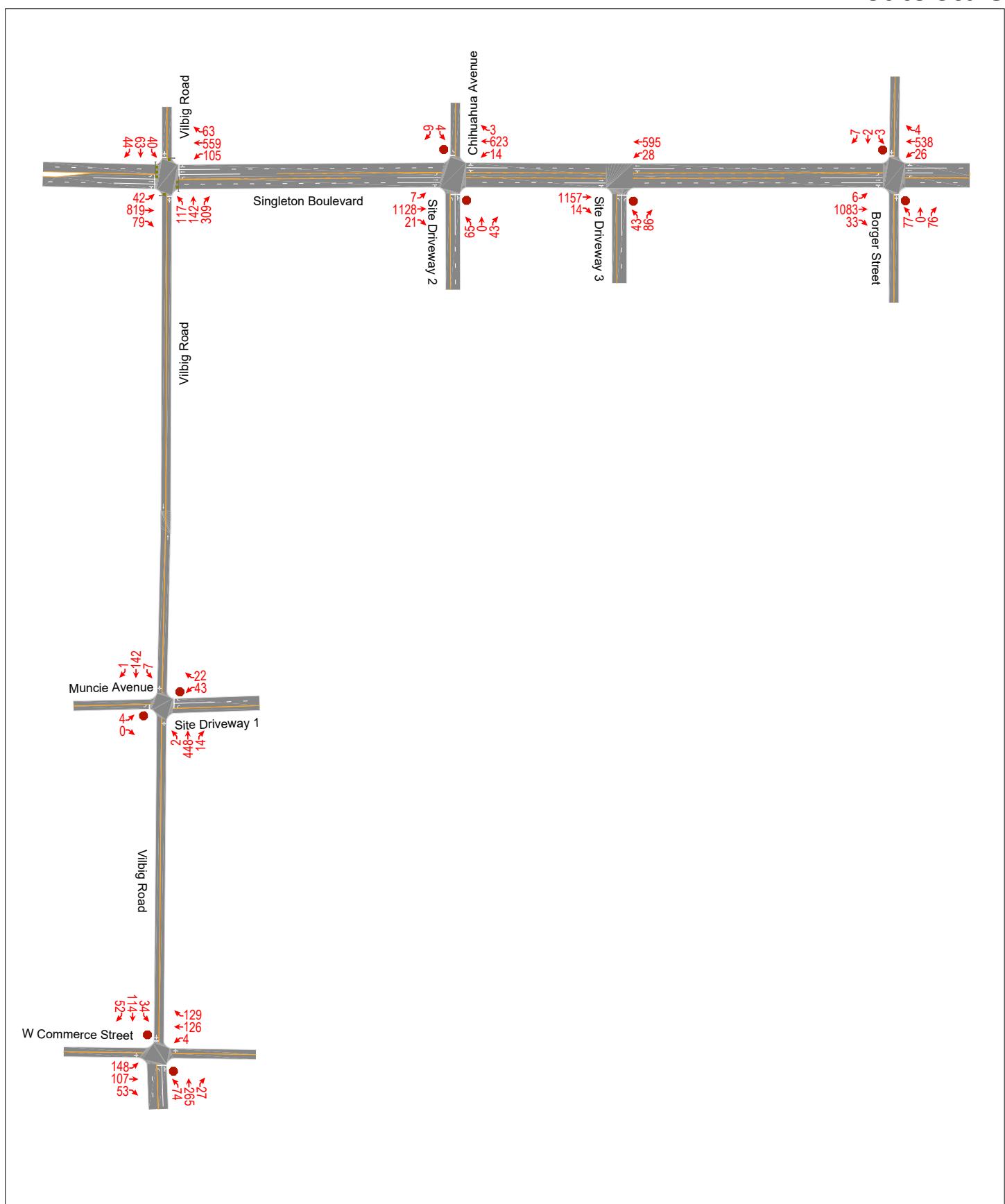
12/10/2018

Pacheco Koch

Appendix A22 - Horizon AM

North ▲

Not to Scale



3859-17.399

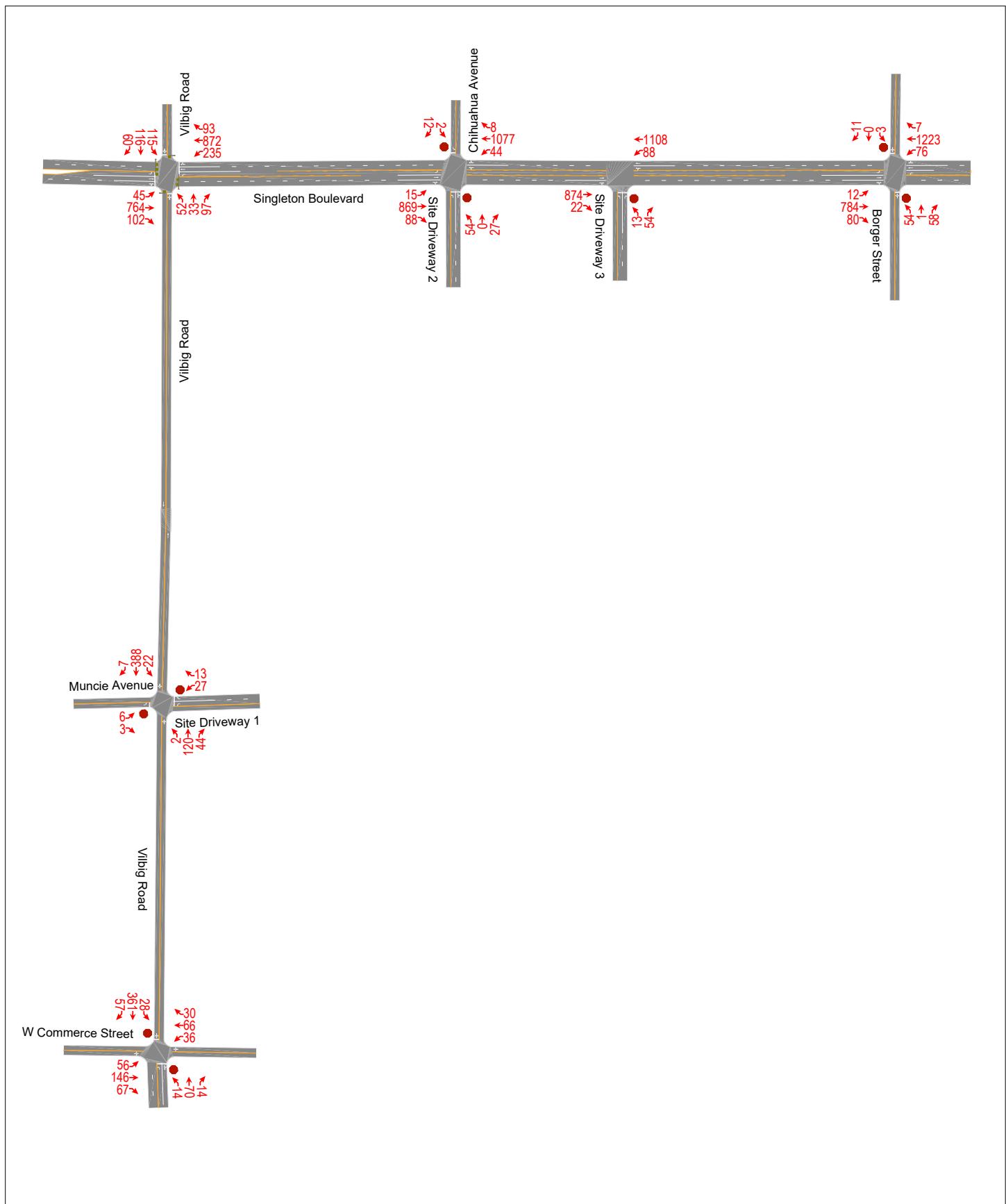
AJV

12/26/2018

Pacheco Koch

Appendix A23 - Horizon PM

North ▲
Not to Scale



3859-17.399

AJV

12/26/2018

Pacheco Koch

Appendix B. Detailed Traffic Volume Data

Intersection Turning Movement Counts

	START	END
City:	Dallas	7:00 AM
State:	Texas	7:15 AM
Day:	Thursday	7:30 AM
Date:	February 8th	7:45 AM
Year:	2018	8:00 AM
Data Collector:	Camera	8:00 AM
Data Source:	CJ Hensch	8:15 AM
Traffic Control:	Traffic Signal	8:15 AM
Observations:		

4:30 PM	4:45 PM		14	24	13		35	174	17		3	7	16		9	121	14	
4:45 PM	5:00 PM		23	23	4		36	177	14		6	9	8		12	140	8	
5:00 PM	5:15 PM		18	25	16		55	173	18		5	6	9		11	120	12	
5:15 PM	5:30 PM		10	33	11		51	166	17		10	4	9		15	118	17	
5:30 PM	5:45 PM		24	24	23		40	169	18		2	11	7		3	161	15	
5:45 PM	6:00 PM		18	27	13		39	179	16		7	3	9		9	114	10	
6:00 PM	6:15 PM		19	18	12		24	177	12		1	3	4		9	131	6	
6:15 PM	6:30 PM		15	14	14		18	154	19		4	6	12		15	127	12	

AM Peak Hour	Intersection PHF:	0.84	Intersection PHF: PHF:	27	41	40		22	359	28		54	116	251		38	677	43	
	Peak Hour:	7:15 AM - 8:15 AM		0.75	0.68	0.83		0.34	0.85	0.64		0.64	0.67	0.78		0.73	0.87	0.37	
Study Area PHF:	0.84		Study Area PHF: PHF:	27	41	40		22	359	28		54	116	251		38	677	43	
	Peak Hour:	7:15 AM - 8:15 AM		0.75	0.68	0.83		0.34	0.85	0.64		0.64	0.67	0.78		0.73	0.87	0.37	
PM Peak Hour	Intersection PHF:	0.95	Intersection PHF: PHF:	75	105	54		182	685	67		23	30	33		41	539	52	
	Peak Hour:	4:45 PM - 5:45 PM		0.78	0.80	0.59		0.83	0.97	0.93		0.58	0.68	0.92		0.68	0.84	0.76	
Study Area PHF:	0.95		Study Area PHF: PHF:	75	105	54		182	685	67		23	30	33		41	539	52	
	Peak Hour:	4:45 PM - 5:45 PM		0.78	0.80	0.59		0.83	0.97	0.93		0.58	0.68	0.92		0.68	0.84	0.76	

Intersection Turning Movement Counts																			
		NORTH LEG				EAST LEG				SOUTH LEG									
		Southbound Approach on Chihuahua Avenue				Westbound Approach on Singleton Boulevard													
		Vehicles		Peds		Vehicles		Peds		Vehicles		Peds							
U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW		
City:	Dallas	7:00 AM	7:15 AM			1	-	4		-	71	0					5	157	-
State:	Texas	7:15 AM	7:30 AM			1	-	3		-	76	0					1	199	-
Day:	Thursday	7:30 AM	7:45 AM			3	-	1		-	102	0					1	249	-
Date:	February 8th	7:45 AM	8:00 AM			0	-	0		-	109	1					2	271	-
Year:	2018	8:00 AM	8:15 AM			0	-	1		-	87	2					2	220	-
Data Collector:	Camera	8:15 AM	8:30 AM			2	-	2		-	86	0					3	167	-
Data Source:	CJ Hensch	8:30 AM	8:45 AM			2	-	1		-	91	0					1	170	-
Traffic Control:	Minor Approach Stop	8:45 AM	9:00 AM			0	-	2		-	83	0					3	156	-
Observations:		4:30 PM	4:45 PM			5	-	2		-	220	1					4	144	-
		4:45 PM	5:00 PM			0	-	2		-	205	0					3	177	-
		5:00 PM	5:15 PM			1	-	3		-	240	3					3	143	-
		5:15 PM	5:30 PM			1	-	3		-	219	2					3	139	-
		5:30 PM	5:45 PM			0	-	3		-	207	2					5	172	-
		5:45 PM	6:00 PM			1	-	2		-	220	5					2	133	-
		6:00 PM	6:15 PM			1	-	1		-	206	6					2	144	-
		6:15 PM	6:30 PM			0	-	4		-	184	1					4	137	-
AM Peak Hour	Intersection PHF:	0.87		Intersection PHF:		4	0	5		0	374	3					6	939	0
	Peak Hour:	7:15 AM - 8:15 AM		PHF:		0.33	0.00	0.42		0.00	0.86	0.38					0.75	0.87	0.00
Study Area PHF:	0.87		Study Area PHF:		4	0	5		0	374	3					6	939	0	
	Peak Hour:	7:15 AM - 8:15 AM		PHF:		0.33	0.00	0.42		0.00	0.86	0.38					0.75	0.87	0.00
PM Peak Hour	Intersection PHF:	0.98		Intersection PHF:		2	0	11		0	871	7					14	631	0
	Peak Hour:	4:45 PM - 5:45 PM		PHF:		0.50	0.00	0.92		0.00	0.91	0.58					0.70	0.89	0.00
Study Area PHF:	0.98		Study Area PHF:		2	0	11		0	871	7					14	631	0	
	Peak Hour:	4:45 PM - 5:45 PM		PHF:		0.50	0.00	0.92		0.00	0.91	0.58					0.70	0.89	0.00

Intersection Turning Movement Counts

	START	END
City:	Dallas	7:00 AM
State:	Texas	7:15 AM
Day:	Thursday	7:30 AM
Date:	February 8th	7:45 AM
Year:	2018	8:00 AM
Data Collector:	Camera	8:00 AM
Data Source:	CJ Hensch	8:15 AM
Traffic Control:	Minor Approach Stop	8:30 AM
Observations:		8:45 AM
		9:00 AM

NORTH LEG								SOUTH LEG								WEST LEG								
Southbound Approach on Vilbig Road								Northbound Approach on Vilbig Road								Eastbound Approach on Muncie Avenue								
Vehicles				Peds				Vehicles				Peds				Vehicles				Peds				
U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	
-	6	1				0	33	-				2	-	0										
-	7	0				0	59	-				3	-	0										
-	25	1				0	110	-				0	-	0										
-	18	0				1	120	-				0	-	0										
-	9	0				1	85	-				1	-	0										
-	3	0				1	39	-				0	-	1										
-	11	0				1	34	-				1	-	0										
-	6	0				2	28	-				1	-	0										

4:30 PM	4:45 PM
4:45 PM	5:00 PM
5:00 PM	5:15 PM
5:15 PM	5:30 PM
5:30 PM	5:45 PM
5:45 PM	6:00 PM
6:00 PM	6:15 PM
6:15 PM	6:30 PM

-	51	4				1	15	-				2	-	0										
-	68	1				0	11	-				1	-	1										
-	86	2				1	15	-				1	-	1										
-	88	2				1	13	-				1	-	0										
-	78	1				0	15	-				2	-	1										
-	67	1				0	9	-				1	-	0										
-	51	3				0	6	-				0	-	0										
-	28	2				0	18	-				0	-	0										

AM Peak Hour	Intersection PHF:	0.79	Intersection PHF:	0	59	1	PHF:	2	374	0	PHF:	4	0	0	PHF:	0.50	0.78	0.00	PHF:	0.33	0.00	0.00
	Peak Hour:	7:15 AM - 8:15 AM		0.00	0.59	0.25		0.50	0.78	0.00		0.33	0.00	0.00								
PM Peak Hour	Study Area PHF:	0.79	Study Area PHF:	0	59	1	PHF:	2	374	0	PHF:	4	0	0	PHF:	0.50	0.78	0.00	PHF:	0.33	0.00	0.00
	Peak Hour:	7:15 AM - 8:15 AM		0.00	0.59	0.25		0.50	0.78	0.00		0.33	0.00	0.00								
PM Peak Hour	Intersection PHF:	0.92	Intersection PHF:	0	320	6	PHF:	2	54	0	PHF:	5	0	3	PHF:	0.50	0.90	0.00	PHF:	0.63	0.00	0.75
	Peak Hour:	4:45 PM - 5:45 PM		0.00	0.91	0.75		0.50	0.90	0.00		0.63	0.00	0.75								
PM Peak Hour	Study Area PHF:	0.92	Study Area PHF:	0	320	6	PHF:	2	54	0	PHF:	5	0	3	PHF:	0.50	0.90	0.00	PHF:	0.63	0.00	0.75
	Peak Hour:	4:45 PM - 5:45 PM		0.00	0.91	0.75		0.50	0.90	0.00		0.63	0.00	0.75								

Intersection Turning Movement Counts

	START	END
City:	Dallas	7:00 AM
State:	Texas	7:15 AM
Day:	Thursday	7:30 AM
Date:	February 8th	7:45 AM
Year:	2018	8:00 AM
Data Collector:	Camera	8:00 AM
Data Source:	CJ Hensch	8:15 AM
Traffic Control:	Minor Approach Stop	8:30 AM
Observations:		8:45 AM
		9:00 AM

		NORTH LEG				EAST LEG				SOUTH LEG				WEST LEG			
		Southbound Approach on Vilbig Road				Westbound Approach on Commerce Street				Northbound Approach on Vilbig Road				Eastbound Approach on Commerce Street			
		Vehicles		Peds		Vehicles		Peds		Vehicles		Peds		Vehicles		Peds	
U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW
2	7	1				2	14	8				10	68	3			
1	10	2				1	33	16				28	53	13			
2	23	1				0	30	49				14	55	2			
2	16	4				3	31	32				19	58	2			
1	7	3				0	20	7				6	61	7			
3	4	1				3	24	10				7	39	8			
1	6	2				1	14	8				10	20	4			
1	5	0				4	27	7				10	9	3			
														</td			

ROADWAY: Singleton Boulevard

LOCATION: Adjacent to site

DAY: Thursday

DATE: February 8th

YEAR: 2018

SOURCE: CJ Hensch

24-HOUR, BI-DIRECTIONAL VOLUME

17,663

(WEEKDAY)

Singleton Boulevard

START TIME	Eastbound			
	0:00	0:15	0:30	0:45
12:00 AM	16	16	14	14
1:00 AM	14	10	10	8
2:00 AM	6	10	14	10
3:00 AM	11	3	6	10
4:00 AM	8	12	11	40
5:00 AM	34	28	46	69
6:00 AM	96	134	164	158
7:00 AM	161	210	247	274
8:00 AM	211	170	187	146
9:00 AM	146	110	123	114
10:00 AM	100	90	109	129
11:00 AM	101	122	124	140
12:00 PM	118	132	140	120
1:00 PM	110	124	110	114
2:00 PM	110	131	128	152
3:00 PM	122	159	162	120
4:00 PM	138	130	150	171
5:00 PM	139	140	160	142
6:00 PM	136	145	144	152
7:00 PM	126	116	97	88
8:00 PM	94	97	91	61
9:00 PM	62	68	78	66
10:00 PM	46	43	34	26
11:00 PM	36	22	24	22

START TIME	Westbound			
	0:00	0:15	0:30	0:45
12:00 AM	0	0	0	0
1:00 AM	8	16	10	12
2:00 AM	18	3	6	10
3:00 AM	4	14	9	10
4:00 AM	5	16	12	17
5:00 AM	24	28	40	45
6:00 AM	46	72	76	80
7:00 AM	79	71	102	115
8:00 AM	91	90	90	89
9:00 AM	94	87	88	109
10:00 AM	116	120	92	111
11:00 AM	110	123	114	129
12:00 PM	146	113	133	108
1:00 PM	118	123	122	122
2:00 PM	133	124	152	143
3:00 PM	168	171	145	164
4:00 PM	208	194	227	210
5:00 PM	234	224	220	204
6:00 PM	216	179	150	147
7:00 PM	130	118	120	99
8:00 PM	88	91	79	73
9:00 PM	76	86	66	72
10:00 PM	56	55	30	34
11:00 PM	32	26	33	18

START TIME	Totals		
	EB	WB	Bi-Direct.
0:00	60	0	60
1:00	42	46	88
2:00	40	37	77
3:00	30	37	67
4:00	71	50	121
5:00	177	137	314
6:00	552	274	826
7:00	892	367	1259
8:00	714	360	1074
9:00	493	378	871
10:00	428	439	867
11:00	487	476	963
12:00	510	500	1010
1:00	458	485	943
2:00	521	552	1073
3:00	563	648	1211
4:00	589	839	1428
5:00	581	882	1463
6:00	577	692	1269
7:00	427	467	894
8:00	343	331	674
9:00	274	300	574
10:00	149	175	324
11:00	104	109	213

7:15 AM 8:15 AM

4:45 PM 5:45 PM

7:15 AM 8:15 AM

4:30 PM 5:30 PM

24-Hour Total:

(Bi-Direct.) AM Peak Hour Total:

(Bi-Direct.) PM Peak Hour Total:

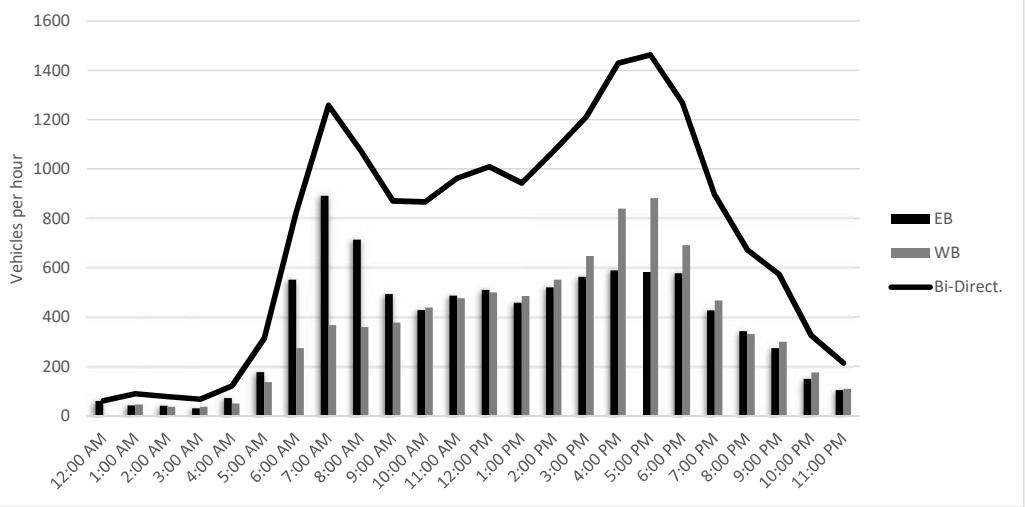
Highest By Direction (EB):

Highest By Direction (WB):

EB	WB	Bi-Direct.
9,082	8,581	17,663
942	379	1,321
610	888	1,498
942	895	

Pachecho Koch PK# 3859-17.399

Graph



ROADWAY: Vilbig Road
 LOCATION: Adjacent to site
 DAY: Thursday
 DATE: February 8th
 YEAR: 2018
 SOURCE: CJ Hensch

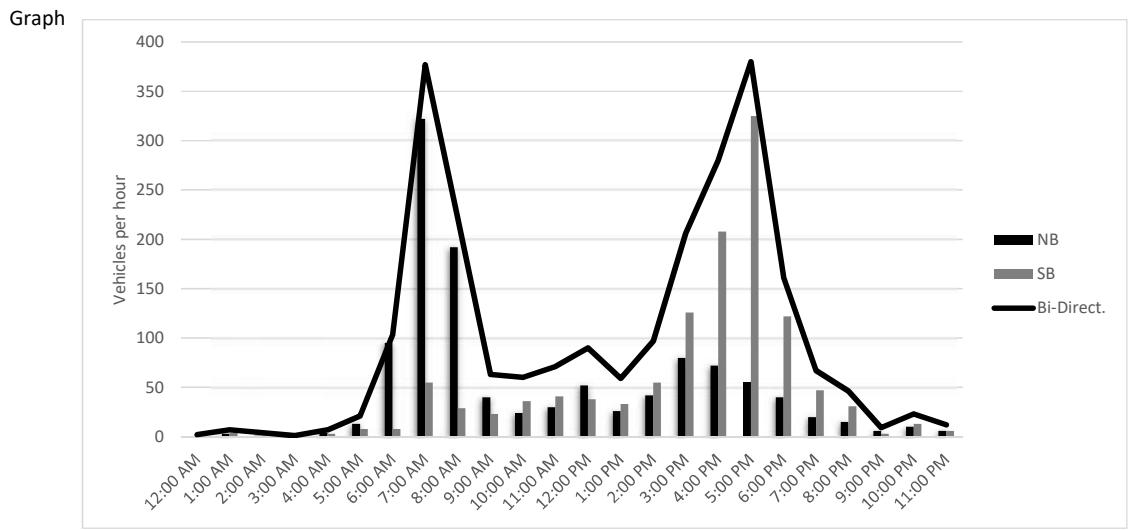
24-HOUR, BI-DIRECTIONAL VOLUME
2,368
 (WEEKDAY)

Vilbig Road

START TIME	Northbound				Southbound				Totals		
	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	0	0	0	0	0	0	1	1	0	2	2
1:00 AM	0	1	0	2	0	2	0	2	3	4	7
2:00 AM	0	0	1	0	1	0	1	1	1	3	4
3:00 AM	0	0	0	0	0	0	1	0	0	1	1
4:00 AM	1	1	0	2	0	1	1	1	4	3	7
5:00 AM	4	2	4	3	0	2	3	3	13	8	21
6:00 AM	5	21	19	50	1	5	2	0	95	8	103
7:00 AM	39	61	107	115	8	5	24	18	322	55	377
8:00 AM	85	39	37	31	9	3	10	7	192	29	221
9:00 AM	16	12	9	3	6	8	4	5	40	23	63
10:00 AM	6	5	7	6	6	9	12	9	24	36	60
11:00 AM	7	6	4	13	12	11	10	8	30	41	71
12:00 PM	18	18	5	11	11	11	7	9	52	38	90
1:00 PM	8	6	5	7	11	5	7	10	26	33	59
2:00 PM	8	8	13	13	6	10	14	25	42	55	97
3:00 PM	30	12	19	19	19	25	27	55	80	126	206
4:00 PM	25	16	19	12	42	46	53	67	72	208	280
5:00 PM	15	13	15	12	87	89	83	66	55	325	380
6:00 PM	7	17	8	8	56	29	24	13	40	122	162
7:00 PM	5	4	5	6	15	10	11	11	20	47	67
8:00 PM	3	3	4	5	10	11	6	4	15	31	46
9:00 PM	4	1	0	1	2	0	0	1	6	3	9
10:00 PM	0	5	3	2	3	5	1	4	10	13	23
11:00 PM	2	1	0	3	0	2	2	2	6	6	12

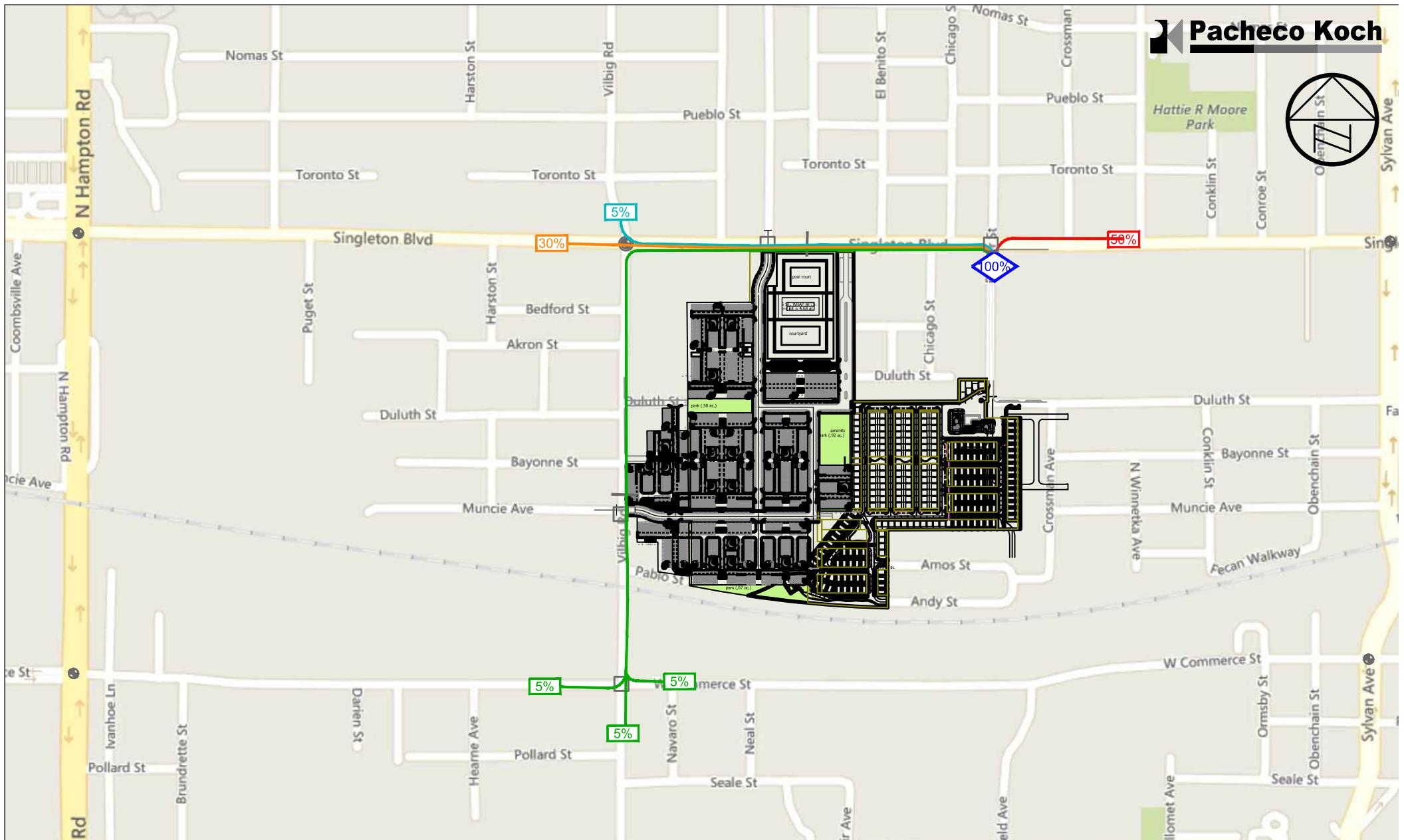
7:15 AM 8:15 AM 24-Hour Total:
 (Bi-Direct.) AM Peak Hour Total:
 4:45 PM 5:45 PM (Bi-Direct.) PM Peak Hour Total:
 7:15 AM 8:15 AM Highest By Direction (NB):
 4:45 PM 5:45 PM Highest By Direction (SB):

NB	SB	Bi-Direct.
1,148	1,220	2,368
368	56	424
55	326	381
368	326	



Pacheco Koch PK# 3859-17.399

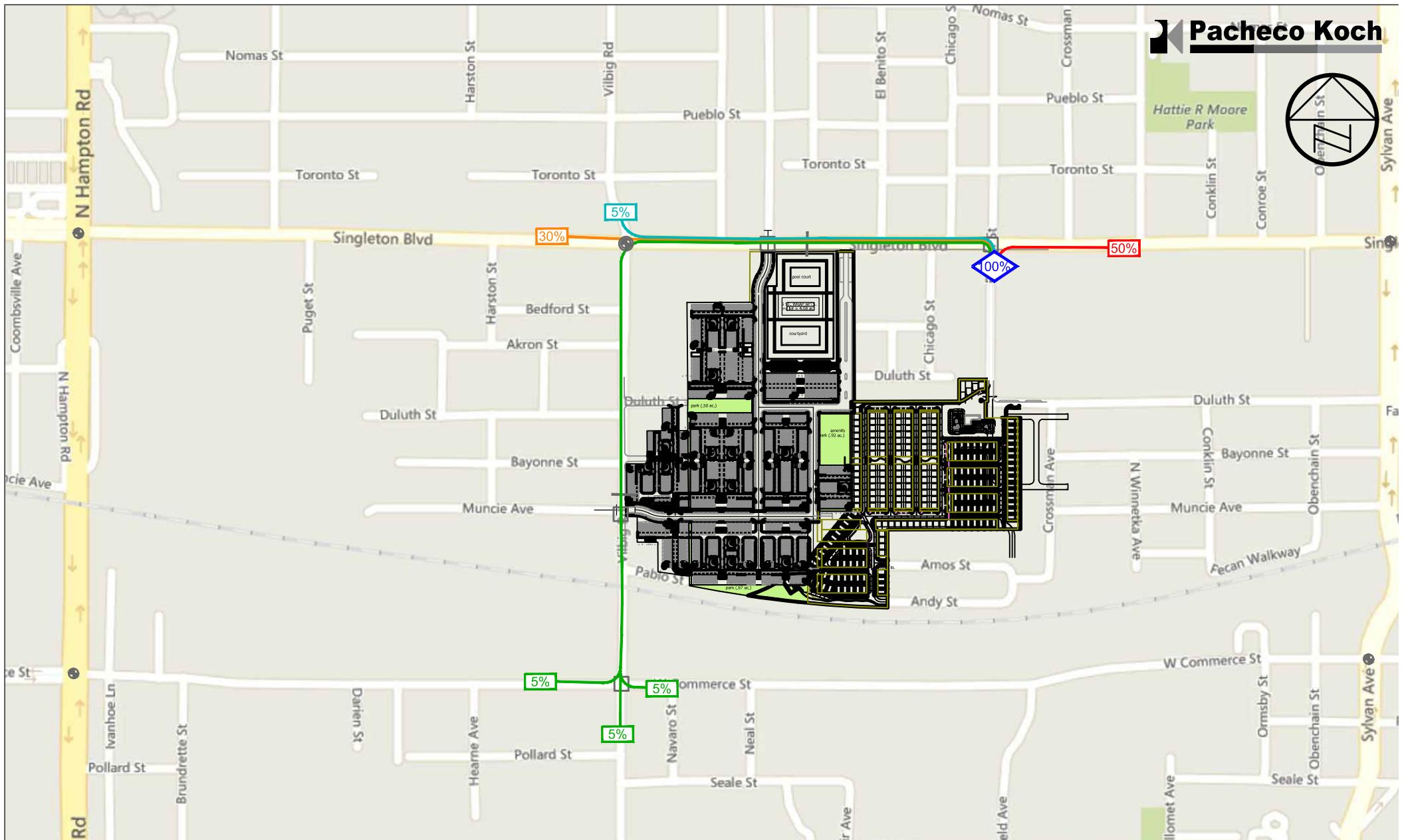
Appendix C. Site-Generated Traffic Supplement



Phase 1 Site Generated Trip Distribution - Inbound

Villages at Soho, Dallas, Texas

PK #3859-17.399 (HWL: 12/21/18)

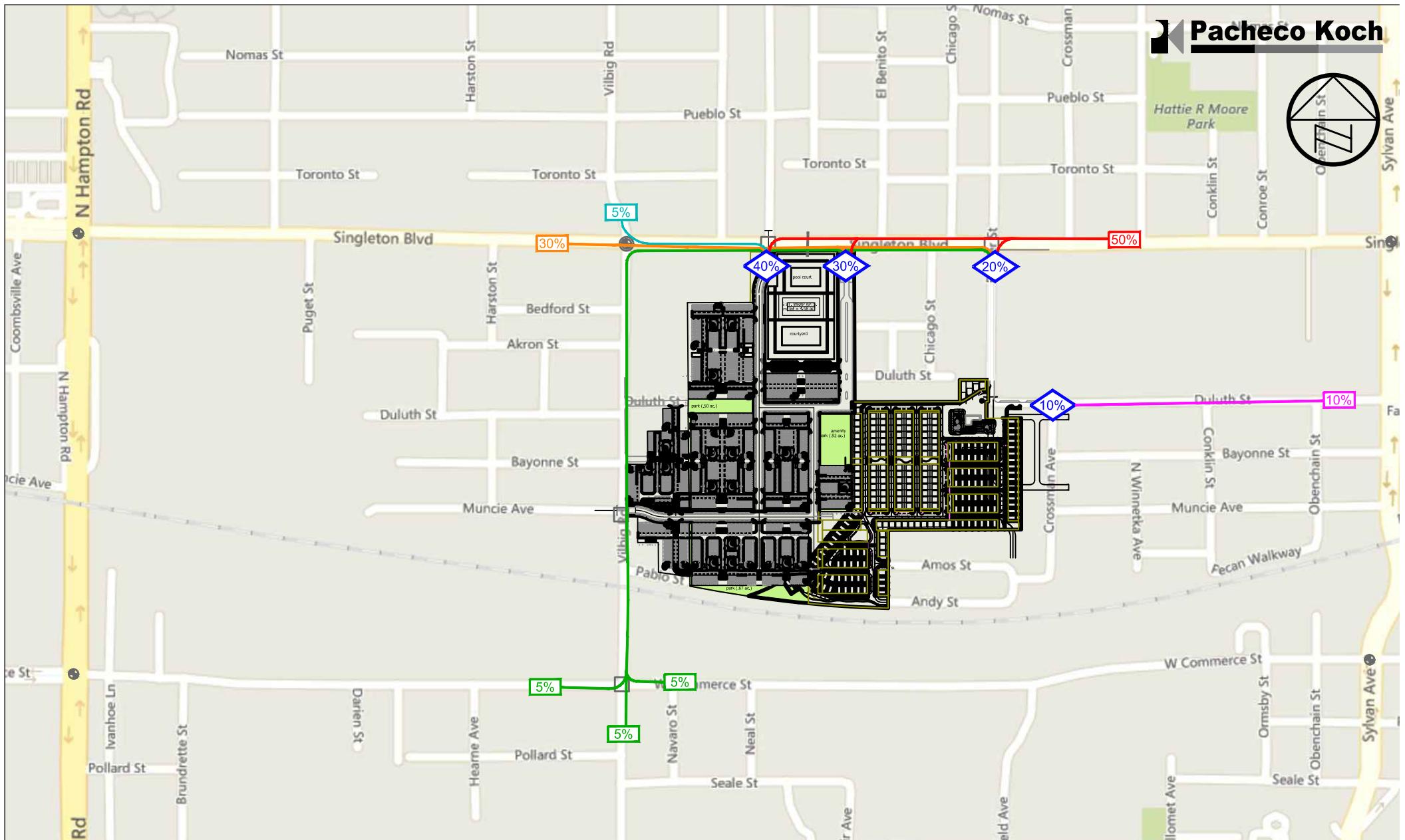


Phase 1 Site Generated Trip Distribution - Outbound

Villages at Soho, Dallas, Texas

PK #3859-17.399 (HWL: 12/21/18)

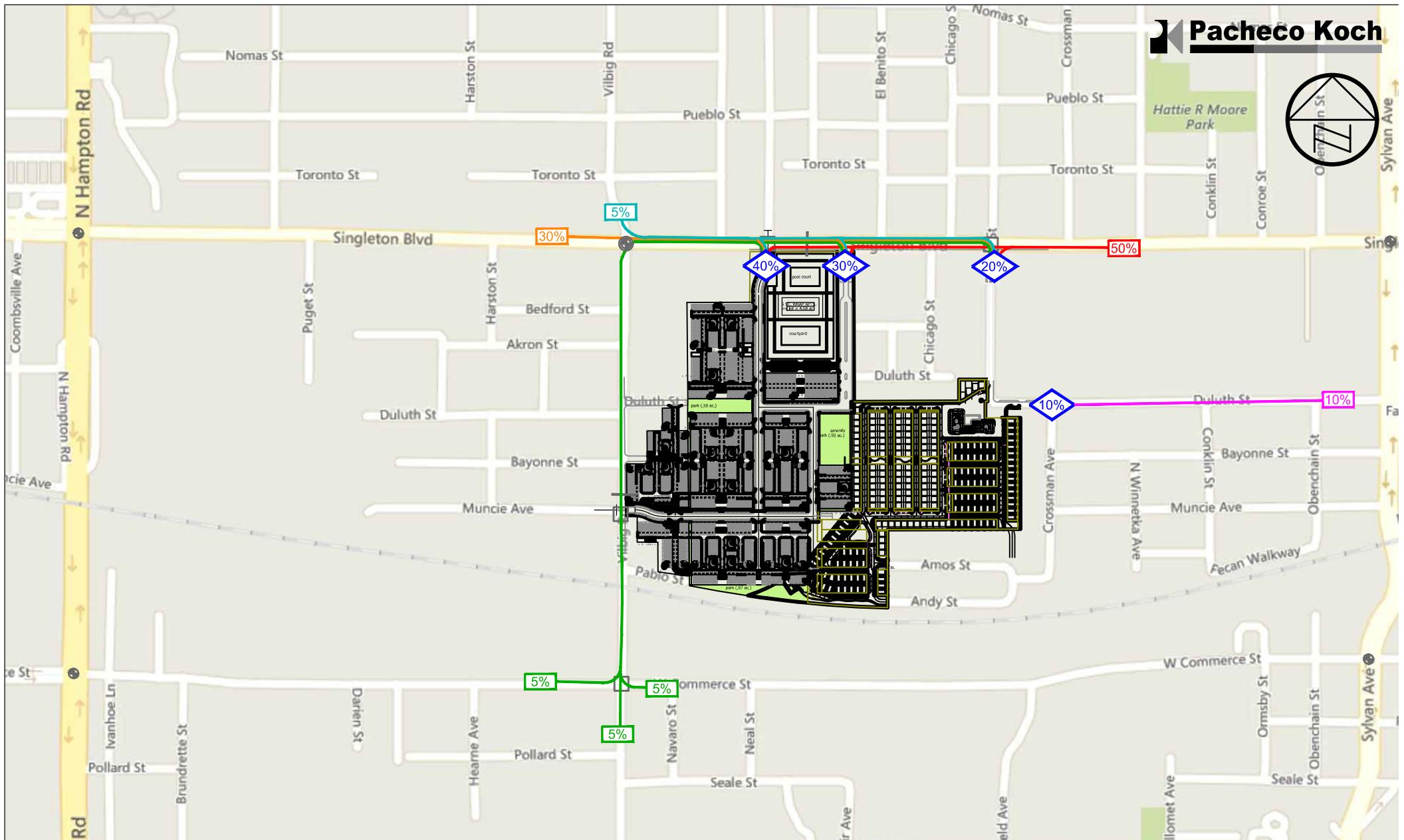
APPENDIX C2



Phase 2 Site Generated Trip Distribution - Inbound

Villages at Soho, Dallas, Texas

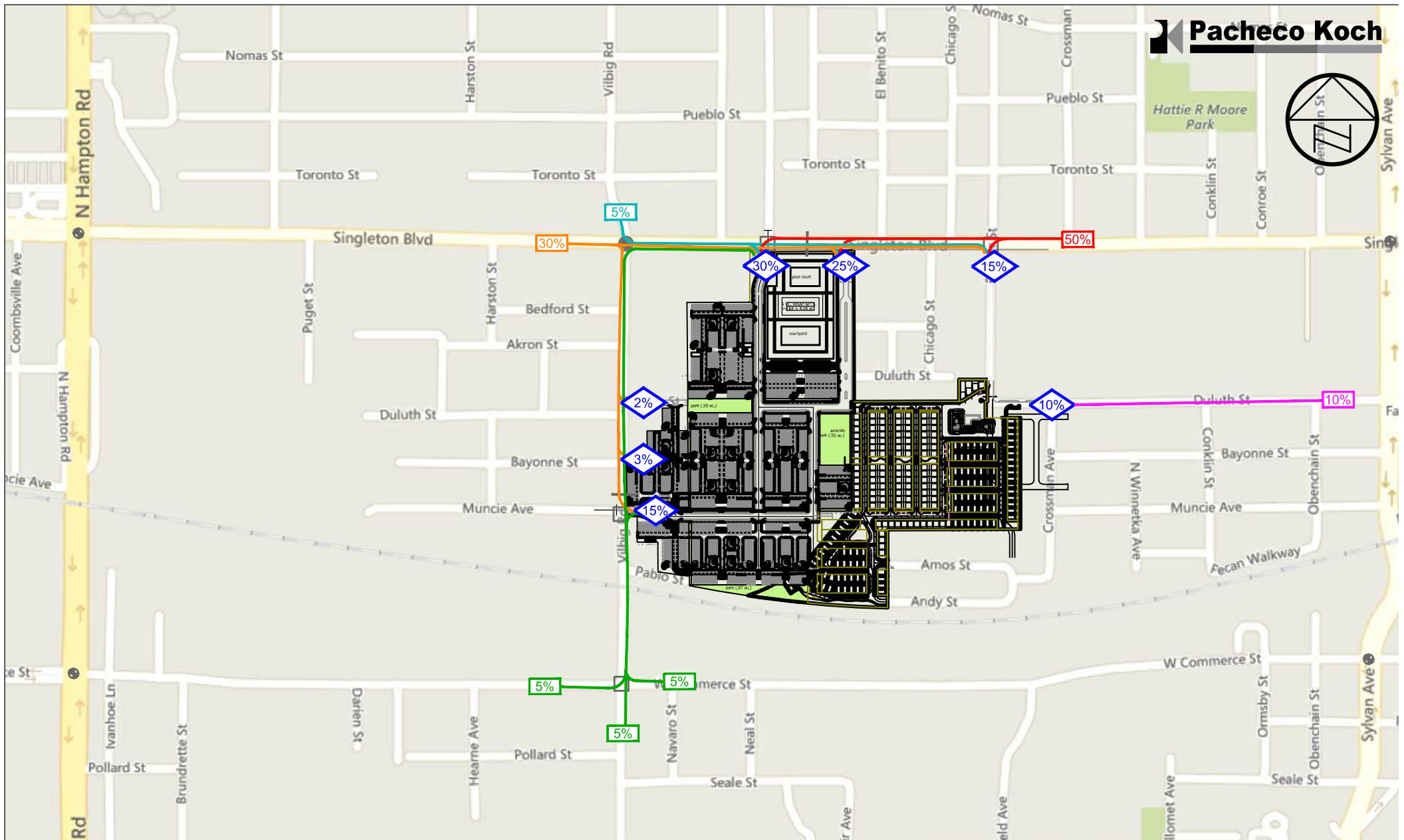
PK #3859-17.399 (HWL: 12/21/18)



Phase 2 Site Generated Trip Distribution - Outbound

Villages at Soho, Dallas, Texas

PK #3859-17.399 (HWL: 12/21/18)

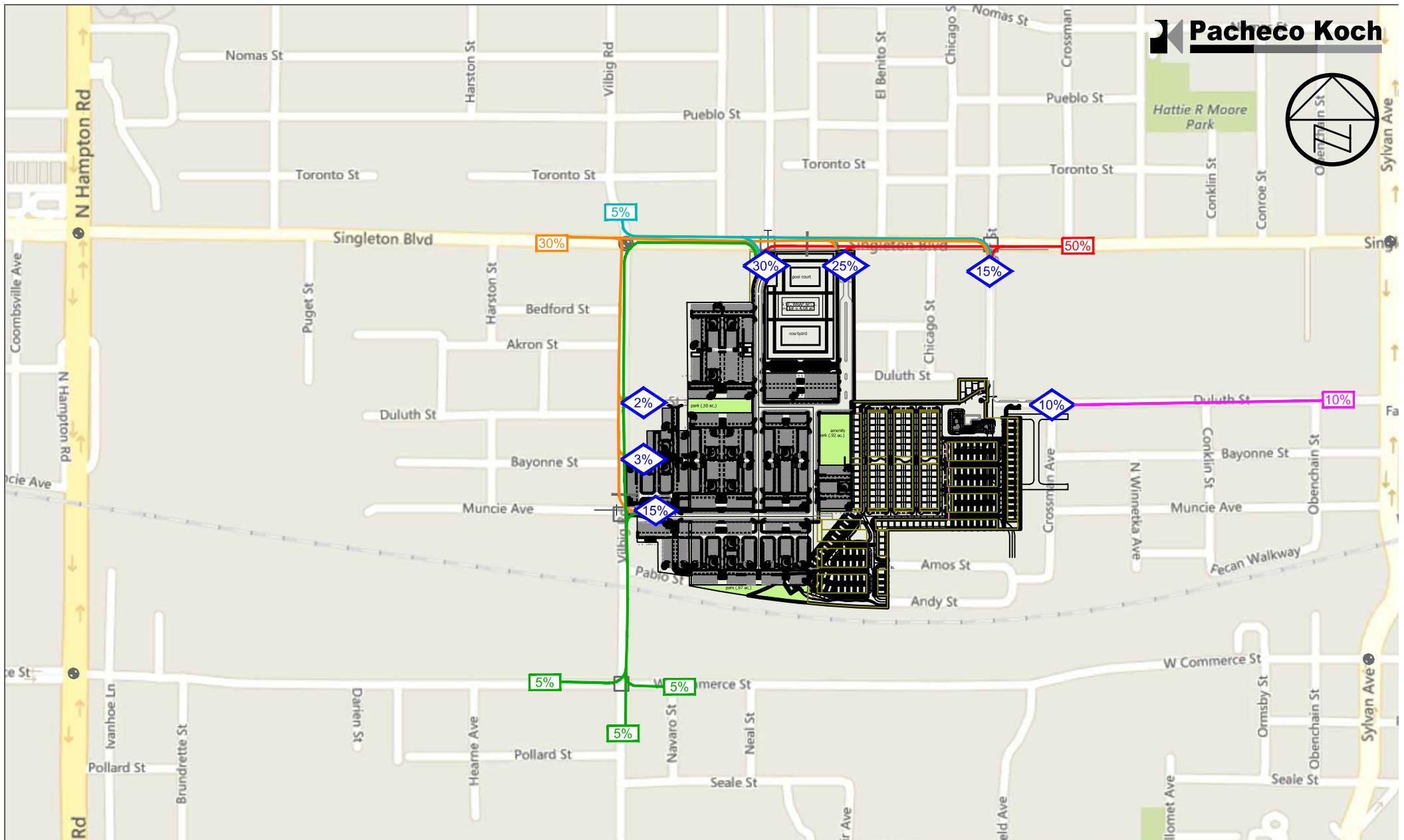


▨ - Project Location ● - Study Area Intersection (Signalized) — - Road-Tube Counts
● - Traffic Signal □ - Study Area Intersection (Unsignalized) X% - Traffic Assignment

Full Buildout Site Generated Trip Distribution - Inbound

Villages at Soho, Dallas, Texas

PK #3859-17.399 (HWL: 12/21/18)

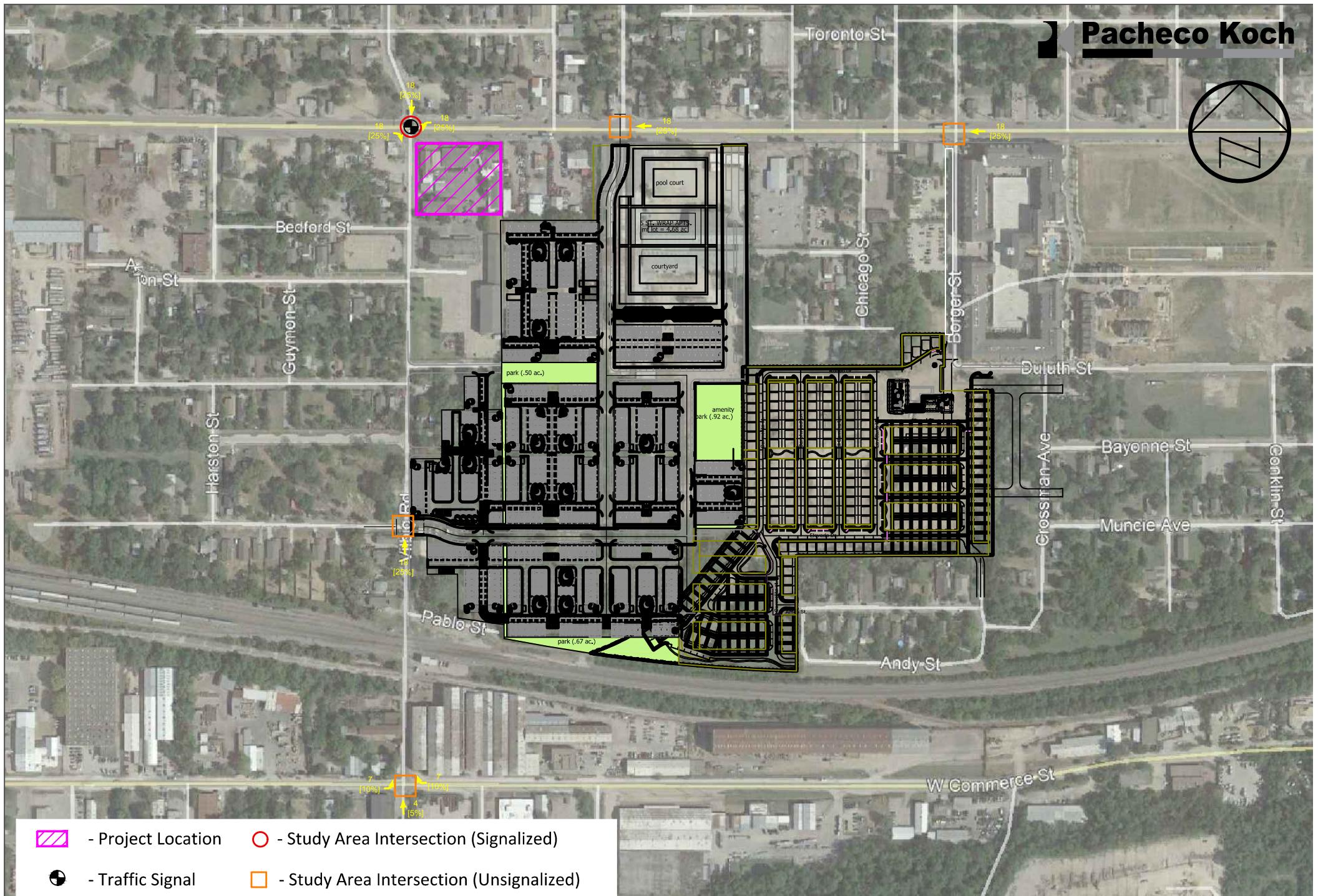


- \ - Project Location
- - Study Area Intersection (Signalized)
- - Road-Tube Counts
- - Traffic Signal
- - Study Area Intersection (Unsignalized)
- X% - Traffic Assignment

Full Buildout Site Generated Trip Distribution - Outbound

Villages at Soho, Dallas, Texas

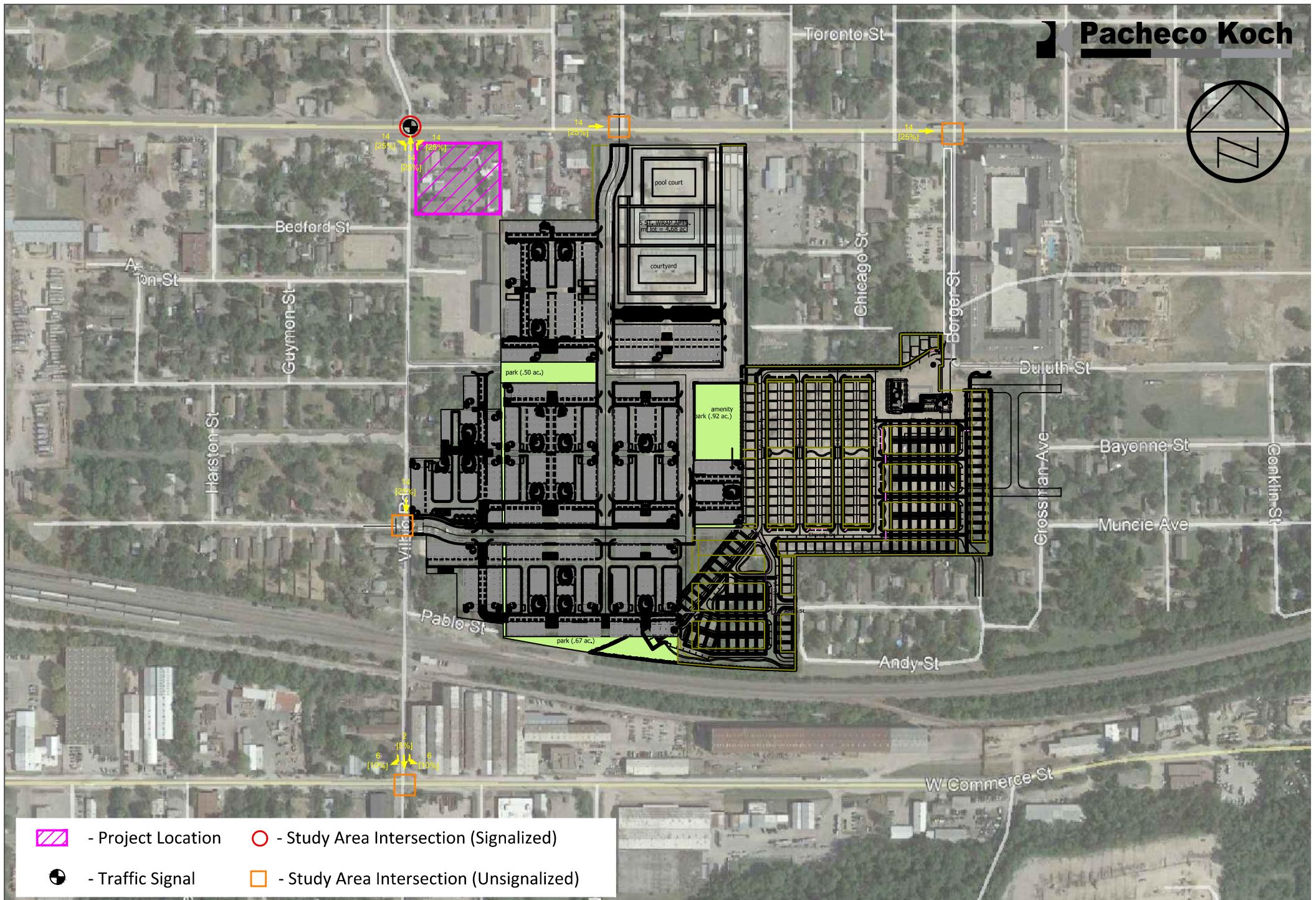
PK #3859-17.399 (HWL: 12/21/18)



St. Mary of Carmel School Site Generated Volumes - Inbound

Villages at Soho, Dallas, Texas

PK #3859-17.399 (HWL: 12/21/18)



St. Mary of Carmel School Site Generated Volumes - Outbound

Villages at Soho, Dallas, Texas

PK #3859-17.399 (HWL: 12/21/18)

APPENDIX C8

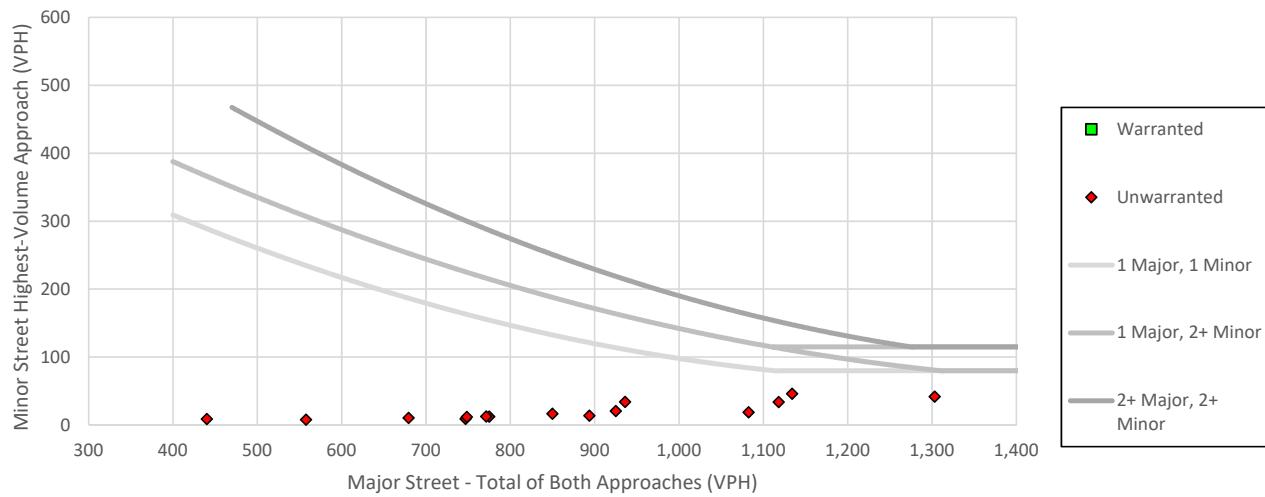
	Development Program			Weekday Trip Ends						
	Land Use	Quantity	Units	Weekday Daily	AM Peak - Adjacent Street			PM Peak - Adjacent Street		
					In	Out	Total	In	Out	Total
Use "A"	210 - Single Family Detached Housing	228	DU	2219	42	125	167	141	83	224
Use "B"	220 - Multifamily Housing (Low Rise)	393	DU	2930	40	135	175	126	74	200
Use "C"	221 - Multifamily Housing (Mid Rise)	700	DU	3813	60	170	230	175	112	287
Subtotal (no adjustments)				8962	142	430	572	442	269	711
Subtotal				8962	142	430	572	442	269	711
Net Driveway Vols				8962	142	430	572	442	269	711

Appendix D. Cursory Traffic Signal Warrant Analyses

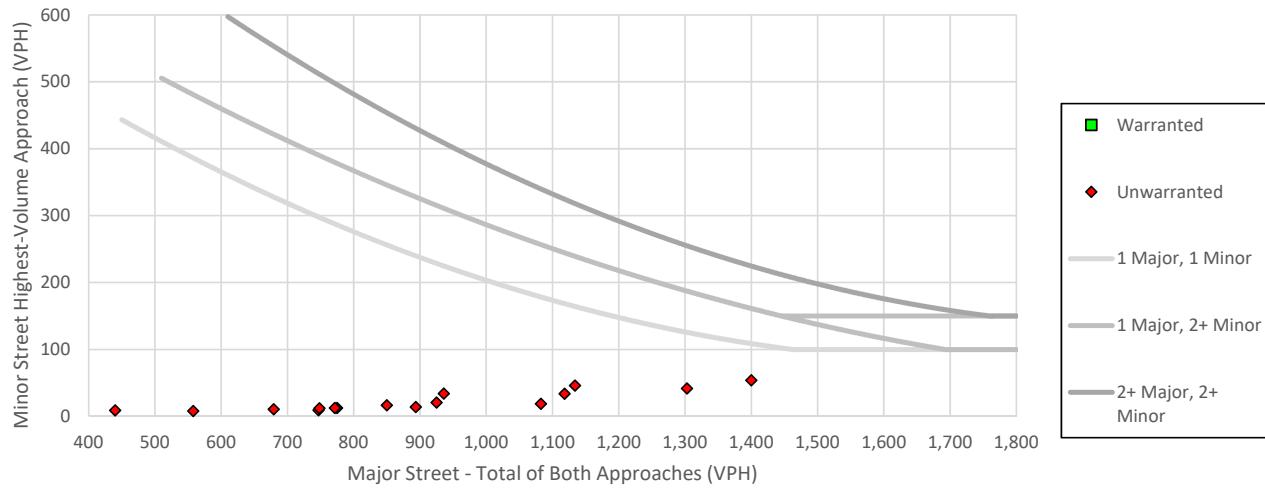
Date: 1/17/2019
 Intersection: Singleton Boulevard at Borger Street
 Conditions: Existing Volumes
 Project #: 3859-17.399



MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume
 Community Population Greater Than 10,000 and Major Street Approach Below 40 mph



MUTCD Figure 4C-3. Warrant 3, Peak-Hour Vehicular Volume
 Community Population Greater Than 10,000 and Major Street Approach Below 40 mph



Date: 1/17/2019
Intersection: Singleton Boulevard at Borger Street
Conditions: Existing Volumes
Project #: 3859-17.399



Community Population < 10,000?
 Speed Limit > 40 mph?

Major Street	Lanes			Lanes		
	Singleton Boulevard			Borger Street		
	EB	WB	TOTAL	NB	SB	MAX
6:00 AM	470	277	747	9	7	9
7:00 AM	807	327	1134	46	13	46
8:00 AM	596	340	936	34	10	34
9:00 AM	431	317	748	12	6	12
10:00 AM	344	335	679	11	9	11
11:00 AM	402	373	775	12	9	12
12:00 PM	437	457	894	14	12	14
1:00 PM	410	440	850	17	9	17
2:00 PM	445	480	925	21	7	21
3:00 PM	509	573	1082	19	14	19
4:00 PM	537	766	1303	42	12	42
5:00 PM	581	964	1545	54	11	54
6:00 PM	480	638	1118	34	26	34
7:00 PM	349	422	771	13	12	13
8:00 PM	280	278	558	8	8	8
9:00 PM	215	225	440	9	4	9

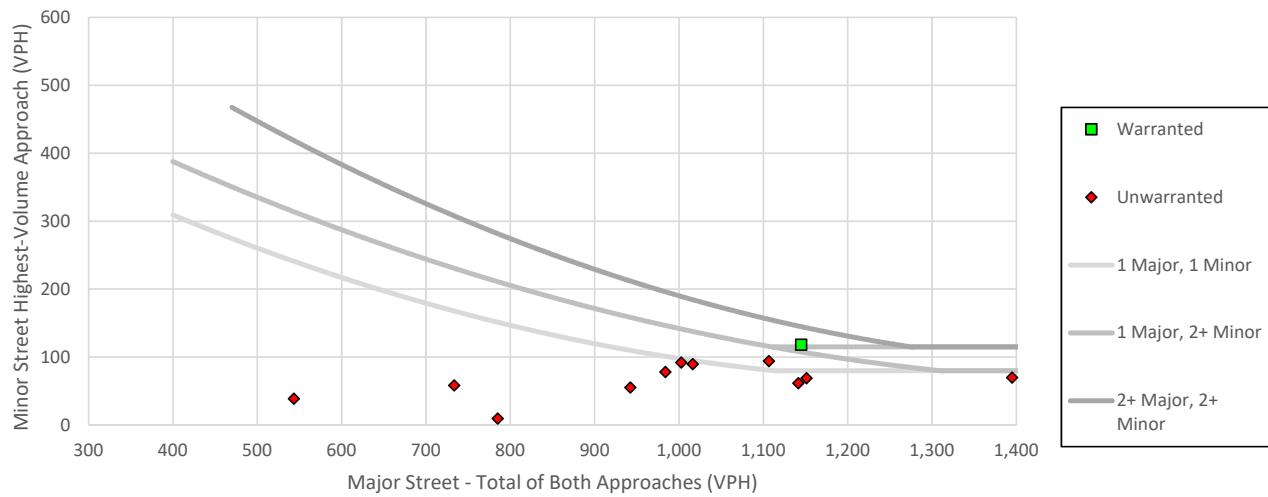
Warrant				
8-Hour			4-Hour	Peak-Hour
(100%)	(100%)	(80%)		
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				
Not Met				

1. Eight-Hour Warrant	Required Volume		# Hours Satisfied	# Hours Required	Warrant
	Major	Minor			
(100%)	Condition A Met?		600	150	
	Condition B Met?		900	75	
	Condition A Met?		480	120	
	& Condition B Met?		720	60	
2. Four-Hour Warrant	Met?		0	8	Not Met
3. Peak-Hour Warrant	Met?		0	4	Not Met
			0	8	Not Met
			0	1	Not Met

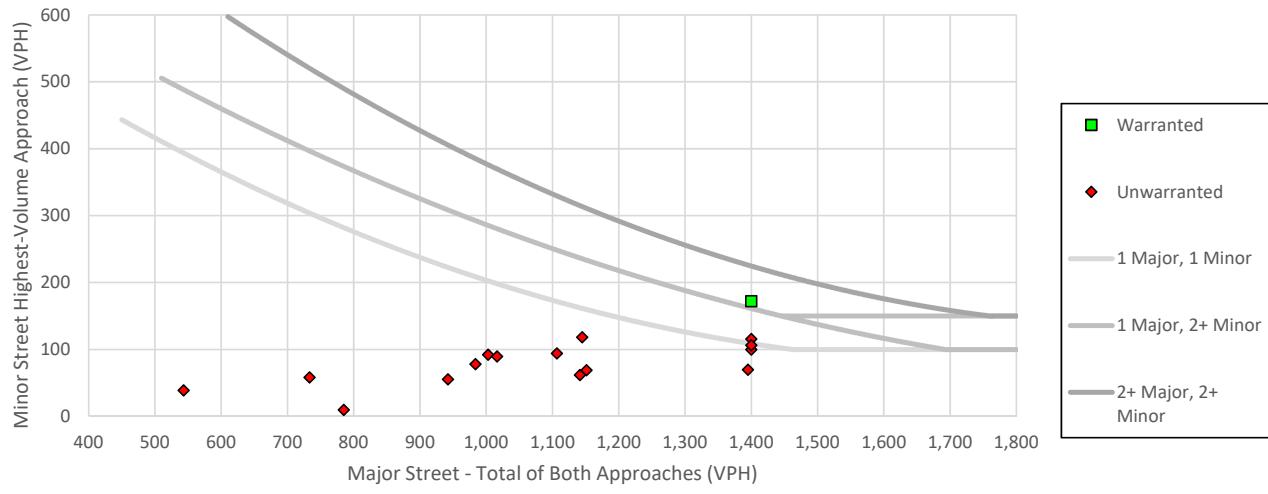
Date: 1/17/2019
 Intersection: Singleton Boulevard at Borger Street
 Conditions: Phase 1 Buildout Volumes
 Project #: 3859-17.399



MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume
 Community Population Greater Than 10,000 and Major Street Approach Below 40 mph



MUTCD Figure 4C-3. Warrant 3, Peak-Hour Vehicular Volume
 Community Population Greater Than 10,000 and Major Street Approach Below 40 mph



Date: 1/17/2019
Intersection: Singleton Boulevard at Borger Street
Conditions: Phase 1 Buildout Volumes
Project #: 3859-17.399



Community Population < 10,000?
 Speed Limit > 40 mph?

Major Street	Lanes			Lanes		
	Singleton Boulevard		TOTAL	Borger Street		
	EB	WB	TOTAL	NB	SB	MAX
6:00 AM	494	291	785	10	7	10
7:00 AM	1,008	437	1445	172	14	172
8:00 AM	730	414	1145	118	11	118
9:00 AM	571	431	1003	92	7	92
10:00 AM	460	483	942	55	9	55
11:00 AM	535	482	1016	90	9	90
12:00 PM	552	590	1141	62	13	62
1:00 PM	547	560	1107	94	9	94
2:00 PM	553	598	1151	69	7	69
3:00 PM	646	749	1395	70	15	70
4:00 PM	672	931	1603	100	13	100
5:00 PM	754	1,217	1971	116	12	116
6:00 PM	652	858	1510	106	27	106
7:00 PM	462	521	984	78	12	78
8:00 PM	372	361	733	58	8	58
9:00 PM	270	273	543	39	4	39

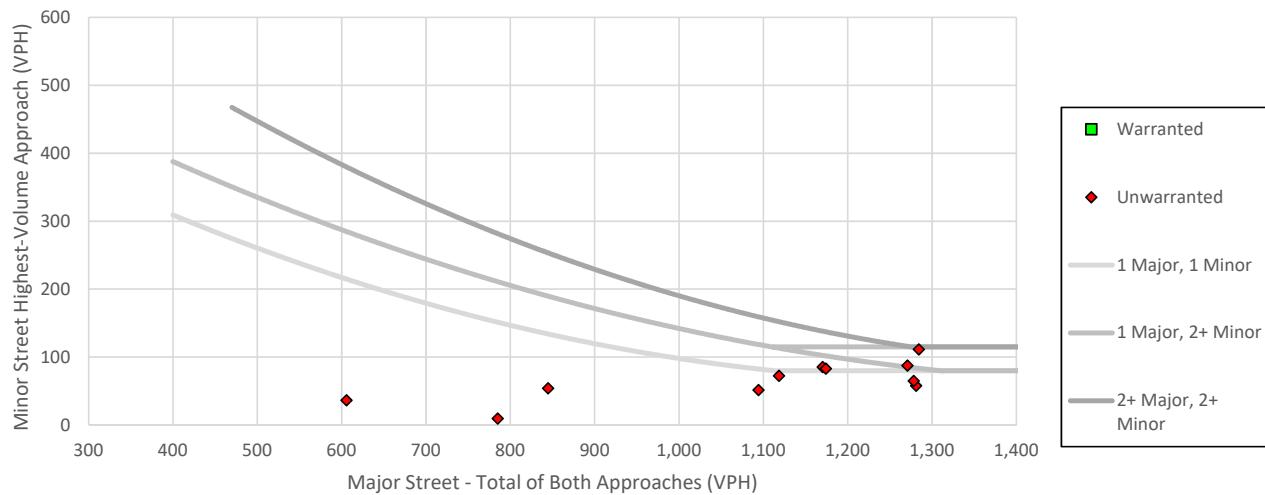
Warrant			
8-Hour			
(100%)	(100%)	(80%)	
Condition A	Condition B	Condition A	Condition B
Not Met	Not Met	Not Met	Not Met
Met	Met	Met	Met
Not Met	Met	Not Met	Met
Not Met	Met	Not Met	Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Met
Not Met	Not Met	Not Met	Met
Not Met	Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Not Met
Not Met	Not Met	Not Met	Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met

1. Eight-Hour Warrant	Required Volume		# Hours Satisfied	# Hours Required	Warrant
	Major	Minor			
(100%) Condition A Met?	600	150	1	8	Met
Condition B Met?	900	75	9	8	Not Met
(80%) Condition A Met?	480	120	1	8	Not Met
& Condition B Met?	720	60	12	8	Not Met
2. Four-Hour Warrant	Met?		3	4	Not Met
3. Peak-Hour Warrant	Met?		1	1	Met

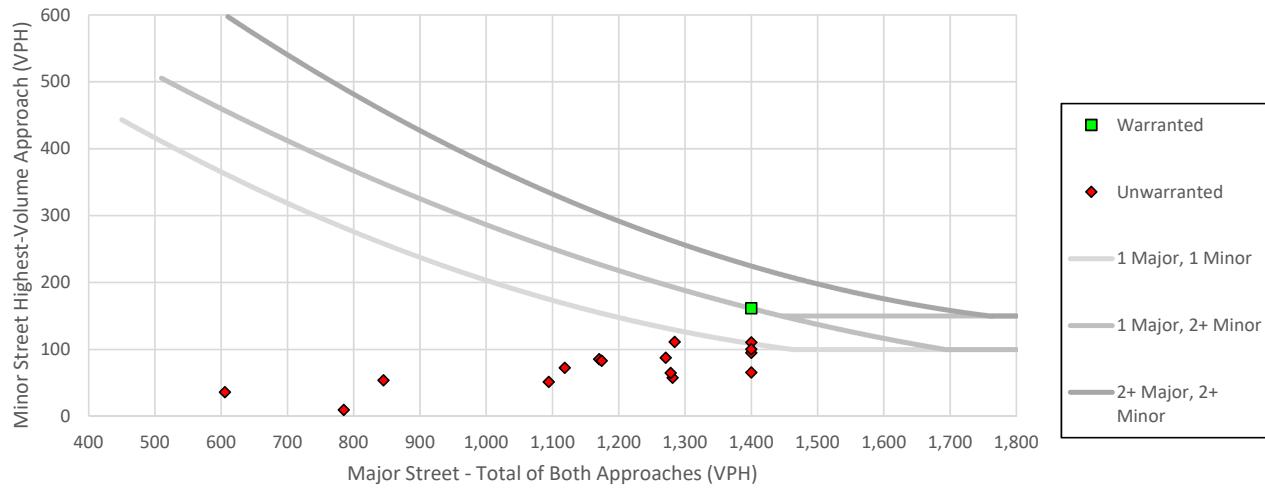
Date: 1/17/2019
 Intersection: Singleton Boulevard at Borger Street
 Conditions: Buildout Volumes
 Project #: 3859-17.399



MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume
 Community Population Greater Than 10,000 and Major Street Approach Below 40 mph



MUTCD Figure 4C-3. Warrant 3, Peak-Hour Vehicular Volume
 Community Population Greater Than 10,000 and Major Street Approach Below 40 mph



Date:

1/17/2019

Intersection: Singleton Boulevard at Borger Street

Conditions: Buildout Volumes

Project #: 3859-17.399

 Community Population < 10,000? Speed Limit > 40 mph?

Major Street	Lanes			Lanes		
	Singleton Boulevard		TOTAL	Borger Street		
	EB	WB	NB	SB	MAX	
6:00 AM	494	291	785	10	7	10
7:00 AM	1,137	523	1661	162	14	162
8:00 AM	818	467	1284	111	11	111
9:00 AM	649	521	1170	85	7	85
10:00 AM	492	602	1094	51	9	51
11:00 AM	610	564	1174	83	9	83
12:00 PM	590	691	1281	58	13	58
1:00 PM	621	650	1271	88	9	88
2:00 PM	594	684	1278	65	7	65
3:00 PM	683	884	1566	66	15	66
4:00 PM	719	1,047	1766	95	13	95
5:00 PM	793	1,403	2197	111	12	111
6:00 PM	707	1,030	1737	100	27	100
7:00 PM	526	592	1119	72	12	72
8:00 PM	420	425	845	54	8	54
9:00 PM	299	307	606	36	4	36

Warrant			
8-Hour			
(100%)	(100%)	(80%)	
Condition A	Condition B	Condition A	Condition B
Not Met	Not Met	Not Met	Not Met
Met	Met	Met	Met
Not Met	Met	Not Met	Met
Not Met	Met	Not Met	Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Met
Not Met	Not Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Met
Not Met	Not Met	Not Met	Not Met
Not Met	Met	Not Met	Met
Not Met	Not Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met
Not Met	Not Met	Not Met	Not Met

1. Eight-Hour Warrant	Required Volume		# Hours Satisfied	# Hours Required	Warrant
	Major	Minor			
(100%) Condition A Met?	600	150	1	8	Met
Condition B Met?	900	75	8	8	
(80%) Condition A Met?	480	120	1	8	Not Met
& Condition B Met?	720	60	11	8	
2. Four-Hour Warrant	Met?		1	4	Not Met
3. Peak-Hour Warrant	Met?		1	1	Met

Appendix E. Detailed Intersection Capacity Analysis Results

1: Vilbig Road & Singleton Boulevard
3859-17.399

Existing
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	43	22	359	28	54	116	251	27	41	40
Traffic Volume (vph)	38	677	43	22	359	28	54	116	251	27	41	40
Future Volume (vph)	38	677	43	22	359	28	54	116	251	27	41	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	736	47	24	390	30	59	126	273	29	45	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	783	0	24	420	0	0	458	0	0	117	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4			3	8			2		6	
Permitted Phases		4			8			2		6	6	
Detector Phase		4			3	8		2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	33.0	33.0		19.0	52.0		28.0	28.0		28.0	28.0	
Total Split (%)	41.3%	41.3%		23.8%	65.0%		35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	43.1	43.1		47.5	47.5			23.5		23.5		
Actuated g/C Ratio	0.54	0.54		0.59	0.59			0.29		0.29		
v/c Ratio	0.08	0.41		0.06	0.20			0.85		0.26		
Control Delay	11.6	12.6		7.1	7.5			37.6		16.9		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	11.6	12.6		7.1	7.5			37.6		16.9		
LOS	B	B		A	A			D		B		
Approach Delay		12.6			7.4			37.6		16.9		
Approach LOS		B			A			D		B		
Queue Length 50th (ft)	8	96		5	44			173		30		
Queue Length 95th (ft)	30	186		13	65			#340		70		
Internal Link Dist (ft)		223			617			1212		91		
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	507	1894		522	2085			541		444		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.08	0.41		0.05	0.20			0.85		0.26		

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

1: Vilbig Road & Singleton Boulevard
3859-17.399

Existing
Timing Plan: AM

Intersection Signal Delay: 17.8
Intersection LOS: B
Intersection Capacity Utilization 63.4%
ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Existing
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	115	97	48	4	114	104	67	227	24	6	56	10
Future Vol, veh/h	115	97	48	4	114	104	67	227	24	6	56	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop						
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	125	105	52	4	124	113	73	247	26	7	61	11
Major/Minor												
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	237	0	0	157	0	0	606	626	131	707	596	181
Stage 1	-	-	-	-	-	-	381	381	-	189	189	-
Stage 2	-	-	-	-	-	-	225	245	-	518	407	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1330	-	-	1423	-	-	409	401	919	350	417	862
Stage 1	-	-	-	-	-	-	641	613	-	813	744	-
Stage 2	-	-	-	-	-	-	778	703	-	541	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1330	-	-	1423	-	-	325	358	919	140	372	862
Mov Cap-2 Maneuver	-	-	-	-	-	-	325	358	-	140	372	-
Stage 1	-	-	-	-	-	-	574	549	-	728	742	-
Stage 2	-	-	-	-	-	-	703	701	-	259	535	-
Approach												
Approach	EB	WB	NB	SB								
HCM Control Delay, s	3.5	0.1	31.8	18.2								
HCM LOS			D	C								
Minor Lane/Major Mvmt												
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	325	380	1330	-	-	1423	-	-	351			
HCM Lane V/C Ratio	0.224	0.718	0.094	-	-	0.003	-	-	0.223			
HCM Control Delay (s)	19.2	35.2	8	0	-	7.5	0	-	18.2			
HCM Lane LOS	C	E	A	A	-	A	A	-	C			
HCM 95th %tile Q(veh)	0.8	5.4	0.3	-	-	0	-	-	0.8			

3: Singleton Boulevard & Borger Street
3859-17.399

Existing
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	806	18	7	338	4	28	0	14	3	2	6
Future Vol, veh/h	5	806	18	7	338	4	28	0	14	3	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	876	20	8	367	4	30	0	15	3	2	7
Major/Minor												
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	371	0	0	896	0	0	1097	1283	448	833	1291	186
Stage 1	-	-	-	-	-	-	896	896	-	385	385	-
Stage 2	-	-	-	-	-	-	201	387	-	448	906	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1184	-	-	753	-	-	168	164	558	261	162	824
Stage 1	-	-	-	-	-	-	301	357	-	610	609	-
Stage 2	-	-	-	-	-	-	782	608	-	560	353	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1184	-	-	753	-	-	163	162	558	251	160	824
Mov Cap-2 Maneuver	-	-	-	-	-	-	163	162	-	251	160	-
Stage 1	-	-	-	-	-	-	300	356	-	608	602	-
Stage 2	-	-	-	-	-	-	765	601	-	542	352	-
Approach												
Approach	EB	WB	NB	SB								
HCM Control Delay, s	0	0.2	26.5	15.7								
HCM LOS			D	C								
Minor Lane/Major Mvmt												
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	213	1184	-	-	753	-	-	347				
HCM Lane V/C Ratio	0.214	0.005	-	-	0.01	-	-	0.034				
HCM Control Delay (s)	26.5	8.1	-	-	9.8	-	-	15.7				
HCM Lane LOS	D	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.1				

4: Vilbig Road & Muncie Avenue
3859-17.399

Existing
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	4	0	2	374	59	1
Future Vol, veh/h	4	0	2	374	59	1
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	4	0	2	407	64	1
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	476	65	65	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	411	-	-	-	-	-
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	548	999	1537	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	547	999	1537	-	-	-
Mov Cap-2 Maneuver	547	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	11.6	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1537	-	547	-	-	-
HCM Lane V/C Ratio	0.001	-	0.008	-	-	-
HCM Control Delay (s)	7.3	0	11.6	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Singleton Boulevard & Chihuahua Avenue
3859-17.399

Existing
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑↑	↑↑	↑	↑	↑
Traffic Vol, veh/h	6	939	374	3	4	5
Future Vol, veh/h	6	939	374	3	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	7	1021	407	3	4	5
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	410	0	-	0	934	205
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	525	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1145	-	-	-	*679	802
Stage 1	-	-	-	-	*639	-
Stage 2	-	-	-	-	*679	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	1145	-	-	-	*675	802
Mov Cap-2 Maneuver	-	-	-	-	*614	-
Stage 1	-	-	-	-	*635	-
Stage 2	-	-	-	-	*679	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	10.2			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1145	-	-	-	-	706
HCM Lane V/C Ratio	0.006	-	-	-	-	0.014
HCM Control Delay (s)	8.2	-	-	-	-	10.2
HCM Lane LOS	A	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

1: Vilbig Road & Singleton Boulevard
3859-17.399

Existing
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	41	539	52	182	685	67	23	30	33	75	105	54
Future Volume (vph)	41	539	52	182	685	67	23	30	33	75	105	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	586	57	198	745	73	25	33	36	82	114	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	643	0	198	818	0	0	94	0	0	255	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	12.0	30.0		12.0	30.0		18.0	18.0		18.0	18.0	
Total Split (%)	20.0%	50.0%		20.0%	50.0%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	31.9	25.8		36.0	33.0			13.5			13.5	
Actuated g/C Ratio	0.53	0.43		0.60	0.55			0.22			0.22	
v/c Ratio	0.10	0.43		0.41	0.42			0.25			0.68	
Control Delay	5.1	12.7		7.6	9.7			15.0			30.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.1	12.7		7.6	9.7			15.0			30.7	
LOS	A	B		A	A			B			C	
Approach Delay		12.2			9.3			15.0			30.7	
Approach LOS		B			A			B			C	
Queue Length 50th (ft)	5	78		26	62			17			77	
Queue Length 95th (ft)	14	116		48	152			50			#169	
Internal Link Dist (ft)		223			617			1212			91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	492	1512		487	1932			381			374	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.09	0.43		0.41	0.42			0.25			0.68	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

1: Vilbig Road & Singleton Boulevard
3859-17.399

Existing
Timing Plan: PM

Intersection Signal Delay: 13.2

Intersection LOS: B

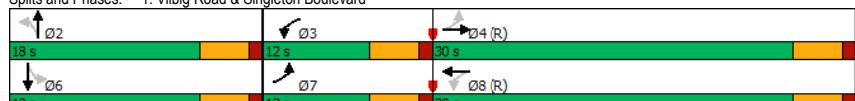
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Existing
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	7	132	61	33	60	7	13	32	13	13	302	33	
Future Vol, veh/h	7	132	61	33	60	7	13	32	13	13	302	33	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	8	143	66	36	65	8	14	35	14	14	328	36	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	73	0	0	209	0	0	515	337	176	358	366	69	
Stage 1	-	-	-	-	-	-	192	192	-	141	141	-	
Stage 2	-	-	-	-	-	-	323	145	-	217	225	-	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1527	-	-	1362	-	-	470	584	867	597	562	994	
Stage 1	-	-	-	-	-	-	810	742	-	862	780	-	
Stage 2	-	-	-	-	-	-	689	777	-	785	718	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1527	-	-	1362	-	-	229	564	867	545	543	994	
Mov Cap-2 Maneuver	-	-	-	-	-	-	229	564	-	545	543	-	
Stage 1	-	-	-	-	-	-	805	738	-	857	758	-	
Stage 2	-	-	-	-	-	-	366	755	-	731	714	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	0.3			2.5			13.6			23.1			
HCM LOS					B		C						
Minor Lane/Major Mvmt													
NBLn1		NBLn2		EBL		EBR		WBL		WBT		WBR	
Capacity (veh/h)	229	627	1527	-	-	1362	-	-	567	-	-	-	-
HCM Lane V/C Ratio	0.062	0.078	0.005	-	-	0.026	-	-	0.667	-	-	-	-
HCM Control Delay (s)	21.8	11.2	7.4	0	-	7.7	0	-	23.1	-	-	-	-
HCM Lane LOS	C	B	A	A	-	A	A	-	C	-	-	-	-
HCM 95th %tile Q(veh)	0.2	0.3	0	-	-	0.1	-	-	5	-	-	-	-

3: Borger Street & Singleton Boulevard
3859-17.399

Existing
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	11	541	32	14	919	6	26	1	20	3	0	10	
Future Vol, veh/h	11	541	32	14	919	6	26	1	20	3	0	10	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	12	588	35	15	999	7	28	1	22	3	0	11	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	1006	0	0	623	0	0	1160	1666	312	1352	1680	503	
Stage 1	-	-	-	-	-	-	630	630	-	1033	1033	-	
Stage 2	-	-	-	-	-	-	530	1036	-	319	647	-	
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32	
Pot Cap-1 Maneuver	684	-	-	954	-	-	151	96	684	109	94	514	
Stage 1	-	-	-	-	-	-	436	473	-	249	308	-	
Stage 2	-	-	-	-	-	-	500	307	-	667	465	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	684	-	-	954	-	-	144	93	684	102	91	514	
Mov Cap-2 Maneuver	-	-	-	-	-	-	144	93	-	102	91	-	
Stage 1	-	-	-	-	-	-	428	464	-	245	303	-	
Stage 2	-	-	-	-	-	-	482	302	-	633	457	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	0.2			0.1			27.2			19.3			
HCM LOS					D		C						
Minor Lane/Major Mvmt													
NBLn1		NBLn2		EBL		EBR		WBL		WBT		WBR	
Capacity (veh/h)	213	684	-	-	954	-	-	266	-	-	-	-	-
HCM Lane V/C Ratio	0.24	0.017	-	-	0.016	-	-	0.053	-	-	-	-	-
HCM Control Delay (s)	27.2	10.4	-	-	8.8	-	-	19.3	-	-	-	-	-
HCM Lane LOS	D	B	-	-	A	-	-	C	-	-	-	-	-
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0	-	-	0.2	-	-	-	-	-

4: Vilbig Road & Muncie Avenue
3859-17.399

Existing
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y	Y	Y	Y	Y	Y
Traffic Vol, veh/h	5	3	2	54	320	6
Future Vol, veh/h	5	3	2	54	320	6
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	5	3	2	59	348	7
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	415	352	355	0	-	0
Stage 1	352	-	-	-	-	-
Stage 2	63	-	-	-	-	-
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	594	692	1204	-	-	-
Stage 1	712	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	593	692	1204	-	-	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	711	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.8	0.3	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1204	-	627	-	-	-
HCM Lane V/C Ratio	0.002	-	0.014	-	-	-
HCM Control Delay (s)	8	0	10.8	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Singleton Boulevard & Chihuahua Avenue
3859-17.399

Existing
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	WBT	WBR	SBL	SBR
Lane Configurations	Y	↑↑	↑↑	Y	Y	Y
Traffic Vol, veh/h	14	631	871	7	2	11
Future Vol, veh/h	14	631	871	7	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	15	686	947	8	2	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	955	0	-	0	1324	478
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	373	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	715	-	-	-	*225	534
Stage 1	-	-	-	-	*336	-
Stage 2	-	-	-	-	*811	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	715	-	-	-	*220	534
Mov Cap-2 Maneuver	-	-	-	-	*284	-
Stage 1	-	-	-	-	*329	-
Stage 2	-	-	-	-	*811	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.2	0	12.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	715	-	-	-	-	470
HCM Lane V/C Ratio	0.021	-	-	-	-	0.03
HCM Control Delay (s)	10.1	-	-	-	-	12.9
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 1 Background
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↓	↑	↑↓	↓	↑	↑↓	↓	↑	↑↓	↓
Traffic Volume (vph)	38	726	61	81	439	39	69	131	278	30	59	40
Future Volume (vph)	38	726	61	81	439	39	69	131	278	30	59	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	789	66	88	477	42	75	142	302	33	64	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	855	0	88	519	0	0	519	0	0	140	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4			3	8			2		6	
Permitted Phases		4			8			2		6	6	
Detector Phase		4			3	8		2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	33.0	33.0		19.0	52.0		28.0	28.0		28.0	28.0	
Total Split (%)	41.3%	41.3%		23.8%	65.0%		35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	37.8	37.8		47.5	47.5			23.5			23.5	
Actuated g/C Ratio	0.47	0.47		0.59	0.59			0.29			0.29	
v/c Ratio	0.10	0.52		0.24	0.25			0.97			0.33	
Control Delay	14.3	16.7		8.7	7.8			58.2			20.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.3	16.7		8.7	7.8			58.2			20.2	
LOS	B	B		A	A			E			C	
Approach Delay		16.6			7.9			58.2			20.2	
Approach LOS		B			A			E			C	
Queue Length 50th (ft)	11	155		17	56			218			43	
Queue Length 95th (ft)	32	218		35	81			#419			91	
Internal Link Dist (ft)		223			617			1212			91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	405	1659		486	2084			534			418	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.52		0.18	0.25			0.97			0.33	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

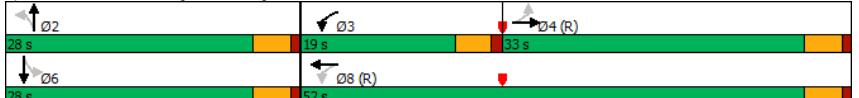
Maximum v/c Ratio: 0.97

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 1 Background
Timing Plan: AM

Intersection Signal Delay: 24.4
Intersection LOS: C
Intersection Capacity Utilization 70.5%
ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Phase 1 Background
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	130	98	48	4	115	112	68	236	24	12	87	30
Future Vol, veh/h	130	98	48	4	115	112	68	236	24	12	87	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	141	107	52	4	125	122	74	257	26	13	95	33
Major/Minor												
Major	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	247	0	0	159	0	0	673	670	133	751	635	186
Stage 1	-	-	-	-	-	-	415	415	-	194	194	-
Stage 2	-	-	-	-	-	-	258	255	-	557	441	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1319	-	-	1420	-	-	369	378	916	327	396	856
Stage 1	-	-	-	-	-	-	615	592	-	808	740	-
Stage 2	-	-	-	-	-	-	747	696	-	515	577	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1319	-	-	1420	-	-	256	332	916	107	348	856
Mov Cap-2 Maneuver	-	-	-	-	-	-	256	332	-	107	348	-
Stage 1	-	-	-	-	-	-	542	522	-	713	738	-
Stage 2	-	-	-	-	-	-	625	694	-	224	509	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s	3.8		0.1		41.3		24.2					
HCM LOS					E		C					
Minor Lane/Major Mvmt												
	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	256	353	1319	-	-	1420	-	-	325			
HCM Lane V/C Ratio	0.289	0.801	0.107	-	-	0.003	-	-	0.431			
HCM Control Delay (s)	24.7	45.7	8.1	0	-	7.5	0	-	24.2			
HCM Lane LOS	C	E	A	A	-	A	A	-	C			
HCM 95th %tile Q(veh)	1.2	6.8	0.4	-	-	0	-	-	2.1			

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Background
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	878	24	11	463	4	52	0	31	3	2	6
Future Vol, veh/h	5	878	24	11	463	4	52	0	31	3	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	954	26	12	503	4	57	0	34	3	2	7
Major/Minor												
Major	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	507	0	0	980	0	0	1254	1508	490	1016	1519	254
Stage 1	-	-	-	-	-	-	977	977	-	529	529	-
Stage 2	-	-	-	-	-	-	277	531	-	487	990	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1054	-	-	700	-	-	128	120	524	192	118	745
Stage 1	-	-	-	-	-	-	269	327	-	501	525	-
Stage 2	-	-	-	-	-	-	706	524	-	531	323	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1054	-	-	700	-	-	123	117	524	177	115	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	117	-	177	115	-
Stage 1	-	-	-	-	-	-	268	325	-	498	516	-
Stage 2	-	-	-	-	-	-	685	515	-	494	321	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s	0		0.2		47		19.6					
HCM LOS					E		C					
Minor Lane/Major Mvmt												
	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	172	1054	-	-	700	-	-	-	259			
HCM Lane V/C Ratio	0.525	0.005	-	-	0.017	-	-	-	0.046			
HCM Control Delay (s)	47	8.4	-	-	10.2	-	-	-	19.6			
HCM Lane LOS	E	A	-	-	B	-	-	-	C			
HCM 95th %tile Q(veh)	2.6	0	-	-	0.1	-	-	-	0.1			

4: Vilbig Road & Muncie Avenue
3859-17.399

Phase 1 Background
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↓	↑	↑	↓
Traffic Vol, veh/h	4	0	2	406	115	1
Future Vol, veh/h	4	0	2	406	115	1
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	4	0	2	441	125	1
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	571	126	126	0	-	0
Stage 1	126	-	-	-	-	-
Stage 2	445	-	-	-	-	-
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	482	924	1460	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	481	924	1460	-	-	-
Mov Cap-2 Maneuver	481	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	12.6	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1460	-	481	-	-	-
HCM Lane V/C Ratio	0.001	-	0.009	-	-	-
HCM Control Delay (s)	7.5	0	12.6	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Singleton Boulevard & Chihuahua Avenue
3859-17.399

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑↑	↑↑	↑	↑	↓
Traffic Vol, veh/h	6	1018	523	3	4	5
Future Vol, veh/h	6	1018	523	3	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	0	-	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	7	1107	568	3	4	5
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	571	0	-	0	1138	286
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	568	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	998	-	-	-	*609	711
Stage 1	-	-	-	-	*529	-
Stage 2	-	-	-	-	*643	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	998	-	-	-	*604	711
Mov Cap-2 Maneuver	-	-	-	-	*601	-
Stage 1	-	-	-	-	*525	-
Stage 2	-	-	-	-	*643	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	10.6			
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	998	-	-	-	658	-
HCM Lane V/C Ratio	0.007	-	-	-	0.015	-
HCM Control Delay (s)	8.6	-	-	-	10.6	-
HCM Lane LOS	A	-	-	-	B	-
HCM 95th %tile Q(veh)	0	-	-	-	0	-
Notes						
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon			

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 1 Background
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	41	624	53	205	754	73	23	30	72	85	106	55
Future Volume (vph)	41	624	53	205	754	73	23	30	72	85	106	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	678	58	223	820	79	25	33	78	92	115	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	736	0	223	899	0	0	136	0	0	267	0
Turn Type	pm+pt	NA	pm+pt	NA		Perm	NA		Perm	NA		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	12.0	30.0		12.0	30.0		18.0	18.0		18.0	18.0	
Total Split (%)	20.0%	50.0%		20.0%	50.0%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	31.8	25.7		36.0	33.0			13.5			13.5	
Actuated g/C Ratio	0.53	0.43		0.60	0.55			0.22			0.22	
v/c Ratio	0.11	0.49		0.50	0.47			0.33			0.74	
Control Delay	5.2	13.5		9.3	10.2			12.2			34.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.2	13.5		9.3	10.2			12.2			34.7	
LOS	A	B		A	B			B			C	
Approach Delay		13.0			10.0			12.2			34.7	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	5	94		29	70			17			82	
Queue Length 95th (ft)	14	137		54	172			57			#187	
Internal Link Dist (ft)		223			617			1212			91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	459	1509		447	1932			414			362	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.49		0.50	0.47			0.33			0.74	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

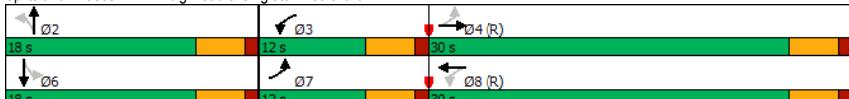
Maximum v/c Ratio: 0.74

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 1 Background
Timing Plan: PM

Intersection Signal Delay: 14.0
Intersection LOS: B
Intersection Capacity Utilization 61.8%
ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Phase 1 Background
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	33	133	62	33	61	7	13	45	13	13	319	40	
Future Vol, veh/h	33	133	62	33	61	7	13	45	13	13	319	40	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	36	145	67	36	66	8	14	49	14	14	347	43	
Major/Minor													
Major/Minor	Major1		Major2		Minor1		Minor2						
Conflicting Flow All	74	0	0	212	0	0	588	397	179	424	426	70	
Stage 1	-	-	-	-	-	-	251	251	-	142	142	-	
Stage 2	-	-	-	-	-	-	337	146	-	282	284	-	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1526	-	-	1358	-	-	421	540	864	540	520	993	
Stage 1	-	-	-	-	-	-	753	699	-	861	779	-	
Stage 2	-	-	-	-	-	-	677	776	-	725	676	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1526	-	-	1358	-	-	166	511	864	472	492	993	
Mov Cap-2 Maneuver	-	-	-	-	-	-	166	511	-	472	492	-	
Stage 1	-	-	-	-	-	-	733	680	-	838	757	-	
Stage 2	-	-	-	-	-	-	341	754	-	644	658	-	
Approach													
Approach	EB		WB		NB		SB						
HCM Control Delay, s	1.1	2.5		15.2		32.2							
HCM LOS		C		D									
Minor Lane/Major Mvmt													
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	SBLn4	
Capacity (veh/h)	166	563	1526	-	-	1358	-	-	519	-	-	-	
HCM Lane V/C Ratio	0.085	0.112	0.024	-	-	0.026	-	-	0.779	-	-	-	
HCM Control Delay (s)	28.7	12.2	7.4	0	-	7.7	0	-	32.2	-	-	-	
HCM Lane LOS	D	B	A	A	-	A	A	-	D	-	-	-	
HCM 95th %tile Q(veh)	0.3	0.4	0.1	-	-	0.1	-	-	7.1	-	-	-	

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Background
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	11	652	55	30	1004	6	38	1	29	3	0	10	
Future Vol, veh/h	11	652	55	30	1004	6	38	1	29	3	0	10	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-	0	-	
Grade, %	0	-	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	12	709	60	33	1091	7	41	1	32	3	0	11	
Major/Minor													
Major/Minor	Major1		Major2		Minor1		Minor2						
Conflicting Flow All	1098	0	0	769	0	0	1375	1927	385	1540	1954	549	
Stage 1	-	-	-	-	-	-	763	763	-	1161	1161	-	
Stage 2	-	-	-	-	-	-	612	1164	-	379	793	-	
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32	
Pot Cap-1 Maneuver	631	-	-	841	-	-	104	66	613	79	63	480	
Stage 1	-	-	-	-	-	-	363	411	-	208	268	-	
Stage 2	-	-	-	-	-	-	447	267	-	615	398	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	631	-	-	841	-	-	97	62	613	71	59	480	
Mov Cap-2 Maneuver	-	-	-	-	-	-	97	62	-	71	59	-	
Stage 1	-	-	-	-	-	-	356	403	-	204	258	-	
Stage 2	-	-	-	-	-	-	420	257	-	571	390	-	
Approach													
Approach	EB		WB		NB		SB						
HCM Control Delay, s	0.2	0.3		50.9		23.8							
HCM LOS		F		C									
Minor Lane/Major Mvmt													
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	SBLn4	
Capacity (veh/h)	149	631	-	-	841	-	-	206	-	-	-	-	
HCM Lane V/C Ratio	0.496	0.019	-	-	0.039	-	-	0.069	-	-	-	-	
HCM Control Delay (s)	50.9	10.8	-	-	9.5	-	-	23.8	-	-	-	-	
HCM Lane LOS	F	B	-	-	A	-	-	C	-	-	-	-	
HCM 95th %tile Q(veh)	2.4	0.1	-	-	0.1	-	-	0.2	-	-	-	-	

4: Vilbig Road & Muncie Avenue
3859-17.399

Phase 1 Background
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBC	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	5	3	2	93	344	6
Future Vol, veh/h	5	3	2	93	344	6
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	5	3	2	101	374	7
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	483	378	381	0	-	0
Stage 1	378	-	-	-	-	-
Stage 2	105	-	-	-	-	-
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	542	669	1177	-	-	-
Stage 1	693	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	541	669	1177	-	-	-
Mov Cap-2 Maneuver	541	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	11.3	0.2	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1177	-	583	-	-	-
HCM Lane V/C Ratio	0.002	-	0.015	-	-	-
HCM Control Delay (s)	8.1	0	11.3	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Singleton Boulevard & Chihuahua Avenue
3859-17.399

Phase 1 Background
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBC	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑↑	↑↑	↑	↑	↑
Traffic Vol, veh/h	14	765	968	7	2	11
Future Vol, veh/h	14	765	968	7	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	15	832	1052	8	2	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	1060	0	-	0	1502	530
Stage 1	-	-	-	-	1056	-
Stage 2	-	-	-	-	446	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	653	-	-	-	*181	493
Stage 1	-	-	-	-	*296	-
Stage 2	-	-	-	-	*762	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	653	-	-	-	*177	493
Mov Cap-2 Maneuver	-	-	-	-	*247	-
Stage 1	-	-	-	-	*289	-
Stage 2	-	-	-	-	*762	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.2	0	13.7			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1177	-	583	-	-	-
HCM Lane V/C Ratio	0.002	-	0.015	-	-	-
HCM Control Delay (s)	8.1	0	11.3	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.2	0	13.7			
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBC	WBT	WBR	SBLn1	
Capacity (veh/h)	653	-	-	-	427	-
HCM Lane V/C Ratio	0.023	-	-	-	0.033	-
HCM Control Delay (s)	10.6	-	-	-	13.7	-
HCM Lane LOS	B	-	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	-
Notes						
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon			

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 1 Buildout
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↓	↑	↑↓	↓	↑	↑↓	↓	↑	↑↓	↓
Traffic Volume (vph)	38	737	61	96	469	44	69	131	283	32	59	40
Future Volume (vph)	38	737	61	96	469	44	69	131	283	32	59	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	801	66	104	510	48	75	142	308	35	64	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	867	0	104	558	0	0	525	0	0	142	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4			3	8			2		6	
Permitted Phases		4			8			2		6		
Detector Phase		4			3	8		2		6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	33.0	33.0		19.0	52.0		28.0	28.0		28.0	28.0	
Total Split (%)	41.3%	41.3%		23.8%	65.0%		35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		Max	Max		Max	Max	
Act Efft Green (s)	37.5	37.5		47.5	47.5			23.5			23.5	
Actuated g/C Ratio	0.47	0.47		0.59	0.59			0.29			0.29	
v/c Ratio	0.11	0.53		0.29	0.27			0.98			0.35	
Control Delay	14.7	17.1		9.2	7.9			60.3			20.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.7	17.1		9.2	7.9			60.3			20.6	
LOS	B	B		A	A			E			C	
Approach Delay		17.0			8.1			60.3			20.6	
Approach LOS		B			A			E			C	
Queue Length 50th (ft)	12	159		20	61			221			44	
Queue Length 95th (ft)	32	225		40	87			#426			93	
Internal Link Dist (ft)				223		617			1212		91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	387	1648		482	2082			535			408	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.53		0.22	0.27			0.98			0.35	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 1 Buildout
Timing Plan: AM

Intersection Signal Delay: 24.8
Intersection LOS: C
Intersection Capacity Utilization 71.6%
ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Phase 1 Buildout
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	132	98	48	4	115	114	68	238	24	17	92	35
Future Vol, veh/h	132	98	48	4	115	114	68	238	24	17	92	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	143	107	52	4	125	124	74	259	26	18	100	38
Major/Minor												
	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	249	0	0	159	0	0	683	676	133	757	640	187
Stage 1	-	-	-	-	-	-	419	419	-	195	195	-
Stage 2	-	-	-	-	-	-	264	257	-	562	445	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1317	-	-	1420	-	-	363	375	916	324	393	855
Stage 1	-	-	-	-	-	-	612	590	-	807	739	-
Stage 2	-	-	-	-	-	-	741	695	-	512	575	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1317	-	-	1420	-	-	245	329	916	102	345	855
Mov Cap-2 Maneuver	-	-	-	-	-	-	245	329	-	102	345	-
Stage 1	-	-	-	-	-	-	539	519	-	710	737	-
Stage 2	-	-	-	-	-	-	610	693	-	220	506	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s	3.8		0.1		43.2		28.8					
HCM LOS					E		D					
Minor Lane/Major Mvmt												
	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	245	350	1317	-	-	1420	-	-	304			
HCM Lane V/C Ratio	0.302	0.814	0.109	-	-	0.003	-	-	0.515			
HCM Control Delay (s)	25.9	47.7	8.1	0	-	7.5	0	-	28.8			
HCM Lane LOS	D	E	A	A	-	A	A	-	D			
HCM 95th %tile Q(veh)	1.2	7	0.4	-	-	0	-	-	2.8			

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Buildout
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	878	41	23	463	4	103	0	67	3	2	6
Future Vol, veh/h	5	878	41	23	463	4	103	0	67	3	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	954	45	25	503	4	112	0	73	3	2	7
Major/Minor												
	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	507	0	0	999	0	0	1290	1544	500	1042	1564	254
Stage 1	-	-	-	-	-	-	987	987	-	555	555	-
Stage 2	-	-	-	-	-	-	303	557	-	487	1009	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1054	-	-	689	-	-	121	114	516	184	111	745
Stage 1	-	-	-	-	-	-	265	324	-	484	511	-
Stage 2	-	-	-	-	-	-	681	510	-	531	316	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1054	-	-	689	-	-	114	109	516	153	106	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	109	-	153	106	-
Stage 1	-	-	-	-	-	-	264	322	-	482	493	-
Stage 2	-	-	-	-	-	-	648	492	-	454	314	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s	0		0.5		162.1		21.1					
HCM LOS					F		C					
Minor Lane/Major Mvmt												
	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	165	1054	-	-	689	-	-	236				
HCM Lane V/C Ratio	1.12	0.005	-	-	0.036	-	-	0.051				
HCM Control Delay (s)	162.1	8.4	-	-	10.4	-	-	21.1				
HCM Lane LOS	F	A	-	-	B	-	-	C				
HCM 95th %tile Q(veh)	9.7	0	-	-	0.1	-	-	0.2				

4: Vilbig Road & Muncie Avenue
3859-17.399

Phase 1 Buildout
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBC	NBL	NBT	SBT	SBR
Lane Configurations	Y	Y	Y	Y	Y	Y
Traffic Vol, veh/h	4	0	2	411	130	1
Future Vol, veh/h	4	0	2	411	130	1
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	4	0	2	447	141	1
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	593	142	142	0	-	0
Stage 1	142	-	-	-	-	-
Stage 2	451	-	-	-	-	-
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	468	906	1441	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	467	906	1441	-	-	-
Mov Cap-2 Maneuver	467	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	12.8	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1441	-	467	-	-	-
HCM Lane V/C Ratio	0.002	-	0.009	-	-	-
HCM Control Delay (s)	7.5	0	12.8	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Singleton Boulevard & Chihuahua Avenue
3859-17.399

Phase 1 Buildout
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBC	WBT	WBR	SBL	SBR
Lane Configurations	Y	↑↑	↑↑	Y	Y	Y
Traffic Vol, veh/h	6	1035	574	3	4	5
Future Vol, veh/h	6	1035	574	3	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	7	1125	624	3	4	5
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	627	0	-	0	1203	314
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	577	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	951	-	-	-	*605	682
Stage 1	-	-	-	-	*495	-
Stage 2	-	-	-	-	*606	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	951	-	-	-	*601	682
Mov Cap-2 Maneuver	-	-	-	-	*547	-
Stage 1	-	-	-	-	*492	-
Stage 2	-	-	-	-	*606	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	10.9			
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBC	WBT	WBR	SBLn1	
Capacity (veh/h)	951	-	-	-	615	-
HCM Lane V/C Ratio	0.007	-	-	-	0.016	-
HCM Control Delay (s)	8.8	-	-	-	10.9	-
HCM Lane LOS	A	-	-	-	B	-
HCM 95th %tile Q(veh)	0	-	-	-	0	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s -: Computation Not Defined *: All major volume in platoon

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 1 Buildout
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	41	658	53	215	774	76	23	30	89	91	106	55
Future Volume (vph)	41	658	53	215	774	76	23	30	89	91	106	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	715	58	234	841	83	25	33	97	99	115	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	773	0	234	924	0	0	155	0	0	274	0
Turn Type	pm+pt	NA	pm+pt	NA		Perm	NA		Perm	NA		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	12.0	30.0		12.0	30.0		18.0	18.0		18.0	18.0	
Total Split (%)	20.0%	50.0%		20.0%	50.0%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	31.8	25.7		36.0	33.0			13.5			13.5	
Actuated g/C Ratio	0.53	0.43		0.60	0.55			0.22			0.22	
v/c Ratio	0.11	0.51		0.55	0.48			0.36			0.78	
Control Delay	5.2	13.8		10.3	10.3			11.5			38.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.2	13.8		10.3	10.3			11.5			38.7	
LOS	A	B		B	B			B			D	
Approach Delay		13.3			10.3			11.5			38.7	
Approach LOS		B			B			B			D	
Queue Length 50th (ft)	5	100		31	73			17			86	
Queue Length 95th (ft)	14	145		56	178			59			#199	
Internal Link Dist (ft)		223			617			1212			91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	449	1509		433	1932			429			350	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.51		0.54	0.48			0.36			0.78	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 1 Buildout
Timing Plan: PM

Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 63.7%	ICU Level of Service B
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Vilbig Road & Singleton Boulevard

2: Vilbig Road & W Commerce Street
3859-17.399

Phase 1 Buildout
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	39	133	62	33	61	13	13	51	13	16	322	44	
Future Vol, veh/h	39	133	62	33	61	13	13	51	13	16	322	44	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	None	-	None	-	None	-	None	-	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	42	145	67	36	66	14	14	55	14	17	350	48	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	80	0	0	212	0	0	607	415	179	442	441	73	
Stage 1	-	-	-	-	-	-	263	263	-	145	145	-	
Stage 2	-	-	-	-	-	-	344	152	-	297	296	-	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1518	-	-	1358	-	-	408	528	864	526	510	989	
Stage 1	-	-	-	-	-	-	742	691	-	858	777	-	
Stage 2	-	-	-	-	-	-	671	772	-	712	668	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1518	-	-	1358	-	-	151	497	864	452	480	989	
Mov Cap-2 Maneuver	-	-	-	-	-	-	151	497	-	452	480	-	
Stage 1	-	-	-	-	-	-	718	669	-	831	755	-	
Stage 2	-	-	-	-	-	-	333	750	-	622	647	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	1.2			2.4			15.8			36.3			
HCM LOS					C			E					
Minor Lane/Major Mvmt													
NBLn1		NBLn2		EBL		EBT		WBL		WBT		WBR	
Capacity (veh/h)	151	544	1518	-	-	1358	-	-	509	-	-	-	172
HCM Lane V/C Ratio	0.094	0.128	0.028	-	-	0.026	-	-	0.816	-	-	-	0.082
HCM Control Delay (s)	31.3	12.6	7.4	0	-	7.7	0	-	36.3	-	-	-	27.8
HCM Lane LOS	D	B	A	A	-	A	A	-	E	-	-	-	D
HCM 95th %tile Q(veh)	0.3	0.4	0.1	-	-	0.1	-	-	7.9	-	-	-	0.3

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Buildout
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	11	652	112	70	1004	6	72	1	52	3	0	10	
Future Vol, veh/h	11	652	112	70	1004	6	72	1	52	3	0	10	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	None	-	None	-	None	-	None	-	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	12	709	122	76	1091	7	78	1	57	3	0	11	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	1098	0	0	831	0	0	1492	2044	416	1626	2102	549	
Stage 1	-	-	-	-	-	-	794	794	-	1247	1247	-	
Stage 2	-	-	-	-	-	-	698	1250	-	379	855	-	
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32	
Pot Cap-1 Maneuver	631	-	-	797	-	-	85	56	585	68	51	480	
Stage 1	-	-	-	-	-	-	348	398	-	184	244	-	
Stage 2	-	-	-	-	-	-	397	243	-	615	373	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	631	-	-	797	-	-	~76	50	585	55	45	480	
Mov Cap-2 Maneuver	-	-	-	-	-	-	~76	50	-	55	45	-	
Stage 1	-	-	-	-	-	-	341	390	-	181	221	-	
Stage 2	-	-	-	-	-	-	351	220	-	543	366	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	0.2			0.6			199.8			27.8			
HCM LOS					F			E		D			
Minor Lane/Major Mvmt													
NBLn1		NBLn2		EBL		EBT		WBL		WBT		WBR	
Capacity (veh/h)	118	631	-	-	797	-	-	172	-	-	-	-	-
HCM Lane V/C Ratio	1.151	0.019	-	-	0.095	-	-	0.082	-	-	-	-	-
HCM Control Delay (s)	199.8	10.8	-	-	10	-	-	27.8	-	-	-	-	-
HCM Lane LOS	F	B	-	-	A	-	-	D	-	-	-	-	-
HCM 95th %tile Q(veh)	8.3	0.1	-	-	0.3	-	-	0.3	-	-	-	-	-

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

4: Vilbig Road & Muncie Avenue
3859-17.399

Phase 1 Buildout
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBC	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	5	3	2	110	354	6
Future Vol, veh/h	5	3	2	110	354	6
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	5	3	2	120	385	7
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	513	389	392	0	-	0
Stage 1	389	-	-	-	-	-
Stage 2	124	-	-	-	-	-
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	521	659	1167	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	520	659	1167	-	-	-
Mov Cap-2 Maneuver	520	-	-	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	11.5	0.1	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1167	-	565	-	-	-
HCM Lane V/C Ratio	0.002	-	0.015	-	-	-
HCM Control Delay (s)	8.1	0	11.5	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Singleton Boulevard & Chihuahua Avenue
3859-17.399

Phase 1 Buildout
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBC	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑↑	↑↑	↑	↑	↑
Traffic Vol, veh/h	14	822	1001	7	2	11
Future Vol, veh/h	14	822	1001	7	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	15	893	1088	8	2	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	1096	0	-	0	1569	548
Stage 1	-	-	-	-	1092	-
Stage 2	-	-	-	-	477	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	633	-	-	-	*181	480
Stage 1	-	-	-	-	*283	-
Stage 2	-	-	-	-	*713	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	633	-	-	-	*176	480
Mov Cap-2 Maneuver	-	-	-	-	*237	-
Stage 1	-	-	-	-	*276	-
Stage 2	-	-	-	-	*713	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.2	0	14			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	633	-	-	-	-	415
HCM Lane V/C Ratio	0.024	-	-	-	-	0.034
HCM Control Delay (s)	10.8	-	-	-	-	14
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s -: Computation Not Defined *: All major volume in platoon						

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Background
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↓	↑	↑↓	↓	↑	↑	↓	↑	↓	↑
Traffic Volume (vph)	39	743	61	96	473	44	69	133	286	32	59	41
Future Volume (vph)	39	743	61	96	473	44	69	133	286	32	59	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	808	66	104	514	48	75	145	311	35	64	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	874	0	104	562	0	0	531	0	0	144	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4			3	8			2		6	
Permitted Phases		4			8			2		6		
Detector Phase		4			3	8		2		6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	33.0	33.0		19.0	52.0		28.0	28.0		28.0	28.0	
Total Split (%)	41.3%	41.3%		23.8%	65.0%		35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		Max	Max		Max	Max	
Act Efft Green (s)	37.5	37.5		47.5	47.5			23.5		23.5		
Actuated g/C Ratio	0.47	0.47		0.59	0.59			0.29		0.29		
v/c Ratio	0.11	0.53		0.29	0.27			0.99		0.35		
Control Delay	14.7	17.2		9.2	7.9			63.1		20.6		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	14.7	17.2		9.2	7.9			63.1		20.6		
LOS	B	B		A	A			E		C		
Approach Delay		17.1			8.1			63.1		20.6		
Approach LOS		B			A			E		C		
Queue Length 50th (ft)	12	161		20	62			226		44		
Queue Length 95th (ft)	33	227		40	88			#433		93		
Internal Link Dist (ft)				223		617			762		91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	385	1648		480	2082			535		407		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.11	0.53		0.22	0.27			0.99		0.35		

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Background
Timing Plan: AM

Intersection Signal Delay: 25.5
Intersection LOS: C
Intersection Capacity Utilization 72.1%
ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Phase 2 Background
Timing Plan: AM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	133	99	49	4	116	115	68	240	24	17	93	35	
Future Vol, veh/h	133	99	49	4	116	115	68	240	24	17	93	35	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	-	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	145	108	53	4	126	125	74	261	26	18	101	38	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	251	0	0	161	0	0	691	684	135	765	648	189	
Stage 1	-	-	-	-	-	-	425	425	-	197	197	-	
Stage 2	-	-	-	-	-	-	266	259	-	568	451	-	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1314	-	-	1418	-	-	359	371	914	320	389	853	
Stage 1	-	-	-	-	-	-	607	586	-	805	738	-	
Stage 2	-	-	-	-	-	-	739	694	-	508	571	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1314	-	-	1418	-	-	240	325	914	95	340	853	
Mov Cap-2 Maneuver	-	-	-	-	-	-	240	325	-	95	340	-	
Stage 1	-	-	-	-	-	-	533	515	-	707	736	-	
Stage 2	-	-	-	-	-	-	607	692	-	214	501	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	3.8	-	-	0.1	-	-	45.7	-	-	30.5	-	-	
HCM LOS	-	-	-	-	-	-	E	-	-	D	-	-	
Minor Lane/Major Mvmt													
NBLn1 NBLn2		EBL EBT		EBC		WBL WBT		WBR SBLn1					
Capacity (veh/h)	240	345	1314	-	-	1418	-	-	294	-	-	-	-
HCM Lane V/C Ratio	0.308	0.832	0.11	-	-	0.003	-	-	0.536	-	-	-	-
HCM Control Delay (s)	26.5	50.6	8.1	0	-	7.5	0	-	30.5	-	-	-	-
HCM Lane LOS	D	F	A	A	-	A	A	-	D	-	-	-	-
HCM 95th %tile Q(veh)	1.3	7.4	0.4	-	-	0	-	-	3	-	-	-	-

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Background
Timing Plan: AM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	5	886	41	23	466	4	103	0	67	3	2	6	
Future Vol, veh/h	5	886	41	23	466	4	103	0	67	3	2	6	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	-	-	-	None	
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	5	963	45	25	507	4	112	0	73	3	2	7	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	511	0	0	1008	0	0	1301	1557	504	1051	1577	256	
Stage 1	-	-	-	-	-	-	-	-	996	996	-	559	
Stage 2	-	-	-	-	-	-	-	-	305	561	-	492	
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.54	5.54	-	6.54	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.54	5.54	-	6.54	
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32	
Pot Cap-1 Maneuver	1050	-	-	683	-	-	118	112	513	181	109	743	
Stage 1	-	-	-	-	-	-	-	-	262	320	-	481	
Stage 2	-	-	-	-	-	-	-	-	680	508	-	527	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1050	-	-	683	-	-	112	107	513	150	104	743	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	112	107	-	150	
Stage 1	-	-	-	-	-	-	-	-	261	318	-	479	
Stage 2	-	-	-	-	-	-	-	-	646	489	-	450	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	0	-	-	0.5	-	-	170.3	-	-	21.3	-	-	
HCM LOS	-	-	-	-	-	-	F	-	-	C	-	-	
Minor Lane/Major Mvmt													
NBLn1 NBLn2		EBL EBT		EBC		WBL WBT		WBR SBLn1					
Capacity (veh/h)	162	1050	-	-	683	-	-	233	-	-	-	-	-
HCM Lane V/C Ratio	1.141	0.005	-	-	0.037	-	-	0.051	-	-	-	-	-
HCM Control Delay (s)	170.3	8.4	-	-	10.5	-	-	21.3	-	-	-	-	-
HCM Lane LOS	F	A	-	-	B	-	-	C	-	-	-	-	-
HCM 95th %tile Q(veh)	9.9	0	-	-	0.1	-	-	0.2	-	-	-	-	-

4: Vilbig Road & Muncie Avenue
3859-17.399

Phase 2 Background
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y	Y	Y	Y	Y	Y
Traffic Vol, veh/h	4	0	2	414	131	1
Future Vol, veh/h	4	0	2	414	131	1
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	4	0	2	450	142	1
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	597	143	143	0	-	0
Stage 1	143	-	-	-	-	-
Stage 2	454	-	-	-	-	-
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	466	905	1440	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	465	905	1440	-	-	-
Mov Cap-2 Maneuver	465	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	12.8	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1440	-	465	-	-	-
HCM Lane V/C Ratio	0.002	-	0.009	-	-	-
HCM Control Delay (s)	7.5	0	12.8	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Singleton Boulevard & Chihuahua Avenue
3859-17.399

Phase 2 Background
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	Y	↑↑	↑↑	Y	Y	Y
Traffic Vol, veh/h	6	1045	578	3	4	5
Future Vol, veh/h	6	1045	578	3	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	7	1136	628	3	4	5
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	631	0	-	0	1212	316
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	582	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	947	-	-	-	*605	680
Stage 1	-	-	-	-	*493	-
Stage 2	-	-	-	-	*606	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	947	-	-	-	*601	680
Mov Cap-2 Maneuver	-	-	-	-	*547	-
Stage 1	-	-	-	-	*490	-
Stage 2	-	-	-	-	*606	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	11			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	947	-	-	-	-	614
HCM Lane V/C Ratio	0.007	-	-	-	-	0.016
HCM Control Delay (s)	8.8	-	-	-	-	11
HCM Lane LOS	A	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0
Notes						
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon			

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Background
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑			↔				
Traffic Volume (vph)	42	664	53	217	781	77	23	31	89	92	107	55
Future Volume (vph)	42	664	53	217	781	77	23	31	89	92	107	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	722	58	236	849	84	25	34	97	100	116	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	780	0	236	933	0	0	156	0	0	276	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	12.0	30.0		12.0	30.0		18.0	18.0		18.0	18.0	
Total Split (%)	20.0%	50.0%		20.0%	50.0%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	31.8	25.7		35.4	30.9			13.5			13.5	
Actuated g/C Ratio	0.53	0.43		0.59	0.52			0.22			0.22	
v/c Ratio	0.12	0.52		0.55	0.52			0.36			0.79	
Control Delay	5.3	13.9		10.4	11.9			11.5			39.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.3	13.9		10.4	11.9			11.5			39.3	
LOS	A	B		B	B			B			D	
Approach Delay		13.4			11.6			11.5			39.3	
Approach LOS		B			B			B			D	
Queue Length 50th (ft)	5	101		31	122			17			87	
Queue Length 95th (ft)	15	147		57	180			60			#201	
Internal Link Dist (ft)		223			617			752			91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	429	1507		434	1807			429			350	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.52		0.54	0.52			0.36			0.79	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

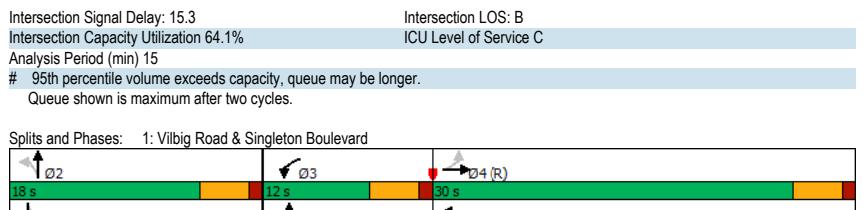
Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Background
Timing Plan: PM



2: Vilbig Road & W Commerce Street
3859-17.399

Phase 2 Background
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	39	135	62	34	61	13	13	51	13	17	325	44	
Future Vol, veh/h	39	135	62	34	61	13	13	51	13	17	325	44	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	42	147	67	37	66	14	14	55	14	18	353	48	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	80	0	0	214	0	0	613	419	181	446	445	73	
Stage 1	-	-	-	-	-	-	265	265	-	147	147	-	
Stage 2	-	-	-	-	-	-	348	154	-	299	298	-	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1518	-	-	1356	-	-	405	525	862	523	508	989	
Stage 1	-	-	-	-	-	-	740	689	-	856	775	-	
Stage 2	-	-	-	-	-	-	668	770	-	710	667	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1518	-	-	1356	-	-	147	494	862	449	478	989	
Mov Cap-2 Maneuver	-	-	-	-	-	-	147	494	-	449	478	-	
Stage 1	-	-	-	-	-	-	716	667	-	829	753	-	
Stage 2	-	-	-	-	-	-	328	748	-	620	646	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	1.2			2.4			15.9			38			
HCM LOS					C		E						
Minor Lane/Major Mvmt													
NBLn1		NBLn2		EBL		EBT		WBL		WBT		WBR	
Capacity (veh/h)	147	541	1518	-	-	1356	-	-	506	-	-	-	-
HCM Lane V/C Ratio	0.096	0.129	0.028	-	-	0.027	-	-	0.829	-	-	-	-
HCM Control Delay (s)	32.1	12.6	7.4	0	-	7.7	0	-	38	-	-	-	-
HCM Lane LOS	D	B	A	A	-	A	A	-	E	-	-	-	-
HCM 95th %tile Q(veh)	0.3	0.4	0.1	-	-	0.1	-	-	8.3	-	-	-	-

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Background
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	11	657	112	70	1013	6	72	1	53	3	0	10	
Future Vol, veh/h	11	657	112	70	1013	6	72	1	53	3	0	10	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	12	714	122	76	1101	7	78	1	58	3	0	11	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	1108	0	0	836	0	0	1502	2059	418	1639	2117	554	
Stage 1	-	-	-	-	-	-	799	799	-	1257	1257	-	
Stage 2	-	-	-	-	-	-	703	1260	-	382	860	-	
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32	
Pot Cap-1 Maneuver	626	-	-	794	-	-	84	54	584	66	50	476	
Stage 1	-	-	-	-	-	-	345	396	-	181	241	-	
Stage 2	-	-	-	-	-	-	394	240	-	612	371	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	626	-	-	794	-	-	~75	48	584	53	44	476	
Mov Cap-2 Maneuver	-	-	-	-	-	-	~75	48	-	53	44	-	
Stage 1	-	-	-	-	-	-	338	388	-	178	218	-	
Stage 2	-	-	-	-	-	-	348	217	-	540	364	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	0.2			0.6			203			28.5			
HCM LOS					F		E			D			
Minor Lane/Major Mvmt													
NBLn1		NBLn2		EBL		EBT		WBL		WBT		WBR	
Capacity (veh/h)	118	626	-	-	794	-	-	167	-	-	-	-	-
HCM Lane V/C Ratio	1.161	0.019	-	-	0.096	-	-	0.085	-	-	-	-	-
HCM Control Delay (s)	203	10.9	-	-	10	-	-	28.5	-	-	-	-	-
HCM Lane LOS	F	B	-	-	B	-	-	D	-	-	-	-	-
HCM 95th %tile Q(veh)	8.4	0.1	-	-	0.3	-	-	0.3	-	-	-	-	-

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

4: Vilbig Road & Muncie Avenue
3859-17.399

Phase 2 Background
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	5	3	2	111	357	6
Future Vol, veh/h	5	3	2	111	357	6
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	5	3	2	121	388	7
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	517	392	395	0	-	0
Stage 1	392	-	-	-	-	-
Stage 2	125	-	-	-	-	-
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	518	657	1164	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	901	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	517	657	1164	-	-	-
Mov Cap-2 Maneuver	517	-	-	-	-	-
Stage 1	682	-	-	-	-	-
Stage 2	901	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	11.5	0.1	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1164	-	562	-	-	-
HCM Lane V/C Ratio	0.002	-	0.015	-	-	-
HCM Control Delay (s)	8.1	0	11.5	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Singleton Boulevard & Chihuahua Avenue
3859-17.399

Phase 2 Background
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑↑	↑↑	↑	↑	↑
Traffic Vol, veh/h	14	829	1010	7	2	11
Future Vol, veh/h	14	829	1010	7	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	15	901	1098	8	2	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	1106	0	-	0	1583	553
Stage 1	-	-	-	-	1102	-
Stage 2	-	-	-	-	481	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	627	-	-	-	*175	477
Stage 1	-	-	-	-	*280	-
Stage 2	-	-	-	-	*713	-
Platoon blocked, %	-	-	-	-	1	-
Mov Cap-1 Maneuver	627	-	-	-	*171	477
Mov Cap-2 Maneuver	-	-	-	-	*234	-
Stage 1	-	-	-	-	*273	-
Stage 2	-	-	-	-	*713	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.2	0	14.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	627	-	-	-	-	411
HCM Lane V/C Ratio	0.024	-	-	-	-	0.034
HCM Control Delay (s)	10.9	-	-	-	-	14.1
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1
Notes						
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*	*: All major volume in platoon		

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑↓	↑	↑	↑↓	↑
Traffic Volume (vph)	39	759	61	120	520	52	69	133	294	34	59	41
Future Volume (vph)	39	759	61	120	520	52	69	133	294	34	59	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	825	66	130	565	57	75	145	320	37	64	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	891	0	130	622	0	0	540	0	0	146	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4			3	8			2			6
Permitted Phases	4				8			2		6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	33.0	33.0		19.0	52.0		28.0	28.0		28.0	28.0	
Total Split (%)	41.3%	41.3%		23.8%	65.0%		35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		Max	Max		Max	Max	
Act Efft Green (s)	37.0	37.0		47.5	47.5			23.5		23.5		
Actuated g/C Ratio	0.46	0.46		0.59	0.59			0.29		0.29		
v/c Ratio	0.12	0.55		0.36	0.30			1.01		0.37		
Control Delay	15.4	17.9		10.1	8.2			66.2		21.2		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	15.4	17.9		10.1	8.2			66.2		21.2		
LOS	B	B		B	A			E		C		
Approach Delay		17.8			8.5			66.2		21.2		
Approach LOS		B			A			E		C		
Queue Length 50th (ft)	12	167		26	70			~232		46		
Queue Length 95th (ft)	34	238		49	97			#441		96		
Internal Link Dist (ft)		223			617			762		91		
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	358	1625		473	2081			537		396		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.12	0.55		0.27	0.30			1.01		0.37		

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

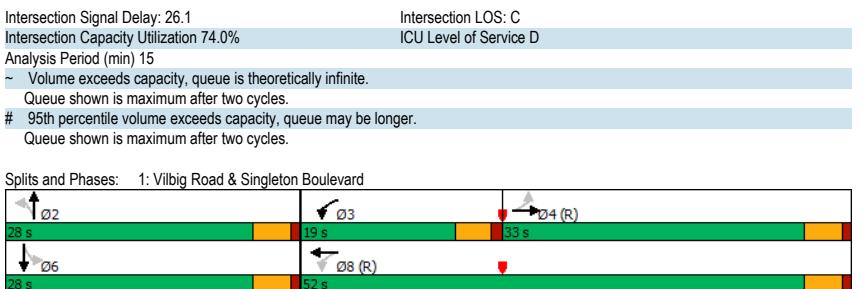
Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: AM



2: Vilbig Road & W Commerce Street
3859-17.399

Phase 2 Buildout
Timing Plan: AM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	136	99	49	4	116	117	68	243	24	25	100	43	
Future Vol, veh/h	136	99	49	4	116	117	68	243	24	25	100	43	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	-	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	148	108	53	4	126	127	74	264	26	27	109	47	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	253	0	0	161	0	0	707	692	135	774	655	190	
Stage 1	-	-	-	-	-	-	431	431	-	198	198	-	
Stage 2	-	-	-	-	-	-	276	261	-	576	457	-	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1312	-	-	1418	-	-	350	367	914	316	386	852	
Stage 1	-	-	-	-	-	-	603	583	-	804	737	-	
Stage 2	-	-	-	-	-	-	730	692	-	503	568	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1312	-	-	1418	-	-	225	320	914	88	337	852	
Mov Cap-2 Maneuver	-	-	-	-	-	-	225	320	-	88	337	-	
Stage 1	-	-	-	-	-	-	528	510	-	704	735	-	
Stage 2	-	-	-	-	-	-	586	690	-	206	497	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	3.9	-	-	0.1	-	-	49.2	-	-	43.7	-	-	-
HCM LOS	-	-	-	-	-	-	E	-	-	E	-	-	-
Minor Lane/Major Mvmt													
NBLn1		NBLn2		EBL		EBT		WBL		WBT		WBR	
Capacity (veh/h)	225	340	1312	-	-	1418	-	-	266	-	-	-	-
HCM Lane V/C Ratio	0.329	0.854	0.113	-	-	0.003	-	-	0.686	-	-	-	-
HCM Control Delay (s)	28.6	54.4	8.1	0	-	7.5	0	-	43.7	-	-	-	-
HCM Lane LOS	D	F	A	A	-	A	A	-	E	-	-	-	-
HCM 95th %tile Q(veh)	1.4	7.8	0.4	-	-	0	-	-	4.6	-	-	-	-

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: AM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	5	963	33	20	493	4	78	0	57	3	2	6	
Future Vol, veh/h	5	963	33	20	493	4	78	0	57	3	2	6	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	-	-	-	None	
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-	0	-	
Grade, %	0	-	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	5	1047	36	22	536	4	85	0	62	3	2	7	
Major/Minor													
Major1		Major2		Minor1		Minor2							
Conflicting Flow All	540	0	0	1083	0	0	1388	1659	542	1116	1675	270	
Stage 1	-	-	-	-	-	-	1075	1075	-	582	582	-	
Stage 2	-	-	-	-	-	-	313	584	-	534	1093	-	
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32	
Pot Cap-1 Maneuver	1025	-	-	640	-	-	102	97	485	162	94	728	
Stage 1	-	-	-	-	-	-	234	294	-	466	497	-	
Stage 2	-	-	-	-	-	-	672	496	-	498	288	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1025	-	-	640	-	-	96	93	485	137	90	728	
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	93	-	137	90	-	
Stage 1	-	-	-	-	-	-	233	293	-	464	480	-	
Stage 2	-	-	-	-	-	-	640	479	-	432	287	-	
Approach													
EB		WB		NB		SB							
HCM Control Delay, s	0	-	-	0.4	-	-	138.9	-	-	23.2	-	-	-
HCM LOS	-	-	-	-	-	-	F	-	-	C	-	-	-
Minor Lane/Major Mvmt													
NBLn1		NBLn2		EBL		EBT		WBL		WBT		WBR	
Capacity (veh/h)	145	1025	-	-	640	-	-	210	-	-	-	-	-
HCM Lane V/C Ratio	1.012	0.005	-	-	0.034	-	-	0.057	-	-	-	-	-
HCM Control Delay (s)	138.9	8.5	-	-	10.8	-	-	23.2	-	-	-	-	-
HCM Lane LOS	F	A	-	-	B	-	-	C	-	-	-	-	-
HCM 95th %tile Q(veh)	7.5	0	-	-	0.1	-	-	0.2	-	-	-	-	-

4: Vilbig Road & Muncie Avenue
3859-17.399

Phase 2 Buildout
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑↑	↑	↑↑
Traffic Vol, veh/h	4	0	2	422	154	1
Future Vol, veh/h	4	0	2	422	154	1
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	4	0	2	459	167	1
Major/Minor						
Minor2		Major1		Major2		
Conflicting Flow All	631	168	168	0	-	0
Stage 1	168	-	-	-	-	-
Stage 2	463	-	-	-	-	-
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	445	876	1410	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	444	876	1410	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Approach						
EB		NB		SB		
HCM Control Delay, s	13.2	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBL		NBT EBLn1		SBT		SBR
Capacity (veh/h)	1410	-	444	-	-	-
HCM Lane V/C Ratio	0.002	-	0.01	-	-	-
HCM Control Delay (s)	7.6	0	13.2	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Site Driveway 2/Chihuahua Avenue & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	EBR	WBL	WBT	WBR
Lane Configurations	↑	↑↑	↑	↑↑	↑	↑↑
Traffic Vol, veh/h	6	1058	13	9	617	3
Future Vol, veh/h	6	1058	13	9	617	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	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	7	1150	14	10	671	3
Major/Minor						
Major1		Major2		Minor1		Minor2
Conflicting Flow All	674	0	0	1164	0	0
Stage 1	-	-	-	-	1171	1171
Stage 2	-	-	-	-	356	694
Critical Hdwy	4.14	-	-	4.14	-	7.54
Critical Hdwy Stg 1	-	-	-	-	6.54	5.54
Critical Hdwy Stg 2	-	-	-	-	6.54	5.54
Follow-up Hdwy	2.22	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	913	-	-	*960	-	*263
Stage 1	-	-	-	-	*127	*642
Stage 2	-	-	-	-	*263	*126
Platoon blocked, %	-	-	-	1	-	1
Mov Cap-1 Maneuver	913	-	-	*960	-	*123
Mov Cap-2 Maneuver	-	-	-	-	*255	*124
Stage 1	-	-	-	-	*255	*124
Stage 2	-	-	-	-	*634	*442
Platoon blocked, %	-	-	-	1	-	1
Mov Cap-1 Maneuver	913	-	-	*960	-	*123
Mov Cap-2 Maneuver	-	-	-	-	*255	*124
Stage 1	-	-	-	-	*600	*526
Stage 2	-	-	-	-	*618	*434
Approach						
EB		WB		NB		SB
HCM Control Delay, s	0		0.1		17.5	11.5
HCM LOS			C		B	
Minor Lane/Major Mvmt						
NBLn1		NBLn2		EBL		EBT
Capacity (veh/h)	255	642	913	-	-	*960
HCM Lane V/C Ratio	0.166	0.044	0.007	-	-	0.01
HCM Control Delay (s)	21.9	10.9	9	-	-	8.8
HCM Lane LOS	C	B	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0.1	0	-	-	0.1
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

7: Site Driveway 3 & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: AM

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑↑	↑↑	↑↑	↑↑
Traffic Vol, veh/h	1062	22	17	562	64	51
Future Vol, veh/h	1062	22	17	562	64	51
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	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	1154	24	18	611	70	55
Major/Minor						
Major1		Major2		Minor1		
Conflicting Flow All	0	0	1178	0	1508	589
Stage 1	-	-	-	-	1166	-
Stage 2	-	-	-	-	342	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	589	-	111	452
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	589	-	106	452
Mov Cap-2 Maneuver	-	-	-	-	200	-
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	691	-
Approach						
EB		WB		NB		
HCM Control Delay, s	0	0.3	0.3	24.2		
HCM LOS				C		
Minor Lane/Major Mvmt						
NBLn1 NBLn2		EBT	EBR	WBL	WBT	
Capacity (veh/h)	200	452	-	-	589	-
HCM Lane V/C Ratio	0.348	0.123	-	-	0.031	-
HCM Control Delay (s)	32.3	14.1	-	-	11.3	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	1.5	0.4	-	-	0.1	-

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑↓	↑	↑	↑↓	↑
Traffic Volume (vph)	42	712	53	232	811	82	23	31	114	100	107	55
Future Volume (vph)	42	712	53	232	811	82	23	31	114	100	107	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	774	58	252	882	89	25	34	124	109	116	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	832	0	252	971	0	0	183	0	0	285	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8		2		2		6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2		2		6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	12.0	30.0		12.0	30.0		18.0	18.0		18.0	18.0	
Total Split (%)	20.0%	50.0%		20.0%	50.0%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	31.8	25.7		35.4	30.9			13.5			13.5	
Actuated g/C Ratio	0.53	0.43		0.59	0.52			0.22			0.22	
v/c Ratio	0.12	0.55		0.61	0.54			0.41			0.86	
Control Delay	5.4	14.4		13.3	12.1			10.8			48.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.4	14.4		13.3	12.1			10.8			48.8	
LOS	A	B		B	B			B			D	
Approach Delay		13.9			12.4			10.8			48.8	
Approach LOS		B			B			B			D	
Queue Length 50th (ft)	5	111		34	129			17			92	
Queue Length 95th (ft)	15	160		#75	190			63			#218	
Internal Link Dist (ft)		223			617			752			91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	416	1507		414	1807			450			331	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.55		0.61	0.54			0.41			0.86	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

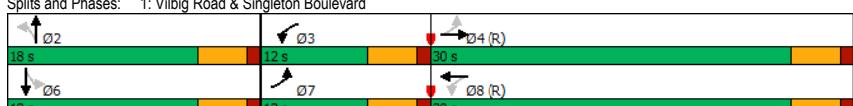
Maximum v/c Ratio: 0.86

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: PM

Intersection Signal Delay: 16.8
Intersection LOS: B
ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Phase 2 Buildout
Timing Plan: PM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	135	62	34	61	21	13	59	13	22	330	49
Future Vol, veh/h	47	135	62	34	61	21	13	59	13	22	330	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	147	67	37	66	23	14	64	14	24	359	53
Major/Minor												
	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	89	0	0	214	0	0	641	446	181	474	468	78
Stage 1	-	-	-	-	-	-	283	283	-	152	152	-
Stage 2	-	-	-	-	-	-	358	163	-	322	316	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1506	-	-	1356	-	-	388	507	862	501	493	983
Stage 1	-	-	-	-	-	-	724	677	-	850	772	-
Stage 2	-	-	-	-	-	-	660	763	-	690	655	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1506	-	-	1356	-	-	125	473	862	419	460	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	473	-	419	460	-
Stage 1	-	-	-	-	-	-	696	651	-	817	750	-
Stage 2	-	-	-	-	-	-	316	741	-	588	629	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s	1.4			2.3			16.9			47.5		
HCM LOS					C			E				
Minor Lane/Major Mvmt												
	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	125	515	1506	-	-	1356	-	-	489			
HCM Lane V/C Ratio	0.113	0.152	0.034	-	-	0.027	-	-	0.891			
HCM Control Delay (s)	37.4	13.2	7.5	0	-	7.7	0	-	47.5			
HCM Lane LOS	E	B	A	A	-	A	A	-	E			
HCM 95th %tile Q(veh)	0.4	0.5	0.1	-	-	0.1	-	-	9.9			

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: PM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	708	83	58	1096	6	55	1	46	3	0	10
Future Vol, veh/h	11	708	83	58	1096	6	55	1	46	3	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	770	90	63	1191	7	60	1	50	3	0	11
Major/Minor												
	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1198	0	0	860	0	0	1561	2163	430	1731	2205	599
Stage 1	-	-	-	-	-	-	839	839	-	1321	1321	-
Stage 2	-	-	-	-	-	-	722	1324	-	410	884	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	578	-	-	1084	-	-	130	53	*807	*89	48	445
Stage 1	-	-	-	-	-	-	666	604	-	*165	224	-
Stage 2	-	-	-	-	-	-	384	224	-	*761	569	-
Platoon blocked, %	-	-	-	-	1	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	578	-	-	1084	-	-	120	49	*807	*77	45	445
Mov Cap-2 Maneuver	-	-	-	-	-	-	120	49	-	*77	45	-
Stage 1	-	-	-	-	-	-	652	591	-	*162	211	-
Stage 2	-	-	-	-	-	-	353	211	-	*698	557	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s	0.2			0.4			47.5			23.2		
HCM LOS					E			C				
Minor Lane/Major Mvmt												
	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	190	578	-	-	1084	-	-	212				
HCM Lane V/C Ratio	0.584	0.021	-	-	0.058	-	-	0.067				
HCM Control Delay (s)	47.5	11.4	-	-	8.5	-	-	23.2				
HCM Lane LOS	E	B	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	3.2	0.1	-	-	0.2	-	-	0.2				

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

4: Vilbig Road & Muncie Avenue
3859-17.399

Phase 2 Buildout
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBC	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	5	3	2	135	372	6
Future Vol, veh/h	5	3	2	135	372	6
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	5	3	2	147	404	7
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	559	408	411	0	-	0
Stage 1	408	-	-	-	-	-
Stage 2	151	-	-	-	-	-
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	490	643	1148	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	489	643	1148	-	-	-
Mov Cap-2 Maneuver	489	-	-	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	11.8	0.1	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1148	-	537	-	-	-
HCM Lane V/C Ratio	0.002	-	0.016	-	-	-
HCM Control Delay (s)	8.1	0	11.8	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Site Driveway 2/Chihuahua Avenue & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: PM

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBC	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	14	868	41	28	1035	7
Future Vol, veh/h	14	868	41	28	1035	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	150	-	-
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	15	943	45	30	1125	8
Major/Minor	Major1	Major2	Minor1	Minor2		
Conflicting Flow All	1133	0	0	988	0	0
Stage 1	-	-	-	-	996	996
Stage 2	-	-	-	-	623	1193
Critical Hdwy	4.14	-	-	4.14	-	7.54
Critical Hdwy Stg 1	-	-	-	-	6.54	6.54
Critical Hdwy Stg 2	-	-	-	-	5.54	5.54
Follow-up Hdwy	2.22	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	612	-	-	1026	-	133
Stage 1	-	-	-	-	603	551
Stage 2	-	-	-	-	440	258
Platoon blocked, %	-	-	-	1	-	1
Mov Cap-1 Maneuver	612	-	-	1026	-	125
Mov Cap-2 Maneuver	-	-	-	-	-	50
Stage 1	-	-	-	-	588	537
Stage 2	-	-	-	-	416	251
Approach	EB	WB	NB	SB		
HCM Control Delay, s	0.2		0.2		28.8	17.4
HCM LOS	B		D		C	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBC	WBL	WBT
Capacity (veh/h)	125	755	612	-	1026	-
HCM Lane V/C Ratio	0.217	0.024	0.025	-	0.03	-
HCM Control Delay (s)	41.6	9.9	11	-	8.6	-
HCM Lane LOS	E	A	B	-	A	-
HCM 95th %tile Q(veh)	0.8	0.1	0.1	-	0.1	-
Notes	<p>~: Volume exceeds capacity \$: Delay exceeds 300s -: Computation Not Defined *: All major volume in platoon</p>					

7: Site Driveway 3 & Singleton Boulevard
3859-17.399

Phase 2 Buildout
Timing Plan: PM

Intersection						
Int Delay, s/veh 0.8						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑	↑
Traffic Vol, veh/h	816	69	55	1021	42	33
Future Vol, veh/h	816	69	55	1021	42	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	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	887	75	60	1110	46	36
Major/Minor						
Major1		Major2		Minor1		
Conflicting Flow All	0	0	962	0	1600	481
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	675	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1059	-	169	*755
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	467	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1059	-	159	*755
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	467	-
Approach						
EB		WB		NB		
HCM Control Delay, s	0		0.4		15.3	
HCM LOS				C		
Minor Lane/Major Mvmt						
NBLn1	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	296	755	-	-	1059	-
HCM Lane V/C Ratio	0.154	0.048	-	-	0.056	-
HCM Control Delay (s)	19.4	10	-	-	8.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.2	-
Notes						
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon			

1: Vilbig Road & Singleton Boulevard
3859-17.399

Background Timing Plan: AM												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑
Traffic Volume (vph)	40	780	63	120	531	53	71	136	301	35	61	42
Future Volume (vph)	40	780	63	120	531	53	71	136	301	35	61	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	848	68	130	577	58	77	148	327	38	66	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	916	0	130	635	0	0	552	0	0	150	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4			3	8			2		6	
Permitted Phases	4				8			2		6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	33.0	33.0		19.0	52.0		28.0	28.0		28.0	28.0	
Total Split (%)	41.3%	41.3%		23.8%	65.0%		35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		Max	Max		Max	Max	
Act Efft Green (s)	37.0	37.0		47.5	47.5			23.5		23.5		
Actuated g/C Ratio	0.46	0.46		0.59	0.59			0.29		0.29		
v/c Ratio	0.12	0.56		0.37	0.31			1.03		0.38		
Control Delay	15.4	18.1		10.3	8.2			72.1		21.6		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	15.4	18.1		10.3	8.2			72.1		21.6		
LOS	B	B		B	A			E		C		
Approach Delay		18.0			8.6			72.1		21.6		
Approach LOS		B			A			E		C		
Queue Length 50th (ft)	12	174		26	72			~263		47		
Queue Length 95th (ft)	35	247		49	100			#456		99		
Internal Link Dist (ft)		223			617			762		91		
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	354	1625		465	2081			537		390		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.12	0.56		0.28	0.31			1.03		0.38		

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

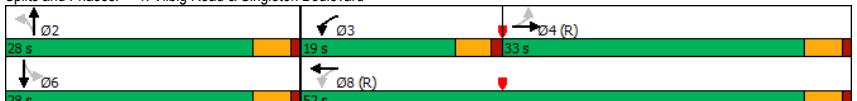
Maximum v/c Ratio: 1.03

1: Vilbig Road & Singleton Boulevard
3859-17.399

Background Timing Plan: AM

Intersection Signal Delay: 27.6
Intersection LOS: C
ICU Level of Service D
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Background
Timing Plan: AM

Intersection															
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Vol, veh/h	139	102	50	4	120	121	70	250	25	25	102	43			
Future Vol, veh/h	139	102	50	4	120	121	70	250	25	25	102	43			
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop			
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None			
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-			
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-			
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-			
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2			
Mvmt Flow	151	111	54	4	130	132	76	272	27	27	111	47			
Major/Minor															
Major1		Major2		Minor1		Minor2									
Conflicting Flow All	262	0	0	165	0	0	723	710	138	794	671	196			
Stage 1	-	-	-	-	-	-	440	440	-	204	204	-			
Stage 2	-	-	-	-	-	-	283	270	-	590	467	-			
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22			
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318			
Pot Cap-1 Maneuver	1302	-	-	1413	-	-	342	359	910	306	378	845			
Stage 1	-	-	-	-	-	-	596	578	-	798	733	-			
Stage 2	-	-	-	-	-	-	724	686	-	494	562	-			
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-			
Mov Cap-1 Maneuver	1302	-	-	1413	-	-	216	312	910	71	328	845			
Mov Cap-2 Maneuver	-	-	-	-	-	-	216	312	-	71	328	-			
Stage 1	-	-	-	-	-	-	519	503	-	695	731	-			
Stage 2	-	-	-	-	-	-	578	684	-	192	490	-			
Approach															
EB			WB			NB			SB						
HCM Control Delay, s	3.9			0.1			56.7			58.2					
HCM LOS				F			F								
Minor Lane/Major Mvmt															
NBLn1		NBLn2		EBL		EBT		WBL		WBT		WBR		SBLn1	
Capacity (veh/h)	216	332	1302	-	-	1413	-	-	238	-	-	-	-	-	
HCM Lane V/C Ratio	0.352	0.9	0.116	-	-	0.003	-	-	0.776	-	-	-	-	-	
HCM Control Delay (s)	30.5	63.4	8.1	0	-	7.6	0	-	58.2	-	-	-	-	-	
HCM Lane LOS	D	F	A	A	-	A	A	-	F	-	-	-	-	-	
HCM 95th %tile Q(veh)	1.5	8.7	0.4	-	-	0	-	-	5.6	-	-	-	-	-	

3: Borger Street & Singleton Boulevard
3859-17.399

Background
Timing Plan: AM

Intersection															
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Vol, veh/h	5	988	34	20	503	4	79	0	58	3	2	6			
Future Vol, veh/h	5	988	34	20	503	4	79	0	58	3	2	6			
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop			
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None			
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-			
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-	0	-			
Grade, %	0	-	-	0	-	-	0	-	0	-	0	-			
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2			
Mvmt Flow	5	1074	37	22	547	4	86	0	63	3	2	7			
Major/Minor															
Major1		Major2		Minor1		Minor2									
Conflicting Flow All	551	0	0	1111	0	0	1422	1698	556	1140	1714	276			
Stage 1	-	-	-	-	-	-	1103	1103	-	593	593	-			
Stage 2	-	-	-	-	-	-	319	595	-	547	1121	-			
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94			
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-			
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32			
Pot Cap-1 Maneuver	1015	-	-	624	-	-	96	91	475	156	89	721			
Stage 1	-	-	-	-	-	-	225	285	-	459	492	-			
Stage 2	-	-	-	-	-	-	667	491	-	489	280	-			
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-			
Mov Cap-1 Maneuver	1015	-	-	624	-	-	90	87	475	131	85	721			
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	87	-	131	85	-			
Stage 1	-	-	-	-	-	-	224	284	-	457	475	-			
Stage 2	-	-	-	-	-	-	635	474	-	422	279	-			
Approach															
EB			WB			NB			SB						
HCM Control Delay, s	0			0.4			165.9			24					
HCM LOS				F			F			C					
Minor Lane/Major Mvmt															
NBLn1		NBLn2		EBL		EBT		WBL		WBT		WBR		SBLn1	
Capacity (veh/h)	137	1015	-	-	624	-	-	201	-	-	-	-	-	-	
HCM Lane V/C Ratio	1.087	0.005	-	-	0.035	-	-	0.059	-	-	-	-	-	-	
HCM Control Delay (s)	165.9	8.6	-	-	11	-	-	24	-	-	-	-	-	-	
HCM Lane LOS	F	A	-	-	B	-	-	C	-	-	-	-	-	-	
HCM 95th %tile Q(veh)	8.3	0	-	-	0.1	-	-	0.2	-	-	-	-	-	-	

4: Vilbig Road & Muncie Avenue
3859-17.399

Background
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	4	0	2	434	156	1
Future Vol, veh/h	4	0	2	434	156	1
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	4	0	2	472	170	1
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	647	171	171	0	-	0
Stage 1	171	-	-	-	-	-
Stage 2	476	-	-	-	-	-
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	436	873	1406	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	435	873	1406	-	-	-
Mov Cap-2 Maneuver	435	-	-	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	13.4	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1406	-	435	-	-	-
HCM Lane V/C Ratio	0.002	-	0.01	-	-	-
HCM Control Delay (s)	7.6	0	13.4	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

6: Site Driveway 2/Chihuahua Avenue & Singleton Boulevard
3859-17.399

Background
Timing Plan: AM

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	EBR	WBL	WBT	WBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	6	1087	13	9	629	3
Future Vol, veh/h	6	1087	13	9	629	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	7	1182	14	10	684	3
Major/Minor	Major1	Major2	Minor1	Minor2		
Conflicting Flow All	687	0	0	1196	0	0
Stage 1	-	-	-	-	1203	1203
Stage 2	-	-	-	-	362	707
Critical Hdwy	4.14	-	-	4.14	-	7.54
Critical Hdwy Stg 1	-	-	-	-	6.54	5.54
Critical Hdwy Stg 2	-	-	-	-	6.54	5.54
Follow-up Hdwy	2.22	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	903	-	-	*960	-	*236
Stage 1	-	-	-	-	*605	*530
Stage 2	-	-	-	-	*629	*436
Platoon blocked, %	-	-	-	1	-	1
Mov Cap-1 Maneuver	903	-	-	*960	-	*230
Mov Cap-2 Maneuver	-	-	-	-	-	*112
Stage 1	-	-	-	-	-	*446
Stage 2	-	-	-	-	-	*110
Platoon blocked, %	-	-	-	1	-	1
Mov Cap-1 Maneuver	903	-	-	*960	-	*230
Mov Cap-2 Maneuver	-	-	-	-	-	*112
Stage 1	-	-	-	-	-	*446
Stage 2	-	-	-	-	-	*110
Approach	EB	WB	NB	SB		
HCM Control Delay, s	0	0.1	18.9	11.8		
HCM LOS	C	B				
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL
Capacity (veh/h)	230	642	903	-	-	*960
HCM Lane V/C Ratio	0.184	0.044	0.007	-	-	0.01
HCM Control Delay (s)	24.2	10.9	9	-	-	8.8
HCM Lane LOS	C	B	A	-	-	B
HCM 95th %tile Q(veh)	0.7	0.1	0	-	-	0.1
Notes	<p>~: Volume exceeds capacity \$: Delay exceeds 300s -: Computation Not Defined *: All major volume in platoon</p>					

7: Site Driveway 3 & Singleton Boulevard
3859-17.399

Background
Timing Plan: AM

Intersection						
	Int Delay, s/veh 1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Vol, veh/h	1091	22	17	573	64	51
Future Vol, veh/h	1091	22	17	573	64	51
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	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	1186	24	18	623	70	55
Major/Minor						
	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1210	0	1546	605
Stage 1	-	-	-	-	1198	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	572	-	105	441
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	686	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	572	-	100	441
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	237	-
Stage 2	-	-	-	-	686	-
Approach						
	EB	WB	NB			
HCM Control Delay, s	0	0.3	25.3			
HCM LOS			D			
Minor Lane/Major Mvmt						
	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	192	441	-	-	572	-
HCM Lane V/C Ratio	0.362	0.126	-	-	0.032	-
HCM Control Delay (s)	34	14.3	-	-	11.5	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	1.5	0.4	-	-	0.1	-

1: Vilbig Road & Singleton Boulevard
3859-17.399

Background
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	43	729	55	237	832	84	24	32	115	102	110	57
Future Volume (vph)	43	729	55	237	832	84	24	32	115	102	110	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	792	60	258	904	91	26	35	125	111	120	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	852	0	258	995	0	0	186	0	0	293	0
Turn Type	pm+pt	NA	pm+pt	NA		Perm	NA		Perm	NA		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5	22.5	22.5	22.5	
Total Split (s)	12.0	30.0		12.0	30.0		18.0	18.0	18.0	18.0	18.0	
Total Split (%)	20.0%	50.0%		20.0%	50.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max	Max	Max	Max	
Act Effct Green (s)	31.8	25.6		35.4	30.9			13.5		13.5		
Actuated g/C Ratio	0.53	0.43		0.59	0.52			0.22		0.22		
v/c Ratio	0.13	0.57		0.64	0.55			0.41		0.89		
Control Delay	5.4	14.6		15.1	12.3			11.0		52.9		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	5.4	14.6		15.1	12.3			11.0		52.9		
LOS	A	B		B	B			B		D		
Approach Delay		14.1			12.9			11.0		52.9		
Approach LOS		B			B			B		D		
Queue Length 50th (ft)	6	114		35	134			18		96		
Queue Length 95th (ft)	15	164		#101	197			64		#226		
Internal Link Dist (ft)		223			617			752		91		
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	408	1504		405	1807			449		330		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.12	0.57		0.64	0.55			0.41		0.89		

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%). Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

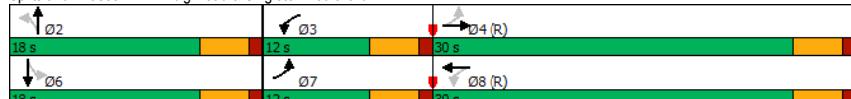
Maximum v/c Ratio: 0.89

1: Vilbig Road & Singleton Boulevard
3859-17.399

Background
Timing Plan: PM

Intersection Signal Delay: 17.6
Intersection LOS: B
ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Background
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	47	139	64	35	63	21	14	60	14	22	340	50	
Future Vol, veh/h	47	139	64	35	63	21	14	60	14	22	340	50	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	51	151	70	38	68	23	15	65	15	24	370	54	
Major/Minor													
Major/Minor	Major1		Major2		Minor1		Minor2						
Conflicting Flow All	91	0	0	221	0	0	656	455	186	484	479	80	
Stage 1	-	-	-	-	-	-	288	288	-	156	156	-	
Stage 2	-	-	-	-	-	-	368	167	-	328	323	-	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1504	-	-	1348	-	-	379	501	856	493	486	980	
Stage 1	-	-	-	-	-	-	720	674	-	846	769	-	
Stage 2	-	-	-	-	-	-	652	760	-	685	650	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1504	-	-	1348	-	-	110	467	856	411	453	980	
Mov Cap-2 Maneuver	-	-	-	-	-	-	110	467	-	411	453	-	
Stage 1	-	-	-	-	-	-	692	648	-	813	746	-	
Stage 2	-	-	-	-	-	-	301	737	-	582	625	-	
Approach													
Approach	EB		WB		NB		SB						
HCM Control Delay, s	1.4	2.3		18.1		54.6							
HCM LOS		C		F									
Minor Lane/Major Mvmt													
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	110	511	1504	-	-	1348	-	-	482				
HCM Lane V/C Ratio	0.138	0.157	0.034	-	-	0.028	-	-	0.929				
HCM Control Delay (s)	42.9	13.4	7.5	0	-	7.7	0	-	54.6				
HCM Lane LOS	E	B	A	A	-	A	A	-	F				
HCM 95th %tile Q(veh)	0.5	0.6	0.1	-	-	0.1	-	-	11				

3: Borger Street & Singleton Boulevard
3859-17.399

Background
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	12	724	84	58	1124	6	56	1	46	3	0	11	
Future Vol, veh/h	12	724	84	58	1124	6	56	1	46	3	0	11	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	13	787	91	63	1222	7	61	1	50	3	0	12	
Major/Minor													
Major/Minor	Major1		Major2		Minor1		Minor2						
Conflicting Flow All	1229	0	0	878	0	0	1596	2214	439	1772	2256	615	
Stage 1	-	-	-	-	-	-	859	859	-	1352	1352	-	
Stage 2	-	-	-	-	-	-	737	1355	-	420	904	-	
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32	
Pot Cap-1 Maneuver	563	-	-	765	-	-	71	43	566	53	41	434	
Stage 1	-	-	-	-	-	-	317	371	-	158	217	-	
Stage 2	-	-	-	-	-	-	376	216	-	581	354	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	563	-	-	765	-	-	64	39	566	44	37	434	
Mov Cap-2 Maneuver	-	-	-	-	-	-	64	39	-	44	37	-	
Stage 1	-	-	-	-	-	-	310	362	-	154	199	-	
Stage 2	-	-	-	-	-	-	336	198	-	516	346	-	
Approach													
Approach	EB		WB		NB		SB						
HCM Control Delay, s	0.2	0.5		183.3		31.7							
HCM LOS		F		D									
Minor Lane/Major Mvmt													
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	105	563	-	-	765	-	-	150					
HCM Lane V/C Ratio	1.066	0.023	-	-	0.082	-	-	0.101					
HCM Control Delay (s)	183.3	11.5	-	-	10.1	-	-	31.7					
HCM Lane LOS	F	B	-	-	B	-	-	D					
HCM 95th %tile Q(veh)	6.9	0.1	-	-	0.3	-	-	0.3					

4: Vilbig Road & Muncie Avenue
3859-17.399

Background
Timing Plan: PM

Intersection						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	5	3	2	137	382	6
Future Vol, veh/h	5	3	2	137	382	6
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	5	3	2	149	415	7
Major/Minor						
Minor2		Major1		Major2		
Conflicting Flow All	572	419	422	0	-	0
Stage 1	419	-	-	-	-	-
Stage 2	153	-	-	-	-	-
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	482	634	1137	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	481	634	1137	-	-	-
Mov Cap-2 Maneuver	481	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Approach						
EB		NB		SB		
HCM Control Delay, s	11.9	0.1	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBL		NBT EBLn1		SBT SBR		
Capacity (veh/h)	1137	-	529	-	-	
HCM Lane V/C Ratio	0.002	-	0.016	-	-	
HCM Control Delay (s)	8.2	0	11.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

6: Site Driveway 2/Chihuahua Avenue & Singleton Boulevard
3859-17.399

Background
Timing Plan: PM

Intersection						
Movement	EBL	EBT	EBR	WBL	WBT	WBR
Lane Configurations	↑	↑↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	15	888	41	28	1062	7
Future Vol, veh/h	15	888	41	28	1062	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	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	16	965	45	30	1154	8
Major/Minor						
Major1		Major2		Minor1		Minor2
Conflicting Flow All	1162	0	0	1010	0	0
Stage 1	-	-	-	-	-	1020
Stage 2	-	-	-	-	-	637
Critical Hdwy	4.14	-	-	4.14	-	7.54
Critical Hdwy Stg 1	-	-	-	-	-	6.54
Critical Hdwy Stg 2	-	-	-	-	-	6.54
Follow-up Hdwy	2.22	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	597	-	-	999	-	121
Stage 1	-	-	-	-	-	575
Stage 2	-	-	-	-	-	432
Platoon blocked, %	-	-	-	1	-	1
Mov Cap-1 Maneuver	597	-	-	999	-	108
Mov Cap-2 Maneuver	-	-	-	-	-	42
Stage 1	-	-	-	-	-	560
Stage 2	-	-	-	-	-	384
Approach						
EB		WB		NB		SB
HCM Control Delay, s	0.2		0.2		33.3	18.1
HCM LOS	D		C			
Minor Lane/Major Mvmt						
NBLn1		NBLn2		EBL		EBT
Capacity (veh/h)	108	755	597	-	999	-
HCM Lane V/C Ratio	0.252	0.024	0.027	-	0.03	-
HCM Control Delay (s)	49.2	9.9	11.2	-	8.7	-
HCM Lane LOS	E	A	B	-	A	-
HCM 95th %tile Q(veh)	0.9	0.1	0.1	-	0.1	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

7: Site Driveway 3 & Singleton Boulevard
3859-17.399

Background
Timing Plan: PM

Intersection										
	Int Delay, s/veh	1								
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑	↑	↑↑	↑	↑	↑				
Traffic Vol, veh/h	836	69	55	1048	42	33				
Future Vol, veh/h	836	69	55	1048	42	33				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	-	-	150	-	0	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	909	75	60	1139	46	36				
Major/Minor										
	Major1	Major2	Minor1							
Conflicting Flow All	0	0	984	0	1637	492				
Stage 1	-	-	-	-	947	-				
Stage 2	-	-	-	-	690	-				
Critical Hdwy	-	-	4.14	-	6.84	6.94				
Critical Hdwy Stg 1	-	-	-	-	5.84	-				
Critical Hdwy Stg 2	-	-	-	-	5.84	-				
Follow-up Hdwy	-	-	2.22	-	3.52	3.32				
Pot Cap-1 Maneuver	-	-	698	-	91	522				
Stage 1	-	-	-	-	337	-				
Stage 2	-	-	-	-	459	-				
Platoon blocked, %	-	-	-	-	-	-				
Mov Cap-1 Maneuver	-	-	698	-	83	522				
Mov Cap-2 Maneuver	-	-	-	-	196	-				
Stage 1	-	-	-	-	308	-				
Stage 2	-	-	-	-	459	-				
Approach										
	EB	WB	NB							
HCM Control Delay, s	0	0.5	21.6							
HCM LOS	C									
Minor Lane/Major Mvmt										
	NBLn1	NBLn2	EBT	EBR	WBL	WBT				
Capacity (veh/h)	196	522	-	-	698	-				
HCM Lane V/C Ratio	0.233	0.069	-	-	0.086	-				
HCM Control Delay (s)	28.9	12.4	-	-	10.6	-				
HCM Lane LOS	D	B	-	-	B	-				
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0.3	-				

1: Vilbig Road & Singleton Boulevard
3859-17.399

Buildout Timing Plan: AM												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑↓	↑	↑	↑↓	↑
Traffic Volume (vph)	40	783	77	103	540	61	114	136	295	38	61	42
Future Volume (vph)	40	783	77	103	540	61	114	136	295	38	61	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	851	84	112	587	66	124	148	321	41	66	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	935	0	112	653	0	0	593	0	0	153	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4			3	8			2		6	
Permitted Phases	4				8			2		6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	33.0	33.0		19.0	52.0		28.0	28.0		28.0	28.0	
Total Split (%)	41.3%	41.3%		23.8%	65.0%		35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	37.4	37.4		47.5	47.5			23.5		23.5		
Actuated g/C Ratio	0.47	0.47		0.59	0.59			0.29		0.29		
v/c Ratio	0.12	0.57		0.33	0.31			1.19		0.40		
Control Delay	15.2	17.9		9.8	8.2			128.2		22.1		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	15.2	17.9		9.8	8.2			128.2		22.1		
LOS	B	B		A	A			F		C		
Approach Delay		17.8			8.5			128.2		22.1		
Approach LOS		B			A			F		C		
Queue Length 50th (ft)	12	176		22	74			~335		49		
Queue Length 95th (ft)	34	250		43	103			#533		102		
Internal Link Dist (ft)				223		617			762		91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	351	1639		462	2080			500		385		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.12	0.57		0.24	0.31			1.19		0.40		

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

1: Vilbig Road & Singleton Boulevard
3859-17.399

Intersection Signal Delay: 41.5	Intersection LOS: D
Intersection Capacity Utilization 79.3%	ICU Level of Service D
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Buildout
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	142	102	50	4	120	123	70	253	25	34	111	51
Future Vol, veh/h	142	102	50	4	120	123	70	253	25	34	111	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	-	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	154	111	54	4	130	134	76	275	27	37	121	55
Major/Minor												
Major	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	264	0	0	165	0	0	739	718	138	802	678	197
Stage 1	-	-	-	-	-	-	446	446	-	205	205	-
Stage 2	-	-	-	-	-	-	293	272	-	597	473	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1300	-	-	1413	-	-	333	355	910	302	374	844
Stage 1	-	-	-	-	-	-	591	574	-	797	732	-
Stage 2	-	-	-	-	-	-	715	685	-	490	558	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1300	-	-	1413	-	-	200	307	910	62	324	844
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	307	-	62	324	-
Stage 1	-	-	-	-	-	-	514	499	-	693	730	-
Stage 2	-	-	-	-	-	-	556	683	-	185	485	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s	3.9		0.1		62.2		120.7					
HCM LOS			F		F							
Minor Lane/Major Mvmt												
	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	200	326	1300	-	-	1413	-	-	206			
HCM Lane V/C Ratio	0.38	0.927	0.119	-	-	0.003	-	-	1.034			
HCM Control Delay (s)	33.6	69.4	8.1	0	-	7.6	0	-	120.7			
HCM Lane LOS	D	F	A	A	-	A	A	-	F			
HCM 95th %tile Q(veh)	1.7	9.3	0.4	-	-	0	-	-	9.4			

3: Borger Street & Singleton Boulevard
3859-17.399

Buildout
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1040	32	26	519	4	75	0	75	3	2	6
Future Vol, veh/h	5	1040	32	26	519	4	75	0	75	3	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	-	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	1130	35	28	564	4	82	0	82	3	2	7
Major/Minor												
Major	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	568	0	0	1165	0	0	1497	1782	583	1197	1797	284
Stage 1	-	-	-	-	-	-	1158	1158	-	622	622	-
Stage 2	-	-	-	-	-	-	339	624	-	575	1175	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1000	-	-	595	-	-	85	81	456	141	79	713
Stage 1	-	-	-	-	-	-	208	269	-	441	477	-
Stage 2	-	-	-	-	-	-	649	476	-	470	264	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1000	-	-	595	-	-	~79	77	456	111	75	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	~79	77	-	111	75	-
Stage 1	-	-	-	-	-	-	207	268	-	439	455	-
Stage 2	-	-	-	-	-	-	610	454	-	384	263	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s	0		0.5		207.5		26.8					
HCM LOS			F		D							
Minor Lane/Major Mvmt												
	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	135	1000	-	-	595	-	-	177				
HCM Lane V/C Ratio	1.208	0.005	-	-	0.047	-	-	0.068				
HCM Control Delay (s)	207.5	8.6	-	-	11.4	-	-	26.8				
HCM Lane LOS	F	A	-	-	B	-	-	D				
HCM 95th %tile Q(veh)	9.8	0	-	-	0.1	-	-	0.2				

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

4: Vilbig Road & Muncie Avenue/Site Driveway 1
3859-17.399

Buildout
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	43	0	22	2	428	14	7	139	1
Future Vol, veh/h	4	0	0	43	0	22	2	428	14	7	139	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	0	47	0	24	2	465	15	8	151	1
Major/Minor												
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	657	-	-	645	-	473	152	0	0	480	0	0
Stage 1	168	-	-	477	-	-	-	-	-	-	-	-
Stage 2	489	-	-	168	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	-	-	7.12	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	-	3.518	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	378	0	0	385	0	591	1429	-	-	1082	-	-
Stage 1	834	0	0	569	0	-	-	-	-	-	-	-
Stage 2	561	0	0	834	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	360	-	-	382	-	591	1429	-	-	1082	-	-
Mov Cap-2 Maneuver	360	-	-	382	-	-	-	-	-	-	-	-
Stage 1	832	-	-	568	-	-	-	-	-	-	-	-
Stage 2	537	-	-	827	-	-	-	-	-	-	-	-
Approach												
Approach	EB	WB	NB	SB								
HCM Control Delay, s	15.1	-	14.2	-	0	-	0.4	-	-	-	-	-
HCM LOS	C	-	B	-	-	-	-	-	-	-	-	-
Minor Lane/Major Mvmt												
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBlN1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1429	-	-	360	382	591	1082	-	-	-	-	-
HCM Lane V/C Ratio	0.002	-	-	0.012	0.122	0.04	0.007	-	-	-	-	-
HCM Control Delay (s)	7.5	0	-	15.1	15.7	11.3	8.4	0	-	-	-	-
HCM Lane LOS	A	A	-	C	C	B	A	A	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0.1	0	-	-	-	-	-

6: Site Driveway 2/Chihuahua Avenue & Singleton Boulevard
3859-17.399

Buildout
Timing Plan: AM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1078	21	14	603	3	65	0	43	4	0	5
Future Vol, veh/h	6	1078	21	14	603	3	65	0	43	4	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	1172	23	15	655	3	71	0	47	4	0	5
Major/Minor												
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	658	0	0	1195	0	0	1556	1886	598	1287	1896	329
Stage 1	-	-	-	-	-	-	1198	1198	-	687	687	-
Stage 2	-	-	-	-	-	-	358	688	-	600	1209	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	926	-	-	*960	-	-	*242	*121	*642	*508	*119	667
Stage 1	-	-	-	-	-	-	*605	*530	-	*403	*446	-
Stage 2	-	-	-	-	-	-	*633	*445	-	*605	*530	-
Platoon blocked, %	-	-	-	1	-	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	926	-	-	*960	-	-	*234	*117	*642	*459	*115	667
Mov Cap-2 Maneuver	-	-	-	-	-	-	*234	*117	-	*459	*115	-
Stage 1	-	-	-	-	-	-	*600	*526	-	*400	*435	-
Stage 2	-	-	-	-	-	-	*612	*434	-	*557	*526	-
Approach												
Approach	EB	WB	NB	SB								
HCM Control Delay, s	0	-	0.2	-	20.6	-	11.6	-	-	-	-	-
HCM LOS	C	-	B	-	-	-	-	-	-	-	-	-
Minor Lane/Major Mvmt												
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBl	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	234	642	926	-	-	*960	-	-	555	-	-	-
HCM Lane V/C Ratio	0.302	0.073	0.007	-	-	0.016	-	-	0.018	-	-	-
HCM Control Delay (s)	26.9	11	8.9	-	-	8.8	-	-	11.6	-	-	-
HCM Lane LOS	D	B	A	-	-	A	-	-	B	-	-	-
HCM 95th %tile Q(veh)	1.2	0.2	0	-	-	0	-	-	0.1	-	-	-

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

7: Site Driveway 3 & Singleton Boulevard
3859-17.399

Buildout
Timing Plan: AM

Intersection						
	Int Delay, s/veh					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Vol, veh/h	1107	14	28	574	43	86
Future Vol, veh/h	1107	14	28	574	43	86
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	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	1203	15	30	624	47	93
Major/Minor						
	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1218	0	1583	609
Stage 1	-	-	-	-	1211	-
Stage 2	-	-	-	-	372	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	568	-	99	438
Stage 1	-	-	-	-	245	-
Stage 2	-	-	-	-	667	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	568	-	91	438
Mov Cap-2 Maneuver	-	-	-	-	181	-
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	667	-
Approach						
	EB	WB	NB			
HCM Control Delay, s	0	0.5	20.8			
HCM LOS			C			
Minor Lane/Major Mvmt						
	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	181	438	-	-	568	-
HCM Lane V/C Ratio	0.258	0.213	-	-	0.054	-
HCM Control Delay (s)	31.7	15.4	-	-	11.7	-
HCM Lane LOS	D	C	-	-	B	-
HCM 95th %tile Q(veh)	1	0.8	-	-	0.2	-

1: Vilbig Road & Singleton Boulevard
3859-17.399

Buildout
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	43	735	99	226	836	89	51	32	95	111	110	57
Future Volume (vph)	43	735	99	226	836	89	51	32	95	111	110	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	799	108	246	909	97	55	35	103	121	120	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	907	0	246	1006	0	0	193	0	0	303	0
Turn Type	pm+pt	NA	pm+pt	NA		Perm	NA		Perm	NA		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	9.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	12.0	30.0	12.0	30.0		18.0	18.0	18.0	18.0	18.0	18.0	
Total Split (%)	20.0%	50.0%	20.0%	50.0%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0				0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5			4.5			4.5		
Lead/Lag	Lead	Lag	Lead	Lag								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	None	C-Max	None	C-Max		Max	Max	Max	Max	Max	Max	
Act Effct Green (s)	31.8	25.7	35.4	30.9		13.5						
Actuated g/C Ratio	0.53	0.43	0.59	0.52		0.22						
v/c Ratio	0.13	0.60	0.64	0.56		0.51						
Control Delay	5.5	14.9	15.9	12.4		16.7						
Queue Delay	0.0	0.0	0.0	0.0		0.0						
Total Delay	5.5	14.9	15.9	12.4		16.7						
LOS	A	B	B	B		B				E		
Approach Delay		14.4		13.0		16.7				59.4		
Approach LOS		B		B		B				E		
Queue Length 50th (ft)	6	122	33	135		32				101		
Queue Length 95th (ft)	15	175	#102	199		85				#238		
Internal Link Dist (ft)		223		617		752				91		
Turn Bay Length (ft)	150		150									
Base Capacity (vph)	404	1504	387	1808		381				328		
Starvation Cap Reductn	0	0	0	0		0				0		
Spillback Cap Reductn	0	0	0	0		0				0		
Storage Cap Reductn	0	0	0	0		0				0		
Reduced v/c Ratio	0.12	0.60	0.64	0.56		0.51				0.92		

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

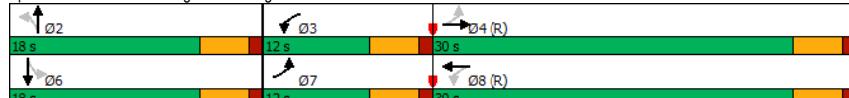
Maximum v/c Ratio: 0.92

1: Vilbig Road & Singleton Boulevard
3859-17.399

Buildout
Timing Plan: PM

Intersection Signal Delay: 19.0
Intersection LOS: B
Intersection Capacity Utilization 70.7%
ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



2: Vilbig Road & W Commerce Street
3859-17.399

Buildout
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	55	139	64	35	63	29	14	69	14	27	345	55	
Future Vol, veh/h	55	139	64	35	63	29	14	69	14	27	345	55	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	60	151	70	38	68	32	15	75	15	29	375	60	
Major/Minor													
Major/Minor	Major1		Major2		Minor1		Minor2						
Conflicting Flow All	100	0	0	221	0	0	684	482	186	511	501	84	
Stage 1	-	-	-	-	-	-	306	306	-	160	160	-	
Stage 2	-	-	-	-	-	-	378	176	-	351	341	-	
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1493	-	-	1348	-	-	363	484	856	473	472	975	
Stage 1	-	-	-	-	-	-	704	662	-	842	766	-	
Stage 2	-	-	-	-	-	-	644	753	-	666	639	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1493	-	-	1348	-	-	89	448	856	382	437	975	
Mov Cap-2 Maneuver	-	-	-	-	-	-	89	448	-	382	437	-	
Stage 1	-	-	-	-	-	-	672	632	-	803	743	-	
Stage 2	-	-	-	-	-	-	290	730	-	550	610	-	
Approach													
Approach	EB		WB		NB		SB						
HCM Control Delay, s	1.6	2.1		19.8		70.7							
HCM LOS		C		F									
Minor Lane/Major Mvmt													
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	SBLn4	
Capacity (veh/h)	89	487	1493	-	-	1348	-	-	466	-	-	-	
HCM Lane V/C Ratio	0.171	0.185	0.04	-	-	0.028	-	-	0.996	-	-	-	
HCM Control Delay (s)	53.6	14.1	7.5	0	-	7.7	0	-	70.7	-	-	-	
HCM Lane LOS	F	B	A	A	-	A	A	-	F	-	-	-	
HCM 95th %tile Q(veh)	0.6	0.7	0.1	-	-	0.1	-	-	13.1	-	-	-	

3: Borger Street & Singleton Boulevard
3859-17.399

Buildout
Timing Plan: PM

Intersection													
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	12	755	78	75	1174	6	53	1	57	3	0	11	
Future Vol, veh/h	12	755	78	75	1174	6	53	1	57	3	0	11	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	13	821	85	82	1276	7	58	1	62	3	0	12	
Major/Minor													
Major/Minor	Major1		Major2		Minor1		Minor2						
Conflicting Flow All	1283	0	0	906	0	0	1692	2337	453	1881	2376	642	
Stage 1	-	-	-	-	-	-	890	890	-	1444	1444	-	
Stage 2	-	-	-	-	-	-	802	1447	-	437	932	-	
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-	
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32	
Pot Cap-1 Maneuver	537	-	-	747	-	-	60	36	554	44	34	417	
Stage 1	-	-	-	-	-	-	304	359	-	139	195	-	
Stage 2	-	-	-	-	-	-	344	195	-	568	343	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	537	-	-	747	-	-	~52	31	554	34	30	417	
Mov Cap-2 Maneuver	-	-	-	-	-	-	~52	31	-	34	30	-	
Stage 1	-	-	-	-	-	-	297	350	-	136	174	-	
Stage 2	-	-	-	-	-	-	297	174	-	491	335	-	
Approach													
Approach	EB		WB		NB		SB						
HCM Control Delay, s	0.2	0.6		257		38.7							
HCM LOS		F		E									
Minor Lane/Major Mvmt													
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBC	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	SBLn4	
Capacity (veh/h)	96	537	-	-	747	-	-	122	-	-	-	-	
HCM Lane V/C Ratio	1.257	0.024	-	-	0.109	-	-	0.125	-	-	-	-	
HCM Control Delay (s)	257	11.9	-	-	10.4	-	-	38.7	-	-	-	-	
HCM Lane LOS	F	B	-	-	B	-	-	E	-	-	-	-	
HCM 95th %tile Q(veh)	8.4	0.1	-	-	0.4	-	-	0.4	-	-	-	-	
Notes													
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon													

4: Vilbig Road & Muncie Avenue/Site Driveway 1
3859-17.399

Buildout
Timing Plan: PM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	3	27	0	13	2	117	44	22	371	6
Future Vol, veh/h	5	0	3	27	0	13	2	117	44	22	371	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	3	29	0	14	2	127	48	24	403	7
Major/Minor												
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	617	-	407	611	-	151	410	0	0	175	0	0
Stage 1	455	-	-	155	-	-	-	-	-	-	-	-
Stage 2	162	-	-	456	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	-	6.22	7.12	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.318	3.518	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	402	0	644	406	0	895	1149	-	-	1401	-	-
Stage 1	585	0	-	847	0	-	-	-	-	-	-	-
Stage 2	840	0	-	584	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	388	-	644	397	-	895	1149	-	-	1401	-	-
Mov Cap-2 Maneuver	388	-	-	397	-	-	-	-	-	-	-	-
Stage 1	584	-	-	845	-	-	-	-	-	-	-	-
Stage 2	825	-	-	568	-	-	-	-	-	-	-	-
Approach												
Approach	EB	WB	NB	SB								
HCM Control Delay, s	13	-	12.9	-	0.1	-	0.4	-	-	-	-	-
HCM LOS	B	-	B	-								
Minor Lane/Major Mvmt												
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBlN1	WBln1	WBln2	SBL	SBT	SBR			
Capacity (veh/h)	1149	-	-	456	397	895	1401	-	-	-	-	-
HCM Lane V/C Ratio	0.002	-	-	0.019	0.074	0.016	0.017	-	-	-	-	-
HCM Control Delay (s)	8.1	0	-	13	14.8	9.1	7.6	0	-	-	-	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	0.1	-	-	-	-	-

6: Site Driveway 2/Chihuahua Avenue & Singleton Boulevard
3859-17.399

Buildout
Timing Plan: PM

Intersection												
Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	858	66	44	1044	7	40	0	27	2	0	12
Future Vol, veh/h	15	858	66	44	1044	7	40	0	27	2	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	933	72	48	1135	8	43	0	29	2	0	13
Major/Minor												
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	1143	0	0	1005	0	0	1665	2240	503	1734	2272	572
Stage 1	-	-	-	-	-	-	1001	1001	-	1235	1235	-
Stage 2	-	-	-	-	-	-	664	1239	-	499	1037	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	607	-	-	1005	-	-	119	47	*755	*100	44	463
Stage 1	-	-	-	-	-	-	597	547	-	*187	247	-
Stage 2	-	-	-	-	-	-	416	246	-	*712	520	-
Platoon blocked, %	-	-	-	1	-	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	607	-	-	1005	-	-	102	40	*755	*85	37	463
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	40	-	*85	37	-
Stage 1	-	-	-	-	-	-	581	533	-	*182	215	-
Stage 2	-	-	-	-	-	-	351	214	-	*666	506	-
Approach												
Approach	EB	WB	NB	SB								
HCM Control Delay, s	0.2	-	0.4	-	42.4	-	18.4	-	-	-	-	-
HCM LOS	E	-	C	-								
Minor Lane/Major Mvmt												
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBl	EBT	EBC	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	102	755	607	-	-	1005	-	-	283	-	-	-
HCM Lane V/C Ratio	0.426	0.039	0.027	-	-	0.048	-	-	0.054	-	-	-
HCM Control Delay (s)	64.3	10	11.1	-	-	8.8	-	-	18.4	-	-	-
HCM Lane LOS	F	B	B	-	-	A	-	-	C	-	-	-
HCM 95th %tile Q(veh)	1.8	0.1	0.1	-	-	0.1	-	-	0.2	-	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

7: Site Driveway 3 & Singleton Boulevard
3859-17.399

Buildout
Timing Plan: PM

Intersection						
Int Delay, s/veh 1.1						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Vol, veh/h	840	44	88	1061	27	54
Future Vol, veh/h	840	44	88	1061	27	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	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	913	48	96	1153	29	59
Major/Minor						
Major1		Major2		Minor1		
Conflicting Flow All	0	0	961	0	1706	481
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	769	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	712	-	82	531
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	418	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	712	-	71	531
Mov Cap-2 Maneuver	-	-	-	-	173	-
Stage 1	-	-	-	-	296	-
Stage 2	-	-	-	-	418	-
Approach						
EB		WB		NB		
HCM Control Delay, s	0	0.8	0.8	0.8	18.4	18.4
HCM LOS	C					
Minor Lane/Major Mvmt						
NBLn1 NBLn2		EBT	EBR	WBL	WBT	
Capacity (veh/h)	173	531	-	-	712	-
HCM Lane V/C Ratio	0.17	0.111	-	-	0.134	-
HCM Control Delay (s)	30	12.6	-	-	10.8	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	0.6	0.4	-	-	0.5	-

1: Vilbig Road & Singleton Boulevard
3859-17.399

Horizon
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑			↔				
Traffic Volume (vph)	42	819	79	105	559	63	117	142	309	40	63	44
Future Volume (vph)	42	819	79	105	559	63	117	142	309	40	63	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	890	86	114	608	68	127	154	336	43	68	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	976	0	114	676	0	0	617	0	0	159	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4			3	8			2			6
Permitted Phases	4				8			2		6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	33.0	33.0		19.0	52.0		28.0	28.0		28.0	28.0	
Total Split (%)	41.3%	41.3%		23.8%	65.0%		35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		Max	Max		Max	Max	
Act Efft Green (s)	37.3	37.3		47.5	47.5			23.5		23.5		
Actuated g/C Ratio	0.47	0.47		0.59	0.59			0.29		0.29		
v/c Ratio	0.13	0.60		0.35	0.33			1.24		0.42		
Control Delay	15.4	18.4		10.1	8.3			148.3		22.7		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	15.4	18.4		10.1	8.3			148.3		22.7		
LOS	B	B		B	A			F		C		
Approach Delay		18.2			8.6			148.3		22.7		
Approach LOS		B			A			F		C		
Queue Length 50th (ft)	13	188		22	77			~362		52		
Queue Length 95th (ft)	36	265		44	107			#562		107		
Internal Link Dist (ft)		223			617			762		91		
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	343	1637		450	2080			499		376		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.13	0.60		0.25	0.33			1.24		0.42		

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

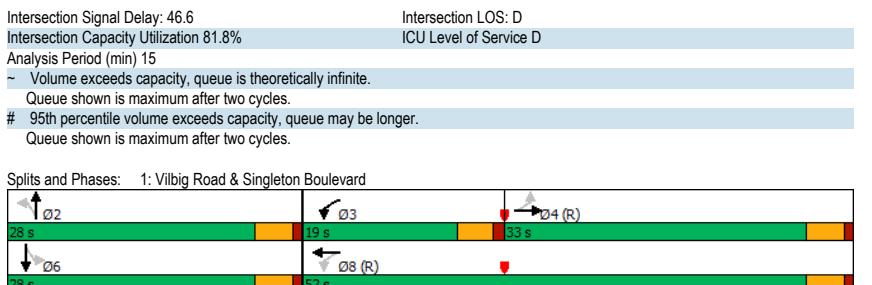
Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.24

1: Vilbig Road & Singleton Boulevard
3859-17.399

Horizon
Timing Plan: AM



1: Vilbig Road & Singleton Boulevard
3859-17.399

Horizon
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	45	764	102	235	872	93	52	33	97	115	116	60
Future Volume (vph)	45	764	102	235	872	93	52	33	97	115	116	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	830	111	255	948	101	57	36	105	125	126	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	941	0	255	1049	0	0	198	0	0	316	0
Turn Type	pm+pt	NA	pm+pt	NA		Perm	NA		Perm	NA		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	12.0	30.0		12.0	30.0		18.0	18.0		18.0	18.0	
Total Split (%)	20.0%	50.0%		20.0%	50.0%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Efft Green (s)	31.8	25.6		35.4	30.9			13.5			13.5	
Actuated g/C Ratio	0.53	0.43		0.59	0.52			0.22			0.22	
v/c Ratio	0.14	0.63		0.68	0.58			0.53			0.97	
Control Delay	5.6	15.3		19.3	12.8			17.7			69.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.6	15.3		19.3	12.8			17.7			69.2	
LOS	A	B		B	B			B			E	
Approach Delay		14.8			14.0			17.7			69.2	
Approach LOS		B			B			B			E	
Queue Length 50th (ft)	6	128		34	145			34			107	
Queue Length 95th (ft)	15	185		#120	212			90			#252	
Internal Link Dist (ft)		223			617			752			91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	390	1500		375	1806			375			326	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.13	0.63		0.68	0.58			0.53			0.97	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

1: Vilbig Road & Singleton Boulevard
3859-17.399

Horizon
Timing Plan: PM

Intersection Signal Delay: 20.8

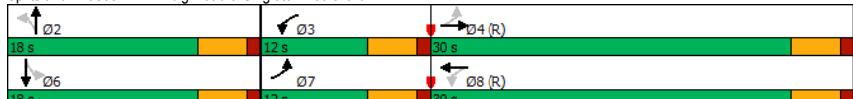
Intersection LOS: C
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Background - Improvements
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	24	11	463	4	52	0	31	3	2	6
Traffic Volume (vph)	5	878	24	11	463	4	52	0	31	3	2	6
Future Volume (vph)	5	878	24	11	463	4	52	0	31	3	2	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	954	26	12	503	4	57	0	34	3	2	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	980	0	12	507	0	0	91	0	0	12	0
Turn Type	Perm	NA										
Protected Phases							4			8		2
Permitted Phases								2			6	
Detector Phase	4	4		8	8			2		2	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	48.0	48.0		48.0	48.0		32.0	32.0		32.0	32.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Efft Green (s)	31.8	31.8		31.8	31.8			39.2			39.2	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.49			0.49	
v/c Ratio	0.02	0.70		0.10	0.36			0.12			0.01	
Control Delay	8.4	16.2		14.7	16.9			9.7			10.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.4	16.2		14.7	16.9			9.7			10.1	
LOS	A	B		B	B			A			B	
Approach Delay		16.1			16.8			9.7			10.1	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	1	111		4	91			14			1	
Queue Length 95th (ft)	m1	m93		13	105			46			12	
Internal Link Dist (ft)		590			105			242			161	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	414	1919		158	1923			757			819	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.51		0.08	0.26			0.12			0.01	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

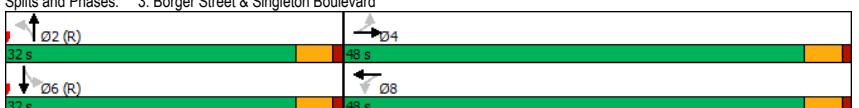
Maximum v/c Ratio: 0.70

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Background - Improvements
Timing Plan: AM

Intersection Signal Delay: 15.9
Intersection LOS: B
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 13.5

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖↗			↖↗		↑	↑			↖↗	
Traffic Vol, veh/h	130	98	48	4	115	112	68	236	24	12	87	30
Future Vol, veh/h	130	98	48	4	115	112	68	236	24	12	87	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	141	107	52	4	125	122	74	257	26	13	95	33
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	14.4			12.5			14.2			11.3		
HCM LOS	B			B			B			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	47%	2%	9%
Vol Thru, %	0%	91%	36%	50%	67%
Vol Right, %	0%	9%	17%	48%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	260	276	231	129
LT Vol	68	0	130	4	12
Through Vol	0	236	98	115	87
RT Vol	0	24	48	112	30
Lane Flow Rate	74	283	300	251	140
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.141	0.494	0.487	0.396	0.242
Departure Headway (Hd)	6.872	6.298	5.847	5.681	6.22
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	520	568	612	628	572
Service Time	4.645	4.071	3.925	3.764	4.314
HCM Lane V/C Ratio	0.142	0.498	0.49	0.4	0.245
HCM Control Delay	10.8	15.1	14.4	12.5	11.3
HCM Lane LOS	B	C	B	B	B
HCM 95th-tile Q	0.5	2.7	2.7	1.9	0.9

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Background - Improvements
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	11	652	55	30	1004	6	38	1	29	3	0	10
Future Volume (vph)	11	652	55	30	1004	6	38	1	29	3	0	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	709	60	33	1091	7	41	1	32	3	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	769	0	33	1098	0	0	74	0	0	14	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8		2		2		6		6
Detector Phase	4	4		8	8					6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	27.1	27.1		27.1	27.1			23.9		23.9		
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.40		0.40		
v/c Ratio	0.09	0.48		0.13	0.69			0.12		0.02		
Control Delay	6.9	8.1		9.4	15.0			9.6		3.8		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	6.9	8.1		9.4	15.0			9.6		3.8		
LOS	A	A		A	B			A		A		
Approach Delay		8.1			14.9			9.6		3.8		
Approach LOS		A			B			A		A		
Queue Length 50th (ft)	2	57		6	150			9		0		
Queue Length 95th (ft)	m3	68		18	183			35		7		
Internal Link Dist (ft)		587			81			181		88		
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	150	1846		286	1857			632		659		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.08	0.42		0.12	0.59			0.12		0.02		

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

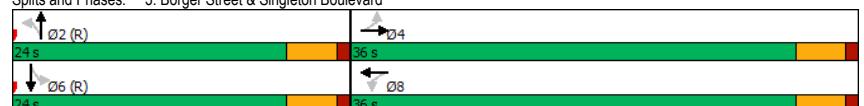
Maximum v/c Ratio: 0.69

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Background - Improvements
Timing Plan: PM

Intersection Signal Delay: 12.0
Intersection LOS: B
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 12.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑			↔	
Traffic Vol, veh/h	33	133	62	33	61	7	13	45	13	13	319	40
Future Vol, veh/h	33	133	62	33	61	7	13	45	13	13	319	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	145	67	36	66	8	14	49	14	14	347	43
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	11.3			9.9			9.3			14.8		
HCM LOS	B			A			A			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	14%	33%	3%
Vol Thru, %	0%	78%	58%	60%	86%
Vol Right, %	0%	22%	27%	7%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	58	228	101	372
LT Vol	13	0	33	33	13
Through Vol	0	45	133	61	319
RT Vol	0	13	62	7	40
Lane Flow Rate	14	63	248	110	404
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.026	0.103	0.364	0.173	0.574
Departure Headway (Hd)	6.561	5.894	5.285	5.672	5.109
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	546	608	682	632	708
Service Time	4.299	3.632	3.318	3.712	3.135
HCM Lane V/C Ratio	0.026	0.104	0.364	0.174	0.571
HCM Control Delay	9.5	9.3	11.3	9.9	14.8
HCM Lane LOS	A	A	B	A	B
HCM 95th-tile Q	0.1	0.3	1.7	0.6	3.7

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Buildout - Improvements
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↓	↑	↑↓	↓	↑	↑↓	↓	↑	↑↓	↓
Traffic Volume (vph)	5	878	41	23	463	4	103	0	67	3	2	6
Future Volume (vph)	5	878	41	23	463	4	103	0	67	3	2	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	954	45	25	503	4	112	0	73	3	2	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	999	0	25	507	0	0	185	0	0	12	0
Turn Type	Perm	NA										
Protected Phases							4		8		2	
Permitted Phases								2			6	
Detector Phase									2		6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	48.0	48.0		48.0	48.0		32.0	32.0		32.0	32.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	32.3	32.3		32.3	32.3			38.7			38.7	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.48			0.48	
v/c Ratio	0.02	0.70		0.22	0.35			0.25			0.01	
Control Delay	8.2	15.7		18.4	16.5			11.8			10.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.2	15.7		18.4	16.5			11.8			10.4	
LOS	A	B		B	B			B			B	
Approach Delay		15.7			16.5			11.8			10.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	1	92		8	88			38			1	
Queue Length 95th (ft)	m1	m94		23	104			95			12	
Internal Link Dist (ft)		590			105			242			161	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	416	1914		153	1923			728			800	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.52		0.16	0.26			0.25			0.01	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

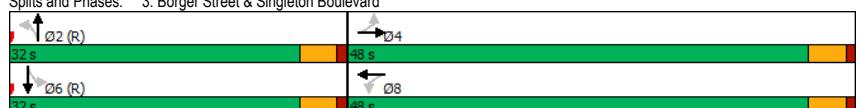
Maximum v/c Ratio: 0.70

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Buildout - Improvements
Timing Plan: AM

Intersection Signal Delay: 15.5
Intersection LOS: B
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 13.8

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑			↔	
Traffic Vol, veh/h	132	98	48	4	115	114	68	238	24	17	92	35
Future Vol, veh/h	132	98	48	4	115	114	68	238	24	17	92	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	143	107	52	4	125	124	74	259	26	18	100	38
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	14.8			12.9			14.6			11.8		
HCM LOS	B			B			B			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	47%	2%	12%
Vol Thru, %	0%	91%	35%	49%	64%
Vol Right, %	0%	9%	17%	49%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	262	278	233	144
LT Vol	68	0	132	4	17
Through Vol	0	238	98	115	92
RT Vol	0	24	48	114	35
Lane Flow Rate	74	285	302	253	157
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.142	0.503	0.497	0.413	0.277
Departure Headway (Hd)	7.039	6.464	6.035	5.864	6.366
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	512	561	601	618	567
Service Time	4.739	4.164	4.035	3.864	4.383
HCM Lane V/C Ratio	0.145	0.508	0.502	0.409	0.277
HCM Control Delay	10.9	15.5	14.8	12.9	11.8
HCM Lane LOS	B	C	B	B	B
HCM 95th-tile Q	0.5	2.8	2.8	2	1.1

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Buildout - Improvements
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑↓		↑	↑↓		↑	↑↓	
Traffic Volume (vph)	11	652	112	70	1004	6	72	1	52	3	0	10
Future Volume (vph)	11	652	112	70	1004	6	72	1	52	3	0	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	709	122	76	1091	7	78	1	57	3	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	831	0	76	1098	0	0	136	0	0	14	0
Turn Type	Perm	NA										
Protected Phases		4				8			2			6
Permitted Phases		4				8			2			6
Detector Phase		4				8			2			6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	27.5	27.5		27.5	27.5			23.5			23.5	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.39			0.39	
v/c Ratio	0.09	0.52		0.34	0.68			0.22			0.02	
Control Delay	6.6	8.0		13.7	14.7			10.0			3.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.6	8.0		13.7	14.7			10.0			3.9	
LOS	A	A		B	B			B			A	
Approach Delay		8.0			14.6			10.0			3.9	
Approach LOS		A			B			B			A	
Queue Length 50th (ft)	2	58		16	147			18			0	
Queue Length 95th (ft)	m3	m73		40	183			55			7	
Internal Link Dist (ft)		587			81			181			88	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	153	1840		259	1857			617			646	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.08	0.45		0.29	0.59			0.22			0.02	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

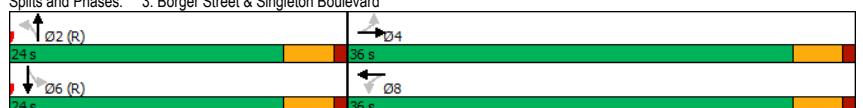
Maximum v/c Ratio: 0.68

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 1 Buildout - Improvements
Timing Plan: PM

Intersection Signal Delay: 11.7
Intersection LOS: B
Intersection Capacity Utilization 57.3%
ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 13.1

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↔			↔	
Traffic Vol, veh/h	39	133	62	33	61	13	13	51	13	16	322	44
Future Vol, veh/h	39	133	62	33	61	13	13	51	13	16	322	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	145	67	36	66	14	14	55	14	17	350	48
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	11.7			10.1			9.5			15.6		
HCM LOS	B			B			A			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	17%	31%	4%
Vol Thru, %	0%	80%	57%	57%	84%
Vol Right, %	0%	20%	26%	12%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	64	234	107	382
LT Vol	13	0	39	33	16
Through Vol	0	51	133	61	322
RT Vol	0	13	62	13	44
Lane Flow Rate	14	70	254	116	415
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.026	0.116	0.379	0.185	0.596
Departure Headway (Hd)	6.637	5.985	5.369	5.719	5.166
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	539	598	669	626	698
Service Time	4.382	3.729	3.407	3.765	3.197
HCM Lane V/C Ratio	0.026	0.117	0.38	0.185	0.595
HCM Control Delay	9.6	9.5	11.7	10.1	15.6
HCM Lane LOS	A	A	B	B	C
HCM 95th-tile Q	0.1	0.4	1.8	0.7	4

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Background - Improvements
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↓	↑	↑↓	↓	↑	↑↓	↓	↑	↓	↑
Traffic Volume (vph)	5	886	41	23	466	4	103	0	67	3	2	6
Future Volume (vph)	5	886	41	23	466	4	103	0	67	3	2	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	963	45	25	507	4	112	0	73	3	2	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1008	0	25	511	0	0	185	0	0	12	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		2		2		6		6
Detector Phase	4	4		8	8		2	2		6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5		22.5
Total Split (s)	48.0	48.0		48.0	48.0		32.0	32.0		32.0		32.0
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%		40.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5		3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max		C-Max
Act Effct Green (s)	32.6	32.6		32.6	32.6			38.4			38.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.48			0.48	
v/c Ratio	0.02	0.70		0.22	0.35			0.26			0.02	
Control Delay	8.2	15.6		18.3	16.3			12.0			10.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.2	15.6		18.3	16.3			12.0			10.5	
LOS	A	B		B	B			B			B	
Approach Delay		15.5			16.4			12.0			10.5	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	1	92		8	89			39			1	
Queue Length 95th (ft)	m1	m94		23	105			95			12	
Internal Link Dist (ft)		590			105			242			161	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	414	1914		152	1923			722			794	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.53		0.16	0.27			0.26			0.02	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

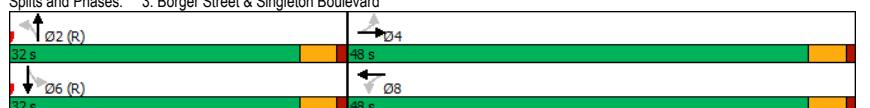
Maximum v/c Ratio: 0.70

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Background - Improvements
Timing Plan: AM

Intersection Signal Delay: 15.4
Intersection LOS: B
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 14.1

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↖		↑	↑			↖	
Traffic Vol, veh/h	133	99	49	4	116	115	68	240	24	17	93	35
Future Vol, veh/h	133	99	49	4	116	115	68	240	24	17	93	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	145	108	53	4	126	125	74	261	26	18	101	38
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	15.3			13.1			14.8			11.9		
HCM LOS	C			B			B			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	47%	2%	12%
Vol Thru, %	0%	91%	35%	49%	64%
Vol Right, %	0%	9%	17%	49%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	264	281	235	145
LT Vol	68	0	133	4	17
Through Vol	0	240	99	116	93
RT Vol	0	24	49	115	35
Lane Flow Rate	74	287	305	255	158
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.143	0.509	0.513	0.418	0.28
Departure Headway (Hd)	7.083	6.508	6.048	5.892	6.403
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	509	557	599	613	561
Service Time	4.783	4.208	4.059	3.903	4.437
HCM Lane V/C Ratio	0.145	0.515	0.509	0.416	0.282
HCM Control Delay	11	15.8	15.3	13.1	11.9
HCM Lane LOS	B	C	C	B	B
HCM 95th-tile Q	0.5	2.9	2.9	2.1	1.1

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Background - Improvements
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↓	↑	↑↓	↓	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	11	657	112	70	1013	6	72	1	53	3	0	10
Future Volume (vph)	11	657	112	70	1013	6	72	1	53	3	0	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	714	122	76	1101	7	78	1	58	3	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	836	0	76	1108	0	0	137	0	0	14	0
Turn Type	Perm	NA										
Protected Phases		4				8			2			6
Permitted Phases	4			8			2		2		6	
Detector Phase	4	4		8	8		2		2		6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	27.7	27.7		27.7	27.7			23.3		23.3		
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.39		0.39		
v/c Ratio	0.09	0.51		0.33	0.68			0.22		0.02		
Control Delay	6.6	7.7		13.6	14.6			10.0		3.9		
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		
Total Delay	6.6	7.7		13.6	14.6			10.0		3.9		
LOS	A	A		B	B			B		A		
Approach Delay		7.7			14.5			10.0		3.9		
Approach LOS		A			B			B		A		
Queue Length 50th (ft)	2	59		16	148			19		0		
Queue Length 95th (ft)	m3	m74		40	185			55		7		
Internal Link Dist (ft)		587			81			181		88		
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	151	1839		259	1857			612		640		
Starvation Cap Reductn	0	0		0	0			0		0		
Spillback Cap Reductn	0	0		0	0			0		0		
Storage Cap Reductn	0	0		0	0			0		0		
Reduced v/c Ratio	0.08	0.45		0.29	0.60			0.22		0.02		

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

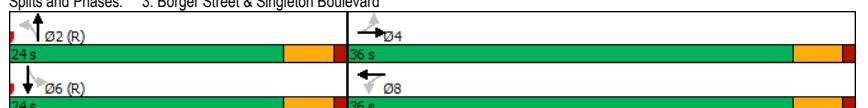
Maximum v/c Ratio: 0.68

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Background - Improvements
Timing Plan: PM

Intersection Signal Delay: 11.5
Intersection LOS: B
ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 13.3

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↔			↔	
Traffic Vol, veh/h	39	135	62	34	61	13	13	51	13	17	325	44
Future Vol, veh/h	39	135	62	34	61	13	13	51	13	17	325	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	147	67	37	66	14	14	55	14	18	353	48
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	11.8			10.1			9.5			15.8		
HCM LOS	B			B			A			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	17%	31%	4%
Vol Thru, %	0%	80%	57%	56%	84%
Vol Right, %	0%	20%	26%	12%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	64	236	108	386
LT Vol	13	0	39	34	17
Through Vol	0	51	135	61	325
RT Vol	0	13	62	13	44
Lane Flow Rate	14	70	257	117	420
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.026	0.116	0.384	0.187	0.604
Departure Headway (Hd)	6.661	6.008	5.389	5.746	5.181
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	537	596	667	623	696
Service Time	4.405	3.752	3.426	3.789	3.211
HCM Lane V/C Ratio	0.026	0.117	0.385	0.188	0.603
HCM Control Delay	9.6	9.5	11.8	10.1	15.8
HCM Lane LOS	A	A	B	B	C
HCM 95th-tile Q	0.1	0.4	1.8	0.7	4.1

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Buildout - Improvements
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	33	20	493	4	78	0	57	3	2	6
Traffic Volume (vph)	5	963	33	20	493	4	78	0	57	3	2	6
Future Volume (vph)	5	963	33	20	493	4	78	0	57	3	2	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1047	36	22	536	4	85	0	62	3	2	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1083	0	22	540	0	0	147	0	0	12	0
Turn Type	Perm	NA										
Protected Phases												
Permitted Phases	4				8			2			6	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	48.0	48.0		48.0	48.0		32.0	32.0		32.0	32.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	34.6	34.6		34.6	34.6			36.4			36.4	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.46			0.46	
v/c Ratio	0.02	0.71		0.20	0.35			0.21			0.02	
Control Delay	7.8	15.4		16.6	15.1			11.3			11.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.8	15.4		16.6	15.1			11.3			11.4	
LOS	A	B		B	B			B			B	
Approach Delay		15.3			15.2			11.3			11.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	1	111		7	91			27			1	
Queue Length 95th (ft)	m1	m103		20	104			74			12	
Internal Link Dist (ft)		590			105			242			161	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	402	1918		139	1923			701			757	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.56		0.16	0.28			0.21			0.02	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

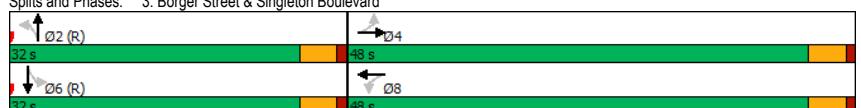
Maximum v/c Ratio: 0.71

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Buildout - Improvements
Timing Plan: AM

Intersection Signal Delay: 14.9
Intersection LOS: B
Intersection Capacity Utilization 49.6%
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 14.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑			↔	
Traffic Vol, veh/h	136	99	49	4	116	117	68	243	24	25	100	43
Future Vol, veh/h	136	99	49	4	116	117	68	243	24	25	100	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	148	108	53	4	126	127	74	264	26	27	109	47
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	16			13.6			15.5			12.7		
HCM LOS	C			B			C			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	48%	2%	15%
Vol Thru, %	0%	91%	35%	49%	60%
Vol Right, %	0%	9%	17%	49%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	267	284	237	168
LT Vol	68	0	136	4	25
Through Vol	0	243	99	116	100
RT Vol	0	24	49	117	43
Lane Flow Rate	74	290	309	258	183
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.147	0.531	0.53	0.431	0.329
Departure Headway (Hd)	7.159	6.585	6.178	6.025	6.48
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	501	549	583	598	553
Service Time	4.903	4.328	4.219	4.07	4.53
HCM Lane V/C Ratio	0.148	0.528	0.53	0.431	0.331
HCM Control Delay	11.1	16.6	16	13.6	12.7
HCM Lane LOS	B	C	C	B	B
HCM 95th-tile Q	0.5	3.1	3.1	2.2	1.4

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Buildout - Improvements
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	42	712	53	232	811	82	23	31	114	100	107	55
Future Volume (vph)	42	712	53	232	811	82	23	31	114	100	107	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	774	58	252	882	89	25	34	124	109	116	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	832	0	252	971	0	0	183	0	0	285	0
Turn Type	pm+pt	NA	pm+pt	NA		Perm	NA		Perm	NA		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	12.0	30.0		12.0	30.0		18.0	18.0		18.0	18.0	
Total Split (%)	20.0%	50.0%		20.0%	50.0%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	
Act Effct Green (s)	31.8	25.7		35.4	30.9			13.5			13.5	
Actuated g/C Ratio	0.53	0.43		0.59	0.52			0.22			0.22	
v/c Ratio	0.12	0.55		0.61	0.54			0.41			0.86	
Control Delay	5.4	14.4		18.5	6.0			10.8			48.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.4	14.4		18.5	6.0			10.8			48.8	
LOS	A	B		B	A			B			D	
Approach Delay	13.9				8.6			10.8			48.8	
Approach LOS	B				A			B			D	
Queue Length 50th (ft)	5	111		39	46			17			92	
Queue Length 95th (ft)	15	160		m97	71			63			#218	
Internal Link Dist (ft)		223			617			752			91	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	416	1507		414	1807			450			331	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.55		0.61	0.54			0.41			0.86	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

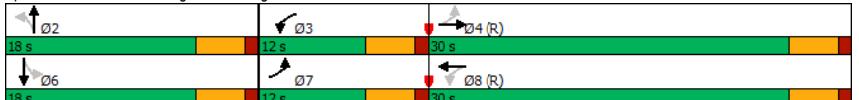
Maximum v/c Ratio: 0.86

1: Vilbig Road & Singleton Boulevard
3859-17.399

Phase 2 Buildout - Improvements
Timing Plan: PM

Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 73.6%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1: Vilbig Road & Singleton Boulevard



3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Buildout - Improvements
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	11	708	83	58	1096	6	55	1	46	3	0	10
Future Volume (vph)	11	708	83	58	1096	6	55	1	46	3	0	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	770	90	63	1191	7	60	1	50	3	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	860	0	63	1198	0	0	111	0	0	14	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		2		2		6		6
Detector Phase	4	4		8	8		2	2		6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5		22.5
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0		24.0
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%		40.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5		3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max		C-Max
Act Effct Green (s)	28.6	28.6		28.6	28.6			22.4			22.4	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.37			0.37	
v/c Ratio	0.10	0.51		0.27	0.71			0.19			0.02	
Control Delay	7.5	8.0		11.9	14.8			9.9			3.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.5	8.0		11.9	14.8			9.9			3.9	
LOS	A	A		B	B			A			A	
Approach Delay		8.0			14.6			9.9			3.9	
Approach LOS		A			B			A			A	
Queue Length 50th (ft)	2	61		12	156			15			0	
Queue Length 95th (ft)	m3	m86		33	208			46			7	
Internal Link Dist (ft)		587			81			181			88	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	137	1843		254	1856			595			618	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.09	0.47		0.25	0.65			0.19			0.02	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

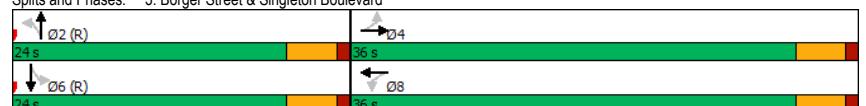
Maximum v/c Ratio: 0.71

3: Borger Street & Singleton Boulevard
3859-17.399

Phase 2 Buildout - Improvements
Timing Plan: PM

Intersection Signal Delay: 11.8
Intersection LOS: B
Intersection Capacity Utilization 58.2%
ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 14.1

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑			↔	
Traffic Vol, veh/h	47	135	62	34	61	21	13	59	13	22	330	49
Future Vol, veh/h	47	135	62	34	61	21	13	59	13	22	330	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	147	67	37	66	23	14	64	14	24	359	53
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	12.3			10.4			9.8			17.1		
HCM LOS	B			B			A			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	19%	29%	5%
Vol Thru, %	0%	82%	55%	53%	82%
Vol Right, %	0%	18%	25%	18%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	72	244	116	401
LT Vol	13	0	47	34	22
Through Vol	0	59	135	61	330
RT Vol	0	13	62	21	49
Lane Flow Rate	14	78	265	126	436
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.027	0.133	0.406	0.204	0.637
Departure Headway (Hd)	6.772	6.134	5.506	5.822	5.264
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	527	583	652	614	684
Service Time	4.527	3.889	3.553	3.878	3.302
HCM Lane V/C Ratio	0.027	0.134	0.406	0.205	0.637
HCM Control Delay	9.7	9.8	12.3	10.4	17.1
HCM Lane LOS	A	A	B	B	C
HCM 95th-tile Q	0.1	0.5	2	0.8	4.6

3: Borger Street & Singleton Boulevard
3859-17.399

Background - Improvements
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑↓		↑	↑↓		↑	↑↓	
Traffic Volume (vph)	5	988	34	20	503	4	79	0	58	3	2	6
Future Volume (vph)	5	988	34	20	503	4	79	0	58	3	2	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1074	37	22	547	4	86	0	63	3	2	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1111	0	22	551	0	0	149	0	0	12	0
Turn Type	Perm	NA										
Protected Phases												
Permitted Phases	4				8			2			6	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	48.0	48.0		48.0	48.0		32.0	32.0		32.0	32.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	35.3	35.3		35.3	35.3			35.7			35.7	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.45			0.45	
v/c Ratio	0.02	0.71		0.20	0.35			0.22			0.02	
Control Delay	7.6	15.1		16.5	14.8			11.6			11.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.6	15.1		16.5	14.8			11.6			11.6	
LOS	A	B		B	B			B			B	
Approach Delay		15.0			14.8			11.6			11.6	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	1	102		6	91			29			1	
Queue Length 95th (ft)	m1	m102		20	105			76			12	
Internal Link Dist (ft)		590			105			242			161	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	399	1918		134	1923			688			742	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.58		0.16	0.29			0.22			0.02	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

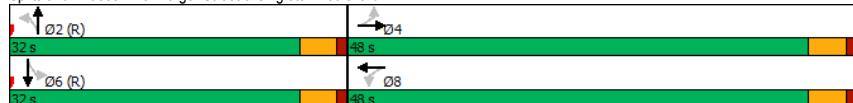
Maximum v/c Ratio: 0.71

3: Borger Street & Singleton Boulevard
3859-17.399

Background - Improvements
Timing Plan: AM

Intersection Signal Delay: 14.7
Intersection LOS: B
Intersection Capacity Utilization 50.5%
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 15.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑			↔	
Traffic Vol, veh/h	139	102	50	4	120	121	70	250	25	25	102	43
Future Vol, veh/h	139	102	50	4	120	121	70	250	25	25	102	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	111	54	4	130	132	76	272	27	27	111	47
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	16.8			14.2			16.2			13		
HCM LOS	C			B			C			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	48%	2%	15%
Vol Thru, %	0%	91%	35%	49%	60%
Vol Right, %	0%	9%	17%	49%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	275	291	245	170
LT Vol	70	0	139	4	25
Through Vol	0	250	102	120	102
RT Vol	0	25	50	121	43
Lane Flow Rate	76	299	316	266	185
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.153	0.554	0.551	0.453	0.339
Departure Headway (Hd)	7.249	6.673	6.271	6.12	6.601
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	495	541	576	589	543
Service Time	4.998	4.422	4.317	4.169	4.66
HCM Lane V/C Ratio	0.154	0.553	0.549	0.452	0.341
HCM Control Delay	11.3	17.5	16.8	14.2	13
HCM Lane LOS	B	C	C	B	B
HCM 95th-tile Q	0.5	3.4	3.3	2.3	1.5

3: Borger Street & Singleton Boulevard
3859-17.399

Background - Improvements
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↓	↑	↑↓	↓	↑	↑↓	↓	↑	↓	↑
Traffic Volume (vph)	12	724	84	58	1124	6	56	1	46	3	0	11
Future Volume (vph)	12	724	84	58	1124	6	56	1	46	3	0	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	787	91	63	1222	7	61	1	50	3	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	878	0	63	1229	0	0	112	0	0	15	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2		6	
Detector Phase	4	4		8	8		2		2		6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	28.9	28.9		28.9	28.9			22.1			22.1	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.37			0.37	
v/c Ratio	0.11	0.52		0.28	0.72			0.19			0.02	
Control Delay	7.8	7.9		12.0	14.8			10.0			4.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.8	7.9		12.0	14.8			10.0			4.3	
LOS	A	A		B	B			A			A	
Approach Delay	7.9			14.7				10.0			4.3	
Approach LOS	A			B				A			A	
Queue Length 50th (ft)	2	61		12	160			15			0	
Queue Length 95th (ft)	m3	m91		34	216			47			8	
Internal Link Dist (ft)		587			81			181			88	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	134	1843		248	1856			585			608	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.48		0.25	0.66			0.19			0.02	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

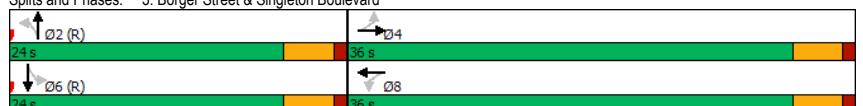
Maximum v/c Ratio: 0.72

3: Borger Street & Singleton Boulevard
3859-17.399

Background - Improvements
Timing Plan: PM

Intersection Signal Delay: 11.8
Intersection LOS: B
Intersection Capacity Utilization 59.3%
ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 14.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑			↔	
Traffic Vol, veh/h	47	139	64	35	63	21	14	60	14	22	340	50
Future Vol, veh/h	47	139	64	35	63	21	14	60	14	22	340	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	151	70	38	68	23	15	65	15	24	370	54
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	12.6			10.6			10			18.2		
HCM LOS	B			B			A			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	19%	29%	5%
Vol Thru, %	0%	81%	56%	53%	83%
Vol Right, %	0%	19%	26%	18%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	74	250	119	412
LT Vol	14	0	47	35	22
Through Vol	0	60	139	63	340
RT Vol	0	14	64	21	50
Lane Flow Rate	15	80	272	129	448
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.029	0.138	0.42	0.212	0.661
Departure Headway (Hd)	6.84	6.196	5.567	5.9	5.31
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	522	577	644	605	681
Service Time	4.602	3.957	3.62	3.962	3.352
HCM Lane V/C Ratio	0.029	0.139	0.422	0.213	0.658
HCM Control Delay	9.8	10	12.6	10.6	18.2
HCM Lane LOS	A	A	B	B	C
HCM 95th-tile Q	0.1	0.5	2.1	0.8	5

3: Borger Street & Singleton Boulevard
3859-17.399

Buildout - Improvements
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	5	1040	32	26	519	4	75	0	75	3	2	6
Future Volume (vph)	5	1040	32	26	519	4	75	0	75	3	2	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1130	35	28	564	4	82	0	82	3	2	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1165	0	28	568	0	0	164	0	0	12	0
Turn Type	Perm	NA										
Protected Phases												
Permitted Phases	4				8			2			6	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	48.0	48.0		48.0	48.0		32.0	32.0		32.0	32.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	36.7	36.7		36.7	36.7			34.3			34.3	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.43			0.43	
v/c Ratio	0.02	0.72		0.26	0.35			0.24			0.02	
Control Delay	7.4	15.2		18.3	13.9			11.2			12.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.4	15.2		18.3	13.9			11.2			12.2	
LOS	A	B		B	B			B			B	
Approach Delay		15.2			14.1			11.2			12.2	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	1	157		8	90			29			1	
Queue Length 95th (ft)	m1	m105		24	105			79			13	
Internal Link Dist (ft)		590			105			242			161	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	394	1917		126	1923			679			711	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.61		0.22	0.30			0.24			0.02	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

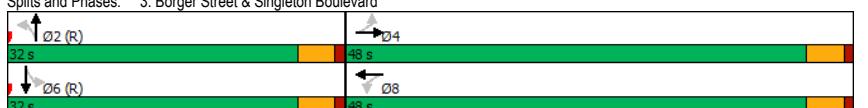
Maximum v/c Ratio: 0.72

3: Borger Street & Singleton Boulevard
3859-17.399

Buildout - Improvements
Timing Plan: AM

Intersection Signal Delay: 14.5
Intersection LOS: B
Intersection Capacity Utilization 52.7%
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 16.2

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↔			↔	
Traffic Vol, veh/h	142	102	50	4	120	123	70	253	25	34	111	51
Future Vol, veh/h	142	102	50	4	120	123	70	253	25	34	111	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	154	111	54	4	130	134	76	275	27	37	121	55
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	17.8			14.8			16.9			14.1		
HCM LOS	C			B			C			B		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	48%	2%	17%
Vol Thru, %	0%	91%	35%	49%	57%
Vol Right, %	0%	9%	17%	50%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	278	294	247	196
LT Vol	70	0	142	4	34
Through Vol	0	253	102	120	111
RT Vol	0	25	50	123	51
Lane Flow Rate	76	302	320	268	213
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.156	0.572	0.571	0.469	0.396
Departure Headway (Hd)	7.387	6.812	6.433	6.29	6.697
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	485	529	559	572	535
Service Time	5.144	4.568	4.492	4.352	4.765
HCM Lane V/C Ratio	0.157	0.571	0.572	0.469	0.398
HCM Control Delay	11.5	18.3	17.8	14.8	14.1
HCM Lane LOS	B	C	C	B	B
HCM 95th-tile Q	0.5	3.6	3.6	2.5	1.9

3: Borger Street & Singleton Boulevard
3859-17.399

Buildout - Improvements
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	12	755	78	75	1174	6	53	1	57	3	0	11
Future Volume (vph)	12	755	78	75	1174	6	53	1	57	3	0	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	821	85	82	1276	7	58	1	62	3	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	906	0	82	1283	0	0	121	0	0	15	0
Turn Type	Perm	NA										
Protected Phases		4			8			2			6	
Permitted Phases	4			8		2		2		6		6
Detector Phase	4	4		8	8					6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Efft Green (s)	29.6	29.6		29.6	29.6			21.4			21.4	
Actuated g/C Ratio	0.49	0.49		0.49	0.49			0.36			0.36	
v/c Ratio	0.11	0.52		0.36	0.74			0.21			0.03	
Control Delay	8.2	8.1		14.1	14.8			9.3			4.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.2	8.1		14.1	14.8			9.3			4.3	
LOS	A	A		B	B			A			A	
Approach Delay		8.1			14.7			9.3			4.3	
Approach LOS		A			B			A			A	
Queue Length 50th (ft)	2	65		16	165			15			0	
Queue Length 95th (ft)	m4	m103		45	231			47			8	
Internal Link Dist (ft)		587			81			181			88	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	131	1845		240	1856			580			589	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.49		0.34	0.69			0.21			0.03	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

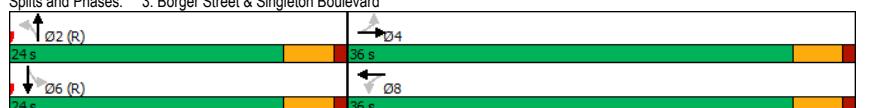
Maximum v/c Ratio: 0.74

3: Borger Street & Singleton Boulevard
3859-17.399

Buildout - Improvements
Timing Plan: PM

Intersection Signal Delay: 11.9
Intersection LOS: B
Intersection Capacity Utilization 61.0%
ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



Intersection

Intersection Delay, s/veh 15.8

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑	↑			↔	
Traffic Vol, veh/h	55	139	64	35	63	29	14	69	14	27	345	55
Future Vol, veh/h	55	139	64	35	63	29	14	69	14	27	345	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	151	70	38	68	32	15	75	15	29	375	60
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			1			1			1		
HCM Control Delay	13.3			10.9			10.2			20		
HCM LOS	B			B			B			C		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	21%	28%	6%
Vol Thru, %	0%	83%	54%	50%	81%
Vol Right, %	0%	17%	25%	23%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	83	258	127	427
LT Vol	14	0	55	35	27
Through Vol	0	69	139	63	345
RT Vol	0	14	64	29	55
Lane Flow Rate	15	90	280	138	464
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.029	0.159	0.444	0.23	0.697
Departure Headway (Hd)	6.963	6.333	5.696	5.998	5.403
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	512	564	628	595	668
Service Time	4.736	4.105	3.76	4.074	3.453
HCM Lane V/C Ratio	0.029	0.16	0.446	0.232	0.695
HCM Control Delay	9.9	10.3	13.3	10.9	20
HCM Lane LOS	A	B	B	B	C
HCM 95th-tile Q	0.1	0.6	2.3	0.9	5.6

3: Borger Street & Singleton Boulevard
3859-17.399

Horizon - Improvements
Timing Plan: AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑↓			↔				
Traffic Volume (vph)	6	1069	33	26	520	4	77	0	76	3	2	7
Future Volume (vph)	6	1069	33	26	520	4	77	0	76	3	2	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	1162	36	28	565	4	84	0	83	3	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	1198	0	28	569	0	0	167	0	0	13	0
Turn Type	Perm	NA										
Protected Phases												
Permitted Phases	4				8			2			6	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	48.0	48.0		48.0	48.0		32.0	32.0		32.0	32.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Efft Green (s)	37.4	37.4		37.4	37.4			33.6			33.6	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.42			0.42	
v/c Ratio	0.02	0.73		0.27	0.34			0.25			0.02	
Control Delay	7.3	15.0		18.8	13.5			12.0			11.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.3	15.0		18.8	13.5			12.0			11.9	
LOS	A	B		B	B			B			B	
Approach Delay		15.0			13.7			12.0			11.9	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	1	178		8	88			32			1	
Queue Length 95th (ft)	m2	m105		25	105			83			13	
Internal Link Dist (ft)		590			105			242			161	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	395	1917		120	1923			663			696	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.02	0.62		0.23	0.30			0.25			0.02	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

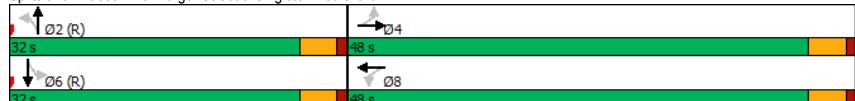
Maximum v/c Ratio: 0.73

3: Borger Street & Singleton Boulevard
3859-17.399

Horizon - Improvements
Timing Plan: AM

Intersection Signal Delay: 14.3
Intersection LOS: B
Intersection Capacity Utilization 53.7%
ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard



3: Borger Street & Singleton Boulevard
3859-17.399

Horizon - Improvements
Timing Plan: PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓	↑	↑	↑↓	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	12	784	80	76	1223	7	54	1	58	3	0	11
Future Volume (vph)	12	784	80	76	1223	7	54	1	58	3	0	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	852	87	83	1329	8	59	1	63	3	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	939	0	83	1337	0	0	123	0	0	15	0
Turn Type	Perm	NA										
Protected Phases		4				8			2			6
Permitted Phases		4				8			2			6
Detector Phase		4				8			2			6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5		4.5		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Efft Green (s)	29.9	29.9		29.9	29.9			21.1			21.1	
Actuated g/C Ratio	0.50	0.50		0.50	0.50			0.35			0.35	
v/c Ratio	0.10	0.54		0.38	0.76			0.21			0.03	
Control Delay	8.4	8.2		14.9	15.3			9.3			4.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.4	8.2		14.9	15.3			9.3			4.3	
LOS	A	A		B	B			A			A	
Approach Delay		8.2			15.3			9.3			4.3	
Approach LOS		A			B			A			A	
Queue Length 50th (ft)	2	67		16	176			15			0	
Queue Length 95th (ft)	m4	m110		48	246			47			8	
Internal Link Dist (ft)		587			81			181			88	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	131	1845		228	1856			574			582	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.51		0.36	0.72			0.21			0.03	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

3: Borger Street & Singleton Boulevard
3859-17.399

Horizon - Improvements
Timing Plan: PM

Intersection Signal Delay: 12.2
Intersection LOS: B
Intersection Capacity Utilization 62.6%
ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Borger Street & Singleton Boulevard

